
Project: ii-3641 Norristown Public Library

Cutsheet Package

Generated on August 06, 2025

Total Cutsheets: 34

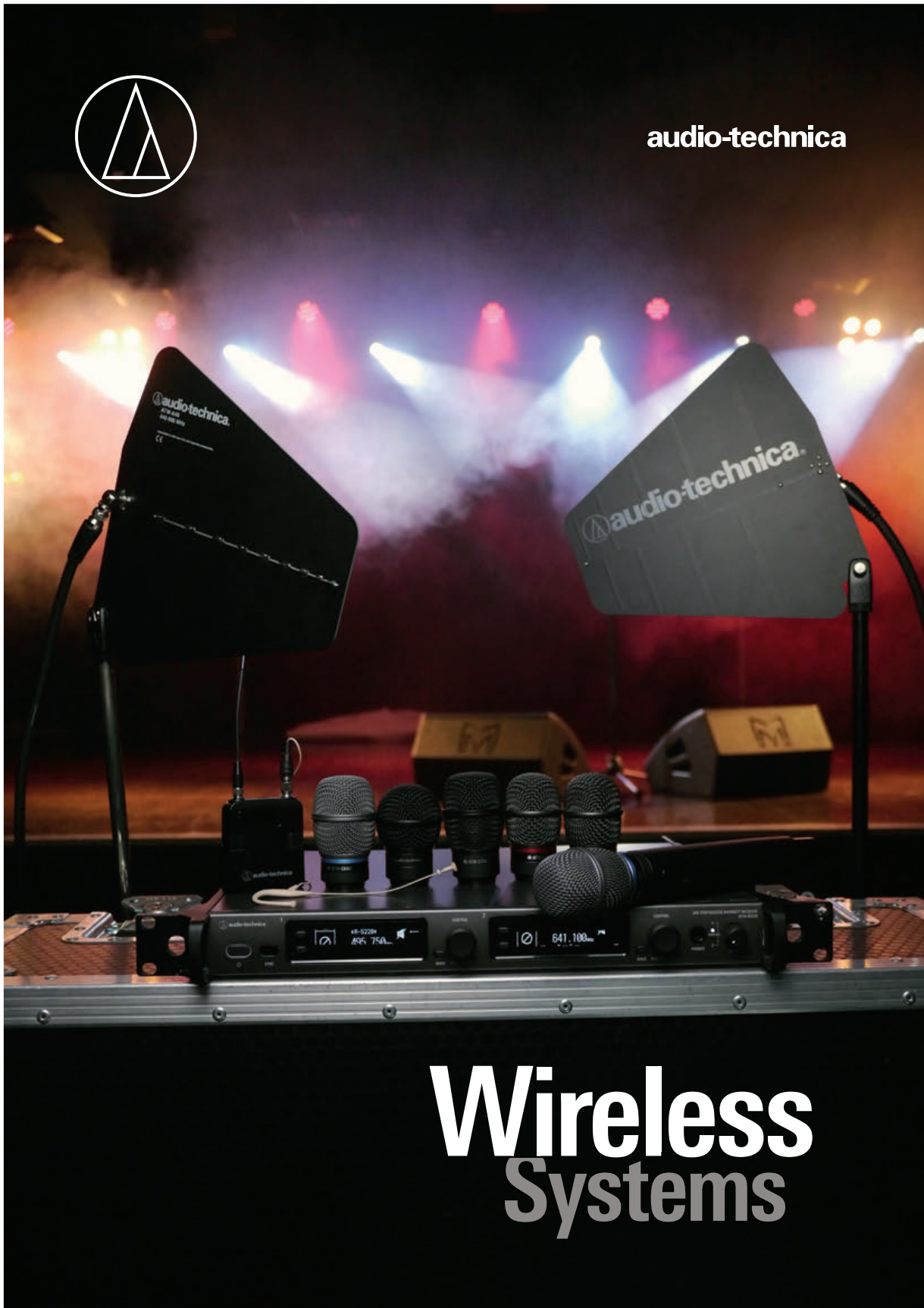
Index of Cutsheets

Project: ii-3641 Norristown Public Library

1. Audio_Technica_ATW-3211_831DE2	3
2. Barco_R9861611USB2	47
3. Chief_TS318TU	49
4. Chief_TS525TU	51
5. Clear_Touch_Interactive_CTI-6075A-UH40	55
6. Clear_Touch_Interactive_CTI-STAND-CONM-V3	57
7. Crestron_GLS-PART-CN	60
8. CyberPower_OR500LCDRM1U	63
9. Hanwha_Techwin_QND-8011	66
10. LG_Electronics_32LN340CBUD	70
11. LG_Electronics_UR340c9_Series	74
12. Middle_Atlantic_EWR-16-17SD	80
13. Middle_Atlantic_PD-915R-PL	82
14. Netgear_GSM4212P-100NAS	84
15. Netgear_XSM4316PB-100NES	147
16. QSC_AC_C6T	207
17. QSC_CORE_24f	210
18. QSC_NC-12x80	214
19. QSC_NV-1-H-WE	217
20. QSC_NV-21-HU	219
21. QSC_PS-TSCG3-G	223
22. QSC_SPA-Qf_60x2	225
23. QSC_TSC-70-G3	228
24. QSC_TSC-710t-G3	230
25. Quam_Speakers_BB2URS	232
26. Quam_Speakers_SYSTEM_2	233
27. Quam_Speakers_SYSTEM_5	234
28. Quam_Speakers_SYSTEM_6VPS	235



29. RF_Venue_D-ARCB	236
30. Sanus_VXF730-B2	237
31. Sharp_NEC_Display_Solutions_V484-T	239
32. Shure_MXA920W-S	243
33. Shure_SLX-D_series	249
34. Shure_WL185MB_C-TQG	257





Wireless Systems

WIRELESS INTRODUCTION

WIRELESS ATW-C	4
WIRELESS MANAGER - FREQUENCY	6
WIRELESS SERIES OVERVIEW	7

WIRELESS SYSTEMS

5000 Series	8
3000 Series	10
2000 Series	14
AT-One	16
System 10 / System 10 PRO	18
Antennas	22
Accessories	24
cH/cW Mic Summary	25-27

WIRELESS APPLICATIONS

Application 1 - Dual-channel wireless system	28
Application 2 - Single-channel wireless system covering two zones	29
Application 3 - Multiple zones wireless system	30
Application 4 - Four-channel wireless system	32
Application 5 - Multi-channel wireless system for install	34
Application 6 - 16-channel wireless system using ATW-DA49a	36
Application 7 - 16-channel wireless system using daisy chain	38
Application 8 - 64-channel wireless system / 256-channel wireless system	40
Radio Equipment Directive (RED) - Restrictions	42-43

WIRELESS SYSTEMS / ATW-C

/ Interchangeable
Microphone
Capsules (IMC)



/ Handheld
Transmitter Body
ATW-T5202

/ Handheld
Transmitter Body
ATW-T3202

/ Cardioid
Condenser
ATW-C5400

/ Cardioid
Condenser
ATW-C3300

/ Hypercardioid
Dynamic
ATW-C6100

/ Cardioid
Dynamic
ATW-C4100

/ Cardioid
Condenser
ATW-C710

/ Cardioid
Dynamic
ATW-C510



Interchangeable Microphone Capsules
compatible with last generation 3000 and
5000 Series wireless handheld transmitters

All interchangeable microphone capsules can be used with **ATW-T5202**
and **ATW-T3202** handheld transmitters. Its industry-standard thread
allows use with other compatible handheld transmitters.

Condenser microphones capsules **ATW-C5400** and **ATW-C3300**
an heritage from the world acclaimed Studio microphones **AT4050** and **AT4033**.




Same sound
characteristics as the
renowned **AT4050**
studio microphone
offering extreme clarity
and realism.

/ Interchangeable Cardioid
Condenser Microphone Capsule
ATW-C5400




Same element as the
classic **AT4033a** studio
microphone offering
extreme clarity
and realism.

/ Interchangeable Cardioid
Condenser Microphone Capsule
ATW-C3300

Clean, Crisp and Accurate

Transparent uppers/mids and rich low-end qualities are
combined with advanced acoustic engineering
for extensive performance abilities and a clean, crisp
and accurate sound reproduction, even at high SPLs.

Warm and Flattering Sound

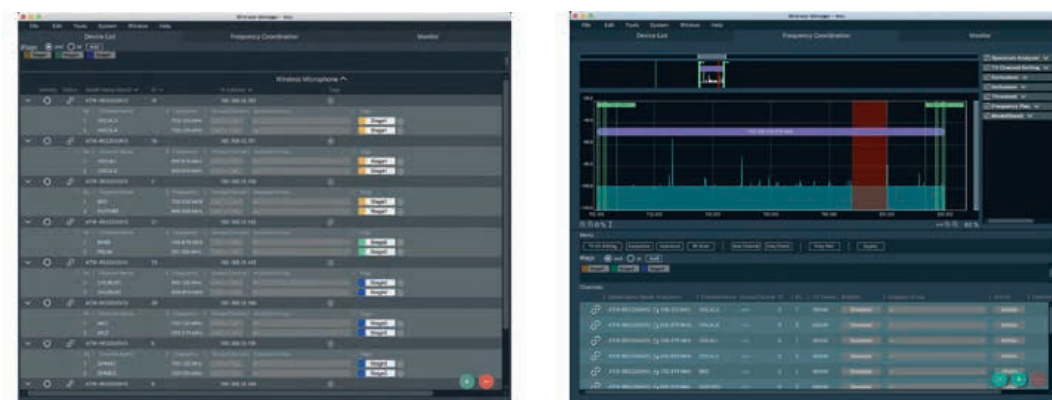
The AT4033a produces a warm and flattering sound that
brings the versatility of a dynamic microphone,
as well as the transparency and detail of a high-end
capacitor model for a vintage effect.



WIRELESS SYSTEMS / WIRELESS MANAGER

Everything under control

The Wireless Manager software supports the setup, control, and monitoring of compatible Audio-Technica wireless devices. The software allows you to determine device settings, make and coordinate frequency plans while offline, and configure import settings whilst connected to wireless systems via network connection. When linked to a compatible receiver, you can scan the RF environment, monitor connected devices, and view the system log.



WIRELESS SYSTEMS / FREQUENCY

Audio-Technica - Frequency bands versus wireless series

[illegible]

Note that some frequency bands might not be available in country or region in which you live, or could come with a limited tuning bandwidth/transmitting power due to local regulations.

SERIES OVERVIEW / WIRELESS SYSTEMS

/ Frequency-Agile
True Diversity UHF
5000 Series



Designed for use on professional tours, in stadiums, concert halls and festivals with incredible audio quality and proven, critically acclaimed performance for artists, broadcasters and presenters.

/ Frequency-Agile
True Diversity UHF
3000 Series



3000 Series systems have an operating range of 100m and are available in several frequency bands that provide a wide tuning range.

/ Frequency-Agile
True Diversity UHF
2000 Series



Easy to use, flexible to setup, medium - large channel counts, rock solid RF.

/ Antenna Switching Diversity
UHF Wireless Systems
AT-One



Easy to use, for small channel counts, medium operating range, case and rackmount, fairly easy setup.

/ Rack-Mount
Digital Wireless Systems
System 10 Pro



Easy to use, easy to setup remote receiver unit allows professional fixed installations, license-free, no frequency coordination needed.

/ Rack-Mount
Digital Wireless Systems
System 10



Easy to use, easy to setup, license-free, no frequency coordination needed. Short range allows usage of another System 10 setup in an adjacent room.

	Performance					Live Sound				Install			Broadcast & Production			
	Operating range	Indoor range	Outdoor range	Rec. Channel Count	Analog / Digital	Hobby music	Prof. music	Rental company	Theater	School / house of worship /	Corporate / hotel conference room	Large venues / Stadium	Broadcast studio	ENG	Live sport	Film & Location sound
5000 Series	100 m	●●●●	●●●●	> 40	A	○	○○○	○○○	○○○	○	○○○	○○○	○○○		○○○	○○
3000 Series	100 m	●●●●	●●●●	40	A	○○	○○○	○○○	○○○	○○	○○○	○○○	○		○○○	○○
System 10 Pro	60 m	●●●	●	10	D	○○	○○	○		○○	○○○					
System 10	30 m	●●	●	8	D	○○○	○○	○		○○○	○			○○		○
2000 Series	100 m	●●●●	●●●●	30	A	○○	○	○○	○○	○○○	○○○	○				
AT-One	60 m	●●●	●●●	4	A	○○○	○	○	○	○○○	○○○					

WIRELESS SYSTEMS / 5000 SERIES



5000 Series

Frequency-Agile True Diversity UHF Wireless Systems

Comprehensive tuning bandwidth

For maximum versatility in ever-congested RF environment, the dual-channel receiver provides a tuning bandwidth of 230 MHz or 120 MHz (depending on frequency band). Both transmitters (ATW-T5202 and ATW-T5201) feature a tuning bandwidth of 120 MHz and are available in different frequency ranges to provide complete coverage of the receiver's bandwidth. This allows the user to set up systems with high channel counts, whilst offering the flexibility to tune to open spectrum wherever you travel.

Dual compander for incredible audio quality

Designed for use on professional tours, in stadiums, concert halls, festivals and other demanding audio environments, the Audio-Technica 5000 Series offers the highest-quality wireless live sound, with dual-compander circuitry that processes high and low frequencies separately for unparalleled frequency response and dynamic range.

Designed for professionals

The body-pack transmitter provides highest possible wearing comfort due to its small size - 64 mm × 70 mm × 17 mm, robust and ergonomic full metal body with concealed soft-touch controls, rugged cH-style connector for secure connection - just to name a few features that meet the needs of professional users.

High channel count

The antenna cascade output connects up to 8 receivers, allowing a single pair of antennas to feed 16 channels of wireless.



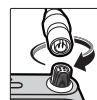
Dante®



Network



Interchangeable
Capsules



cH-Connector

5000 SERIES / WIRELESS SYSTEMS



/ Dante® Receiver
ATW-R5220DAN



/ Receiver
ATW-R5220



/ Body-Pack Transmitter
ATW-T5201



cH-style screw-down
4-pin connector for secure
connection to A-T's cH-style
lavalier and headworn
microphones, or cables.



/ Interchangeable
Microphone Capsules (IMC)
(see page 4)



/ Handheld Transmitter Body
ATW-T5202

5000 Series

Operating Frequencies	Receiver: Band DG1: 470.125 to 699.875 MHz Band GH1: 700.125 to 819.875 MHz Transmitter: Band DE1: 470.125 to 590.000 MHz Band EG1: 580.000 to 699.875 MHz Band GH1: 700.125 to 819.875 MHz
Minimum Frequency Step	25 kHz
Modulation Mode	FM
Operating Range	100 m

ATW-R5220/ATW-R5220DAN

Receiving System	True diversity
Image Rejection	80 dB nominal
Sensitivity	18 dBuV at 60 dBA S/N ratio (50 ohms termination)
Maximum Output Level	XLR, balanced, +18 dBV
Headphone Output	6.3 mm (1/4") TRS stereo 180 mW, typical
Antenna Input	BNC-type, 50 ohms 12 V DC, 150 mA (combined)

ATW-T5201

Frequency Response	23 to 16,300 Hz
Dynamic Range	Mic input: 120 dB or higher (A-weighted), typical Inst input: 107 dB or higher (A-weighted), typical
Input Connection	cH-style screw-down 4-pin connector
Spurious Emissions	Following federal and national regulations
Maximum Deviation	±40 kHz (THD:10%)
Total Harmonic Distortion	1.0 % or less (at 1 kHz, ±17.5 kHz deviation)
RF Power Output	High: 50 mW, Mid: 10 mW, Low: 2 mW (switchable), at 50 ohms
Battery Life	High: 7 hours, Mid: 9 hours, Low: 10.5 hours (alkaline)
Dimensions	64 mm × 70 mm × 17 mm (W × D × H)
Net Weight	Approx. 92 g

ATW-T5202

Frequency Response	33 to 16,300 Hz Depending on attached microphone element
Dynamic Range	116 dB or higher (A-weighted), typical
Microphone Element	Interchangeable industry standard thread
Spurious Emissions	Following federal and national regulations
Maximum Deviation	±40 kHz (THD:10%)
Total Harmonic Distortion	1.0 % or less (at 1 kHz, ±17.5 kHz deviation)
RF Power Output	High: 50 mW, Mid: 10 mW, Low: 2 mW (switchable), at 50 ohms
Battery Life	High: 6.5 hours, Mid: 8 hours, Low: 9.5 hours (alkaline)
Dimensions	193 mm long, 37 mm maximum diameter
Net Weight	200 g

WIRELESS SYSTEMS / 3000 SERIES



3000 Series

Frequency-Agile True Diversity UHF Wireless Systems

60 MHz tuning bandwidth

The 3000 Series systems are available in several different frequency bands, and each features a wide 60 MHz tuning range. This allows the user to set up systems with high channel counts, whilst offering the flexibility to tune to open spectrum wherever you travel. Frequencies can be easily scanned and selected on the receiver and then synced with the transmitter via IR sync functionality.

Backup frequency button

Unique multifunction button on the handheld and body-pack transmitters can be used to switch to a backup frequency (on both transmitter and receiver) should interference be encountered.



Network



Charging
contacts



Interchangeable
Capsules



cH-Connector

3000 SERIES / WIRELESS SYSTEMS



front



back

/ Receiver
ATW-R3210



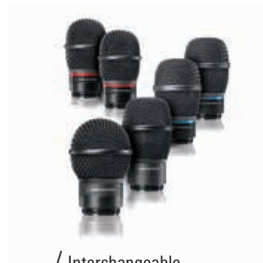
back

/ Network-Enabled Receiver
ATW-R3210N



/ Body-Pack Transmitter
ATW-T3201

cH-style screw-down
4-pin connector for secure
connection to A-T's cH-style
lavalier and headworn
microphones, or cables.



/ Interchangeable
Microphone Capsules (IMC)
(see page 4)



/ Handheld Transmitter Body
ATW-T3202





One power supply feeds up to five chargers

Up to five docks can be connected to one power supply (AD-SA1230XA - available separately) to charge a maximum of ten transmitters (per link one AT8687 is required - available separately).

Monitoring and controlling

The ATW-CHG3N networked version of the charging dock allows users to monitor the charging status of all transmitters in the linked docks (per link one AT8687 is required - available separately). Only the first dock must be an ATW-CHG3N, all linked docks (up to four) must be ATW-CHG3.

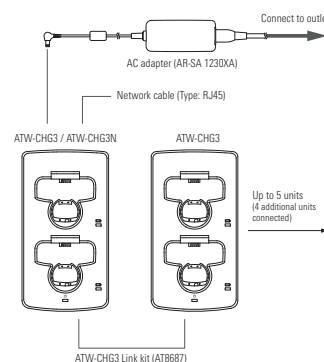
Protection against misuse

The dock automatically shuts off if alkaline or damaged batteries are detected in the transmitters.



/ Two-Bay Charging Station
ATW-CHG3

/ Two-Bay Networked Charging Station
ATW-CHG3N

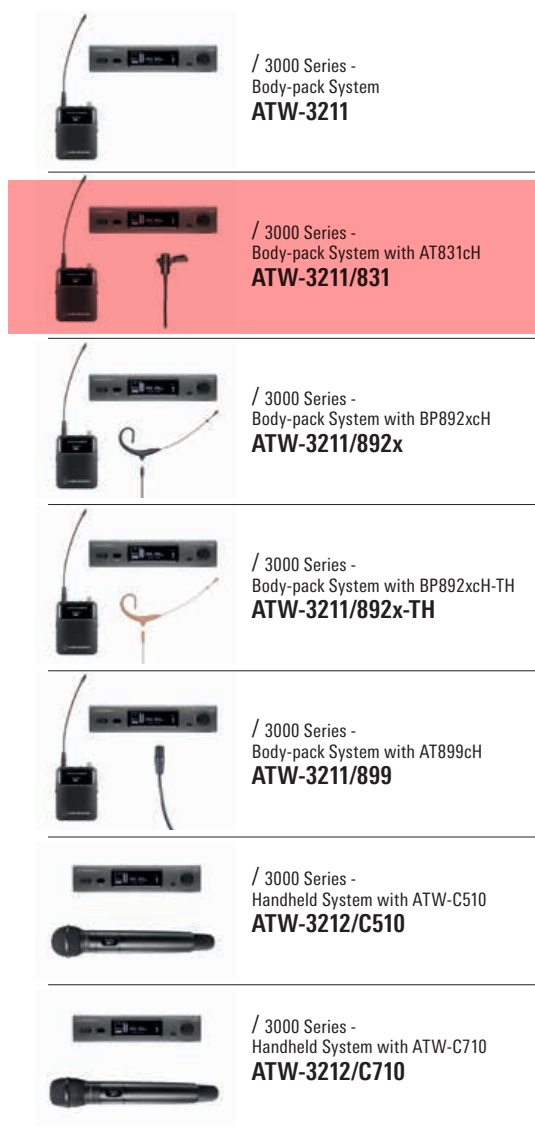


3000 SERIES / SYSTEM CONFIGURATIONS / WIRELESS SYSTEMS



ATW-CHG3 Charging Station

Charging Time	Approx. 6.5 hours (1,900 mAh rechargeable battery)*
Power Supply	DC12V 3.0A
Power Consumption	4.9W (when 2 transmitters are charging) 27.4W (CHG3×5) (5 units are connected and 10 transmitters are charging)
Weight	400 g
Accessories	Separately available - AC adapter (AD-SA1230XA), ATW-CHG3 Link kit (AT8687)



3000 Series

Operating Frequencies	Band DE2: 470.125 to 529.975 MHz Band EE1: 530.000 to 589.975 MHz Band EF1: 590.000 to 649.975 MHz Band FG1: 650.000 to 699.875 MHz Band GH2: 794.100 to 805.900 MHz Band HH2: 821.100 to 831.900 MHz and 863.100 to 864.900 MHz
------------------------------	--

Minimum Frequency Step	25 kHz
Modulation Mode	FM
Operating Range	100 m

ATW-R3210/ATW-R3210N

Receiving System	True diversity
Image Rejection	60 dB nominal
Sensitivity	20 dBuV at 60 dBA S/N ratio (50 ohms termination)
Maximum Output Level	XLR, balanced, +14 dBV 6.3 mm (1/4), unbalanced: +8 dBV (ATW-R3210 only)
Antenna Input	BNC-type, 50 ohms 12 V DC, 160 mA (combined)

ATW-T3201

Frequency Response	31 to 15,500 Hz
Dynamic Range	Mic input: 115 dB or higher (A-weighted), typical Inst input: 112 dB or higher (A-weighted), typical
Input Connection	cH-style screw-down 4-pin connector
Spurious Emissions	Following federal and national regulations
Maximum Deviation	±38 kHz (THD:10%)
Total Harmonic Distortion	1.0 % or less (at 1 kHz, ±17.5 kHz deviation)
RF Power Output	High: 30 mW, Low: 10 mW (switchable), at 50 ohms
Battery Life	High: 8 hours, Low: 9 hours (alkaline) High: 9 hours, Low: 9.5 hours (Ni-MH 1900mAh)
Dimensions	64 mm × 82 mm × 23 mm (W × D × H)
Net Weight	Approx. 102 g

ATW-T3202

Frequency Response	25 to 16,700 Hz Depending on attached microphone element
Dynamic Range	115 dB or higher (A-weighted), typical
Microphone Element	Interchangeable industry standard thread
Spurious Emissions	Following federal and national regulations
Maximum Deviation	±36 kHz (THD:10%)
Total Harmonic Distortion	1.0 % or less (at 1 kHz, ±17.5 kHz deviation)
RF Power Output	High: 30 mW, Low: 10 mW (switchable), at 50 ohms
Battery Life	High: 8 hours, Low: 9 hours (alkaline) High: 9 hours, Low: 9.5 hours (Ni-MH 1900mAh)
Dimensions	193 mm long, 37 mm maximum diameter
Net Weight	200 g

WIRELESS SYSTEMS / 2000 SERIES



Easy to use

Easy setup, automatic scanning and other advanced wireless features - affordable as never before. Though the 2000b system is designed for professional use, the user does not need special training to operate it. Once unboxed, it's ready to roll! Standard automatic frequency scanning finds and sets the best available channel at the touch of a button. Using multiple wireless systems simultaneously, as any of its 10 preset channels can be used together.

12V antenna power

The ATW-R2100b receiver delivers a bias voltage of 12V / 60mA from each BNC antenna input, enabling the use of antenna boosters or other active components.



Charging
contacts



cW-Connector

2000 SERIES / SYSTEM CONFIGURATIONS / WIRELESS SYSTEMS



front



back

/ Receiver
ATW-R2100b



Locking 4-pin microphone
connector for use with
Audio-Technica cW-style wireless
body-pack transmitters.

/ Body-pack Transmitter
ATW-T210a



/ Two-Bay Recharging Station
ATW-CHG2



/ Handheld Transmitter
ATW-T220a

2000 Series

Operating Frequencies	I Band: 487.125 to 506.500 MHz U Band: 606.500 to 631.000 MHz D Band: 656.125 to 678.500 MHz F Band: 854.900 to 864.900 MHz
Max. Number of Channels	10
Modulation Mode	FM
Operating Range	100 m

ATW-R2100b

Receiving System	True diversity
Image Rejection	55 dB nominal, 50 dB minimum
Sensitivity	20dBµV (S/N 60dB at 5 kHz deviation, IEC-weighted)
Maximum Output Level	XLR, balanced, +14 dBV - 6.3 mm (1/4), unbalanced: +8 dBV
Antenna Input	BNC-type, 50 ohms 12 V DC, 60 mA (each)

ATW-T210a

Frequency Response	100 to 15,500 Hz
Dynamic Range	110 dB or higher (A-weighted), typical
Input Connection	cH-style screw-down 4-pin connector
Spurious Emissions	Following federal and national regulations
Maximum Deviation	±40 kHz (THD:10%)
Total Harmonic Distortion	1.0 % or less (at 1 kHz, ±17.5 kHz deviation)
RF Power Output	High: 30 mW, Low: 10 mW (switchable)
Battery Life	High: 7 hours, Low: 9 hours (alkaline)
Dimensions	66 mm × 92 mm × 23 mm (W × D × H)
Net Weight	Approx. 81 g

ATW-T220a

Frequency Response	100 to 15,000 Hz
Dynamic Range	110 dB or higher (A-weighted), typical
Microphone Element	Cardioid, dynamic
Spurious Emissions	Following federal and national regulations
Maximum Deviation	±40 kHz (THD:10%)
Total Harmonic Distortion	1.0 % or less (at 1 kHz, ±20 kHz deviation)
RF Power Output	High: 30 mW, Low: 10 mW (switchable)
Battery Life	High: 7 hours, Low: 9 hours (alkaline)
Dimensions	232 mm long, 48 mm maximum diameter
Net Weight	252 g

/ 2000 Series - Body-pack System
ATW-2110b

/ 2000 Series - Body-pack System with AT-GcW
ATW-2110b/G

/ 2000 Series - Body-pack System with PR08HEcW
ATW-2110b/H

/ 2000 Series - Body-pack System with ATM75cW
ATW-2110b/HC1

/ 2000 Series - Body-pack System with ATM73cW
ATW-2110b/HC2

/ 2000 Series - Body-pack System with AT829cW
ATW-2110b/P

/ 2000 Series - Body-pack System with AT899cW
ATW-2110b/P1

/ 2000 Series - Body-pack System with AT831cW
ATW-2110b/P2

/ 2000 Series - Body-pack System with MT838cW
ATW-2110b/P3

/ 2000 Series - Handheld System
ATW-2120b

WIRELESS SYSTEMS / AT-ONE



AT-One

Wireless System

Easy to use

AT-One is designed with simplicity and ease-of-use in mind. Equipped with a practical carrying case, rack-mount kit and detachable antenna, AT-One is the perfect balance of price and performance, ideal for those looking for accurate, reliable performance at an entry-level price. The AT-One's frequency plan is divided into two groups with four available channels in each group. All four channels in a group can be used simultaneously.

Cardioid condenser capsule – induction loop ready

The condenser microphone capsule in the ATW-T1 handheld transmitter prevents inductive feedback from nearby hearing loops.

12V antenna power

The ATW-R1 receiver delivers a bias voltage of 12V / 100mA from each BNC antenna input, enabling the use of antenna boosters or other active components.

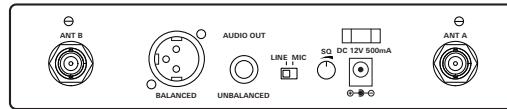


cW-Connector

AT-ONE / SYSTEM CONFIGURATIONS / WIRELESS SYSTEMS



front



back



/ Body-pack Transmitter
ATW-T1

/ Receiver
ATW-R1



/ Handheld Transmitter
ATW-T3

AT-One

Operating Frequencies	Band DE3: 482.625 to 511.375 MHz Band HH2: 824.400 to 830.850 MHz 8 863.300 to 864.700 MHz
Max. Number of Channels	2 x 4
Modulation Mode	FM
Operating Range	60 m

ATW-R1

Receiving System	Antenna switching diversity
Image Rejection	55 dB minimum
Sensitivity	10 dBμV (S/N 60 dB @ 20 kHz deviation)
Maximum Output Level	XLR, balanced, +4 dBV - 6.3 mm (1/4), unbalanced: -2 dBV
Antenna Input	BNC-type, 50 ohms 12 V DC, 100 mA (each)

ATW-T1

Frequency Response	60 to 16,000 Hz
Dynamic Range	103 dB or higher (A-weighted), typical
Input Connection	cW-style lock-down 4-pin connector
Spurious Emissions	Following federal and national regulations
Maximum Deviation	±40 kHz (THD:10%)
Total Harmonic Distortion	1.0 % or less (at 1 kHz, -20 kHz deviation)
RF Power Output	10 mW
Battery Life	10 hours (alkaline)
Dimensions	66 mm × 98 mm × 22 mm (W × D × H)
Net Weight	Approx. 71 g

ATW-T3

Frequency Response	60 to 16,000 Hz
Dynamic Range	108 dB or higher (A-weighted), typical
Microphone Element	Cardioid, condenser
Spurious Emissions	Following federal and national regulations
Maximum Deviation	±40 kHz (THD:10%)
Total Harmonic Distortion	1.0 % or less (at 1 kHz, -20 kHz deviation)
RF Power Output	10 mW
Battery Life	10 hours (alkaline)
Dimensions	268 mm long, 52 mm maximum diameter
Net Weight	277 g



/ AT-One -
Body-pack System
ATW-11



/ AT-One -
Body-pack System with AT-GcW
ATW-11/G



/ AT-One -
Body-pack System with PR09cW
ATW-11/H



/ AT-One -
Body-pack System with ATR35cW
ATW-11/P



/ AT-One -
Handheld System
ATW-13

DIGITAL WIRELESS SYSTEMS / SYSTEM 10

System 10

Digital Wireless Systems

Easy to use

System 10 is a digital high-fidelity wireless system designed to provide 24-bit operation, easy setup and clear, natural sound quality. Operating in the 2.4 GHz range, far from TV and DTV interference, System 10 offers extremely easy operation and instantaneous channel selection. Up to eight channels may be used together without any frequency coordination problems or group selection issues. System 10 receivers and transmitters offer an easy-to-read digital ID display.

Three levels of diversity assurance

System 10 provides three levels of diversity: frequency, time and space. Frequency diversity transmits the signal on two frequencies simultaneously for better protection against frequency interference. Time diversity sends the signal twice to maximise signal integrity. Finally, space diversity uses two antennas on each transmitter and receiver to optimize immunity against multipath interference.



Frequency

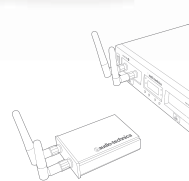


cW-Connector



System 10 PRO

Digital Wireless Systems



Featuring
Remote-Mountable
Receiver Units

A compact and expandable system

With an RJ12 cable supplied with each system, it is possible to connect up to 5 frames (10 receivers). While many systems can operate without being connected, this is not recommended. Indeed, linking the systems to create a more stable environment in which receivers are coordinated for the reception, transmission and frequency allocation avoids signal loss and optimizes the simultaneous use of the 10 channels.

SYSTEM 10 PRO / SYSTEM CONFIGURATIONS / DIGITAL WIRELESS SYSTEMS



/ Single Channel Receiver
ATW-R1310

front



/ Dual Channel Receiver
ATW-R1320

front



back



/ Body-Pack Transmitter
ATW-T1001
(specifications, see page 20)

Locking 4-pin microphone connector for use with Audio-Technica cW-style wireless body-pack transmitters.



/ Boundary Microphone Transmitter
ATW-T1006



/ Microphone Desk Stand Transmitter
ATW-T1007



/ Handheld Transmitter-
ATW-T1002
(specifications, see page 20)



/ System 10 PRO -
Rack-Mount Digital Wireless System
ATW-1301



/ System 10 PRO -
Rack-Mount Digital Wireless System
ATW-1311



/ System 10 PRO -
Rack-Mount Digital Wireless System
ATW-1312



/ System 10 PRO -
Rack-Mount Digital Wireless System
ATW-1302



/ System 10 PRO -
Rack-Mount Digital Wireless System
ATW-1322

System 10 PRO

Operating Frequencies	2.4 GHz ISM Band
Max. Number of Channels	10
Audio Sampling	24 bit / 48 kHz
Operating Range	60 m

ATW-R1310 & ATW-R1320

Receiving System	Diversity (frequency / time / space)
Maximum Output Level	XLR, balanced, +6 dBV - 6.3 mm (1/4), unbalanced: 0 dBV

ATW-T1006

Maximum Input Sound Level	139 dB SPL
RF Power Output	10 mW
Spurious Emissions	Following federal and national regulations
Internal Battery	3.7 V Rechargeable Li-ion Battery
Battery Rating	5.5 Wh; 1,460 mAh
Battery Life	9 hours (Battery charging time: 4 hours 30 minutes)
Dimensions	96.1 mm W × 38.0 mm H × 122.8 mm D
Net Weight	408 grams

ATW-T1007

RF Power Output	10 mW
Spurious Emissions	Following federal and national regulations
Phantom Power	12V DC
Internal Battery	3.7 V Rechargeable Li-ion Battery
Battery Rating	5.5 Wh; 1,460 mAh
Battery Life	9 hours (Battery charging time: 4 hours 30 minutes)
Dimensions	96.1 mm W × 44.2 mm H × 122.8 mm D
Net Weight	392 grams

ATW-T1001 & ATW-T1002 (specifications, see page 20)

DIGITAL WIRELESS SYSTEMS / SYSTEM 10 STACK-MOUNT



System 10

Digital Wireless Systems

Automatic frequency selection

The System 10 automatically changes its frequency. Unlike other systems on the market that attach to 2 or 4 frequency, the System 10 will constantly "monitor" the frequencies and switch if necessary. Thus, there are always a good 2 frequencies in the system, and the user does not need to manually intervene.



/ Receiver
ATW-R1100



Locking 4-pin microphone connector for use with Audio-Technica cW-style wireless body-pack transmitters.

/ Body-Pack Transmitter
ATW-T1001

Handheld Transmitter /
ATW-T1002



/ System 10 -
Body-pack System
ATW-1101



/ System 10 -
Handheld System
ATW-1102

System 10 - Stack-Mount

Operating Frequencies	2.4 GHz ISM Band
Max. Number of Channels	8
Audio Sampling	24 bit / 48 kHz
Operating Range	30 m

ATW-R1100

Receiving System	Diversity (frequency / time / space)
Maximum Output Level	XLR, balanced, +6 dBV - 6.3 mm (1/4), unbalanced: 0 dBV

ATW-T1001

Frequency Response	20 to 20,000 Hz
Dynamic Range	109 dB or higher (A-weighted), typical
Input Connection	cW-style lock-down 4-pin connector
Spurious Emissions	Following federal and national regulations
Total Harmonic Distortion	0.05 % or less
RF Power Output	10 mW
Battery Life	7 hours (alkaline)
Dimensions	72 mm × 107 mm × 25 mm (W × D × H)
Net Weight	Approx. 100 g

ATW-T1002

Frequency Response	20 to 20,000 Hz
Dynamic Range	109 dB or higher (A-weighted), typical
Microphone Element	Unidirectional, dynamic
Spurious Emissions	Following federal and national regulations
Total Harmonic Distortion	0.05 % or less
RF Power Output	10 mW
Battery Life	7 hours (alkaline)
Dimensions	255 mm long, 50 mm maximum diameter
Net Weight	280 g

SYSTEM 10 CAMERA-MOUNT / DIGITAL WIRELESS SYSTEMS



System 10 Camera-Mount

Portable Camera-Mount Digital Wireless Systems

Small and compact design

With its compact and portable design, the System 10 Digital Wireless Camera System is ideal for video production, reporting and all intermediate mobile applications, the receiver offers several mounting options to suit a wide variety of cameras and recording devices. Each System 10 camera mount wireless system includes a camera mounting spigot in addition to the receiver and the transmitter.



System 10 -
Camera-mount Body-pack System
ATW-1701



/ System 10 -
Camera-mount Body-pack System
with AT8350
ATW-1701x3M



/ System 10 PRO -
Camera-mount Body-pack System
with AT829cW
ATW-1701/P1



/ System 10 -
Camera-mount Handheld System
ATW-1702



/ System 10 -
Camera-mount Handheld System
with AT8350
ATW-1702x3M

/ Camera-Mount Receiver
ATW-R1700



/ Body-Pack Transmitter
ATW-T1001 (see page 20)

/ Handheld Transmitter
ATW-T1002 (see page 20)

System 10 - Camera-Mount

Operating Frequencies	2.4 GHz ISM Band
Max. Number of Channels	8
Audio Sampling	24 bit / 48 kHz
Operating Range	30 m

ATW-R1700

Receiving System	Diversity (frequency / time / space)
Maximum Output Level	3.5 mm, TRS balanced, +6 dBV 3.5 mm, TRS unbalanced: 0 dBV
Battery Type	Internal Battery: 3.7V rechargeable Li-ion battery
Battery Life	12 hours (Battery charging time: 4 hours 30 minutes)
Dimensions	56 mm × 91 mm × 28 mm (W × D × H)
Weight	Approx 105 g

ATW-T1001 & ATW-T1002 (specifications, see page 20)

WIRELESS SYSTEMS / ANTENNAS

Connected Accessory			ATW-A49	ATW-A410P	ATW-B80WB	ATW-49CB	ATW-49SP	ATW-DA49a
Current Requirement			0 mA	60mA	60mA	30mA	30mA	0 mA
Used wireless system		Current per antenna input @12V						
AT-One	ATW-R1	100 mA	+	1 pair	1 pair	2 pair	1 pair (*)	+
2000 Series	ATW-R2100	60 mA	+	1 pair	1 pair	2 pair	1 pair (*)	+
3000 Series	ATW-R3210	80 mA	+	1 pair	1 pair	2 pair	1 pair (*)	+
5000 Series	ATW-R5220	75 mA	+	1 pair	1 pair	2 pair	1 pair (*)	+
System 10	All receiver	-	-	-	-	-	-	-
Distribution amplifier	ATW-DA49A	250 mA	+	2 pair (**)	4 pair	2 pair (***)	1 pair (*)	See application 6

(*) Although possible to power more than 1 pair it is recommended to use an ATW-DA49a instead.

(**) You would require to use a pair of ATW-49CB to connect 2 pairs of antennas.

(***) 2 pairs would allow to connect 4 pairs of passive antennas (A49) - no active antennas.

Please use the above table to determine the maximum numbers of active components in the antenna cable run.

Example: AT-One (100 mA per antenna cable run) could drive 1 pair of ATW-B80WB boosters and 1 pair of ATW-49SP splitter. (60 mA + 30 mA = 90 mA).

Example: ATW-DA49a (250 mA per antenna cable run) could drive 2 pairs of ATW-A49 (0 mA), 2 pairs of ATW-B80WB boosters (2x 60mA per antenna run) and 1 pair of ATW-49CB (30 mA). Total: 2x 150 mA.

ATW-DA49a

UHF Antenna Distribution Systems



Durability

The ATW-DA49a provides a high OIP3 (+ 32 dBm) for maximum protection against intermodulation.

Specifications

ATW-DA49a	
Antenna Power (optional)	12V DC, 250 mA (combined)
Current Consumption	200 mA ± 50 mA at 12 V DC
Gain	+1.0dB typical (within specified bandwidth)
Input	2 x 1 inputs
OIP3	+32dBm typical (within specified bandwidth)
Output	2 x 4 outputs + 1 cascade output - BNC Female
Operating Bandwidth	470-990 MHz
Power Supply	100-240V AC (50/60 Hz) to 12V DC 1A (centre positive) switched mode external power supply

/ Active Antenna Combiner Kit (pair)

ATW-49CB



/ Active Antenna Splitter Kit (pair)

ATW-49SP



Specifications	ATW-49SP	ATW-49CB
Description	2-Way Active Antenna Splitter	2-Input Active Combiner
Bandwidth	440 MHz to 900 MHz	440 MHz to 900 MHz
VSWR	< 1.7:1 (within specified bandwidth)	< 1.7:1 (within specified bandwidth)
Gain	0 dB typical (within specified bandwidth)	0 dB typical (within specified bandwidth)
Impedance	50 ohms, typical (within specified bandwidth)	50 ohms, typical (within specified bandwidth)
Termination Type	3-BNC Female	3-BNC Female
Weight	51 g	51 g
Dimensions	61 mm W x 47 mm L x 23 mm H	61 mm W x 47 mm L x 23 mm H
DC Input	5-14V DC	5-14V DC
Current	30 mA @ 12V DC	30 mA @ 12V DC
Pass-through Current	100 mA	120 mA (maximum to both inputs combined)

ANTENNAS / WIRELESS SYSTEMS



/ UHF Wide-Band Directional LPDA Antennas (pair)
ATW-A49

Specifications	ATW-A49
Antenna Type	Log Periodic Dipole Array (LPDA)
Operating Bandwidth	440 – 900 MHz
Gain	6 dB typical*
Impedance	50 ohms typical*
VSWR	≤ 1.7:1*
Polar Pattern	Elliptical, 90° acceptance, typical
Polarization	Vertical (when mounted vertically)
Number of Elements	9
Maximum Power Input	Not specified (intended as receive antenna only)
Termination Type	Fixed right-angle BNC female Connector is positioned to minimize cable strain
Weight	326 g each
Dimensions	268 mm L x 285 mm H x 25 mm D
Material	Copper-clad epoxy fiberglass



/ UHF Powered Wideband Antenna (single)
ATW-A410P

Specifications	ATW-A410P
Gain	-10 dB / 0 dB / +6 dB / +12 dB
OIP3	> 30 dBm typical (within specified bandwidth)
Termination Type	BNC-J
Operating Bandwidth	470-990 MHz
Operating Temperature Range	-10°C to 50°C
Dimensions	175 x 175 x 50 mm (without bracket)
Weight	390 g (without bracket)
Accessories	Mounting bracket, screws
Impedance	50 ohms typical (within specified bandwidth)
Power Consumption	60mA



/ In-Line RF booster 470-990MHz 6dB / 12dB (pair)
ATW-B80WB

Specifications	ATW-B80WB
Connections	BNC-J (IN), BNC-J (OUT)
Power Supply	DC 12 V
Frequency Range	470 - 990 MHz
Impedance	50 ohms
Power Consumption	60mA
Gain High	+12 dB Red, +6 dB Green
Connections	BNC-J (IN), BNC-J (OUT)
Power Supply	DC 12 V



/ 0.9m RF Antenna Cable
AC3



/ 4m RF Antenna Cable
AC12



/ 8m RF Antenna Cable
AC25



/ 15m RF Antenna Cable
AC50

WIRELESS SYSTEMS / ACCESSORIES

/ Antenna Front-Mount Kit
ATW-AF1

For ATW-DA49a



/ Receiver Unit Wall-Mount Holder
AT8690

For System 10 PRO, ATW-RU13



/ 3.5 mm - XLR Cable (ATW-R1700)
AT8350



/ Dual Rack-Mount Kit
AT8677

For AT-One, ATW-R1



/ Blanking Plate
AT8675

For AT8674



/ Universal Joining Plate for AT 9.5" devices
AT8631

*For ATW-R3210, ATW-R3210N, ATW-R2100b,
ATW-R1300, ATW-R1310, ATW-R1320
and other AT 9.5" devices*



/ Camera Shoe Dual Mount
AT8691

For System 10, ATW-R1700

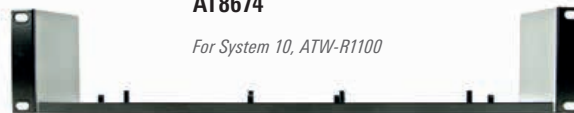


/ 3.5 mm - 3.5 mm Cable (ATW-R1700)
AT8349

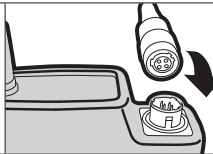


/ Rack-Mount Tray
AT8674

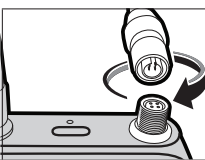
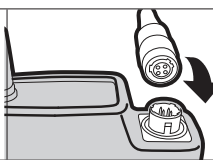
For System 10, ATW-R1100



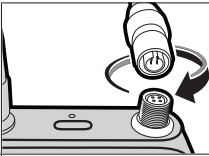
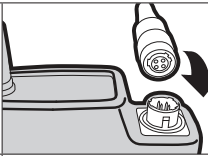
cH MIC SUMMARY / WIRELESS SYSTEMS

		cH-Version	cW-Version
			
	/ Subminiature Omnidirectional Condenser Headworn Microphone	BP892xcH & BP892xcH-TH	BP892xcW & BP892xcW-TH
	/ Subminiature Omnidirectional Condenser Headworn Microphone	BP893xcH & BP893xcH-TH	BP893xcW & BP893xcW-TH
	/ Subminiature Cardioid Condenser Headworn Microphone	BP894xcH & BP894xcH-TH	BP894xcW & BP894xcW-TH
	/ Cardioid Condenser Headworn Microphone	ATM73cH	ATM73cW
	/ Cardioid Condenser Headworn Microphone	ATM75cH	ATM75cW
	/ Hypercardioid Dynamic Headworn Microphone	PRO8HEcH	PRO8HEcW
	/ Cardioid Condenser Headworn Microphone	PRO9cH	PRO9cW
	/ Omnidirectional Condenser Headworn Microphone	PRO92cH & PRO92cH-TH	PRO92cW & PRO92cW-TH

WIRELESS SYSTEMS / cH/cW

		cH-Version	cW-Version
			
	/ Subminiature Cardioid Condenser Lavalier Microphone	AT898cH	AT898cW
	/ Subminiature Omnidirectional Condenser Lavalier Microphone	AT899cH & AT899cH-TH	AT899cW & AT899cW-TH
	/ Miniature Cardioid Condenser Lavalier Microphone	AT831cH	AT831cW
	/ Miniature Omnidirectional Condenser Lavalier Microphone	AT803cH	AT803cW
	/ Cardioid Condenser Lavalier Microphone	AT829cH	AT829cW
	/ Omnidirectional Condenser Lavalier Microphone		MT838cW
	/ Omnidirectional Condenser Lavalier Microphone	MT830cH	MT830cW
	/ Omnidirectional Condenser Lavalier Microphone		ATR35cW

cH/cW / WIRELESS SYSTEMS

		cH-Version	cW-Version
			
	/ Cardioid Condenser Instrument Microphone w/ Universal Clip-on Mounting System	ATM350UcH	ATM350UcW
	/ Cardioid Condenser Clip-on Instrument Microphone	PR035cH	PR035cW
	/ Professional Guitar Input Cable	AT-GcH PRO	AT-GcW PRO
	/ Professional Guitar Input Cable Angled	AT-GRcH PRO	AT-GRcW PRO
	/ Guitar Input Cable	AT-GcH	AT-GcW
	/ Microphone Input Cable	XLRcH	XLRW
	/ Adapter Cable	AT-cWcH	

WIRELESS SYSTEMS / APPLICATION 1

Dual-channel wireless system

When more than one wireless microphone system is required, you may find that in certain circumstances using two receivers side-by-side with individual antennas is unsuitable. For example, where the receiver needs to be placed out of sight or in a different room, such as installation for a multi-purpose venue, house of worship or a small live music performance.

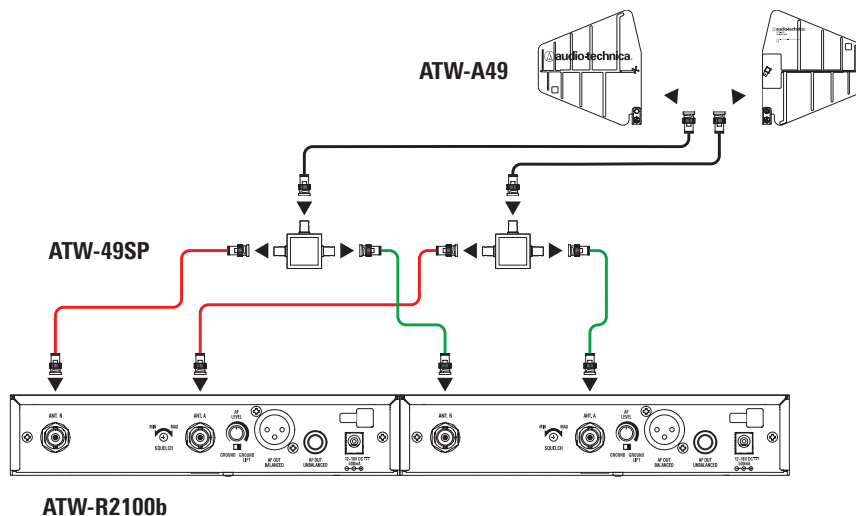
The solution is to utilise one pair of antennas placed in the room to feed both the receivers. The signal is passed from the room over two 50 Ohm RF cables to the receivers' location, where the antenna signals are split into each receiver using the ATW-49SP Active Antenna Splitter Kit.

Check the signal loss of the antenna cable, based on the frequency range of your system and the specified antenna cable length and type. Audio-Technica's wireless manager software offers a "cable loss calculation tool" to do so. If the dB loss exceeds 7 dB, you should consider including the ATW-B80WB In-Line RF Booster as each 6dB of loss across the signal chain will reduce your systems operating distance by 50%.

The ATW-A49SP is powered by the receivers across the antenna cable – no external power source is required. Though our example includes the ATW-A49 LPDA Antenna, any passive antennas can be used provided they support the frequency range of your wireless systems.

If you require an active antenna like our ATW-A410P, or other active components such as the ATW-B80WB, then check the total current consumption of the individual products (simply add their stated mA together per RF cable run) to make certain that your receiver delivers the necessary power.

Compatible Audio-Technica wireless systems for this solution include the AT-One, 2000 Series and 3000 Series.



Product table

Quantity	Code	Description	Alternative
2	ATW-R2100b	Frequency-agile True Diversity UHF Wireless Receiver	
2	ATW-T210a	2000a Series UniPak™ Transmitter	ATW-T220a Handheld Transmitter
1	ATW-A49	Pair of UHF Wide-band Directional LPDA Antennas	
1	ATW-49SP	Active Antenna Splitter Kit	
2	AC25	25'/7.6m RF Antenna Cable	AC12, AC50

APPLICATION 2 / WIRELESS SYSTEMS

Single-channel wireless system covering two zones

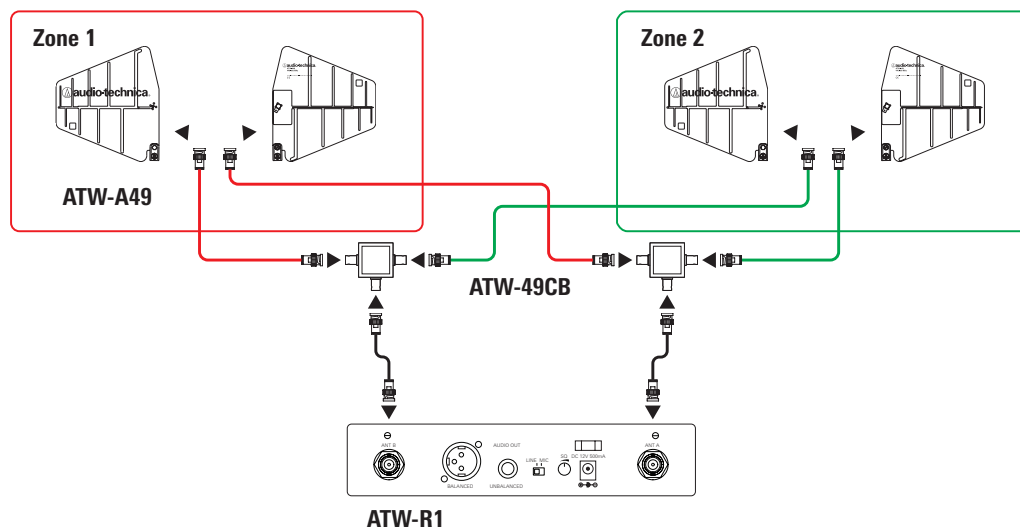
In some situations, only one wireless system is required, but there is the need to guarantee coverage over two separate areas. This, in most cases, is simply not achievable using one pair of antennas. An example of this would be when needing to cover an indoor area and its associated outdoor space, such as you may find in a restaurant, bar, or house of worship setting. Alternatively, a client may have a hotel ballroom which also divides into two multi-function areas, resulting in the need to cover the sections individually.

To achieve this solution, you will need two pairs of antennas – one pair per area requiring coverage. Then, the four antenna cables run to the receiver location, and they are combined using the ATW-49CB Active Antenna Combiner Kit. The resulting two antenna cables can then connect directly to the wireless receiver. Take care to position the ATW-49CB as close to the antennas as possible, to minimise the quantity of antenna cable required in the installation – this will improve signal integrity and reduce cost for the customer.

Refer to the notes in Application 1 for advice on specifying cable length, active antennas and boosters in the cable run.

If the receiver in use can provide adequate current, it is possible to combine Application 1 and Application 2 to create a dual-channel wireless solution with the ability to cover two zones – simply add the ATW-49SP between the ATW-49CB and the receiver.

Compatible Audio-Technica wireless systems for this solution include the AT-One, 2000 Series, 3000 Series and 5000 Series.



Product table

Quantity	Code	Description	Alternative
1	ATW-R1	Frequency-agile True Diversity UHF Wireless Receiver	
1	ATW-T1	AT-One Beltpack Transmitter	ATW-T3 Handheld Transmitter
2	ATW-A49	Pair of UHF Wide-band Directional LPDA Antennas	
1	ATW-49CB	Active Antenna Combiner Kit	
4	AC25	25/7.6m RG8 Antenna Cable	AC12, AC50

WIRELESS SYSTEMS / APPLICATION 3

Multiple zones wireless system

If you need to cover more than two areas which are in proximity of one another, or you simply need to cover one very large area, then this solution may suit your requirements. Consider the need for a wireless microphone which needs to operate throughout the areas of a shopping mall, or over the very wide area of a sports venue – such as a golf course.

Initially, you may consider using multiple pairs of antennas, combining them with multiple ATW-49CB. However, this is not usually the best approach, as you will either run into power issues or the total cable runs will become too long to compensate for incurred RF loss with signal boosters.

This application offers a more elegant solution. The concept begins with placing a wireless receiver of the same type, tuned to the same frequency, in each area with a local pair of antennas.

If you were to use these receivers alone, you could operate the transmitter in each room, provided you activate only one receiver at a time. Then, the audio signal can be sent from the active receiver to the local speaker system as needed. In this scenario, you must manually switch off or mute the unused receivers in order to avoid erratic audio signals being output whilst the wireless transmitter is out of range.

In most cases, this option is not practical. It may not be possible to continually ensure unused receivers are switched off between uses, or a project may demand that the wireless transmitter must work across all areas freely – without continual adjustment by a technician.

The solution is to add the ATDM-0604 Digital SmartMixer. Simply connect the audio signals from each receiver to the ATDM-0604 and set the unit to Smart Mix mode, making sure to allow only one open microphone at a time. This way, a receiver remains active in the mixer until an audio drop out occurs, which will trigger the mixer to automatically switch to the receiver featuring the most reliable signal. With this solution, you can combine up to six areas, whilst creating one reliable output signal.

Check Application 1 for important information on total cable length, active antennas or using boosters in your antenna cable run. It is possible to combine Application 3 with Application 2 in some or all zones to increase the area of coverage even further. Also, it is possible to combine Application 3 with Application 4. In this case, you will require one ATDM mixer for each wireless microphone you want to use.

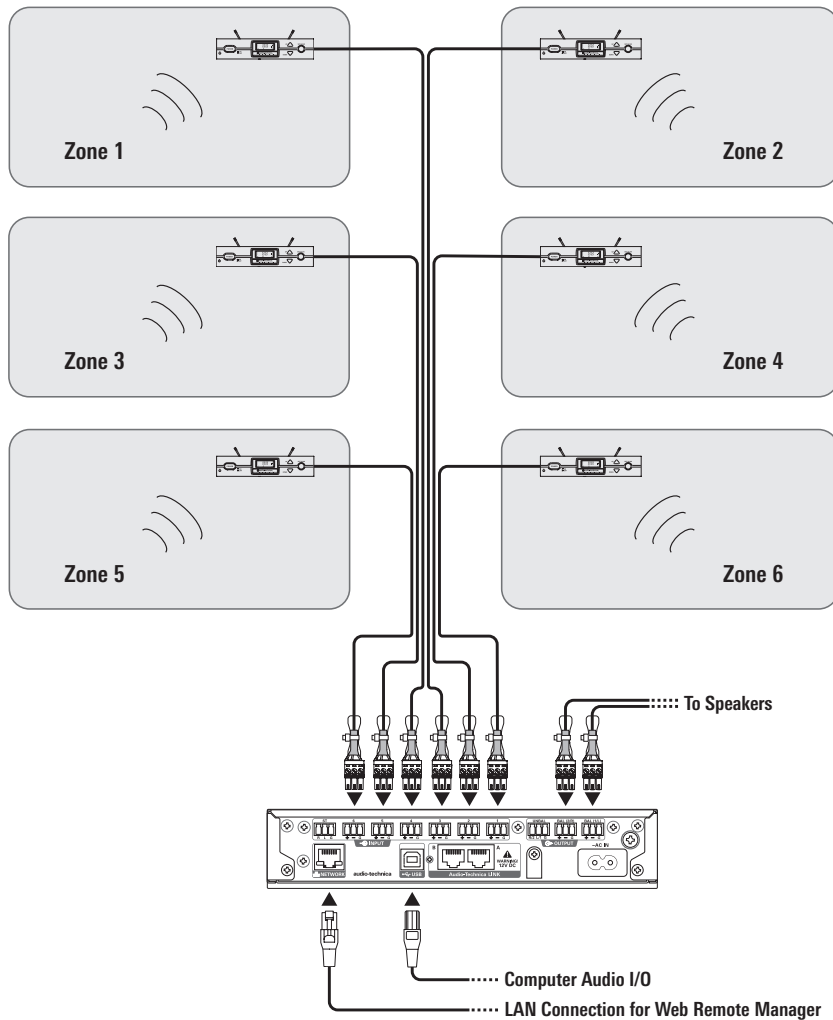
Compatible Audio-Technica wireless systems for this solution include the AT-One, 2000 Series and 3000 Series.



Product table

Quantity	Code	Description	Alternative
6	ATW-R2100b	Frequency-Agile True Diversity UHF Wireless Receiver	
1	ATW-T210a	2000 Series Beltpack Transmitter	ATW-T220a Handheld Transmitter
1	ATDM-0604	Digital SmartMixer	

APPLICATION 3 / WIRELESS SYSTEMS



Equipment used

ATDM-0604

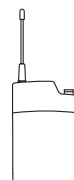


6 x ATW-R2100b



ATW-T210a

1 x



ATW-T220a

or



WIRELESS SYSTEMS / APPLICATION 4

Four-channel wireless system

A four-channel wireless system is often required by live music acts, podium discussions, or in fixed installations for multi-purpose rooms. Rental companies may also design their wireless systems in blocks of four channels for small to medium sized events, as these racks are easy to handle whilst being easily scaled up to a larger system when required (see Application 6).

This solution is similar in design to Application 1. The primary difference is the inclusion of the ATW-DA49a, which can divide the incoming pair of antenna signals into four individual signal pairs to feed each receiver. However, this change does not only offer more outputs. In Application 1, the ATW-49SP is powered by the receiver, while in this setup the ATW-DA49a is powered by mains voltage. As a result, the ATW-DA49a distribution amplifier can provide significantly more antenna power for active components in the cable run. Due to the higher current this unit can deliver, it is possible to realise much longer cable runs, with more than one ATW-B80WB booster, as well as drive antenna combiners and active antennas before reaching a power limitation.

Check Application 1 for important information on total cable length, active antennas or using boosters in your antenna cable run. This application can be combined with Application 2 and is the core design for achieving Application 6.

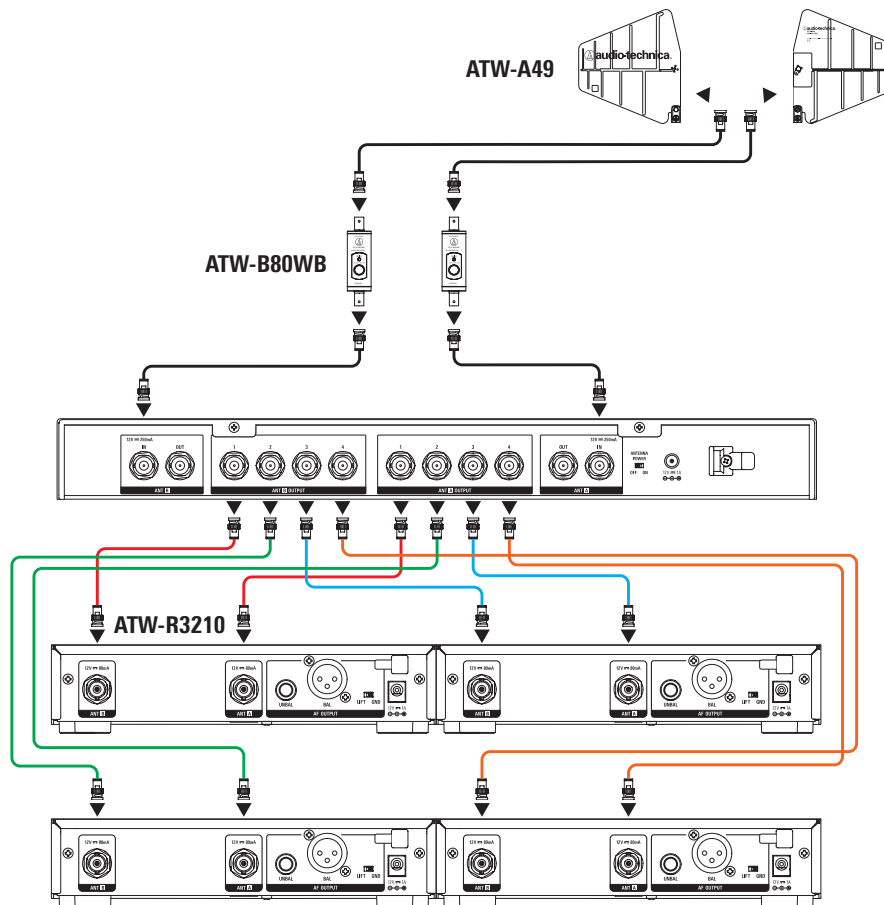
Compatible Audio-Technica wireless systems for this solution include the AT-One, 2000 Series and 3000 Series.



Product table

Quantity	Code	Description	Alternative
4	ATW-R3210	Frequency-Agile True Diversity UHF Wireless Receiver	ATW-R3210N
4	ATW-T3201	3000 Series Beltpack Transmitter	ATW-T3202 Handheld Transmitter
1	ATW-DA49a	UHF Antenna Distribution System	
1	ATW-A49	Pair of UHF Wide-band Directional LPDA Antennas	ATW-A410P
1	ATW-B80WB	Pair of In-Line RF boosters 470-990MHz	
4	AC25	25/7.6m RG8 Antenna Cable	AC12, AC50, AC100

APPLICATION 4 / WIRELESS SYSTEMS

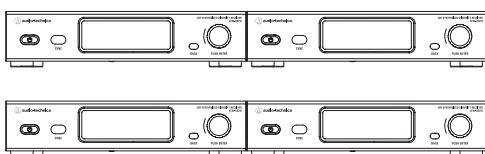


Equipment used

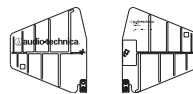
ATW-DA49a



4 x ATW-R3210



ATW-A49



ATW-B80WB



ATW-T3201

4 x



ATW-T3202

or



WIRELESS SYSTEMS / APPLICATION 5

Multi-channel wireless system for install

This solution is aimed at fixed installations where the use of UHF TV bands is not preferred, such as in locations with a restricted RF environment or where the customer wishes to avoid licensing costs and the need for frequency coordination. Typical applications for this include educational facilities such as schools or universities, multi-function rooms, or conference centres.

This application is based around our System 10 Pro wireless system. System 10 does not use the UHF TV band frequency spectrum (470 - 865 MHz) associated with our other wireless products but operates on the 2.4GHz spectrum, most used for WLAN and Bluetooth® transmission. 2.4GHz offers many benefits, but you must also consider its limitations when using it for wireless audio.

The immediate advantage is that System 10 Pro is completely license free in almost all countries and requires no frequency planning by the installer or operator. However, due to the small wavelength of the 2.4GHz signal (around 12cm), the operating range is shorter than our other wireless systems which use the lower UHF range. This solution is not ideal for open-air scenarios, where long operating distance is required.

However, reduced operating range can also have benefits. For example, if multiple rooms located side-by-side all require a dedicated wireless system, you can reuse the same spectrum by using System 10 Pro in adjacent rooms – very little physical separation between rooms is required.

Another challenge with the 2.4GHz range is the parallel use of Wi-Fi alongside our wireless system. In this case, it is recommended to utilise 5.8GHz for Wi-Fi connectivity in place of 2.4GHz. If this is not possible, the placement of your wireless microphone receiver becomes very important. Here is why System 10 Pro offers the right solution.

2.4GHz antenna cables suffer from higher power losses over their cable run than UHF frequencies. At the same time, many installers do not wish to locate audio racks of receivers in the meeting room, but instead place them in a separate A/V room with the audio mixer and other equipment.

With System 10 Pro, the ATW-RU13 receiver unit can be removed and mounted remotely, connecting to the ATW-RC13 via standard ethernet cable. The ATW-RC13 can stay in the audio rack, whilst the ATW-RU13 can be mounted up to 100m away – on a wall, in the presenter podium, or hidden above the false ceiling in the room. The ATW-RU13 receiver unit is compact in size, and its included wall-mount housing can be painted in any colour to conceal it further.

Ensure to mount ATW-RU13 units as close as possible to the area where the wireless microphones will be used and aim to position any Wi-Fi access points at the opposite side of the room for maximum signal stability.

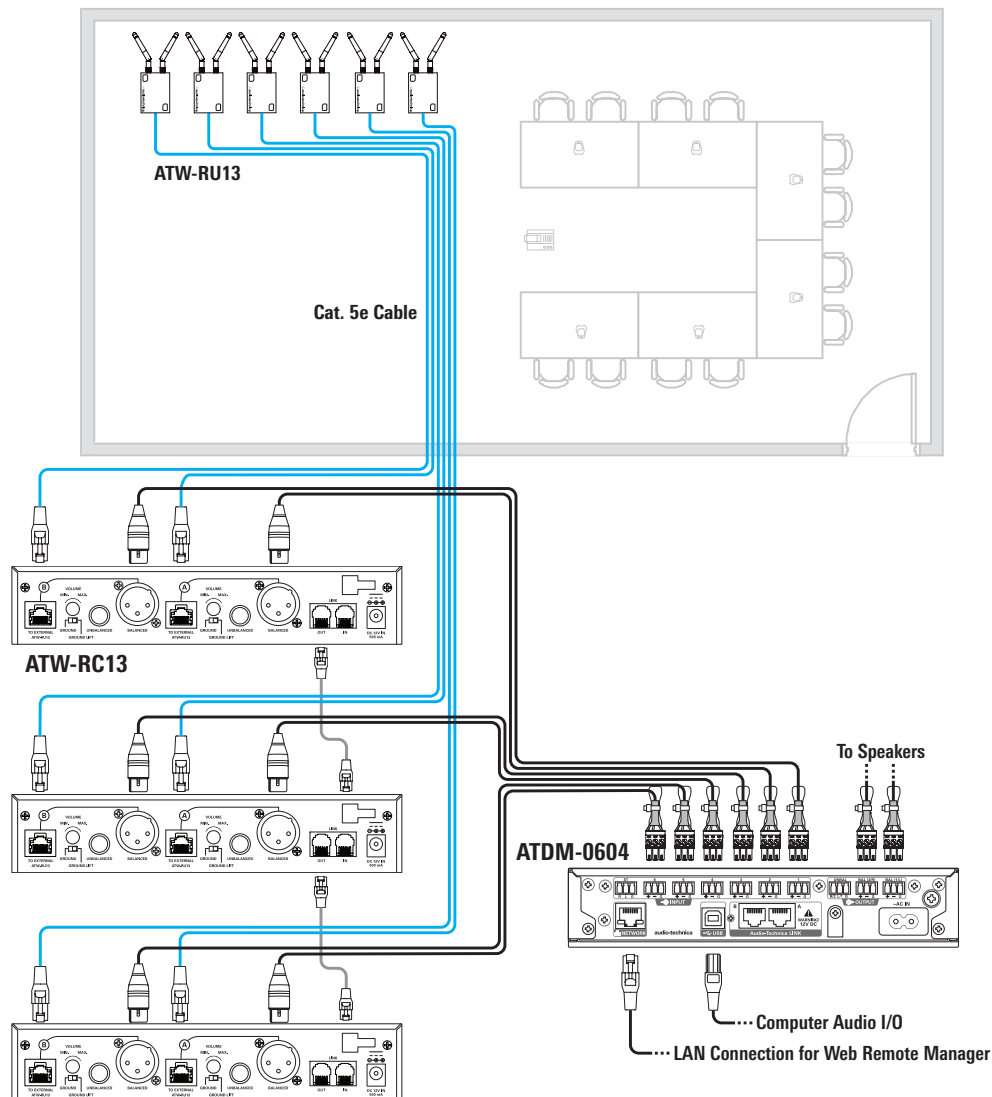
The compatible Audio-Technica wireless system for this solution is the System 10 Pro.



Product table

Quantity	Code	Description	Alternative
3	ATW-R1320	System 10 Pro Dual Channel Receiver	
6	ATW-T1006	System 10 Boundary Microphone Transmitter	ATW-T1001, ATW-T1002, ATW-T1007
1	ATDM-0604	Digital SmartMixer	

APPLICATION 5 / WIRELESS SYSTEMS

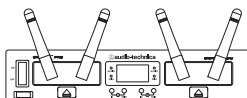


Equipment used

ATDM-0604



3 x ATW-R1320



ATW-T1001



or

ATW-T1002



6x

ATW-T1006



or

ATW-T1007



WIRELESS SYSTEMS / APPLICATION 6

16-channel wireless system using ATW-DA49a

Where more than four wireless systems are required, this solution may be the answer. Typical applications include larger live bands, music festivals featuring multiple acts, theatre productions, larger conferences, and in sports broadcast where wireless microphones are used to collect sounds of the event.

This solution begins with the 4-channel system from Application 4. In this scenario, up to four of the 4-channel racks are used and then they are linked together using one ATW-DA49a UHF Antenna Distribution System, achieving 16 channels of wireless audio.

Note: pay special attention to the “star” topology wiring of this example: the top ATW-DA49a feeds the antenna inputs of the following four ATW-DA49a. This means that each antenna signal is passing through no more than two antenna distribution units before reaching the receiver.

Also, that the ATW-DA49a’s link output have not been used in this scenario. If only eight channels are required, it is acceptable to use the ATW-DA49a’s link output to pass the signal along to a second ATW-DA49a – the eight receivers then connect via each distributor’s antenna outputs. However, once more wireless systems are needed, it is best practice to implement the star topology given in this example to avoid unnecessary RF signal degradation.

This concept is easily scalable, making it ideal for rental companies, or businesses with flexible technical requirements. Several self-contained modules of four-channel systems can be used and then quickly combined using one additional ATW-DA49a, as and when required.

Refer to the notes in Application. 1 for advice on specifying cable length, active antennas and boosters in the cable run.

This application can be combined with Application 2 and relies on Application 4.

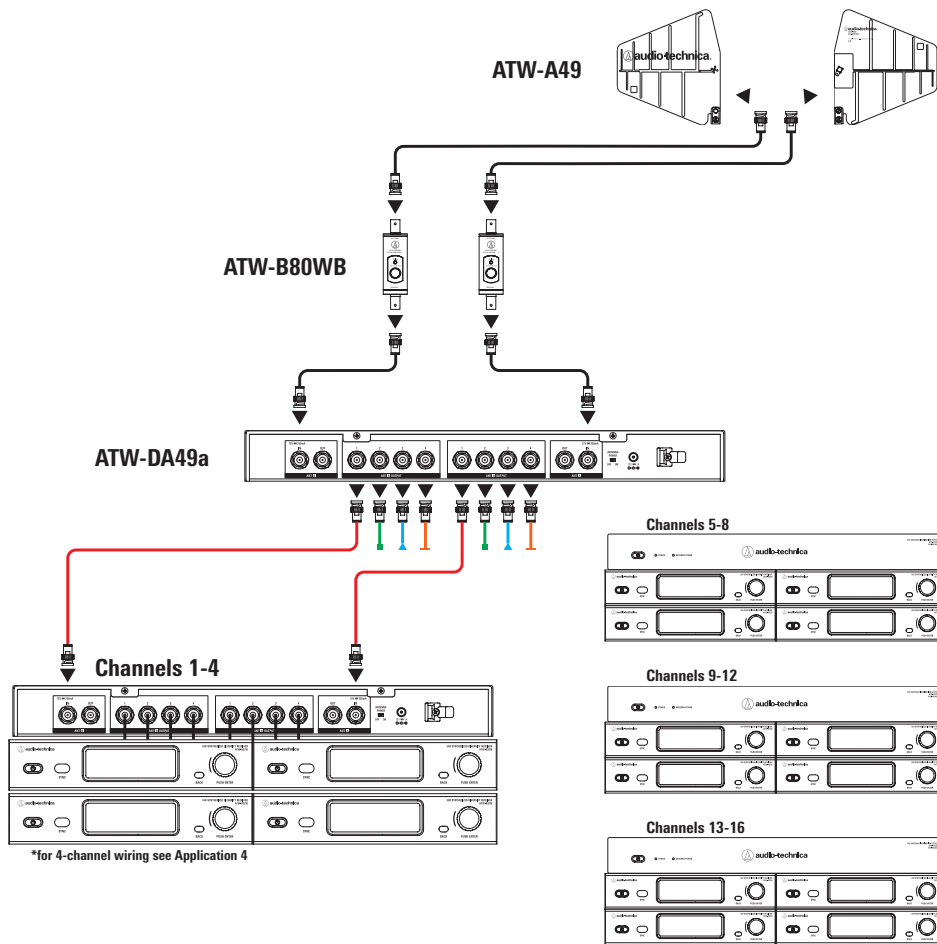
Compatible Audio-Technica wireless systems for this solution include the 2000 Series and 3000 Series.



Product table

Quantity	Code	Description	Alternative
16	ATW-R3210N	Frequency-Agile True Diversity UHF Wireless Receiver	ATW-R3210
16	ATW-T3201	3000 Series Beltpack Transmitter	ATW-T3202 Handheld Transmitter
5	ATW-DA49a	UHF Antenna Distribution System	
1	ATW-A49	Pair of UHF Wide-band Directional LPDA Antennas	ATW-A410P
1	ATW-B80WB	Pair of In-Line RF boosters 470-990MHz	
4	AC25	25/7.6m RG8 Antenna Cable	AC12, AC50, AC100

APPLICATION 6 / WIRELESS SYSTEMS



Equipment used

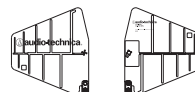
5 x ATW-DA49a



16 x ATW-R3210



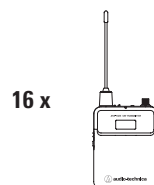
ATW-A49



ATW-B80WB

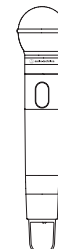


ATW-T3201



16 x

ATW-T3202



or

WIRELESS SYSTEMS / APPLICATION 7

16-channel wireless system using daisy chain

If you require significant UHF flexibility for touring or are simply in need of a reliable wireless system with exceptional audio quality, the 5000 Series is ideal. Here the 5000 Series is used to achieve a 16-way system. This type of setup is commonly found in music festivals, touring rigs, or in smaller installations for theatre, sports and conferencing.

This is an alternative option to Application 6, consider both systems to determine which better suits the requirements.

Based around the 5000 Series, the key to this solution is the powerful antenna distribution amplifier built into the ATW-R5220 Dual Receiver. As seen in the diagram, the ATW-A49 antennas connect directly to the receivers without the need to pass through any external distribution units. Each ATW-R5220 then passes the RF signal along to the next receiver in a daisy-chain configuration. With this, up to eight dual-channel receivers can be combined in a simple and efficient way, providing 16 channels of wireless audio.

Pay special attention to the cable run in the diagram. The first antenna signal has been connected to the first receiver, passing down to the eighth receiver; meanwhile, the second antenna signal starts at the eighth receiver and works upwards. This method affords a degree of redundancy, as should any one receiver lose power the remaining units will continue to receive RF signal from at least one antenna.

Refer to the notes in Application 1 for advice on specifying cable length, active antennas and boosters in the cable run.

This Application can be combined with Application 2 and is essential to Application 8.

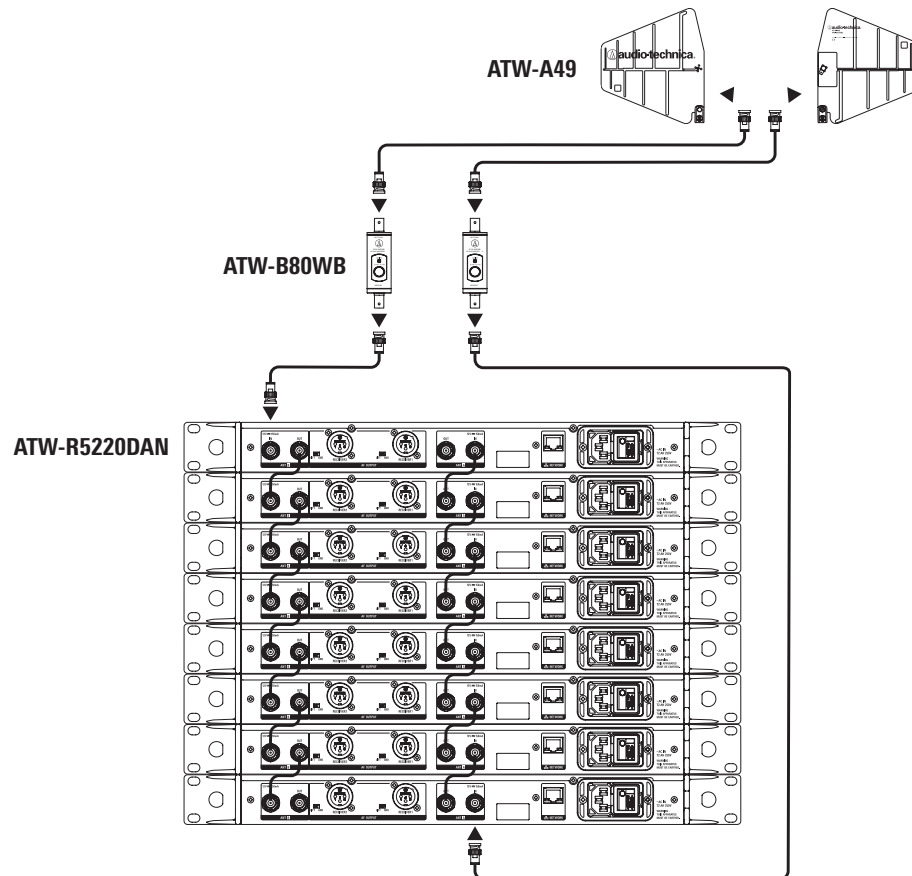
The compatible Audio-Technica wireless system for this solution is the 5000 Series.



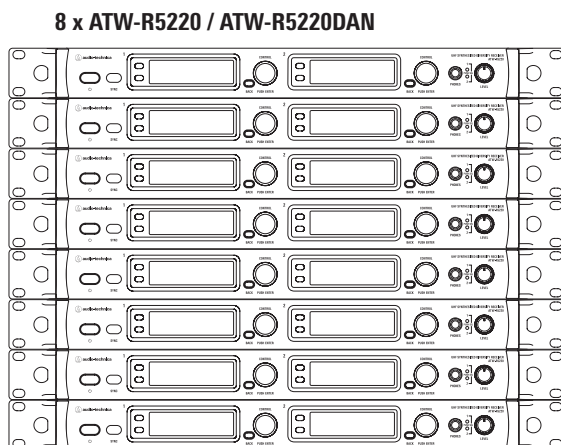
Product table

Quantity	Code	Description	Alternative
8	ATW-R5220DAN	5000 Series Dual Channel Receiver with Dante®	ATW-R5220
16	ATW-T5201	5000 Series Beltpack Transmitter	ATW-T5202 Handheld Transmitter
1	ATW-A49	Pair of UHF Wide-band Directional LPDA Antennas	
1	ATW-B80WB	Pair of In-Line RF boosters 470-990MHz	
4	AC25	25' / 7.6m RG8 Antenna Cable	AC12, AC50, AC100

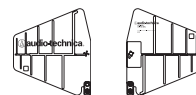
APPLICATION 7 / WIRELESS SYSTEMS



Equipment used



ATW-A49



ATW-B80WB



ATW-T5201

16 x



ATW-T5202

or



WIRELESS SYSTEMS / APPLICATION 8

64-channel wireless system / 256-channel wireless system

This system is designed for large scale wireless audio projects, as found in theatre, opera, TV & sports broadcasting, music festivals or any application where high numbers of wireless systems are essential requirements.

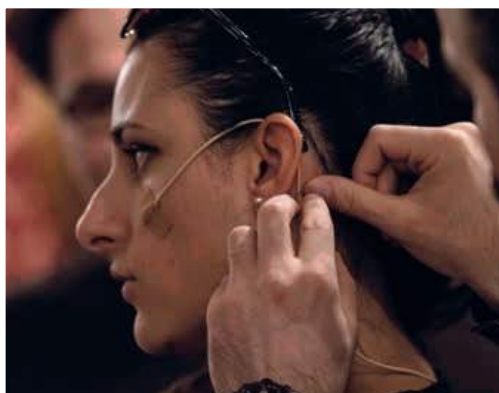
This solution begins with the 16-way system shown in Application 7. Having constructed racks of eight dual receivers, one ATW-DA49a UHF Antenna Distribution System can be added. This should be placed after the antennas and linked to up to four of the 16-way racks, allowing for 64 simultaneous wireless audio channels.

Is 64-channels the limit? If more than 64-channels are required, the system can be considered as one "module", and more can be added. Up to four 64-channel modules can then connect to one final ATW-DA49a, opening the possibility for a 256-channel wireless solution – all operating with just one pair of antennas.

Refer to the notes in Application 1 for advice on specifying cable length, active antennas and boosters in the cable run.

This Application can also combine with Application 2 and relies on Application 7.

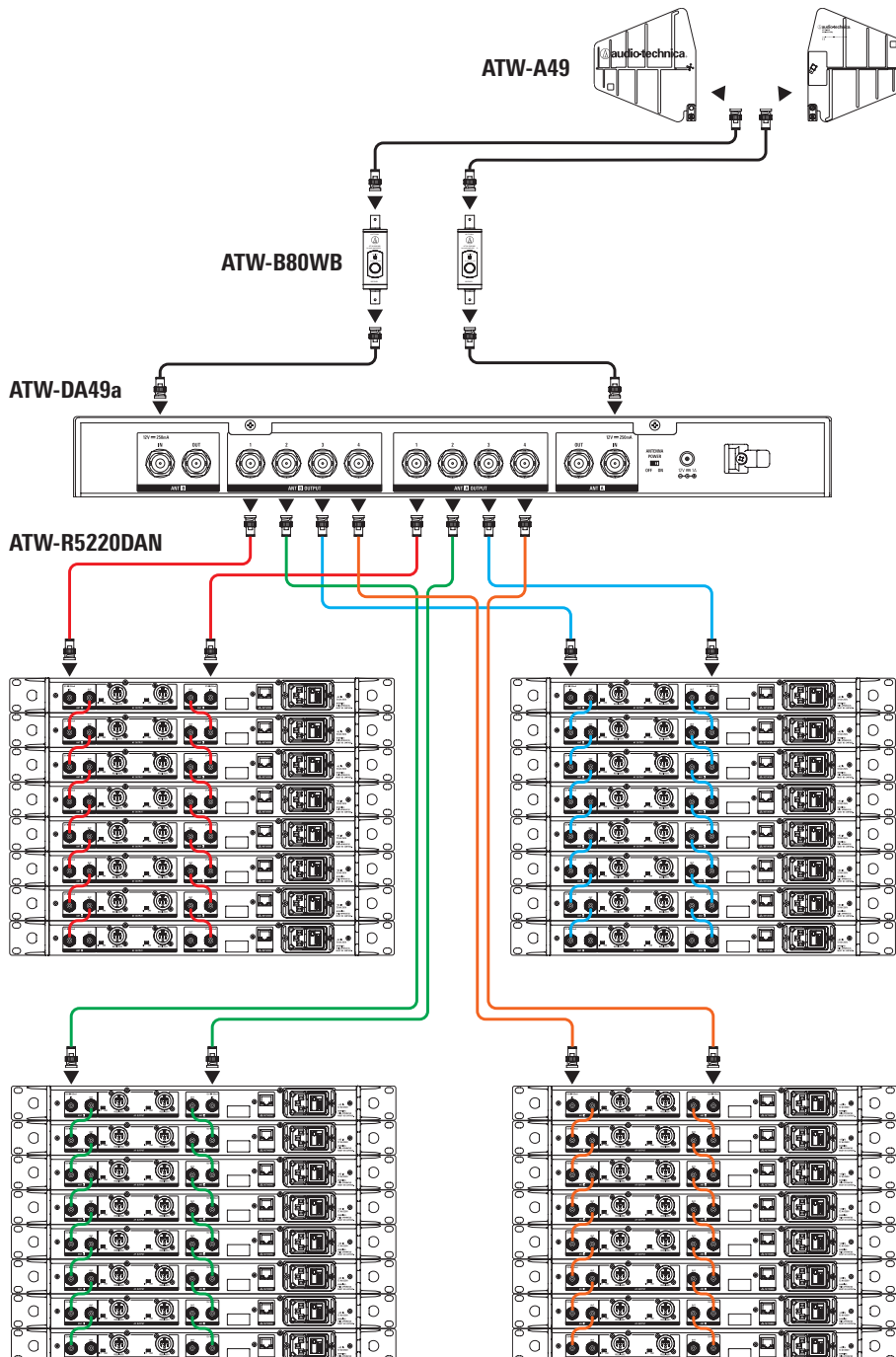
The compatible Audio-Technica wireless system for this solution is the 5000 Series.



Product table

Quantity	Code	Description	Alternative
32	ATW-R5220DAN	5000 Series Dual Channel Receiver with Dante®	ATW-R5220
64	ATW-T5201	5000 Series Beltpack Transmitter	ATW-T5202 Handheld Transmitter
1	ATW-DA49a	UHF Antenna Distribution System	
1	ATW-A49	Pair of UHF Wide-band Directional LPDA Antennas	
1	ATW-B80WB	Pair of In-Line RF boosters 470-990MHz	
4	AC25	25'/7.6m RG8 Antenna Cable	AC12, AC50, AC100

APPLICATION 8 / WIRELESS SYSTEMS



WIRELESS SYSTEMS / RADIO EQUIPMENT DIRECTIVE (RED) - RESTRICTIONS

[illegible]

Please check local regulations for the latest information about usage of wireless microphones. За најновије информације относно използването на безжични микрофони, За најновије

[illegible]

01.01.2020

RADIO EQUIPMENT DIRECTIVE (RED) - RESTRICTIONS / WIRELESS SYSTEMS

+	OK to use - licensefree, Може да се използва - Безплатен лиценз, U redu za korištenje - Bez licence, Bez omezení - Bez licence, Ok at bruge - Licens Fri, Sobilik kasutada - litsensivaba, Käyttävissä - Lisenssi vapaa, Usage autorisé - Licence libre, Zur Nutzung freigegeben - Lizenzfrei, Επιτρεπτή Χρήση - Χρήση Άνευ άδειας, Használható - Díjmentes, OK a úsáid - ceadúnas saor in aisce, OK utilizzo - Senza licenza, Var izmantot - Licence nav nepieciešama, Leidžiama naudoti - Nelicenzijuojamas, Huwa permess li jintuza - Mhemmx bzonn licenzja, Gebruik toegestaan - Vergunningsvrij, wolno używać - nie wymagana licencja, Ok para usar - Licença livre, Se poate folosi - Nu necesită licență, Bez obmedzenia - Bez licencie, Lahko se uporablja - Brez licence, Ok para usar - Licencia libre, OK att använda - Undantag från tillståndsplikt, lagi ađ nota - Má nota án leyfis, Kan benyttes - Lisensfri										
L	License needed, Платен лиценз, Licenca potrebna, Nutná licence, Licens påkrævet, Litsents vajalik, Lisenssi tarvitaan, Licence nécessaire, Lizenz- und Anmeldepflichtig, Με Χρήση άδειας, Licenc köteles, Ceadúnas ag teastáil, Licența necesară, Licence ir nepieciešama, Licenzijuojamas, Hemm bzonn licenzja, vergunningsplichtig, wymagana licencja, Licença necessária, Necesită licență, Nutná licencia, Licenca potrebna, Licencia necesaria, Tillstånd krävs, Þarfnast leyfis fyrir notkun, Lisens nødvendig										
in	Indoor only, Само за вътрешно използване, Samo u zatvorenom prostoru, Pouze pro indoor, Kun indendørs, Ainult siseruumides, Vain sisäkäyttöön, Intérieur uniquement, Nur in geschlossenen Räumen, Χρήση ΜΟΝΟ σε Εσωτερικούς Χώρους, Csak beltérben, Dñion ach, Solo uso al chiuso, Tikai iekšelpās, Naudojimui tik patalpoje, Gewwa biss, Alleen in gesloten ruimte, tylko w pomieszczeniach, Somente uso interior, Doar pentru interior, Iba pre indoor, Samo v zaprtem prostoru, Sólo en interiores, Endast inomhus, Aðeins innandyrá notkun, Kun innendørs										
-	Not allowed to use, Не се разрешава използването, Korištenje nije dopušteno, Zakázáno používat, Ikke tilladt at bruge, Ei ole lubatud kasutada, Käyttö ei sallittu, Ne pas utiliser, Nutzung verboten, Μη Επιτρεπτή Χρήση, Tilos használni, Ni cheadaítear a úsáid, Uso non permesso, Nedrīkst izmantot, Neleidžiama naudoti, Mhux permess li jintuza, Gebruik niet toegestaan, nie wolno używać, Não é permitido usar, Nu este permisă folosirea, Zakázané používať, Uporaba ni dovoljena, No se permite el uso, Inte tillåtet att användas, Má ekki nota, Ikke tillatt										
	P1	P1a	P1b	P12	P2	P2a	P2b	P2c	P2d		
	Power limit, Лимит на мощността, Granice snage, Max. výstupní výkon, Sendestyrke maksimalt, Võimsuse liimit, Lähetystehorajoitus, Puissance limitée à, Max. Sendeleistung, Επιτρεπτό Όριο ισχύος μέχρι, Teljesítmény korlát, Teorainn power, Limite di potenza, Jaudas robežvērtība, Galios apribojimas, Saīha limitāta sa, Maksimala zendvermogen, limit mocy, Limite de potência, Limita puterii, Max. výstupný výkon, Jakostna omejitev, Potencia limitada a, MAX, Afi takmörkun, Maksimalt tillatt utstrålt effekt										
	10 mW ERP	10 mW ERP	10 mW EIRP	12 mW ERP	20 mW ERP	20 mW ERP	20 mW EIRP	20 mW ERP	20 mW EIRP		
		50 mW ERP	50 mW EIRP			50 mW ERP	50 mW EIRP	100 mW ERP	100 mW EIRP		
x1	NO	Vær vennlig å sjekke på http://www.finnsenderen.no/traadlos hvilke frekvenser som kan benyttes i ditt område. Please check on http://www.finnsenderen.no/traadlos which frequencies can be used in your area.									
x2	GR	Εξάφρεση για μεμονωμένη/ανεξάρτητη άδεια χρήσης, και για συσκευές ισχύος εκπομπής μέχρι 10 mW. Εξάφρεση για μεμονωμένη/ανεξάρτητη άδεια χρήσης, και για συσκευές ισχύος εκπομπής μεγαλύτερης από 10 mW Exemption for individual licensing for devices with power of up to 10mW. Individual licensing required for devices with power over 10mW.									
x3	MT	Jekk joghgbok iccekkja r-regolamenti lokali dwar l-ahhar informazzjoni fuq l-uzu ta' "wireless microphones" Please check local regulations for the latest information about usage of wireless microphones.									

Audio-Technica UK
Audio-Technica Ltd.
Technica House
Unit 5, Millennium Way
Leeds, LS11 5AL
England

T: +44 (0)113 277 1441
F: +44 (0)113 270 4836

E: info@audio-technica.co.uk
eu.audio-technica.com

Audio-Technica Germany
Audio-Technica Deutschland GmbH
Peter-Sander-Str. 43 C
D-55252 Mainz-Kastel
Germany

T: +49 (0) 6134 25734 0
F: +49 (0) 6134 25734 50

E: info@audio-technica.de
www.audio-technica.de

Audio-Technica France
Audio-Technica SAS
130, rue Victor Hugo
92300 Levallois-Perret
France

T: +33 (0) 1 43 72 82 82
F: +33 (0) 1 43 72 60 70

E: info@audio-technica.fr
www.audio-technica.fr

Audio-Technica Spain
Audio-Technica Iberia SAU
Oficina Barcelona: Montserrat Roig 13
08908 L'Hospitalet de Llobregat
Barcelona, Spain
T: +34 935 222 450

Oficina Madrid: Fresadores 35
28939 Arroyomolinos, Madrid, Spain
T: +34 913 619 081

E: info@audio-technica.es
www.audio-technica.es

Audio-Technica Central Europe
Audio-Technica Central Europe Ltd.
H-1107 Budapest
Fogadó u. 3.
Hungary

T: +36 1 433 34 08
F: +36 1 431 90 06

E: info-ce@audio-technica.eu
www.audio-technica.hu

Audio-Technica Benelux
incorporating Iemke Roos Audio
Audio-Technica Benelux B.V.
Kuiperbergweg 20
1101 AG Amsterdam
The Netherlands

T: + 31 20 6972121

E: info@audio-technica.nl
www.audio-technica.nl



audio-technica

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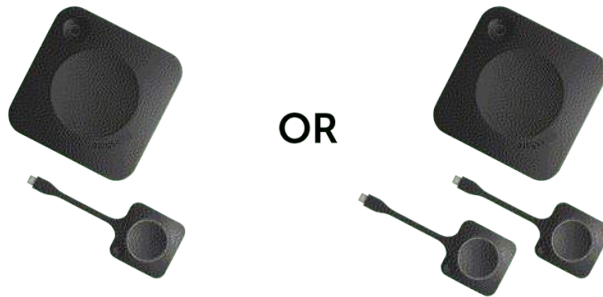
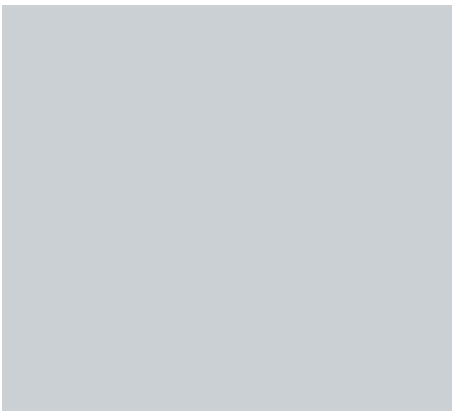
E&OE*: Published specifications may be subject to change without notice.
(*Errors and Omissions Excepted)

L00096ENG - V1.0



ClickShare C-10

Interactive wireless presentation for any meeting space



- **Interactive features:**
touchback, annotation
and blackboarding
- **Increased collaboration**
with 2 sources on screen
- **Iconic ClickShare**
Button(s) for employees
and guests
- **100% secure, encrypted**
and cloud-managed

ClickShare C-10 brings interactive wireless presentation to any meeting space. Content sharing is simple, with just one click on the ClickShare Button (Windows or Mac) or the ClickShare App (laptop, mobile or tablet). Start presenting within seconds: no cables, no software to download, no training needed.

Product specifications

CLICKSHARE C-10

General specifications

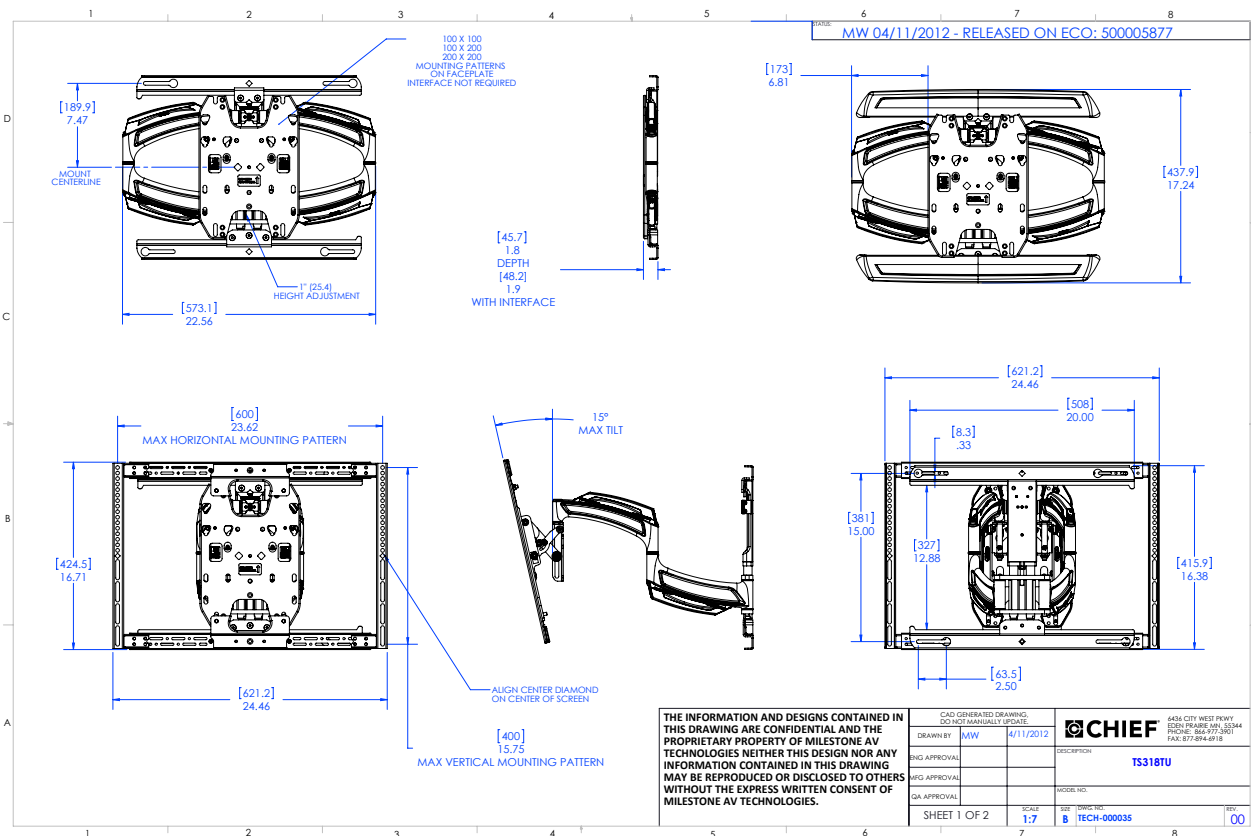
Operating system	Windows 10 and higher macOS 11 (BigSur) and higher Android v9 and higher (ClickShare App)* iOS 12 and higher (ClickShare App)*
System requirements	For a smooth experience with Microsoft Teams or Zoom Minimum: Intel i3 dual-core processor or AMD Ryzen 7 / 8GB RAM / OS: Windows 10 latest build or Mac OS Mojave latest build Recommended: Intel i5 4-core processor or AMD Ryzen 9 / 8GB RAM / OS: Windows 11 latest build or Mac OS latest build
Video outputs	4K UHD (3840*2160) @ 30Hz: HDMI™ 1.4b or USB-C DisplayPort 1.2 (only Gen2)
Audio output	HDMI
USB	1 X USB-A, 1 X USB-C
ClickShare Buttons	1 or 2
ClickShare App	Desktop & Mobile
Native protocols	Airplay, Google Cast, Miracast*
Maximum sources simultaneously on screen	2
Noise Level	Max. 25dBA @ 0-30°C Max. 30dBA @ 30-40°C
Authentication protocol	WPA2-PSK in stand alone mode WPA2-PSK or IEEE 802.1X using the ClickShare Button in network integration mode
Wireless transmission protocol	IEEE 802.11 a/g/n/ac and IEEE 802.15.1
Reach	Adjustable with signal strength modulation; max. 30m (100 ft) between ClickShare Button and ClickShare Base Unit Frequency band 2.4 GHz and 5 GHz
Frequency band	2.4 GHz and 5 GHz (DFS channels supported in select number of countries)
Connections	1x Ethernet LAN 1Gbit 1x USB-C 2.0 (front); 1x USB-A 2.0 (front) -only Gen2; 1x USB-C 3.0 (front); 1x USB-A 3.0 (front)
Temperature range	Operating: 0°C to +40°C (+32°F to +104°F) Max: 35°C (95°F) at 3000m Storage: -20°C to +60°C (-4°F to +140°F)
Humidity	Storage: 0 to 90% relative humidity, non-condensing Operation: 0 to 85% relative humidity, non-condensing
Anti-theft system	Kensington lock
Certifications	FCC/CE
Touch screen support & Interactivity	Yes
Room Dock (peripheral support)	No
Local view	Yes
Network connection	LAN & WiFi
Management and reporting	Yes
Warranty	1 year standard. 5 years coverage upon registering via SmartCare
*	* depends on configuration, available in future firmware updates

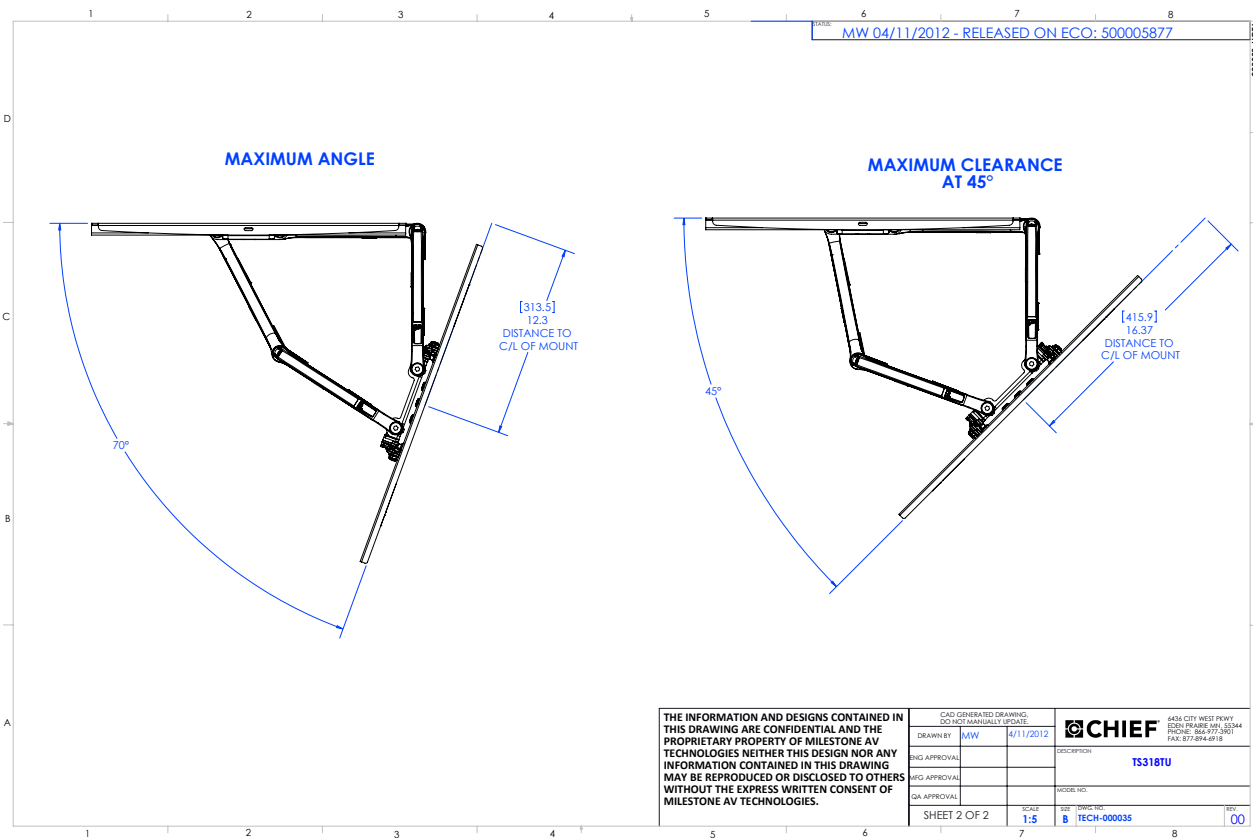
ClickShare Base Unit dimensions

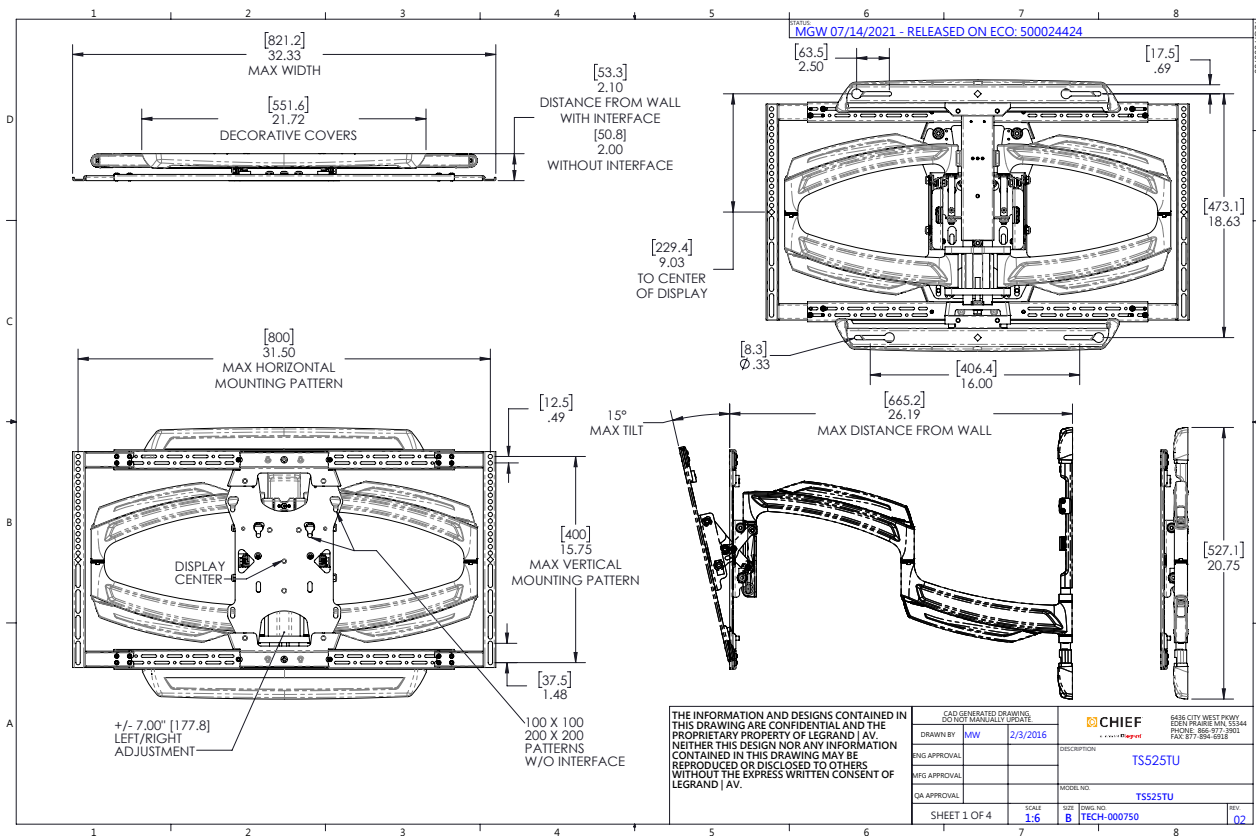
Dimensions (HxWxD)	34 mm x 135 mm x 135 mm
Power consumption	Operational: 5-10W, 24W Max
Power supply	Operational: 5-10W, 24W Max
Weight	900 gr

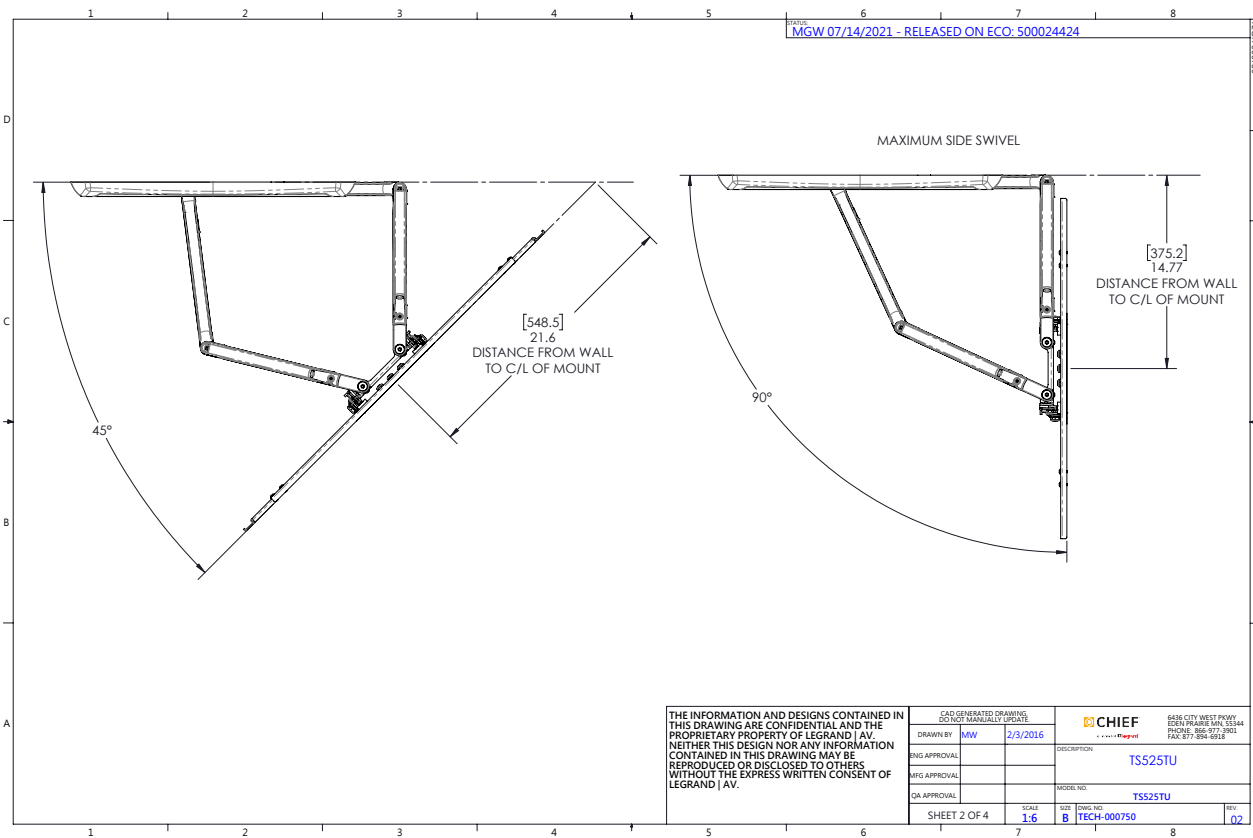
Last updated: 19 Feb 2025

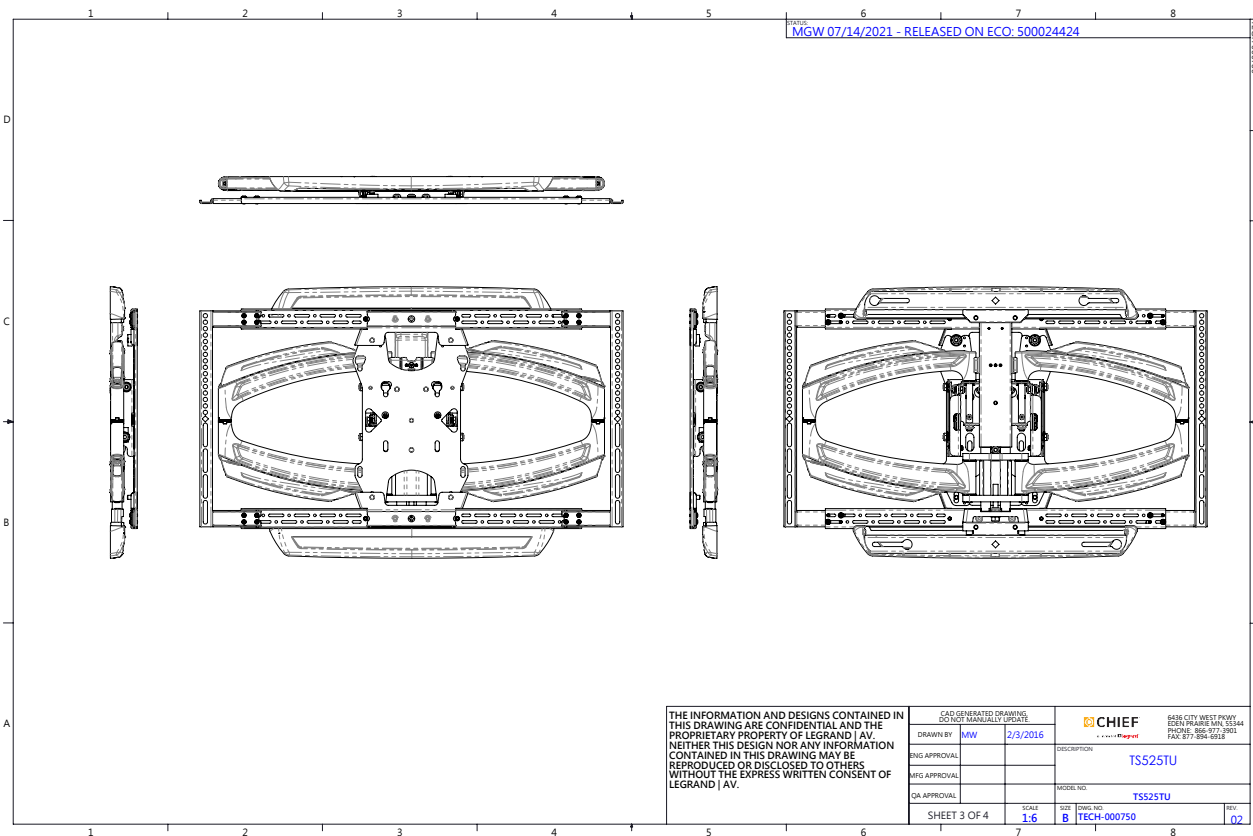
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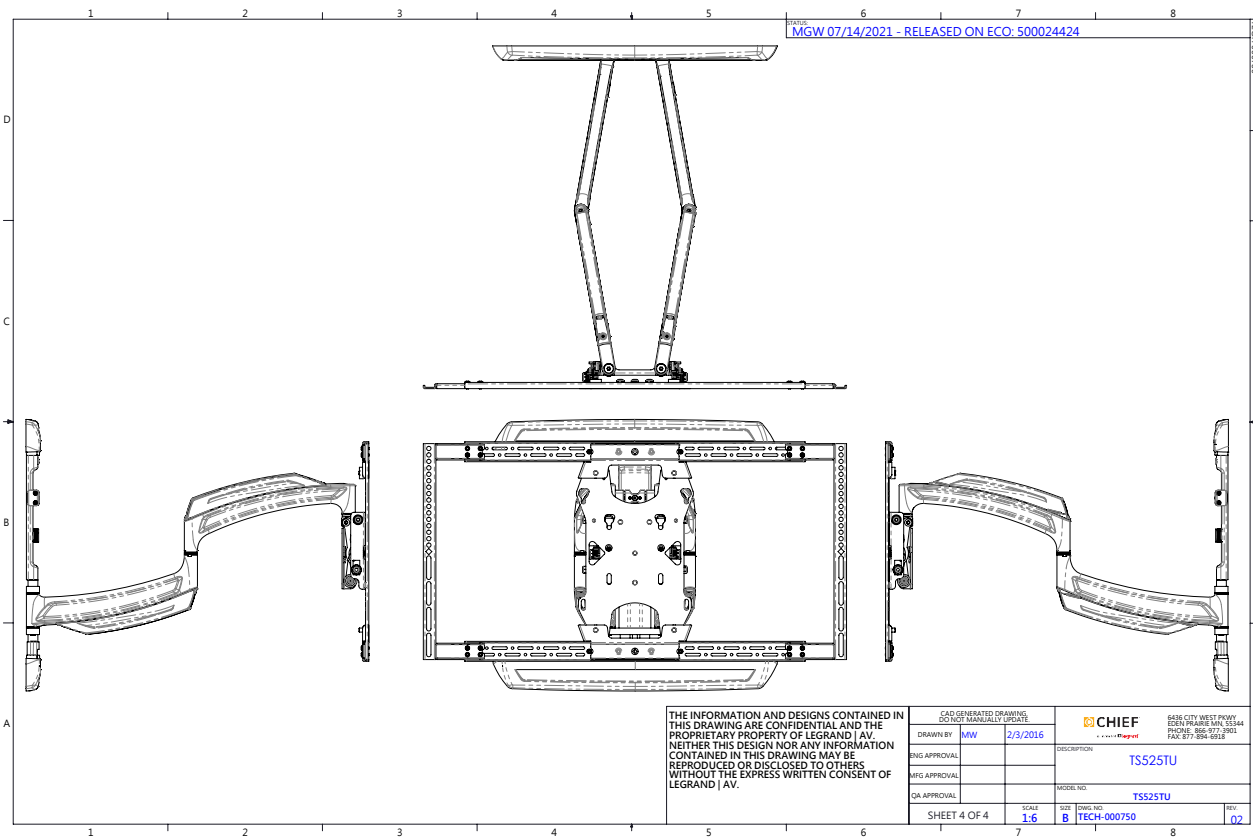












6000A+ SERIES | METRIC



PRODUCT SPECIFICATIONS

75" 6000A+ Series



75" Panel Specifications

Size	75"
Screen Type	4K Ultra HD
Aspect Ratio	16:9
Display Area	64.97" x 36.55"
Resolution	3840(H) x 2160(V)
Pixel Pitch	.42976 mm x .42975 mm
Back Light Unit	Direct type LED
Response Time	8 ms
Refreshing Frequency	60Hz
Display Color	1.07B (10 bit)
Brightness	400 cd/m ²
Contrast Ratio	5000:1
Viewing Angle	178°
Life Time	≥50,000 hours

6000A+ SERIES INTERACTIVE PANELS

The first EDLA Certified
Interactive Panel series.



IMPROVED DEVICE MANAGEMENT



2.2 SOUND CHANNEL WITH TOP
MOUNTED SPEAKERS



USB-C CABLE (AUDIO, VIDEO,
TOUCH, AND POWER)



COLLABORATION SOFTWARE
INCLUDED



INCLUDED WIFI MODULE



PRE-INSTALLED BRACKETS



CTI-6075A+UH40

6075A+

PANEL AUDIO	
Speaker Type	Built-in speakers on top front
Output Power	2 × 8W (speakers) + 2 × 18W (subwoofers)
Sound Channel	2.2
Sound Pressure Level	85dB
Peak Power	2 × 108W
Microphone	8 array up to 32.8 ft distance
PANEL CONNECTIONS	
HDMI Input	3
HDMI Output	1
USB 2.0	1
USB 3.0	4 Front ×2, Rear ×2
USB Type-C Input	3: Front & Side PC input (video, audio, touch, LAN transfer) Top input camera only
USB Type-C Output	1
Touch 2.0	2
Display Port Input	1
Audio Input	3.5 mm
Audio Output	3.5 mm
SPDIF	1
RS232	1
RJ45 Input/Output	1 each
PANEL INTERACTIVITY	
Sensing Type	Hybrid Touch (infrared + elastic wave)
Compatibility	Windows11/Windows10/Windows8/ Windows7/WindowsXP/Linux/ MacOSX/Android/Chrome
Touch Point	16 points touch (Android) 40 points touch (Windows)
Minimum Object Size	2 mm
Touch Tool	Finger, passive infrared pen
Response Time	≤10 ms
Accuracy	±1 mm
Surface Hardness	3mm glass with 9H rating of Mohs standard
PANEL OPERATING SYSTEM	
System Version	Android 13
CPU	A76 × 4 + A55 × 4
GPU	Mali-G610 MP4
RAM	8GB
ROM	64GB
PANEL AMBIENT	
Operation Temperature	32°F – 104°F
Operation Humidity	10% – 90% RH
Storage Temperature	-4°F – 140°F
Storage Humidity	10% – 90% RH
Altitude	Below 16404 ft

POWER	
Power Requirements	100-240V ~ 50/60Hz 5.0A
Standby Power	≤0.5W
Standard Power	280W
Max Power	Including internal PC 500W
PHYSICAL SPECIFICATION	
Key Location & Number	Front physical keys, 1
Dimension L*H*D*	67.3" × 40.6" × 3.37"
Dimension (package) L*W*H	73.35" × 8.86" × 45.2"
Net Weight	113.76 lbs
Gross Weight	146.72 lbs
Machine + Wall Mount Thickness	5.2"
Wall-hanging Screw Spec	M8 × 25 mm
VESA	800 × 400 mm
WIFI MODULE (INCLUDED)	
Bluetooth 5.2, Wifi Standard: 802.11 a/b/g/n/ac/ax, no antennas	
ACCESSORIES	
American standard power cord, USB Touch cable (Type A-B), USB Type-C cable, HDMI cable, remote control, writing pens (2), USB Dust plug, AAA batteries (2), Quick Start Guide	
PC MODULE (OPTIONAL)	
Type	Detachable PC module
Model	CTI-PCOPS-PC15-SM
CPU	Intel® Core™ i5 10400T CPU
RAM	DDR4 16GB
SSD	1 × M. 2-2280 SSD NVMe 256GB
Graphics	Intel® UHD Graphics 630
Chipset	Intel® Comet Lake; H510
Sound Card	Integrated High Definition Audio Stereo
Networking Ethernet	10/100/1000MB
WiFi Version	802.11ax
WiFi Frequency	2GHz - 3.6GHz
WiFi Working Distance	0 ~ 147.6 ft 0 ~ 295.3 ft
Bluetooth Version	Bluetooth 2.1; 3.0; 4.0; 5.0
Bluetooth Working Frequency	2.4GHz
Bluetooth Working Distance	0 ~ 32.8 ft
Operating System	Not included
USB 2.0 3.0	4
LAN(RJ45)	1
VGA Output	1
PANEL WARRANTY OPTIONS	
Standard	3 years
Purchase	5 years



ILLUMINATED
INTEGRATION

ii-3641 Norristown Public Library

Clear_Touch_Interactive_CTI-STAND-CONM-V3

1450 Fulling Mill Road
Middletown, PA 17057
717 996 4596

CTI-STAND-CONM-V2



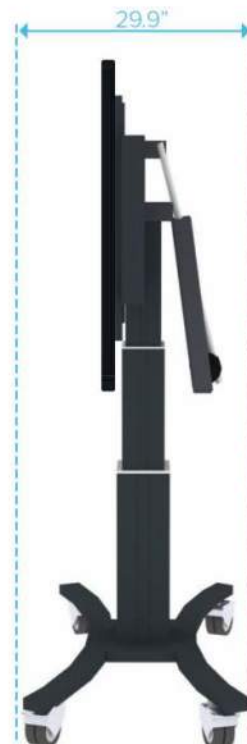
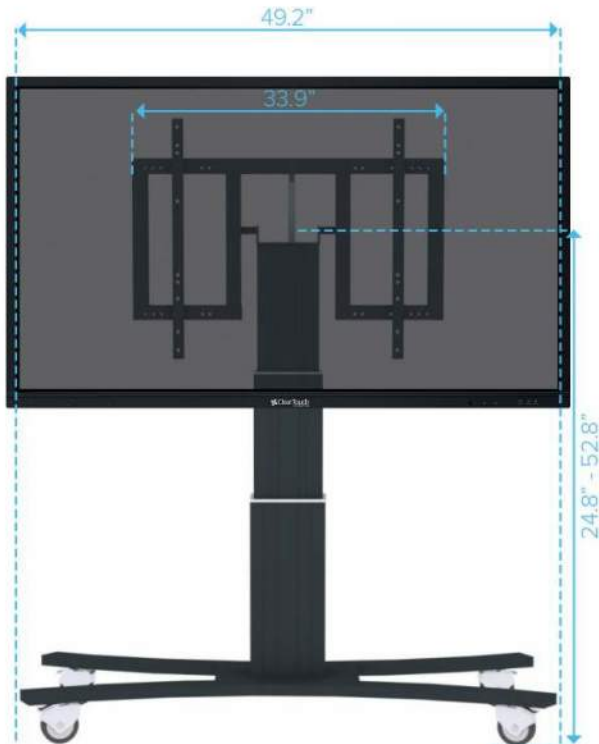
CONVERTIBLE MOBILE STAND

**MOTORIZED HEIGHT/TILT ADJUSTMENT
FOR USE WITH MODELS UP TO 6075U+**



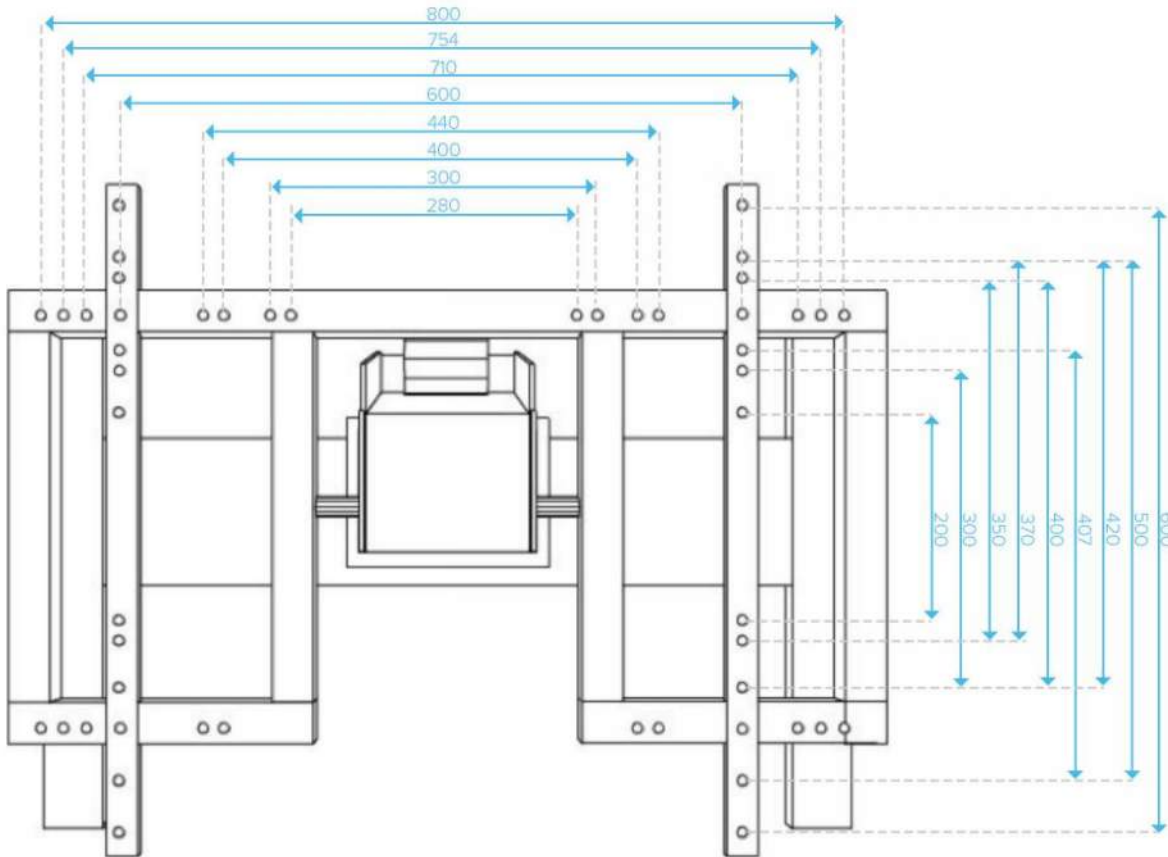


CTI-STAND-CONM-V2





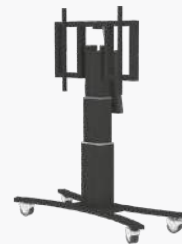
CTI-STAND-CONM-V2



CONVERTIBLE MOBILE STAND PRODUCT FEATURES

- Motorized mobile stand offering height & tilt adjustment
- Designed for use with 55"–75" displays with max.
- VESA 200x200 up to 800x600
- Weight load capacity 300 lbs
- 28" height adjustment
- Display mount with external actuator, offering 90° tilt, with 2 "Lock & Release" brackets

- Mobile base with C-style open frame
- UL 60950-1 certified
- ADA compliant
- Complete system in color black
- 5 year warranty on all components



PART NO.	DESCRIPTION	PACKING DIMENSIONS	NET WEIGHT	GROSS WEIGHT
CTI-STAND-MCCM	Motorized Center Column Multi – 3 Tier Motorized Column (24.8" to 52.8")	32.3" x 10.6" x 8.7"	49.5 lbs	53.0 lbs
CTI-MOUNT-TADM-V2	Display Mount, Tilt Acuator with Four Button Control	35.0" x 30.3" x 18.9"	48.7 lbs	59.1 lbs
CTI-STAND-MBBL-V2	Mobile Base, C-Style Open Frame, Recessed	53.1" x 30.7" x 4.7"	28.2 lbs	34.2 lbs
			126.4 lbs	146.2 lbs

GLS-PART-CN

Cresnet® Partition Sensor

- > Sleek, compact design
- > Adjustable infrared beam for high accuracy
- > Sensing distance of up to 4 feet
- > Cresnet® for power and communications
- > Crestron® control system integration via Cresnet
- > Digital output provides either a 24 Volt, 10 mA output or a closure to ground
- > Visible LED display that indicates sensor status

The GLS-PART-CN is a sleek, surface-mount partition sensor that utilizes the dependable Cresnet® wired network for power and communications. Designed with hospitality environments in mind, this easily installed sensor uses an infrared (IR) beam to sense the position of movable partitions within a space. The IR beam's signal strength is adjustable and features a sensing distance of up to four feet, making the GLS-PART-CN a versatile partition sensor with optimized sensing accuracy. Three LEDs on the unit provide at-a-glance information on the sensor's state of power, communications, and partition detection. The GLS-PART-CN offers mounting options for rooms with finished or droptile ceilings.

The GLS-PART-CN has plug-in outputs and built-in time delays. Also, the partition sensor easily connects via Cresnet to a Crestron control processor to manage divisible room environments.

Cresnet

The GLS-PART-CN uses the dependable Cresnet wired network for communication between devices. Cresnet provides a simple solution for configuring and wiring sensors as part of any complete Crestron system. Cresnet is the communications backbone for Crestron lighting dimmers, keypads, shades, thermostats, and many other devices. This flexible 4-wire bus provides data communications and 24 Volts DC power for all of the devices on the Cresnet network.

Versatile Installation

The GLS-PART-CN has a white finish and can mount directly into finished ceilings. For droptile ceilings, the GLS-PART-CN installs into a 1-gang, 3-1/2 inch deep electrical box. In both instances, a decorator-style faceplate^[1] can be used to match the GLS-PART-CN with the color of the room. Only about 20 mm of the GLS-PART-CN is visible after installation, making it an unobtrusive addition to a room.

Digital Output

This sleek sensor delivers unparalleled versatility through an additional output on the terminal block, which can be used as an alternate method of integration with a Crestron Control System® or other system. The 5th pin of the Cresnet connector provides either a 24 Volt, 10 mA output or a closure to ground, perfect for connection with a Versiport or digital input port.



SPECIFICATIONS

Sensing

Method of Detection: Diffuse reflective
Light Source: Pulse-modulated infrared LED
IR Sensitivity: Adjustable
Sensing Distance: 4 ft (122 cm)

Connectors

NET/EXT: (1) 5-pin 3.5mm detachable terminal block;
Cresnet® slave port and digital output port;
Digital Output: Provides either 24 Volts DC, 10 mA (default) or a closure to ground when partition is detected

Controls & Indicators

PWR: (1) Green LED, indicates power is supplied to device; flashes to indicate sensitivity level
NET: (1) Yellow LED, indicates Cresnet communication status
ALIGN: (1) Red LED, indicates partition detection
+: (1) Pushbutton, used to increase sensitivity of IR beam; also used for touch-settable ID (TSID)
-: (1) Pushbutton, used to decrease sensitivity of IR beam; also used for touch-settable ID (TSID)

Power Requirements

Current Consumption: 42 mA @ 24 Volts DC
Cresnet Power Usage: 1 Watt

Environmental

Temperature: -13° to 131° F (-25° to 55° C)



GLS-PART-CN Cresnet® Partition Sensor

Housing

Construction: Plastic

Mounting: Surface mount; 1-gang mountable in a 3-1/2 inch deep electrical box, fits decorator-style faceplate

Dimensions

Height: 2.23 in (57 mm)

Width: 4.16 in (106 mm)

Depth: 1.35 in (34 mm)

Weight

3.32 oz (94 g)

MODELS & ACCESSORIES

Available Models

GLS-PART-CN-W: Cresnet® Partition Sensor, White

Notes:

1. Sold separately.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: patents.crestron.com.

Certain Crestron products contain open source software. For specific information, visit www.crestron.com/opensource.

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GLS-PART-CN Cresnet® Partition Sensor



CyberPower

OR500LCDRM1U SMART APP LCD UPS



Cost-effective feature-rich power protection for networking, servers and telecommunications equipment

A rackmount UPS with line interactive topology, the CyberPower Smart App LCD OR500LCDRM1U provides battery backup (using simulated sine wave output) and surge protection for department servers, workgroup servers, workstations, network devices, and telecom installations without active PFC power supplies. The OR500LCDRM1U uses Automatic Voltage Regulation (AVR) to correct minor power fluctuations without switching to battery power, which extends battery life. AVR is essential in areas where power fluctuations occur frequently. The OR500LCDRM1U comes with a three-year warranty and a \$300,000 Connected Equipment Guarantee.

TYPICAL APPLICATIONS

- Workstations
- Corporate Servers
- Automatic Voltage Regulation
- Department Servers
- Network Devices
- Telecom Installations

FEATURES

- Capacity: 500VA / 300W
- Topology: Line Interactive
- Waveform: Simulated Sine Wave
- Output: 120Vac +/- 10%
- Runtime (half/full): 12 minutes / 3 minutes
- Plug type & cord: NEMA 5-15P, 10-ft. cord
- Outlets: 6 (2 surge, 4 surge + battery backup)
- Outlet types: 6 x NEMA 5-15R
- Communication: USB, Relay, SNMP
- Data line protection: Network
- Management software: PowerPanel® Business
- Remote management: Yes, with optional RMCARD205
- Environmental sensor: Yes, with optional RMCARD205 and ENVIROSENSOR
- ENERGY STAR® certified: Yes
- Warranty: Three-Year
- Connected Equipment Guarantee: \$300,000

SPECIFICATIONS

GENERAL	
Energy Saving	GreenPower UPS™ Bypass Technology
ENERGY STAR® certified	Yes
UPS Topology	Line Interactive

INPUT	
Adjustable Voltage Range	88 - 144 VAC
Circuit Breaker	15 A
Cord Length	10 ft (3.0 m)
Input Frequency Range	57 Hz - 63 Hz
Input Plug Type	NEMA 5-15P
Input Voltage Range	90 VAC - 140 VAC
Nominal Input Voltage	120 VAC
Plug Style	Right Angle - 45° Offset

OR500LCDRM1U SMART APP LCD UPS



SPECIFICATIONS - CONT.

OUTPUT		SURGE PROTECTION AND FILTERING	
Automatic Voltage Regulation	Single Boost	EMI/RFI Filtration	Yes
On Battery Frequency	60Hz +/- 1%	Network Protection RJ45	1-in / 1-Out (10/100/1000)
On Battery Voltage	120 VAC +/- 10%	Surge Suppression (Joules)	1150 J
On Battery Waveform	Simulated Sine Wave	MANAGEMENT & COMMUNICATIONS	
Outlet Type	6 - NEMA 5-15R	Audible Alarms	Battery Mode Low Battery Overload Fault
Outlets - Battery and Surge Protected	4	HID Compliant USB Port	Yes
Outlets - Surge Only Protected	2	LCD	Multifunction LCD
Outlets - Total	6	LED Indicators	Power On Wiring Fault
Output Power Factor	0.6	Management Cable	USB Cable
Overload Protection	Internal Circuitry Limiting Circuit Breaker Protected	Serial Port	1 Dry Contact
Typical Transfer Time	8 ms	SNMP / HTTP Remote Monitoring	Yes - with optional RMCARD205
VA	500 VA	Software (Free Download)	PowerPanel® Business
Watts	300 W	PHYSICAL	
BATTERY		Color	Black
Battery Quantity	2	Form Factor	Rackmount
Battery Size	6 V / 7 Ah	Material of Construction	Metal
Battery Type	Sealed Lead-Acid Battery	Rack Height	1U
Hot-Swappable	Yes		
Replacement Battery Cartridge	1 x RB0670X2		
Runtime at Full Load	3 minutes		
Runtime at Half Load	12 minutes		
Typical Recharge Time	8 hours		
User-Replaceable Battery	Yes		

OR500LCDRM1U
SMART APP LCD UPS**SPECIFICATIONS - CONT.**

DIMENSIONS	
Physical Dimensions - Width/Height/Depth (cm)	43.31 x 4.45 x 23.5 cm
Physical Dimensions - Width/Height/Depth (mm)	433 x 44 x 235 mm
Physical Dimensions - Width/Height/Depth (in.)	17.05 x 1.75 x 9.25 in.
Weight (kg)	8.16 kg
Weight (lbs.)	18.0 lbs.
SHIPPING DIMENSIONS	
Shipping Dimensions - Width/Height/Depth (cm)	31.75 x 14.61 x 52.07 cm
Shipping Dimensions - Width/Height/Depth (mm)	317.5 x 146.05 x 520.7 mm
Shipping Dimensions - Width/Height/Depth (in.)	12.5 x 5.75 x 20.5 in.
Shipping Weight (kg)	9.34 kg
Shipping Weight (lbs.)	20.6 lbs.
ENVIRONMENTAL	
Operating Elevation	0 - 10,000 ft (0 - 3,048 m)
Operating Relative Humidity	0 - 95% (non-condensing)
Operating Temperature	32 - 104 °F (0 - 40 °C)
Storage Elevation	0 - 50,000 ft (0 - 15,239 m)
Storage Relative Humidity	0 - 95% (non-condensing)
Storage Temperature	5 - 113 °F (-15 - 45 °C)
CERTIFICATIONS	
Environmental	RoHS Compliant
Safety	UL1778 cUL 107.1 FCC DOC Class B
WARRANTY	
CEG Amount	\$300,000
Connected Equipment Guarantee (CEG)	Lifetime
Extended Warranty Option	WEXT5YR-U1B
Product Warranty	3-Year Limited

QND-8011

 Hanwha Vision



Network

Dome

QND-8011

5M H.265 Dome Camera(Q mini)



Key Features

- Max. 5Megapixel (2592 x 1944) resolution
- 2.8mm fixed lens
- 0.15Lux (Color), WDR (120dB)
- Max. 30fps@5MP (H.265 / H.264)
- H.265, H.264, MJPEG codec support, Multiple streaming
- Tampering, Motion detection, Defocus detection
- Micro SD / SDHC / SDXC memory slot (Max. 128GB)
- Hallway view, WiseStream II support
- LDC, PoE

Compatible Accessories (Optional)



SBP-300LMW



SBP-300WMW1



SBP-300KMW



SBP-300BW



SPG-IND16B



SBP-300PMW



SBP-300WMW



SBP-300NBW



SBP-300CMW

QND-8011



QND-8011

5M H.265 Dome Camera(Q mini)



Specifications

Video	
Imaging Device	1/2.8" CMOS
Resolution	5MP mode : 2592x1944, 1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240 4MP mode : 2560x1440, 1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 15fps(@5MP Max. 2fps)
Min. Illumination	Color: 0.15Lux(F2.0, 1/30sec, 30IRE) BW: 0.15Lux(F2.0, 1/30sec, 30IRE)
Video Out	micro HDMI: 1080p@30/25fps(60/50Hz)
Lens	
Focal Length (Zoom Ratio)	2.8mm fixed focal
Max. Aperture Ratio	F2.0
Angular Field of View	H: 105° / V: 77° / D: 137°
Focus Control	Fixed
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	0--350- / 0--69- / 0--355-
Operational	
Camera Title	Displayed up to 85 characters
Day & Night	Auto(Electrical)
Backlight Compensation	BLC, WDR, SDR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR
Motion Detection	4ea, polygonal zones
Privacy Masking	6ea, rectangular zones
Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC	Support
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (1/5~1/12,000sec)
Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Defocus detection, Motion detection, Tampering
Business Intelligence	People counting
Alarm Triggers	Analytics, Network disconnect
Alarm Events	When alarm trigger occurred - File upload(image): e-mail/FTP - Notification: e-mail - Recording: SD/SDHC/SDXC or NAS recording at event triggers - Handover: PTZ preset

Design and specifications are subject to change without notice. The latest product information / specification can be found at HanwhaVision.com

Hanwha Vision is formerly known as Hanwha Techwin.

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QND-8011

Network	
Ethernet	RJ-45(10/100BASE-T)
Video Compression	H.265/H.264: Main/High, MJPEG
Smart Codec	WiseStream II
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 3 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP
Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform
Security	
OS / Firmware Protect	Firmware encryption
User authentication	Digest Authentication, Prevent brute-force attack
Network authentication	802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2)
Secure Communication	HTTPS, SRTP, WSS(Websocket secure)
Access Control	Access control based on IP address
Data Protect	Authentication information encryption, ZIP compression encryption
Audit	User Access/System/Event log management
Device ID	Device Certificate(Hanwha Private Root CA)
Secure Storage	SDcard partition encrypt
General	
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch
Edge Storage	Micro SD/SDHC/SDXC 1slot 128GB
Memory	512MB RAM, 256MB Flash
Environmental & Electrical	
Operating Temperature / Humidity	-10°C~+40°C(+14°F~+104°F) / 0~90% RH(non-condensing)
Storage Temperature / Humidity	-30°C~+60°C(-22°F~+140°F) / 0~90% RH
Certification	IP42, IK08
Input Voltage	PoE(IEEE802.3af, Class2)
Power Consumption	PoE: Max 5.00W, typical 4.00W
Mechanical	
Color / Material	White / Plastic
RAL Code	RAL9003
Product Dimensions / Weight	ø99.0x56.0mm(ø3.9x2.2"), 165g(0.36 lb)
Hanging Mount (Dome)	SBP-099HMMW
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	40.2m(12.26ft)
Observe (63PPM/ 19PPF)	16.1m(4.90ft)
Recognize (125PPM/ 38PPF)	8.0m(2.45ft)
Identify (250PPM/ 76PPF)	4.0m(1.23ft)

QND-8011



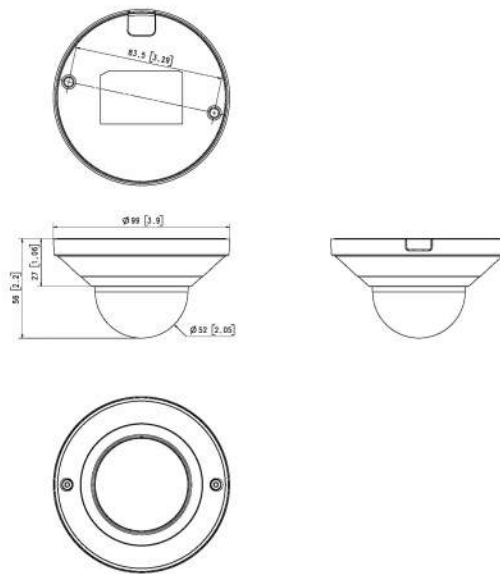
QND-8011

5M H.265 Dome Camera(Q mini)

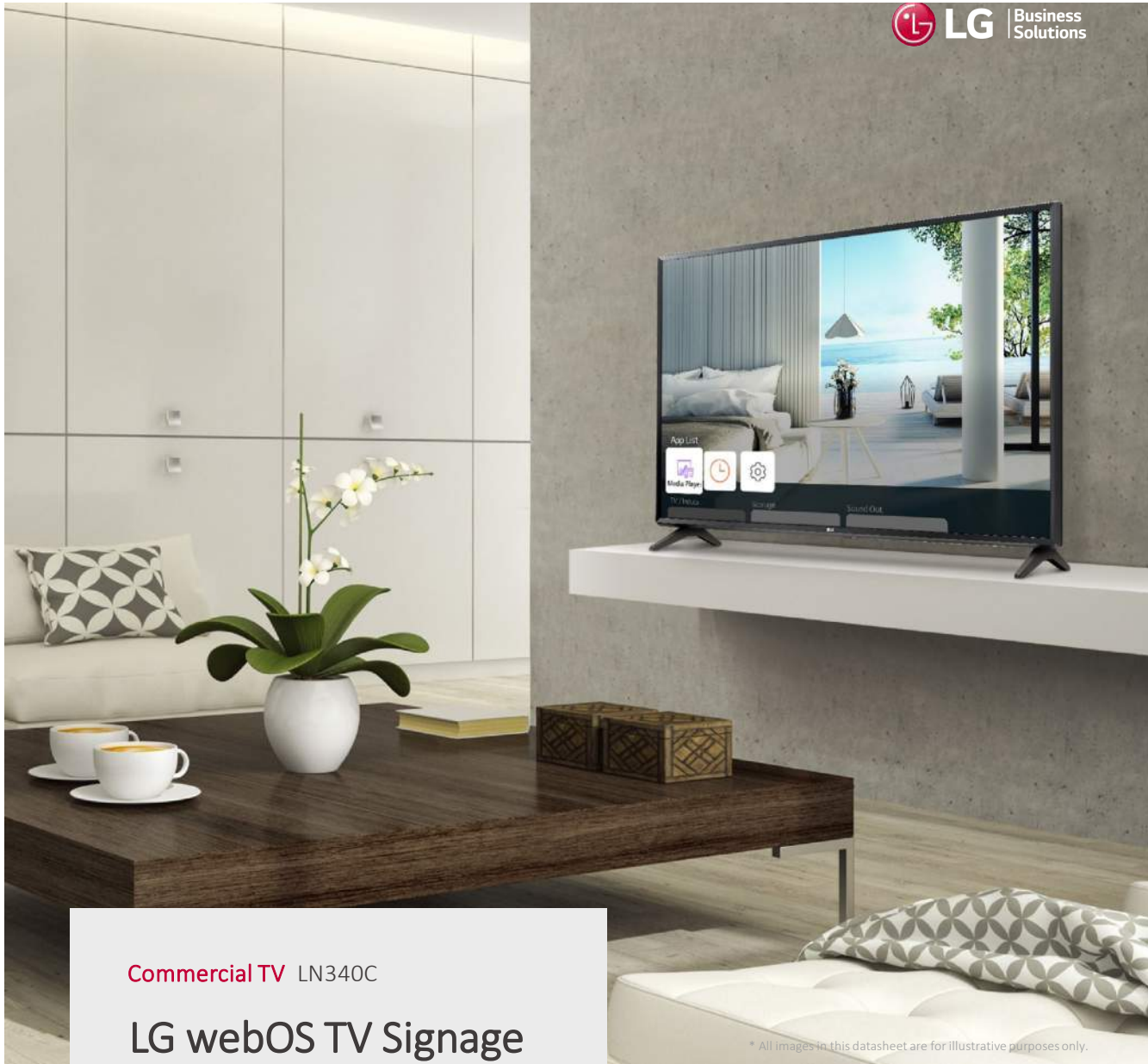


CAD

Unit:mm [inch]



millimeter (inch)



Commercial TV LN340C

LG webOS TV Signage for Versatile Uses



LN340C

Screen Size	32"
Stand Type	2 pole
Resolution	1,366 × 768 (HD)
front color	Ceramic Black
Speaker	5 W + 5 W (2.0 ch)
Broadcasting System	ATSC / Clear QAM/VSB, Analog NTSC

32LN340C



Easy Group Control

The LN340C supports SuperSign Control+ Free version which can manage up to 100 displays through a single account and server. Power, volume, and scheduling can be remotely adjusted, and firmware updates supported.



USB Cloning

USB data cloning makes managing multiple displays efficient for optimal operation. Instead of setting up each display one by one, data can be copied to a USB for one display and can be sent to the other displays through a USB plug-in.*

* USB is not provided by LG. FAT32 or NTFS formatting is recommended.



Compatibility with AV Control Systems

The LN340C has been certified Crestron Connected® for compatibility with professional AV controls to achieve virtually seamless integration and automated, network-based control.



Display Power Management

DPM (Display Power Management) can be configured to be On only when there is a TV signal present to manage power efficiently.



On/Off Time Setting

Create your own time scheduler of your Commercial TV. Once you set opening / closing hours and holidays, the TV will turn on/off according to the schedule.



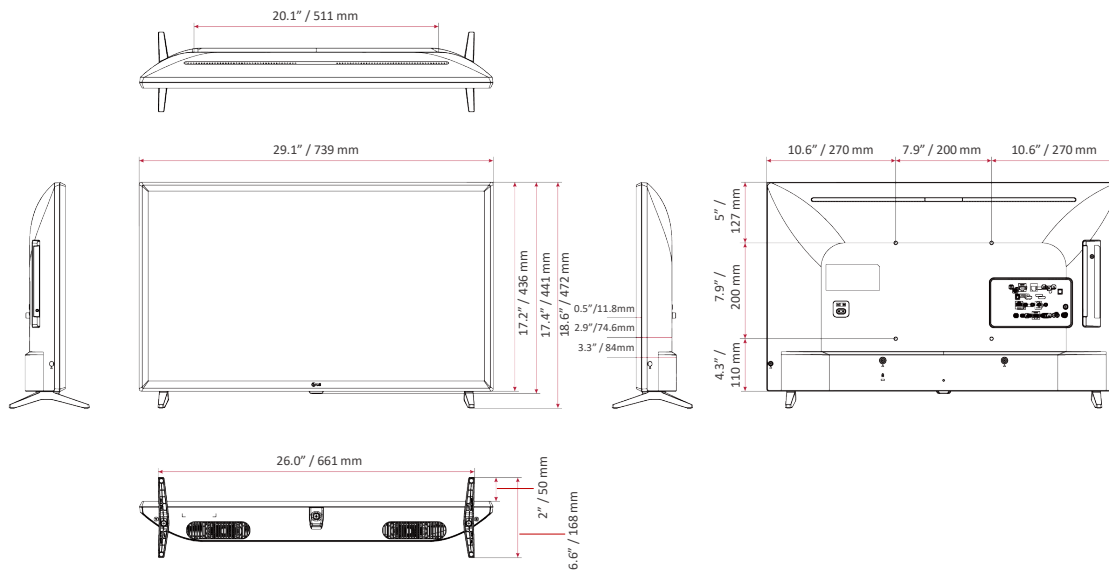
External Speaker Out

Enhance the entertainment experience with an additional speaker (sold separately). Guests can listen to the TV audio from other rooms within their suite in addition to the room where the TV is located.

* Use only with the 3 pole 3.5 mm stereo jack when connecting external speakers.

32LN340C

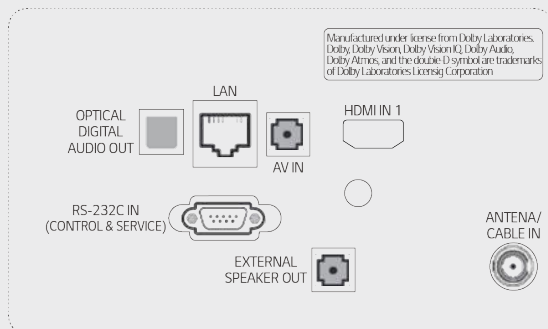
DIMENSIONS



CONNECTIVITY

32"

Rear



Side



32LN340C

SPECIFICATIONS

32LN340C		
Category	Category	Commercial Lite
Design	Stand Type	2 pole
	Front Color	Ceramic Black
Display	Inch	32"
	Resolution	1,366 × 768 (HD)
	Static (Panel) Contrast Ratio	1200 : 1
Audio	Speaker (Sound Output)	5 W + 5 W
	Speaker System	2.0 ch
	LG Sound Sync	Yes
Broadcasting System	Broadcasting System	ATSC / Clear QAM / VSB, Analog NTSC
	Teletext (Closed caption) / Auto Teletext	No / No
Key Features	webOS2.2, USB Cloning, IR Out (RS-232C), PDM, External Speaker Out, Moving Picture Playback (SD / HD / Plus HD), Motion Eye Care, Creston Compatibility, DPM (Digital Power Management), Time Scheduler, NTP Sync Timer, SuperSign Control+ (Free Version Only), Anti-theft System (Kensington Lock)	
Jack Interface	Set Side	HDMI In, USB 2.0
	Set Rear / Bottom	HDMI In, RF In, AV In (Share with Component), Digital Audio Out (Optical), RS-232C (Control & Service), RJ45 (SNMP & MHEG), External Speaker Out (2 W, Stereo, R 1.0 W / L 1.0 W, 8Ω)
Dimension	VESA Compatible	200 × 200
	Weight (without Stand)	10.7 lbs. / 4.85 kg
	Weight (with Stand)	10.8 lbs. / 4.9 kg
	Weight (in Shipping)	13.4 lbs. / 6.1 kg
	Size without Stand (W × H × D)	29.1 x 17.4 x 3.3 in 739 x 441 x 84 mm
	Size with Stand (W × H × D)	29.1 x 18.6 x 6.6 in 739 x 472 x 168 mm
Power	Power Supply (Voltage, Hz)	120 V, 50/60 Hz
	Power Consumption (Typ. / Max.)	49 W / 37.1 W
	Standby Power Consumption	≤ 0.5 W
Required Listing (Certification)	Safety	UL
	EMC	FCC
Accessory	Remote Type	L-Con
	Power Cable	1.8 M, Angle Type

* Specifications are subject to change without notice. Please make sure to check the product manual for details about product usage.



TV Signage UR340C9 Series

LG UHD Signage for Live TV & Promotional Messaging

UR340C9 Series

Sizes	86" / 75" / 65" / 55" / 50" / 43"
Screen Resolution	3,840 x 2,160 (UHD)
Operation Time	16 Hours / 7 Days
Brightness	330 nits (86"/75") 400 nits (65"/55"/50") 300 nits (43")
Built-in Speakers	10 W + 10 W



4K Ultra HD
Resolution



Slim Design



Non Wi-Fi
Non Bluetooth



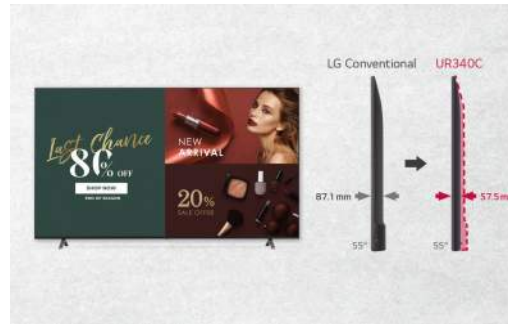
Easy
Management

UR340C9 Series



Ultra HD Resolution Delivers Superb Picture Quality

Ultra HD resolution is four times FHD for content that is vivid and highly detailed. In addition, the UR340C series supports HDR10 to deliver more intense color reproduction and deeper black levels that can improve image contrast.



Elegant Slim Design

The space-saving UR340C series is thinner than LG conventional* models making installation a breeze. In addition, its sophisticated ashed blue color can enhance the décor of the environment in which it's installed.

* 'LG Conventional' refers to the LG US340C series.



Advanced Welcome Screen

To provide a more personalized and welcoming experience, the UR340C series welcome screen features a broader range of programable greeting messages. And if no input signal is present, preset content can be displayed, avoiding the conventional "No Signal" message.



Customized Time Scheduler

The UR340C series features a time scheduler that allows you to program when the display is powered on to conserve power and extend product life.

UR340C9 Series



Display Power Management Support

For more efficient power management, Display Power Management (DPM) can be configured to be powered on only when a TV signal is present.



USB Data Cloning

USB data cloning improves the efficiency of managing multiple displays by allowing you to transfer the data of one display to the other UR340C series displays using a USB drive.

* USB is not provided by LG. FAT32 or NTFS formatting is recommended.



Crestron Connected® Certified

For more efficient meeting management, the UR340C series has been certified by Crestron Connected®, providing seamless integration and automated control* in Crestron Connected® meeting rooms.

* Network-based control



LG's SuperSign* Makes Signage Control More Efficient

LG's SuperSign control software allows you to manage up to 100 displays through a single account and server, giving you remote control over power, volume. Firmware updates are also supported.

* LG SuperSign Control needs to be purchased separately.

UR340C9 Series

SPECIFICATIONS

MODEL		86UR340C9UD	75UR340C9UD	65UR340C9UD	55UR340C9UD	50UR340C9UD	43UR340C9UD
DISPLAY	Diagonal	86"	75"	65"	55"	50"	43"
	Resolution	3840 X 2160 (UHD)	3840 X 2160 (UHD)	3840 X 2160 (UHD)	3840 X 2160 (UHD)	3840 X 2160 (UHD)	3840 X 2160 (UHD)
	Brightness	330 nits	330 nits	400 nits	400 nits	400 nits	300 nits
	Dynamic Contrast Ratio (Dynamic MCI (Hz))	1,000,000:1	1,000,000:1	1,000,000:1	1,000,000:1	1,000,000:1	1,000,000:1
	Static (Panel) Contrast Ratio	1200:1	1200:1	1200:1	1300:1	5000:1	1200:1
	Response Time (G to G)	5 ms	8 ms	8 ms	14 ms	18 ms	8 ms
	Refresh Rate	120 Hz	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz
	Life span	30,000 hours	30,000 hours	30,000 hours	30,000 hours	30,000 hours	30,000 hours
	HDR_HDR 10 Pro	Yes	Yes	Yes	Yes	Yes	Yes
	HDR_HLG	Yes	Yes	Yes	Yes	Yes	Yes
AUDIO	Built-in Speakers	10W + 10W	10W + 10W	10W + 10W	10W + 10W	10W + 10W	10W + 10W
	Speaker System	2.0 ch	2.0 ch	2.0 ch	2.0 ch	2.0 ch	2.0 ch
FEATURES	Broadcasting System	ATSC, Clear QAM, Analog NTSC	ATSC, Clear QAM, Analog NTSC	ATSC, Clear QAM, Analog NTSC	ATSC, Clear QAM, Analog NTSC	ATSC, Clear QAM, Analog NTSC	ATSC, Clear QAM, Analog NTSC
	SW Clock (World Clock / Alarm)	Yes	Yes	Yes	Yes	Yes	Yes
	HDMI-ARC	ARC, HDMI2	ARC, HDMI2	ARC, HDMI2	ARC, HDMI2	ARC, HDMI2	ARC, HDMI2
	USB Cloning	Yes	Yes	Yes	Yes	Yes	Yes
	WOL	Yes	Yes	Yes	Yes	Yes	Yes
	SNMP	Yes	Yes	Yes	Yes	Yes	Yes
	Self Diagnostics (USB)	Yes	Yes	Yes	Yes	Yes	Yes
	SI Compatible Protocol	TVLink Tuner	TVLink Tuner	TVLink Tuner	TVLink Tuner	TVLink Tuner	TVLink Tuner
	HTNG-CEC	Yes	Yes	Yes	Yes	Yes	Yes
	Simplink (HDMI-CEC)	Yes (1.4)	Yes (1.4)	Yes (1.4)	Yes (1.4)	Yes (1.4)	Yes (1.4)
	IR Out	Yes (RS-232C)	Yes (RS-232C)	Yes (RS-232C)	Yes (RS-232C)	Yes (RS-232C)	Yes (RS-232C)
	Multi-code IR	Yes	Yes	Yes	Yes	Yes	Yes
	Hotel Mode / PDM / Installer Menu	Yes	Yes	Yes	Yes	Yes	Yes
	Lock mode	Yes (Limited)	Yes (Limited)	Yes (Limited)	Yes (Limited)	Yes (Limited)	Yes (Limited)
	Welcome Video	Yes	Yes	Yes	Yes	Yes	Yes
	Welcome Screen (Splash Image)	Yes	Yes	Yes	Yes	Yes	Yes
	Insert Image	Yes	Yes	Yes	Yes	Yes	Yes
	RJP (remote jack pack) Compatibility	Teleadapt/Guestlink (HDMI CEC)	Teleadapt/Guestlink (HDMI CEC)	Teleadapt/Guestlink (HDMI CEC)	Teleadapt/Guestlink (HDMI CEC)	Teleadapt/Guestlink (HDMI CEC)	Teleadapt/Guestlink (HDMI CEC)
	USB Auto playback	Yes	Yes	Yes	Yes	Yes	Yes
	Moving Picture Playback (SD/HD/Plus HD)	Yes	Yes	Yes	Yes	Yes	Yes
	Auto Off / Sleep Timer	Yes	Yes	Yes	Yes	Yes	Yes
	Energy Saving mode	Yes	Yes	Yes	Yes	Yes	Yes
	Motion Eye Care	Yes	Yes	Yes	Yes	Yes	Yes
	Crestron Compatibility	Yes	Yes	Yes	Yes	Yes	Yes
	DPM (Digital Power management)	Yes	Yes	Yes	Yes	Yes	Yes
	Time scheduler	Yes	Yes	Yes	Yes	Yes	Yes
	RTC (Real Time Clock)	Yes	Yes	Yes	Yes	Yes	Yes
	NTP sync timer	Yes (Clock Setup)	Yes (Clock Setup)	Yes (Clock Setup)	Yes (Clock Setup)	Yes (Clock Setup)	Yes (Clock Setup)
	SuperSign Control	Yes	Yes	Yes	Yes	Yes	Yes

UR340C9 Series

SPECIFICATIONS

MODEL		86UR340C9UD	75UR340C9UD	65UR340C9UD	55UR340C9UD	50UR340C9UD	43UR340C9UD
CONNECTIVITY	HDMI 2.0 In	Yes (x3)	Yes (x3)	Yes (x3)	Yes (x3)	Yes (x3)	Yes (x3)
	USB In	Yes	Yes	Yes	Yes	Yes	Yes
	RF In	Yes	Yes	Yes	Yes	Yes	Yes
	Digital Audio Out (Optical)	Yes	Yes	Yes	Yes	Yes	Yes
	RS-232C	3.5mm (4 pole)	3.5mm (4 pole)	3.5mm (4 pole)	3.5mm (4 pole)	3.5mm (4 pole)	3.5mm (4 pole)
	LG SVC only	3.5mm	3.5mm	3.5mm	3.5mm	3.5mm	3.5mm
	RJ45 (LAN)	Yes	Yes	Yes	Yes	Yes	Yes
MECHANICAL	Color	Navy Blue (Almost Black)	Navy Blue (Almost Black)	Navy Blue (Almost Black)	Navy Blue (Almost Black)	Navy Blue (Almost Black)	Navy Blue (Almost Black)
	VESA Compatible	600 x 400	400 x 400	300 x 300	300 x 300	200 x 200	200 x 200
	Kensington Lock	Yes	Yes	Yes	Yes	Yes	Yes
	Weight without Stand	99.6 lbs / 45.2 kg	69.2 lbs / 31.4 kg	47.4 lbs / 21.5 kg	30.9 lbs / 14.0 kg	25.8 lbs / 11.7 kg	19.4 lbs / 8.8 kg
	Weight with Stand	101.2 lbs / 45.9 kg	70.8 lbs / 32.1 kg	48.1 lbs / 21.8 kg	31.3 lbs / 14.2 kg	26.2 lbs / 11.9 kg	19.6 lbs / 8.9 kg
	Shipping Weight	128.8 lbs / 58.4 kg	91.5 lbs / 41.5 kg	61.3 lbs / 27.8 kg	41.9 lbs / 19.0 kg	32.2 lbs / 14.6 kg	24.3 lbs / 11.0 kg
	Size without Stand	75.9 x 43.5 x 2.4 in 1927 x 1104 x 59.9 mm	66.1 x 38.0 x 2.4 in 1678 x 964 x 59.9 mm	57.2 x 33.0 x 2.3 in 1454 x 838 x 57.7 mm	48.6 x 28.1 x 2.3 in 1235 x 715 x 57.5 mm	44.1 x 25.6 x 2.2 in 1121 x 651 x 57.1 mm	38.1 x 22.2 x 2.2 in 967 x 564 x 57.1 mm
	Size with Stand	75.9 x 45.9 x 14.3 in 1927 x 1167 x 362 mm	66.1 x 40.4 x 14.3 in 1678 x 1027 x 362 mm	57.2 x 35.4 x 10.7 in 1454 x 899 x 271 mm	48.6 x 30.4 x 9.1 in 1235 x 772 x 232 mm	44.1 x 27.9 x 9.1 in 1121 x 708 x 232 mm	38.1 x 24.5 x 8.5 in 967 x 622 x 216 mm
	Size in Shipping	83.3 x 47.8 x 9.0 in 2115 x 1215 x 228 mm	74.0 x 43.9 x 7.9 in 1880 x 1115 x 200 mm	63.0 x 38.2 x 6.8 in 1600 x 970 x 172 mm	53.5 x 31.9 x 6.4 in 1360 x 810 x 162 mm	47.8 x 30.5 x 6.0 in 1215 x 775 x 152 mm	41.5 x 26.0 x 5.6 in 1055 x 660 x 142 mm
	Bezel Width (L/R/T/B): On Bezel	159/159/159/ 199mm	139/139/139/ 199mm	128/128/128/ 199mm	128/128/128/ 199mm	128/128/128/ 199mm	128/128/128/ 199mm
	Bezel Width (L/R/T/B): Off Bezel	69/69/69/ 184 mm	79/79/79/ 184 mm	68/68/68/ 184 mm	69/69/69/ 184 mm	73/73/78/ 184 mm	69/69/69/ 184 mm
POWER	Power Supply (Voltage, Hz)	120 Vac, 50/60 Hz	120 Vac, 50/60 Hz	120 Vac, 50/60 Hz	120 Vac, 50/60 Hz	120 Vac, 50/60 Hz	120 Vac, 50/60 Hz
	Max Power Consumption	339 W	228 W	174.4 W	165 W	144.8 W	119.6 W
	Typical Power Consumption	313 W	202 W	148.3 W	135.3 W	118.8 W	97.2 W
	Standby Power Consumption	Less than 0.5W	Less than 0.5W	Less than 0.5W	Less than 0.5W	Less than 0.5W	Less than 0.5W
WARRANTY & OTHER	Warranty	3 Year Limited	3 Year Limited	3 Year Limited	3 Year Limited	3 Year Limited	3 Year Limited
	UPC	195174023747	195174023761	195174023785	195174023808	195174023822	195174023846
	Assembled In	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
	FCC (Regulatory)	Yes	Yes	Yes	Yes	Yes	Yes
	UL (Certification)	Yes	Yes	Yes	Yes	Yes	Yes
	EPEAT (Environmental)	Yes	Yes	Yes	Yes	Yes	Yes
	ISTA6 (Packaging)	Yes	Yes	Yes	Yes	Yes	Yes
	Accessories	Chromecast anti-theft cover (optional), RS232 9-pin to 3.5mm adapter, 2m power cable (attached), remote control (L-Con)		Chromecast anti-theft cover (optional), RS232 9-pin to 3.5mm adapter, 1.8m power cable (detached), remote control (L-Con)			

UR340C9 Series

CONNECTIVITY -

86" / 75" / 65" / 55" / 50" / 43"

86"

Rear



75"

Rear



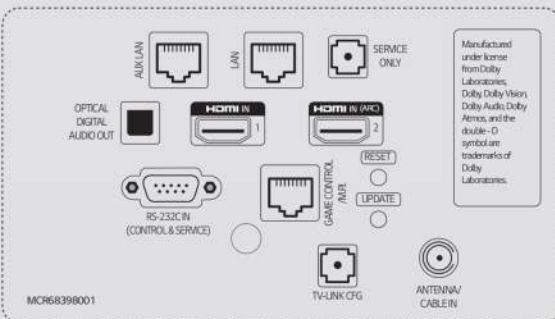
86"

Side



65" / 55" / 50" / 43"

Rear



75" / 65" / 55" / 50" / 43"

Side



HDMI™

EWR SERIES

WALL MOUNT RACK

the EWR Series 19" wall mount rack provides unparalleled quality at an aggressive price and is ideal when installing smaller systems in both secured and non-secured areas

FEATURES

- Available in 17" and 22" depths
- 150 lb. weight capacity
- Tool-Free Quick-Mount™ system allows for easy, one-person mounting of the center section to the backpan on the jobsite
- Rack can be mounted for left or right hand swing
- 1/2", 3/4", 1" & 1-1/2" electrical knockouts and 5/8" UHF/VHF antenna knockouts on top & bottom, easily removable for cable pass-through
- 10-1/2" x 10-1/2" cutout in the backpan for electrical pull-box
- Abundant lacing points throughout the interior facilitate cable management
- Front rail adjustable at 1/8", 5/8" and 1-1/8" increments, option available for full front to rear adjustability
- Durable black textured powder coat finish
- UL Listed in the US and Canada

SPECIFICATIONS

EIA compliant 19" wall mount rack shall be Middle Atlantic Products model # EWR-___-___ (refer to chart). Overall dimensions shall be 23.4" W x ___" H x ___" D (refer to chart). Weight capacity shall be 150 lbs. Tool-Free Quick-Mount™ system shall enable one-person installation. Center section and backpan shall be 16-gauge steel, phosphate pre-treated and finished in a black textured powder coat. Rackrail shall be constructed of 11-gauge steel with tapped 10-32 mounting holes in universal EIA spacing with black e-coat finish and marked rackspaces. Rack shall be constructed to swing open for component cabling access, center section shall pivot for either left or right opening. Rack shall have 1/2", 3/4", 1" and 1-1/2" electrical knockouts, and BNC knockouts for UHF/VHF antennas in top and bottom. Backpan shall have 10-1/2" x 10-1/2" cutout for cable pass-through. Available with standard solid front door, shall be part # EWR-XX-17/22SD (refer to chart). Rack shall be UL Listed in the US and Canada to the UL-2416(NWIN) Category when used with optional bonding kit, model # PET-K-___. Rack shall be GREENGUARD Gold Certified. Rack shall be manufactured by an ISO 9001 and ISO 14001 registered company. Rack shall be warranted to be free from defects in material or workmanship under normal use and conditions for the lifetime of the rack.



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OPTIONS:

- Front doors - shall be 16-gauge steel, part # FD-XX (solid), EVFD-XX (vented, 22% open area), LVFD-XX (vented, 68% open area-excludes 8 space rack) (PFD-XX (plexi), (XX=# of rackspaces)
- Rear rail kit - 11-gauge, 10-32 threaded, sold in pairs, hardware included, part # DWR-RRXX
- Adjustable rackrail bracket shall be Middle Atlantic Products part # EWR-ARB-XX
- Top dust cover shall be Middle Atlantic Products part # DWR-CVR
- Optional bonding kit for UL-2416 (NWIN) compliance shall be Middle Atlantic Products PET-K-D/EWR (for backpan to center section), PET-K-D/EWRD (for backpan to center section to front door), PET-K-FD (for front door to center section)

EIA/TIA COMPLIANT

PATENT PENDING



PEP
eco
PASS
PORT®



PRODUCT CERTIFIED FOR
LOW CHEMICAL EMISSIONS
UL.COM/GG
UL 2818



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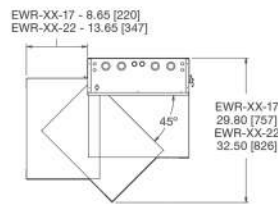
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EWR SERIES

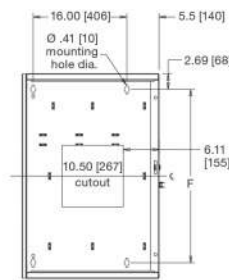
BASIC DIMENSIONS

All dimensions in inches unless otherwise noted. [All dimensions in brackets are in millimeters]

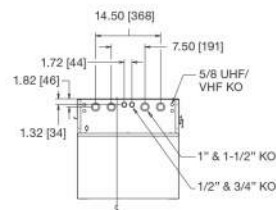
center section clearance



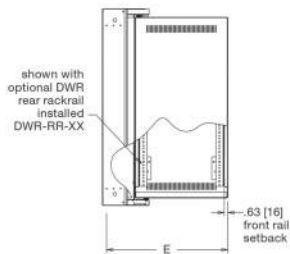
front view backpan



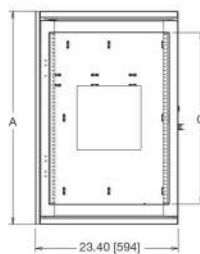
top view
(knockouts in top view are also located on the bottom)



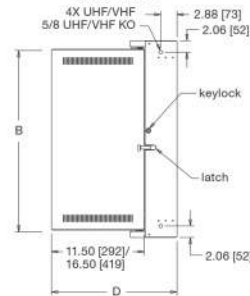
side view



front view center section



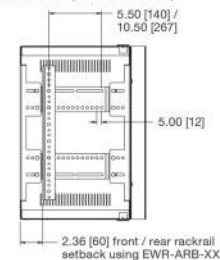
side view



Part #	A Overall Height	B Center Section Height	C Racking Height / Rackspaces	D Overall Depth	E Useable Depth	F Mounting Hole Spacing
EWX-8-17	21.00 [533]	18.13 [460]	14.00 [356] / 8 spaces	17.30 [439]	15.00 [381]	15.63 [397]
EWX-8-22	21.00 [533]	18.13 [460]	14.00 [356] / 8 spaces	22.30 [559]	20.00 [508]	15.63 [397]
EWX-10-17	24.50 [622]	21.63 [549]	17.50 [445] / 10 spaces	17.30 [439]	15.00 [381]	19.13 [486]
EWX-10-22	24.50 [622]	21.63 [549]	17.50 [445] / 10 spaces	22.30 [559]	20.00 [508]	19.13 [486]
EWX-12-17	28.00 [711]	25.13 [638]	21.00 [533] / 12 spaces	17.30 [439]	15.00 [381]	22.63 [575]
EWX-12-22	28.00 [711]	25.13 [638]	21.00 [533] / 12 spaces	22.30 [559]	20.00 [508]	22.63 [575]
EWX-16-17	35.00 [889]	32.13 [816]	28.00 [711] / 16 spaces	17.30 [439]	15.00 [381]	29.63 [752]
EWX-16-22	35.00 [889]	32.13 [816]	28.00 [711] / 16 spaces	22.30 [559]	20.00 [508]	29.63 [752]

Note: Dimensions for 17" and 22" deep models are given in the form [EWX-XX-17 / EWX-XX-22]

side view
(shown with option EWX-ARB)



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Rackmount Power Strips

EIA/TIA Compliant



Rackmount units provide economical power distribution

Features

- 8 circuit breaker protected rear outlets
- Enhanced surge protection with no surge diversion to ground (PD-915, PD-920 and PD-815 Series only)
- Two models available with front outlet and illuminated power switch or pilot light for status indication
- Choice of finishes available: Black Brushed and Anodized, Black powder coat
- Select models available with 20' power cords

PD-915R / PD-915RC-20 / PD-920R-NS / PD-920R / PD-920RC-20



front view

PD-815R-PL



front view

PD-915R-PL



front view

PD-815RA-PL



front view



15 amp - rear view



20 amp - rear view

Architects' and Engineers' Specifications

EIA compliant 19" Rackmount power strip shall be Middle Atlantic Products model # ____ (refer to chart), with a ____ amp power capacity (refer to chart), differential and common mode surge and spike protection with no surge diversion to ground (available on all models with the exception of PD-920R-NS) and EMI filtering. Rackmount power strip shall operate on 120 volt AC/60Hz current. Rackmount power strip shall include ____' (refer to chart) SignalSAFE™ power cord with ____ plug (refer to chart), 8 rear outlets (refer to chart), ____ front outlet (s) (refer to chart), and ____ amp circuit breaker located on the power strip's ____ (refer to chart). Rackmount power strip shall occupy one rackspace and be constructed of 18-gauge phosphate pre-treated steel with a ____ finish (refer to chart). Rackmount power strip shall be manufactured by an ISO 9001 registered company.

Rackmount power strip shall be warranted to be free from defects in materials and workmanship under normal use and conditions for a period of 3 years. Rackmount power distribution unit shall be ETL listed to UL standard 1419, UL 60950-1 and UL 60065 in the US; CSA standard 60950-1, and CSA C22.2 No. 60065 in Canada.

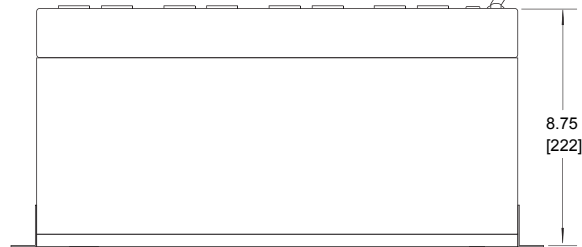
CUSTOMIZABLE SPECIFICATION CLIPS AVAILABLE AT MIDDLEATLANTIC.COM

Rackmount Power Strips basic dimensions

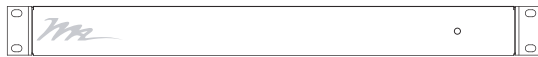
All dimensions in inches [Bracketed dimensions are in millimeters]



TOP VIEW



FRONT VIEW

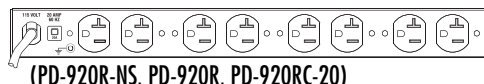


(PD-815RA-PL)

REAR VIEW



(PD-920R-NS, PD-915R, PD-915RC-20, PD-920R, PD-920RC-20)



(PD-920R-NS, PD-920R, PD-920RC-20)



(PD-815R-PL)



(PD-815R-PL / PD-815RA-PL)



(PD-915R-PL)



(PD-915R)

Part #	Amps	Power Cord/ Plug Type	# Front Outlets	# Rear Outlets	Circuit Breaker Location	Rear Outlet Type	Cord Length	Finish
PD-815R-PL	15	14/3 NEMA 5-15P	0	8	Rear	NEMA 5-15R	9'	Black Powder Coat
PD-815RA-PL	15	14/3 NEMA 5-15P	0	8	Rear	NEMA 5-15R	9'	Black Brushed and Anodized
PD-915R	15	14/3 NEMA 5-15P	1	8	Front	NEMA 5-15R	9'	Black Powder Coat
PD-920R-NS	20	12/3 NEMA 5-20P	1	8	Rear	NEMA 5-20R	9'	Black Powder Coat
PD-915R-PL	15	14/3 NEMA 5-15P	1	8	Rear	NEMA 5-15R	9'	Black Brushed and Anodized
PD-920R	20	12/3 NEMA 5-20P	1	8	Front	NEMA 5-20R	9'	Black Powder Coat
PD-920RC-20	20	12/3 NEMA 5-20P	1	8	Front	NEMA 5-20R	20'	Black Powder Coat
PD-915RC-20	15	14/3 NEMA 5-15P	1	8	Front	NEMA 5-15R	20'	Black Powder Coat

Maximum Derated Load (North America) for 15R Models: 12 Amps
for 20R Models: 16 Amps

Surge Suppression & EMI Filter Specifications (all models except PD-920R-NS)

- Maximum allowable voltage: 125 VAC (RMS)
 - Maximum continuous voltage differential applied between line and neutral
 - Maximum clamping voltage: 395 volts@100 amps
- Peak impulse current (8/20 micro seconds):
 - 30,000 amps, one time
 - 21,000 amps, two times within 5 minutes
 - 9,000 amps, ten times within 2 minutes
- Maximum peak impulse current pulse as defined between line and neutral
- Maximum multiple impulse current derated per spec
- Response time: Instantaneous (Less than 1 nanosecond)
- EMI/ RF Suppression: More than 20 db
 - Calculated line to neutral, 100 KHz to 1 MHz suppression based upon nominal impedance

NETGEAR®

AV Line

Datasheet | M4250 series AV Line Managed Switches



Switching Engineered for AV over IP

Introducing the NETGEAR AV Line of M4250 Switches, developed and engineered for audio/video professionals with dedicated service and support. M4250 has been built from the ground up for the growing AV over IP market, combining years of networking expertise in AV with M4300 and M4500 series with best practices from leading experts in the professional AV market. AV codecs

generally use 1Gbps or 10Gbps per stream and the AV Line of M4250 targets the widespread 1Gbps codecs.

PoE+, Ultra90 PoE++ and rear-facing ports ensure a clean integration in AV racks. M4250 switches come pre-configured for standard audio and video signals. When requirements are more specific, an AV user interface offers customization with port-based profiles. For audio,

Dante, Q-SYS, AES67, and AVB profiles are available. For video the M4250 offers profiles for NVX, AMX, Q-SYS, NDI, Dante etc. as well as audio/video/control mixed profiles. When multiple switches are used, NETGEAR IGMP Plus™ brings automation for you to just connect them together, or with M4300 and M4500 switches.

Highlights

Extended AV features

- Dedicated AV web-based GUI interface for more specific AV installations
- Color-based AV profiles can be applied to the different ports
- Dante, Q-SYS, AES67 and AVB audio profiles
- NVX, SVSI, Q-SYS, NDI and Dante video profiles
- Audio / video / control mixed profiles
- Automatic switch interconnect with NETGEAR Auto-Trunk, Auto-LAG and IGMP Plus
- Common Layer 2 and Layer 3 switching engine across all M4250 models

- Built-in IT web GUI, console, telnet and SSH consistent with other NETGEAR M4300 and M4500 series
- Feature set includes static, RIP and PIM routing, DHCP Server and PTPv2

Audio Video Bridging (AVB) services

- AVB is one of the many features designed into the M4250 product line
- AVB is an industry standard for transporting content over a network
- AVB is used most often when very low latency is required such as in live performances when lip sync is critical

Other IT use cases

- Standard or recessed mounting with all ports in the back, or all ports in the front

- Fully featured L2/L3/L4 platform for midsize Enterprise campus networks, IoT and IPTV

Industry standard management

- Industry standard command line interface (CLI), main NETGEAR IT web interface (GUI), SNMP, sFlow and RSPAN
- The NETGEAR Engage™ Controller manages all M4250, M4300, M4350, and M4500 switches for your AV installations.

Industry leading warranty

- NETGEAR M4250 series is covered under NETGEAR ProSAFE Limited Lifetime Hardware Warranty*
- 90 days of Technical Support via phone and email, Lifetime Technical Support through online chat and Lifetime Next Business Day hardware replacement

NETGEAR®

AV Line

Datasheet | **M4250 series**
AV Line Managed Switches

Hardware-at-a-Glance

Model Name	Form-Factor	Switching Fabric	REAR (REVERSIBLE)*					LEDs	MANAGEMENT	Model Number
			10/100/1000 BASE-T RJ45 ports	100/1000/2.5G BASE-T RJ45 ports	1000BASE-X SFP ports	1000/10G BASE-X SFP+ ports	PSU			
M4250-9G1F-PoE+	Desktop 210 x 40 x 140mm	20 Gbps	8 ports PoE+ (110W) 1 additional port	-	1 port SFP 1G	-	1 x External Power Adapter (130W)	In Front: Power LED PoE Max LED	Ethernet: 1G Out-of-band (Rear)	GSM4210PD
M4250-8G2XF-PoE+	Desktop 210 x 40 x 140mm	56 Gbps	8 ports PoE+ (220W)	-	-	2 ports SFP+ 1G; 10G	1 x External Power Adapter (254W)	Fan LED (GSM4210PX only)	Console: USB-C (Front) Storage: USB-A (Rear)	GSM4210PX
M4250-10G2F-PoE+	1U rackmount 440 x 43.2 x 200mm	24 Gbps	8 ports PoE+ (125W) 2 additional ports	-	2 ports SFP 1G	-	1 x Fixed (C14) On/off switch	Available both in front and in the rear: Power LED PoE Max LED (PoE models) Fan LED Port LEDs	Ethernet: 1G Out-of-band (Rear) Console: RJ45 RS232 (Rear) Console: USB-C (Rear) Storage: USB-A (Front) LED Ext: USB-C (Front)	GSM4212P
M4250-10G2XF-PoE+	1U rackmount 440 x 43.2 x 200mm	60 Gbps	8 ports PoE+ (240W) 2 additional ports	-	-	2 ports SFP+ 1G, 10G	1 x Fixed (C14) On/off switch			GSM4212PX
M4250-10G2XF-PoE++	1U rackmount 440 x 43.2 x 257mm	60 Gbps	8 ports PoE++** (720W) 2 additional ports	-	-	2 ports SFP+ 1G, 10G	1 x Fixed (C14) On/off switch			GSM4212UX
M4250-26G4F-PoE+	1U rackmount 440x43.2x257mm	60 Gbps	24 ports PoE+ (300W) 2 additional ports	-	4 ports SFP 1G	-	1 x Fixed (C14) On/Off switch			GSM4230P
M4250-26G4F-PoE++	1U rackmount 440x43.2x400mm	60 Gbps	24 ports PoE++ (1,440W)** (1 PSU/720W; 2 PSU/1,440W) 2 additional ports	-	4 ports SFP 1G	-	2 x Fixed (C14) On/Off switch			GSM4230UP
M4250-26G4XF-PoE+	1U rackmount 440x43.2x400mm	132 Gbps	24 ports PoE+ (480W) 2 additional ports	-	-	4 ports SFP+ 1G; 10G	1 x Fixed (C14) On/Off switch			GSM4230PX
M4250-40G8F-PoE+	1U rackmount 440x43.2x400mm	96 Gbps	40 ports PoE+ (480W)	-	8 ports SFP 1G	-	1 x Fixed (C14) On/Off switch			GSM4248P
M4250-40G8XF-PoE+	1U rackmount 440x43.2x400mm	240 Gbps	40 ports PoE+ (960W)	-	-	8 ports SFP+ 1G; 10G	1 x Fixed (C14) On/Off switch			GSM4248PX
M4250-40G8XF-PoE++	2U rackmount 440x86.4x350mm	240 Gbps	40 ports PoE++ (2,880W)** (1 PSU/720W; 2 PSU/1,650W; 3 PSU/2,880W)	-	-	8 ports SFP+ 1G; 10G	3 x Fixed (C14) On/Off switch			GSM4248UX
M4250-12M2XF	1U rackmount 440x43.2x100mm	100 Gbps	-	12 ports 100M, 1G, 2.5G	-	2 ports SFP+ 1G, 10G	1 x Fixed (C14) On/Off switch			MSM4214X
M4250-16XF	1U rackmount 440x43.2x200mm	320 Gbps	-	-	-	16 ports SFP+ 10G only (First 12 ports support 1G)	1 x Fixed (C14) On/Off switch			XSM4216F

* Reversed mounting is possible when ports are desired on the front of the rack by using the standard rackmount ears, or the included alternate rackmount ears to mount the switch recessed by 2-Inches to allow for the cabling.

** Ultra90 PoE++ 802.3bt is compatible with 802.3af PoE (15.4W), 802.3at PoE+ (30W) and 802.3bt (60W, 75W and 90W).



NETGEAR®

AV Line

Datasheet | M4250 series

AV Line Managed Switches

Acoustic-at-a-Glance

Model Name	FAN OFF MODE Setting / maximum loading*					QUIET MODE Setting at 25°C ambient**					COOL MODE Setting at 25°C ambient**			Model Number
	Fanless State	Ambient	Sensor	PoE Power Load	Conditions	PoE Power Load	Fan Duty	Sensor	Case Temp (Top)	Acoustic	Fan Duty	Case Temp (Top)	Acoustic	
M4250-9G1F-PoE+	The switch is fanless	25°C	50°C	110W	All ports can be used	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	GSM4210PD
M4250-8G2XF-PoE+	0dBA / 37.4°C Case Temp	25°C	S1&2 <= 60°C S3 <= 58°C	180W	RJ45 ports only (no SFP+)	220W	10	<= 60°C	33.6°C	19.3dBA	100	28.8°C	35.3dBA	GSM4210PX
M4250-10G2F-PoE+	0dBA / 41.8°C Case Temp	25°C	<= 42°C	80W	All ports can be used	125W	25	<= 36°C	35.9°C	27.38dBA	100	27.2°C	55dBA	GSM4212P
M4250-10G2XF-PoE+	0dBA / 39.6°C Case Temp	25°C	<= 44°C	90W	All ports can be used	240W	25	<= 37°C	40.6°C	27.4dBA	100	30.9°C	56dBA	GSM4212PX
M4250-10G2XF-PoE++	0dBA / 44.6°C Case Temp	25°C	<= 67°C	45W	All ports can be used	0-250W	25	<= 49°C	42.9°C	34.57dBA	100	41.8°C	66.23dBA	GSM4212UX
						250-380W	30	<= 49°C	43.3°C	40dBA				
						380W-500W	35	<= 49°C	44.9°C	44.22dBA				
						500W-720W	40	<= 49°C	52.1°C	47.19dBA				
M4250-26G4F-PoE+	0dBA / 40.5°C Case Temp	25°C	S1 <= 43°C S2 <= 47°C	45W	8 ports PoE (no SFP)	0-200W	25	S1 <= 43°C S2 <= 47°C	43.5°C	28dBA	100	36.7°C	57dBA	GSM4230P
						200W-300W	30	S1 <= 44°C S2 <= 48°C	51.3°C	34dBA				
M4250-26G4F-PoE++	Not Supported	25°C	S1 <= 41°C S2 <= 46°C	45W	8 ports PoE (no SFP+)	0-280W	20	S1 <= 37°C S2 <= 39°C	52.9°C	28dBA	100	720W 36.7°C 1,440W 46°C	69dBA	GSM4230UP
						280W-360W	25	S1 <= 38°C S2 <= 40°C	57.4°C	36dBA				
						360W-420W	30	S1 <= 39°C S2 <= 41°C	54.4°C	41dBA				
						420W-480W	35	S1 <= 40°C S2 <= 42°C	53.3°C	47dBA				
						480W-540W	40	S1 <= 41°C S2 <= 43°C	52.3°C	50dBA				
						540W-600W	45	S1 <= 42°C S2 <= 44°C	54.4°C	54dBA				
						600W-660W	50	S1 <= 43°C S2 <= 45°C	53.6°C	57dBA				
						660W-1,440W	55	S1 <= 44°C S2 <= 46°C	55.7°C	60dBA				
M4250-26G4XF-PoE+	0dBA / 43.4°C Case Temp	25°C	S1 <= 41°C S2 <= 46°C	45W	8 ports PoE (no SFP+)	0-350W	20	S1 <= 41°C S2 <= 46°C	39.3°C	25dBA	100	32.3°C	67dBA	GSM4230PX
						350W-480W	30	S1 <= 42°C S2 <= 47°C	36.8°C	42dBA				
M4250-40G8F-PoE+	0dBA / 45.2°C Case Temp	25°C	S1 <= 37°C S2 <= 50°C	30W	8 ports PoE (No SFP)	0-150W	20	S1 <= 37°C S2 <= 50°C	43.1°C	30dBA	100	35.4°C	68dBA	GSM4248P
						150W-200W	25	S1 <= 38°C	42.1°C	36dBA				
						200W-340W	30	S1 <= 39°C S2 <= 51°C	44°C	40dBA				
						340W-480W	35	S1 <= 40°C	47.6°C	47dBA				

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AV Line

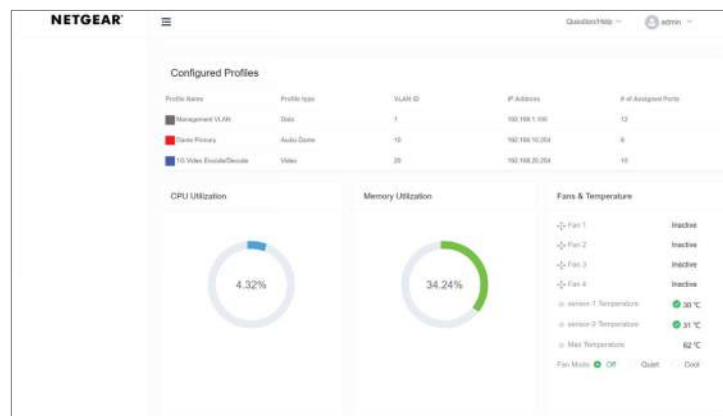
Datasheet | M4250 series AV Line Managed Switches

Acoustic-at-a-Glance

FAN OFF MODE Setting / maximum loading*						QUIET MODE Setting at 25°C ambient**					COOL MODE Setting at 25°C ambient**			Model Number
Model Name	Fanless State	Ambient	Sensor	PoE Power Load	Conditions	PoE Power Load	Fan Duty	Sensor	Case Temp (Top)	Acoustic	Fan Duty	Case Temp (Top)	Acoustic	
M4250-40G8XF-PoE+	Not Supported					0-400W	20	S1<= 33°C S2<=46°C	54.2°C	29dBA	100	36.1°C	69dBA	GSM4248PX
						400W-480W	25	S1<= 34°C S2<=47°C	42.8°C	35dBA				
						480W-560W	30	S1<= 35°C S2<=48°C	41.9°C	41dBA				
						560W-640W	35	S1<= 36°C S2<=49°C	42.1°C	48dBA				
						640W-720W	40	S1<= 37°C S2<=50°C	40.9°C	51dBA				
						720W-800W	45	S1<= 38°C S2<=51°C	40.7°C	54dBA				
						800W-880W	50	S1<= 39°C S2<=52°C	40.4°C	57dBA				
						880W-960W	55	S1<= 40°C S2<=53°C	40.5°C	59dBA				
M4250-40G8XF-PoE++	Not Supported					0-160W	20	S1<= 37°C S2<=49°C	41.3°C	30dBA	100	720W 31.4°C	71dBA	GSM4248UX
						160W-240W	25	S1<= 38°C	38.8°C	36dBA				
						240W-320W	30	S1<= 39°C S2<=50°C	36.4°C	42dBA				
						320W-400W	35	S1<= 40°C	35.3°C	49dBA				
						400W-480W	40	S1<= 41°C S2<=51°C	34.4°C	51dBA				
						480W-560W	45	S1<= 42°C	34.3°C	55dBA				
						560W-640W	50	S1<= 43°C S2<=52°C	35.1°C	57dBA				
						660W-2,880W	55	S1<= 44°C	36.5°C	60dBA				
M4250-12M2XF	0dBA / 56°C Case Temp	25°C	<= 64°C	-	8 ports 2.5G (no SFP+)	-	25	<= 58°C	53.5°C	28.5dBA	100	33.2°C	55dBA	MSM4214X
M4250-16XF	0dBA / 41.3°C Case Temp	25°C	<= 78°C	-	8 ports SFP+	-	25	<= 67°C	41.6°C	27.44dBA	100	30.3°C	57dBA	XSM4216F

* Software-controlled fan adjustments enable the fans to be turned off when ambient temperature and PoE loads are appropriate for a totally fanless operation.

** dBA values are SPL (Sound Pressure Level) values, testing following the ISO-7779 standard. Bystander Mode. Chamber Temp 25°C during testing. Full, 100%, Data and PoE loaded. Worst case.



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AV Line

Datasheet | M4250 series AV Line Managed Switches

Software-at-a-Glance

	LITE LAYER 3 PACKAGE											
Model Name	Management	AV Dedicated UI	IPv4 / IPv6 ACL and QoS, DiffServ	IPv4 / IPv6 Multicast Filtering	IPv4 / IPv6 Policing and Convergence	Spanning Tree Green Ethernet	VLANs	Trunking Port Channel	IPv4 / IPv6 Authentication Security	IPv4 / IPv6 Static Routing	IPv4 / IPv6 Dynamic Routing	Model Number
M4250 series		AV web-based GUI			Auto-VoIP							
	Out-of-band	Designed for AV installers		NETGEAR IGMP™ Plus for automated IGMP between switches	Policy-based routing (PBR)							
	IT Web GUI (main)	AV-related controls	Ingress/egress		LLDP-MED	STP, MTP, RSTP	Static, Dynamic, Voice, MAC	Auto-Trunk and Auto-LAG between M4250 Switches	Successive Tiering (DOT1X; MAB; Captive Portal)	Port, Subnet, VLAN routing		
	HTTPS CLI; Telnet; SSH	Audio over IP profiles	1 Kbps shaping Time-based	IGMPv3 MLDv2 Snooping, Proxy ASM & SSM	IEEE 1588 PTPv2 1-Step End-to-End Transparent Clock	PV(R)STP BPDU/STRG Root Guard	GVRP/ GMRP	Static LAG, or Dynamic LACP		Multicast static routes	IPv4: RIP	
	SNMP, MIBs RSPAN	AVB profile		IGMPv1,v2 Querier (compatible v3)		EEE 802.3az (EEE is disabled by default)	Double VLAN mode	(LACP automatically reverts to and from Static LAG)	DHCP Snooping Dynamic ARP Inspection IP Source Guard	DHCPv4 Server	IPv4/IPv6: PIM-SM PIM-DM SSM	All models
	Radius Users, TACACS+	Video over IP profiles	Single Rate Policing							DHCP Relay		
		Mixed Audio and Video profiles		Control Packet Flooding	AVB*: 802.1AS, 802.1Qav, 802.1Qat MSRP, 802.1ak MMRP, 802.1ak MVRP		Private VLANs	Seven (7) L2/ L3/L4 hashing algorithms		Stateful DHCPv6 Server		



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AV Line

Datasheet | **M4250 series**

AV Line Managed Switches

Performance-at-a-Glance

	TABLE SIZE													
Model Name	MAC ARP/NDP	Routing/ Switching Capacity	Throughput 64-byte	Application Route Scaling	Packet Buffer	Latency	CPU	IP Multicast Routing Entries	Jumbo Frames	Multicast IGMP Group membership	VLANs	DHCP	sFlow	Model Number
M4250-9G1F-PoE+	16K MAC 4K ARP/ NDP	20 Gbps Line-Rate	14.88 Mpps	Static: 894v4/126v6 RIP: 32v4	16Mb	<2.27µs 1G	ARM A9 1.25Ghz 32-Bit 2GB RAM							GSM4210PD
M4250-8G2XF-PoE+	16K MAC 4K ARP/ NDP	56 Gbps Line-Rate	41.67 Mpps	Static: 894v4/126v6 RIP: 32v4	16Mb	<2.14µs 1G <0.84µs 10G								GSM4210PX
M4250-10G2F-PoE+	16K MAC 4K ARP/ NDP	24 Gbps Line-Rate	17.86 Mpps	Static: 894v4/126v6 RIP: 32v4	16Mb	<2.27µs 1G								GSM4212P
M4250-10G2XF-PoE+	16K MAC 4K ARP/ NDP	60 Gbps Line-Rate	44.64 Mpps	Static: 894v4/126v6 RIP: 32v4	16Mb	<2.14µs 1G <0.84µs 10G								GSM4212PX
M4250-10G2XF-PoE++	16K MAC 4K ARP/ NDP	60 Gbps Line-Rate	44.64 Mpps	Static: 894v4/126v6 RIP: 32v4	16Mb	<1.84µs 1G <0.81µs 10G								GSM4212UX
M4250-26G4F-PoE+	16K MAC 4K ARP/NDP	60 Gbps Line-Rate	44.64 Mpps	Static: 894v4/126v6 RIP: 32v4	16Mb	<2.15µs 1G	Quad-Core Cortex-A57 ARMv8 1.8Ghz 64-bit 2GB RAM	512 IPv4 128 IPv6	Up to 12K	2K IPv4 2K IPv6	4K VLANs	DHCP Server: 2K leases IPv4: 256 pools IPv6: 16 pools	16 samplers 16 pollers 8 receivers	GSM4230P
M4250-26G4F-PoE++	16K MAC 4K ARP/NDP	60 Gbps Line-Rate	44.64 Mpps	Static: 894v4/126v6 RIP: 32v4	16Mb	<2.15µs 1G								GSM4230UP
M4250-26G4XF-PoE+	16K MAC 4K ARP/NDP	132 Gbps Line-Rate	98.21 Mpps	Static: 894v4/126v6 RIP: 32v4	16Mb	<2.29µs 1G <0.83µs 10G								GSM4230PX
M4250-40G8F-PoE+	16K MAC 4K ARP/NDP	96 Gbps Line-Rate	71.42 Mpps	Static: 894v4/126v6 RIP: 32v4	32Mb	<2.46µs 1G								GSM4248P
M4250-40G8XF-PoE+	16K MAC 4K ARP/NDP	240 Gbps Line-Rate	178.56 Mpps	Static: 894v4/126v6 RIP: 32v4	32Mb	<2.74µs 1G <0.73µs 10G								GSM4248PX
M4250-40G8XF-PoE++	16K MAC 4K ARP/NDP	240 Gbps Line-Rate	178.56 Mpps	Static: 894v4/126v6 RIP: 32v4	32Mb	<2.78µs 1G <0.73µs 10G	ARM A9 1.25Ghz 32-Bit 2GB RAM							GSM4248UX
M4250-12M2XF	16K MAC 4K ARP/ NDP	100 Gbps Line-Rate	74.40 Mpps	Static: 894v4/126v6 RIP: 32v4	16Mb	<2.84µs 1G <6.02µs 2.5G <0.81µs 10G								MSM4214X
M4250-16XF	16K MAC 4K ARP/ NDP	320 Gbps Line-Rate	238.08 Mpps	Static: 894v4/126v6 RIP: 32v4	16Mb	<1.30µs 1G <0.86µs 10G								XSM4216F

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AV Line

Datasheet | M4250 series AV Line Managed Switches

Product Brief



The NETGEAR AV Line M4250 series was designed with input from AV Professionals. The result is a line of switches built from the ground up to support 1Gb audio and video over IP with customized hardware and software along with dedicated service and support.

NETGEAR M4250 series key features:

- Ranges from 8 to 48 ports with a variety of PoE+ and Ultra90 PoE++ options for 15.4W, 30W, 60W, 75W and 90W AVoIP endpoints
- Uplink options include 1G for audio installations or standalone video installations as well as 10G uplinks for larger scale video deployments
- Also includes 12-port multi-gigabit Ethernet and 16-port 1G/10G fiber models for plug and play aggregation in a star topology
- Rackmount models designed for a clean integration with traditional, rack-mounted, AV equipment
- The M4250 switches come with a sleek, black display panel with status in front and all cabling plus additional status in the back
- Reversed mounting is possible when ports are desired on the front of the rack
- A second pair of rackmount ears allows the switches to be mounted recessed by 2-inches to allow for the cabling

- Software-controlled fan adjustments enable the fans to be turned off when ambient temperature and PoE loads are appropriate for a totally fanless operation
- Threaded holes on the bottom (4xM5 for 50x100mm VESA) and in front (1xM10 for clamps) allow for universal mounting options outside the rack as well
- New! M4250 desktop versions for use outside of the AV racks in conference rooms, mobile studios, on the wall, under a table or behind a screen
- For video, the M4250 offers profiles for NVX, SVSI, Q-SYS, NDI, Kramer KDS, Aurora Multimedia, ZeeVee, Atlona, Dante and SDVoE
- Other AV CODECs and manufacturers are supported as well as audio/video/control mixed profiles
- IGMP Plus™ means AV-over-IP multicasting will work out of the box and not flood your network
- The Engage™ Controller manages all M4250, M4300, M4350, and M4500 switches for your AV installations with Auto-LAG / Auto-Trunk

NETGEAR M4250 series AV software features:

- Pre-configured for audio and video over IP out of the box, the M4250 switches enable encoders and decoders to be connected with zero configuration
- When more configuration is required, an AV web-based GUI is available
- This interface has been specially designed for AV installers with specific AV-related controls made more accessible and with port-based profiles
- For audio, profiles for Dante, Q-SYS, AES67, and AVB are built-in

NETGEAR M4250 series other software features:

- All M4250 switches share the same high-end NETGEAR Layer 2 / Layer 3 switching engine for a consistent experience
- All switches in the M4250 series have another main, IT web-based GUI for midsize Enterprise campus networks, IoT and IPTV

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AV Line

Datasheet | M4250 series AV Line Managed Switches

- Additional features include static, RIP and PIM-SM, DM and SSM multicast routing, DHCP Server and PTPv2 Transparent Clock (1-step E2E)
- Advanced classifier-based, time-based hardware implementation for L2 (MAC), L3 (IP) and L4 (UDP/TCP transport ports) security and prioritization
- Selectable Port-Channel / LAG (802.3ad - 802.1AX) L2/L3/L4 hashing for fault tolerance and load sharing with any type of Ethernet channeling
- Voice VLAN with SIP, H323 and SCCP protocols detection and LLDP-MED IP phones automatic QoS and VLAN configuration
- Efficient authentication tiering with successive DOT1X, MAB and Captive Portal methods for streamlined BYOD
- Comprehensive IPv4/IPv6 static and dynamic routing including Policy-based routing and 6-to-4 tunneling
- Advanced IPv4/IPv6 security implementation including malicious code detection, DHCP Snooping, IP Source Guard protection and DoS attacks mitigation

NETGEAR M4250 series management features:

- DHCP/BootP innovative auto-installation including firmware and configuration file upload automation
- Industry standard SNMP, RMON, MIB, LLDP, AAA, sFlow, RSPAN and PTPv2
- Service port for out-of-band Ethernet management (OOB)
- Standard RS232 straight-through serial RJ45 and USB Type-C ports for local management console
- Standard USB-A port for local storage, logs, configuration or image files
- Dual firmware image for updates with minimum service interruption
- Single-pane-of-glass NMS300 management platform with mass configuration support
- Industry standard command line interface (CLI) for IT admins used to other vendors commands
- Fully functional Web console (main GUI) for IT admins who prefer an easy to use graphical interface
- Dedicated AV web-based GUI interface available at [switch IP address:8080] for AV installations

NETGEAR M4250 series warranty and support:

- NETGEAR ProSAFE Limited Lifetime Hardware Warranty**
- Included Lifetime Technical Support
- Included Lifetime Next Business Day Hardware Replacement
- Offering free network design services and installation support, the NETGEAR Engineering Services Team is ready to help ensure your 1G deployments with the M4250 AV over IP switches go as smooth as possible. Just drop us an email at ProAVDesign@netgear.com to get started!



GSM4210PX
GSM4210PD



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AV Line

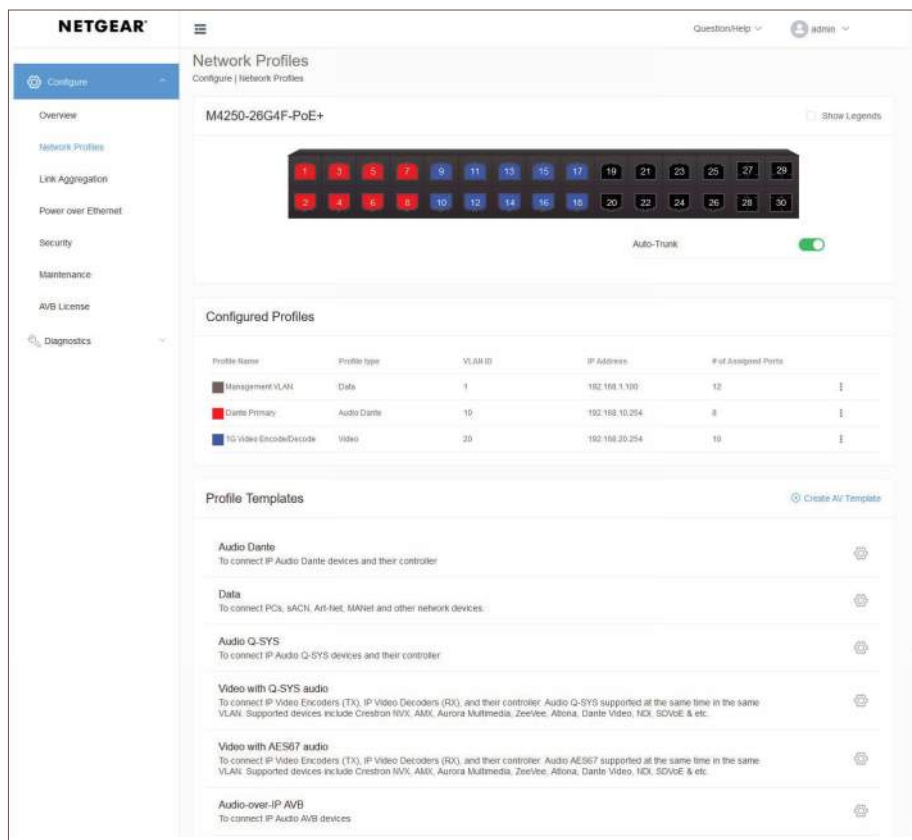
Datasheet | M4250 series AV Line Managed Switches

Features highlights

Dedicated AV UI for AV installations

M4250 switch series is pre-configured for Audio and Video over IP out of the box with a dedicated AV web-based GUI interface for more specific AV installations

- Color-based AV profiles can be applied to the different ports
- Dante, Q-SYS, AES67 and AVB audio profiles
- NVX, AMX, Q-SYS, NDI, Kramer KDS, Aurora Multimedia, ZeeVee, Atlona, Dante, etc. video profiles
- Audio / video / control mixed profiles



Best value switching performance:

16K MAC address table, 4K ARP and 4K concurrent VLANs for typical midsize environments

Low latency at all network speeds, including 10 Gigabit fiber interfaces

Jumbo frames support of up to 12KB accelerating performance with compatible nodes

Ranges from 8 to 48 ports with a variety of PoE+ and Ultra90 PoE++ 802.3bt options for 15.4W, 30W, 60W, 75W and 90W AVoIP (1G) endpoints

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AV Line

Datasheet | M4250 series AV Line Managed Switches

Tier 1 availability

Rapid Spanning Tree (RSTP) and Multiple Spanning Tree (MSTP) allow for rapid transitioning of the ports to the Forwarding state and the suppression of Topology Change Notification

NETGEAR PVSTP implementation follows the same rules than other vendor's Per VLAN STP for strict interoperability

- Including industry-standard PVST+ interoperability
- PVSTP is similar to the MSTP protocol as defined by IEEE 802.1s, the main difference being PVSTP runs one instance per VLAN
- In other words, each configured VLAN runs an independent instance of PVSTP
- FastUplink feature immediately moves an alternate port with lowest cost to forwarding state when the root port goes down to reduce recovery time
- FastBackbone feature selects new indirect port when an indirect port fails

NETGEAR PVRSTP implementation follows the same rules than other vendor's Per VLAN RSTP for strict interoperability

- Including industry-standard RPVST+ interoperability
- PVRSTP is similar to the RSTP protocol as defined by IEEE 802.1w, the main difference being PVRSTP runs one instance per VLAN
- In other words, each configured VLAN runs an independent instance of PVRSTP
- Each PVRSTP instance elects a root bridge independent of the other
- Hence there are as many Root Bridges in the region as there are VLANs configured
- Per VLAN RSTP has in built support for FastUplink and FastBackbone

IP address conflict detection performed by embedded DHCP servers prevents accidental IP address duplicates from perturbing the overall network stability

IP Event Dampening reduces the effect of interface flaps on routing protocols: the routing protocols temporarily disable their processing (on the unstable interface) until the interface becomes stable, thereby greatly increasing the overall stability of the network

Ease of deployment

Automatic configuration with DHCP and BootP Auto Install eases large deployments with a scalable configuration files management capability, mapping IP addresses and host names and providing individual configuration files to multiple switches as soon as they are initialized on the network

Both the Switch Serial Number and primary MAC address are reported by a simple "show hardware" command in CLI - facilitating discovery and remote configuration operations

DHCP L2 Relay agents eliminate the need to have a DHCP server on each physical network or subnet

- DHCP Relay agents process DHCP messages and generate new DHCP messages
- Supports DHCP Relay Option 82 circuit-id and remote-id for VLANs
- DHCP Relay agents are typically IP routing-aware devices and can be referred to as Layer 3 relay agents

Automatic Voice over IP prioritization with Auto-VoIP simplifies most complex multi-vendor IP telephones deployments either based on protocols (SIP, H323 and SCCP) or on OUI bytes (default database and user-based OUIs) in the phone source MAC address; providing the best class of service to VoIP streams (both data and signaling) over other ordinary traffic by classifying traffic, and enabling correct egress queue configuration

An associated Voice VLAN can be easily configured with Auto-VoIP for further traffic isolation

When deployed IP phones are LLDP-MED compliant, the Voice VLAN will use LLDP-MED to pass on the VLAN ID, 802.1P priority and DSCP values to the IP phones, accelerating convergent deployments

Ease of management and granular control

Dual firmware image and dual configuration file for transparent firmware updates / configuration changes with minimum service interruption

Flexible Port-Channel/LAG (802.3ad - 802.1AX) implementation for maximum compatibility, fault tolerance and load sharing with any type of Ethernet channeling from other vendors switch, server or storage devices conforming to IEEE 802.3ad - including static (selectable hashing algorithms) - or to IEEE 802.1AX with dynamic LAGs or port-channel (highly tunable LACP Link Aggregation Control Protocol)

LACP mode automatically reverts to and from Static LAG, useful when the host isn't LACP anymore, for instance during a factory reset or re-configuration

Auto-LAG: If more than one link between two M4250 switches, a Link Aggregation Group is created, dynamically

Unidirectional Link Detection Protocol (UDLD) and Aggressive UDLD detect and avoid unidirectional links automatically, in order to prevent forwarding anomalies in a Layer 2 communication channel in which a bi-directional link stops passing traffic in one direction

Port names feature allows for descriptive names on all interfaces and better clarity in real word admin daily tasks

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SDM (System Data Management, or switch database) templates allow for granular system resources distribution depending on IPv4 or IPv6 applications

- ARP Entries (the maximum number of entries in the IPv4 Address Resolution Protocol ARP cache for routing interfaces)
- IPv4 Unicast Routes (the maximum number of IPv4 unicast forwarding table entries)
- IPv6 NDP Entries (the maximum number of IPv6 Neighbor Discovery Protocol NDP cache entries)
- IPv6 Unicast Routes (the maximum number of IPv6 unicast forwarding table entries)
- ECMP Next Hops (the maximum number of next hops that can be installed in the IPv4 and IPv6 unicast forwarding tables)
- IPv4 Multicast Routes (the maximum number of IPv4 multicast forwarding table entries)
- IPv6 Multicast Routes (the maximum number of IPv6 multicast forwarding table entries)

Loopback interfaces management for routing protocols administration

Private VLANs and local Proxy ARP help reduce broadcast with added security

Management VLAN ID is user selectable for best convenience

Auto-Trunk: Dynamic VLAN trunking as soon as a M4250 switch gets connected to another M4250 switch

Industry-standard VLAN management in the command line interface (CLI) for all common operations such as VLAN creation; VLAN names; VLAN "make static" for dynamically created VLAN by GVRP registration; VLAN trunking; VLAN participation as well as VLAN ID (PVID) and VLAN tagging for one interface, a group of interfaces or all interfaces at once

Simplified VLAN configuration with industry-standard Access Ports for 802.1Q unaware endpoints and Trunk Ports for switch-to-switch links with Native VLAN

System defaults automatically set per-port broadcast, multicast, and unicast storm control for typical, robust protection against DoS attacks and faulty clients which can, with BYOD, often create network and performance issues

IP Telephony administration is simplified with consistent Voice VLAN capabilities per the industry standards and automatic functions associated

Comprehensive set of "system utilities" and "Clear" commands help troubleshoot connectivity issues and restore various configurations to their factory defaults for maximum admin efficiency: traceroute (to discover the routes that packets actually take when traveling on a hop-by-hop basis and with a synchronous response when initiated from the CLI), clear dynamically learned MAC addresses, counters, IGMP snooping table entries from the Multicast forwarding database etc...

Syslog and Packet Captures can be sent to USB storage for rapid network troubleshooting

Replaceable factory-default configuration file for predictable network reset in distributed branch offices without IT personnel

All major centralized software distribution platforms are supported for central software upgrades and configuration files management (HTTP, TFTP), including in highly secured versions (HTTPS, SFTP, SCP)

Simple Network Time Protocol (SNTP) can be used to synchronize network resources and for adaptation of NTP, and can provide synchronized network timestamp either in broadcast or unicast mode (SNTP client implemented over UDP - port 123)

Embedded RMON (4 groups) and sFlow agents permit external network traffic analysis

Engineered for convergence and AV-over-IP

Audio (Voice over IP) and Video (multicasting) comprehensive switching, filtering, routing and prioritization

Auto-VoIP, Voice VLAN and LLDP-MED support for IP phones QoS and VLAN configuration

IEEE 1588 (section 10 and 11.5) PTPv2 Transparent Clock (TC) End-to-End implementation considering the residence time of PTPv2 packets from ingress to egress

- 1-step Transparent Clock mode, using the residence time of the PTPv2 packet at the egress port level in Standalone mode, or Stack Master only
- The "Sync" & "Delay_Req" fields of passing/egressing out PTPv2 packets are updated with the residence time in the switch, the other fields in PTPv2 packets ("Announce", "Delay_Resp", "Pdelay_Req" and "Pdelay_Resp") are not updated

NETGEAR IGMP Plus™ for automatic multicast across a M4250 / M4300 / M4350 / M4500 L2 network (Spine and Leaf topologies), removing the need for L3 PIM routing

- IGMP Plus is pre-configured on default VLAN 1 out of the box
- IGMP Plus can be configured on another VLAN for automatic IGMP across switches on that VLAN (uplinks can make part of that VLAN in trunk mode)
- IGMP Plus allow AV-over-IP devices (TX/Encoders and RX/Decoders) to be connected across multiple switches in a star topology
- The show igmpsnooping group command in CLI and GUI displays the Source and Group IP addresses along with their corresponding MAC addresses that are learnt through IGMP Snooping in a given VLAN on a given interface

The M4250 series automatically configure the interconnect between switches for robust topologies

With IGMP Plus, Auto-Trunk and Auto-LAG, your deployment will JUST WORK

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IGMP Snooping and Proxy for IPv4, MLD Snooping and Proxy for IPv6, and Querier mode facilitate fast receivers joins and leaves for multicast streams and ensure multi-cast traffic only reaches interested receivers everywhere in a Layer 2 or a Layer 3 network, including source-specific (SSM) and any-source (ASM) multicast

Multicast VLAN Registration (MVR) uses a dedicated Multicast VLAN to forward multicast streams and avoid duplication for clients in different VLANs

Multicast routing (PIM-SM and PIM-DM, both IPv4 and IPv6) ensure multicast streams can reach receivers in different L3 subnets

PoE power management and schedule enablement for powering on and powering off PoE nodes connected to the switch

AVB is one of the many features designed into the M4250 product line

- IEEE 802.1BA-2011 Audio Video Bridging (AVB)
- IEEE 802.1AS-2011 gPTP, IEEE 802.1Qav-2009 FQTTSS, IEEE 802.1Qat-2010 MSRP, IEEE 802.1ak MMRP, IEEE 802.1ak MVRP
- Maximum of 256 AVB streams per switch
- AVB is not supported in LAG (link aggregation groups, or Etherchannel)

Layer 3 routing package

Static Routes/ECMP Static Routes for IPv4 and IPv6

- Static and default routes are configurable with next IP address hops to any given destination
- Permitting additional routes creates several options for the network administrator
- The admin can configure multiple next hops to a given destination, intending for the router to load share across the next hops
- The admin distinguishes static routes by specifying a route preference value: a lower preference value is a more preferred static route
- A less preferred static route is used if the more preferred static route is unusable (down link, or next hop cannot be resolved to a MAC address)

Advanced Static Routing functions for administrative traffic control

- Static Reject Routes are configurable to control the traffic destined to a particular network so that it is not forwarded through the router
- Such traffic is discarded and the ICMP destination unreachable message is sent back to the source
- Static reject routes can be typically used to prevent routing loops
- Default routes are configurable as a preference option

In order to facilitate VLAN creation and VLAN routing using Web GUI, a VLAN Routing Wizard offers following automated capabilities:

- Create a VLAN and generate a unique name for VLAN
- Add selected ports to the newly created VLAN and remove selected ports from the default VLAN
- Create a LAG, add selected ports to a LAG, then add this LAG to the newly created VLAN
- Enable tagging on selected ports if the port is in another VLAN
- Disable tagging if a selected port does not exist in another VLAN
- Exclude ports that are not selected from the VLAN
- Enable routing on the VLAN using the IP address and subnet mask entered as logical routing interface

DHCP Relay Agents relay DHCP requests from any routed interface, including VLANs, when DHCP server doesn't reside on the same IP network or subnet

- The agent relays requests from a subnet without a DHCP server to a server or next-hop agent on another subnet
- Unlike a router which switches IP packets transparently, a DHCP relay agent processes DHCP messages and generates new DHCP messages
- Supports DHCP Relay Option 82 circuit-id and remote-id for VLANs
- Multiple Helper IPs feature allows to configure a DHCP relay agent with multiple DHCP server addresses per routing interface and to use different server addresses for client packets arriving on different interfaces on the relay agent server addresses for client packets arriving on different interfaces on the relay agent

Router Discovery Protocol is an extension to ICMP and enables hosts to dynamically discover the IP address of routers on local IP subnets

- Based on RFC 1256 for IPv4
- Routers periodically send router discovery messages to announce their presence to locally-attached hosts
- The router discovery message advertises one or more IP addresses on the router that hosts can use as their default gateway
- Hosts can send a router solicitation message asking any router that receives the message to immediately send a router advertisement
- Router discovery eliminates the need to manually configure a default gateway on each host
- It enables hosts to switch to a different default gateway if one goes down

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Loopback interfaces are available as dynamic, stable IP addresses for other devices on the network, and for routing protocols

Support of Routing Information Protocol (RIPv2) as a distance vector protocol specified in RFC 2453 for IPv4

- Each route is characterized by the number of gateways, or hops, a packet must traverse to reach its intended destination
- Categorized as an interior gateway protocol, RIP operates within the scope of an autonomous system

IP Multinetting allows to configure more than one IP address on a network interface (other vendors may call it IP Aliasing or Secondary Addressing)

ICMP Throttling feature adds configuration options for the transmission of various types of ICMP messages

- ICMP Redirects can be used by a malicious sender to perform man-in-the-middle attacks, or divert packets to a malicious monitor, or to cause Denial of Service (DoS) by blackholing the packets
- ICMP Echo Requests and other messages can be used to probe for vulnerable hosts or routers
- Rate limiting ICMP error messages protects the local router and the network from sending a large number of messages that take CPU and bandwidth

The Policy Based Routing feature (PBR) overrides routing decision taken by the router and makes the packet to follow different actions based on a policy

- It provides freedom over packet routing/forwarding instead of leaving the control to standard routing protocols based on L3
- For instance, some organizations would like to dictate paths instead of following the paths shown by routing protocols
- Network Managers/Administrators can set up policies such as:
 - My network will not carry traffic from the Engineering department
 - Traffic originating within my network with the following characteristics will take path A, while other traffic will take path B
 - When load sharing needs to be done for the incoming traffic across multiple paths based on packet entities in the incoming traffic

Enterprise security

Traffic control MAC Filter and Port Security help restrict the traffic allowed into and out of specified ports or interfaces in the system in order to increase overall security and block MAC address flooding issues

DHCP Snooping monitors DHCP traffic between DHCP clients and DHCP servers to filter harmful DHCP message and builds a bindings database of (MAC address, IP address, VLAN ID, port) tuples that are considered authorized in order to prevent DHCP server spoofing attacks

IP source guard and Dynamic ARP Inspection use the DHCP snooping bindings database per port and per VLAN to drop incoming packets that do not match any binding and to enforce source IP/MAC addresses for malicious users traffic elimination

Time-based Layer 2 / Layer 3-v4 / Layer 3-v6 / Layer 4 Access Control Lists (ACLs) can be binded to ports, Layer 2 interfaces, VLANs and LAGs (Link Aggregation Groups or Port channel) for fast unauthorized data prevention and right granularity

For in-band switch management, management ACLs on CPU interface (Control Plane ACLs) are used to define the IP/MAC or protocol through which management access is allowed for increased HTTP/HTTPS or Telnet/SSH management security

Out-of-band management is available via dedicated service port (1G RJ45 OOB) when in-band management can be prohibited via management ACLs

Bridge protocol data unit (BPDU) Guard allows the network administrator to enforce the Spanning Tree (STP) domain borders and keep the active topology consistent and predictable - unauthorized devices or switches behind the edge ports that have BPDU enabled will not be able to influence the overall STP by creating loops

Spanning Tree Root Guard (STRG) enforces the Layer 2 network topology by preventing rogue root bridges potential issues when for instance, unauthorized or unexpected new equipment in the network may accidentally become a root bridge for a given VLAN

Dynamic 802.1x VLAN assignment mode, including Dynamic VLAN creation mode and Guest VLAN / Unauthenticated VLAN are supported for rigorous user and equipment RADIUS policy server enforcement

- Up to 48 clients (802.1x) per port are supported, including the authentication of the users domain, in order to facilitate convergent deployments. For instance when IP phones connect PCs on their bridge, IP phones and PCs can authenticate on the same switch port but under different VLAN assignment policies (Voice VLAN versus other Production VLANs)

802.1x MAC Address Authentication Bypass (MAB) is a supplemental authentication mechanism that lets non-802.1x devices bypass the traditional 802.1x process altogether, letting them authenticate to the network using their client MAC address as an identifier

- A list of authorized MAC addresses of client NICs is maintained on the RADIUS server for MAB purpose
- MAB can be configured on a per-port basis on the switch
- MAB initiates after unsuccessful dot1x authentication process (configurable time out), when clients don't respond to any of EAPOL packets
- When 802.1X unaware clients try to connect, the switch sends the MAC address of each client to the authentication server
- The RADIUS server checks the MAC address of the client NIC against the list of authorized addresses
- The RADIUS server returns the access policy and VLAN assignment to the switch for each client

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With Successive Tiering, the Authentication Manager allows for authentication methods per port for a Tiered Authentication based on configured time-outs

- By default, configuration authentication methods are tried in this order: Dot1x, then MAB, then Captive Portal (web authentication)
- With BYOD, such Tiered Authentication is powerful and simple to implement with strict policies
 - For instance, when a client is connecting, M4300 tries to authenticate the user/client using the three methods above, the one after the other
- The admin can restrict the configuration such that no other method is allowed to follow the captive portal method, for instance

Double VLANs (DVLAN) pass traffic from one customer domain to another through the “metro core” in a multi-tenancy environment: customer VLAN IDs are preserved and a service provider VLAN ID is added to the traffic so the traffic can pass the metro core in a simple, secure manner

Private VLANs (with Primary VLAN, Isolated VLAN, Community VLAN, Promiscuous port, Host port, Trunks) provide Layer 2 isolation between ports that share the same broadcast domain, allowing a VLAN broadcast domain to be partitioned into smaller point-to-multipoint subdomains across switches in the same Layer 2 network

- Private VLANs are useful in DMZ when servers are not supposed to communicate with each other but need to communicate with a router
- They remove the need for more complex port-based VLANs with respective IP interface/subnets and associated L3 routing
- Another Private VLANs typical application are carrier-class deployments when users shouldn't see, snoop or attack other users' traffic

SSL version 3 and TLS version 2 ensure Web GUI sessions are secured

Secure Shell (SSH version 2) and SNMPv3 (with or without MD5 or SHA authentication) ensure SNMP and Telnet sessions are secured

2048-bit RSA key pairs, SHA2-256 and SHA2-512 cryptographic hash functions for SSLv3 and SSHv2 are supported on all M4300 models

TACACS+ and RADIUS enhanced administrator management provides strict “Login” and “Enable” authentication enforcement for the switch configuration, based on latest industry standards: exec authorization using TACACS+ or RADIUS; command authorization using TACACS+ and RADIUS Server; user exec accounting for HTTP and HTTPS using TACACS+ or RADIUS; and authentication based on user domain in addition to user ID and password

Superior quality of service

Advanced classifier-based hardware implementation for Layer 2 (MAC), Layer 3 (IP) and Layer 4 (UDP/TCP transport ports) prioritization

8 queues (7 in a stack) for priorities and various QoS policies based on 802.1p (CoS) and DiffServ can be applied to interfaces and VLANs

Advanced rate limiting down to 1 Kbps granularity and minimum-guaranteed bandwidth can be associated with ACLs for best granularity

Single Rate Policing feature enables support for Single Rate Policer as defined by RFC 2697

- Committed Information Rate (average allowable rate for the class)
- Committed Burst Size (maximum amount of contiguous packets for the class)
- Excessive Burst Size (additional burst size for the class with credits refill at a slower rate than committed burst size)
- DiffServ feature applied to class maps

Automatic Voice over IP prioritization with protocol-based (SIP, H323 and SCCP) or OUI-based Auto-VoIP up to 144 simultaneous voice calls

Flow Control

802.3x Flow Control implementation per IEEE 802.3 Annex 31B specifications with Symmetric flow control, Asymmetric flow control or No flow control

- Asymmetric flow control allows the switch to respond to received PAUSE frames, but the ports cannot generate PAUSE frames
- Symmetric flow control allows the switch to both respond to, and generate MAC control PAUSE frames

Allows traffic from one device to be throttled for a specified period of time: a device that wishes to inhibit transmission of data frames from another device on the LAN transmits a PAUSE frame

- A device that wishes to inhibit transmission of data frames from another device on the LAN transmits a PAUSE frame

UDLD Support

UDLD implementation detects unidirectional links physical ports (UDLD must be enabled on both sides of the link in order to detect an unidirectional link)

- UDLD protocol operates by exchanging packets containing information about neighboring devices
- The purpose is to detect and avoid unidirectional link forwarding anomalies in a Layer 2 communication channel

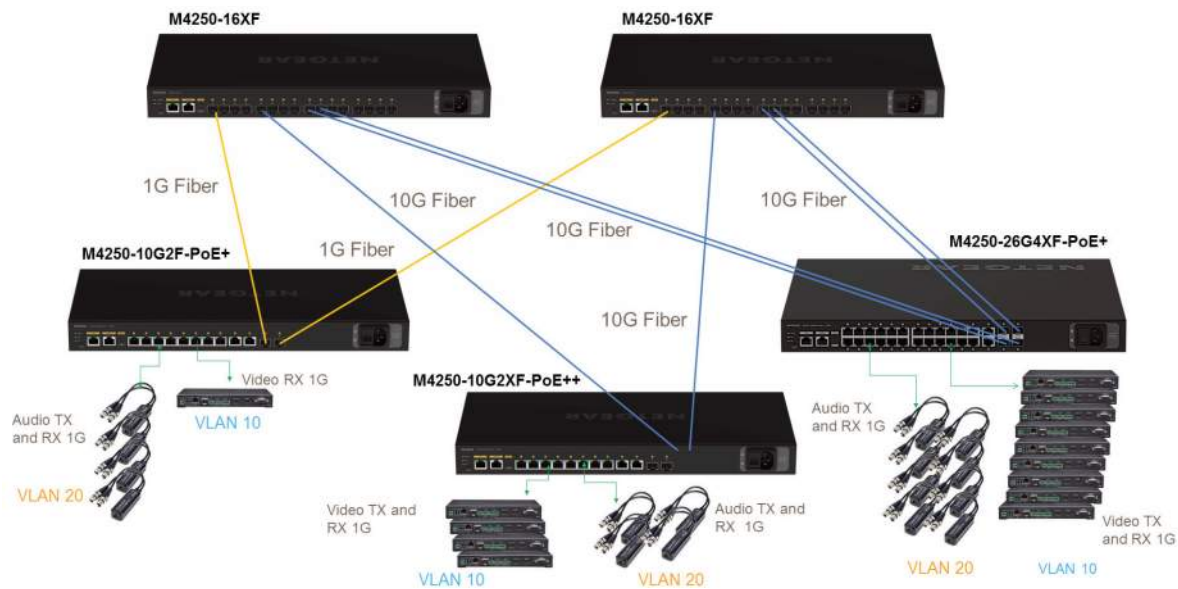
Both “normal-mode” and “aggressive-mode” are supported for perfect compatibility with other vendors implementations, including port “D-Disable” triggering cases in both modes

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Target Application



A new AV Line of M4250 switches with out-of-the-box functionality and an industry-first: a concurrent second user interface solely designed with the AV Pro in mind.

NETGEAR has enhanced the experience for AV professionals by including a new user interface designed from the ground up. Pro AV customers don't have to settle for an IT-centric interface with settings and IT-specific functionality they will never need. The new M4250 AV interface presents the common AV controls right up front with user-selectable profiles for common AV platforms making it a snap to ensure the settings are correct for a specific audio or video application.

When each M4250 is simply configured with AV profiles on certain ports, the AV Line offers automatic and dynamic configuration of multiple M4250 switches connected together. This automatic configuration, known as Auto-LAG and Auto-Trunk, combined with as NETGEAR IGMP Plus™, make setting up a complicated AV over IP network easier and quicker than ever before.



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AV Line Managed Switches

Components and Modules



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Components and Modules

M4250-9G1F-PoE+ AV Line Desktop Managed Switch

Ordering information

- Americas: GSM4210PD-100NAS
- Europe: GSM4210PD-100EUS
- India: GSM4210PD-100INS
- Japan: GSM4210PD-100JPS
- South Korea: GSM4210PD-100KOS
- Taiwan: GSM4210PD-100TWS
- Hong Kong: GSM4210PD-100UKS
- Australia: GSM4210PD-100AUS
- China: GSM4210PD-100PRS
- Other APAC: GSM4210PD-100PES
- Warranty: Lifetime ProSAFE Hardware Warranty

- 8-port 10/100/1000BASE-T (RJ45) PoE+ with 110W PoE budget
- 1-port 10/100/1000BASE-T (RJ45)
- 1-port 1000BASE-X (SFP)
- 20 Gbps non-blocking fabric across 10 ports
- Out-of-band 1G Ethernet management port
- USB-C console port and USB-A storage port
- Desktop form factor for conference rooms and mobile studios
- Mounting brackets for flanges on the side
- Outside of the AV racks: on the wall, under a table or behind a screen
- External power adapter using standard AC power cord (C13)
- Totally fanless
- Switch dimensions (WxDxH): 210 x 140 x 40 mm
- Switch weight: 0.965 Kg (2.13lb)
- Power adapter dimensions (WxDxH): 169 x 72 x 35.5 mm
- Power adapter weight: 0.55Kg (1.21lb)



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Datasheet | M4250 series AV Line Managed Switches

Components and Modules

M4250-8G2XF-PoE+ AV Line Desktop Managed Switch

Ordering information

- Americas: GSM4210PX-100NAS
- Europe: GSM4210PX-100EUS
- India: GSM4210PX-100INS
- Japan: GSM4210PX-100JPS
- South Korea: GSM4210PX-100KOS
- Taiwan: GSM4210PX-100TWS
- Hong Kong: GSM4210PX-100UKS
- Australia: GSM4210PX-100AUS
- China: GSM4210PX-100PRS
- Other APAC: GSM4210PX-100PES
- Warranty: Lifetime ProSAFE Hardware Warranty

- 8-port 10/100/1000BASE-T (RJ45) PoE+ with 220W PoE budget
- 2-port 10GBASE-X (SFP+)
- 56 Gbps non-blocking fabric across 10 ports
- Out-of-band 1G Ethernet management port
- USB-C console port and USB-A storage port
- Desktop form factor for conference rooms and mobile studios
- Mounting brackets for flanges on the side
- Outside of the AV racks: on the wall, under a table or behind a screen
- External power adapter using standard AC power cord (C13)
- Selectable fan modes for fanless, quiet (19.3dBA), or cool operation
- Switch dimensions (WxDxH): 210 x 140 x 40 mm
- Switch weight: 0.967 Kg (2.13lb)
- Power adapter dimensions (WxDxH): 197 x 89 x 39 mm
- Power adapter weight: 0.955Kg (2.11lb)



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Datasheet | M4250 series

AV Line Managed Switches

Components and Modules

M4250-10G2F-PoE+ AV Line Managed Switch

Ordering information

- Americas: GSM4212P-100NAS
- Europe: GSM4212P-100EUS
- Asia Pacific: GSM4212P-100AJS
- China: GSM4212P-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- 8-port 10/100/1000BASE-T (RJ45) PoE+ with 125W PoE budget
- 2-port 10/100/1000BASE-T (RJ45)
- 2-port 1000BASE-X (SFP)
- 24 Gbps non-blocking fabric across 12 ports
- Out-of-band 1G Ethernet management port
- USB-C and RJ45 RS232 console ports and USB-A storage port
- Front black display panel and all ports in the back
- Possible reversed mounting with ports in the front
- Rack-mounting standard brackets
- Longer brackets for recessed mounting (2 inches / 5 cm)
- Threaded hole in front (1xM10) for clamps
- Threaded holes on the bottom (4xM5) for 50x100mm VESA plates
- Selectable fan modes for fanless, quiet, or cool operation
- Dimensions (WxDxH): 440 x 200 x 43.2 mm
- Weight: 2.85Kg (6.28lb)



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Datasheet | M4250 series
AV Line Managed Switches

Components and Modules

M4250-10G2XF-PoE+ AV Line Managed Switch

Ordering information

- Americas: GSM4212PX-100NAS
- Europe: GSM4212PX-100EUS
- Asia Pacific: GSM4212PX-100AJS
- China: GSM4212PX-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- 8-port 10/100/1000BASE-T (RJ45) PoE+ with 240W PoE budget
- 2-port 10/100/1000BASE-T (RJ45)
- 2-port 1000/10GBASE-X (SFP+)
- 60 Gbps non-blocking fabric across 12 ports
- Out-of-band 1G Ethernet management port
- USB-C and RJ45 RS232 console ports and USB-A storage port
- Front black display panel and all ports in the back
- Possible reversed mounting with ports in the front
- Rack-mounting standard brackets
- Longer brackets for recessed mounting (2 inches / 5 cm)
- Threaded hole in front (1xM10) for clamps
- Threaded holes on the bottom (4xM5) for 50x100mm VESA plates
- Selectable fan modes for fanless, quiet, or cool operation
- Dimensions (WxDxH): 440 x 200 x 43.2 mm
- Weight: 2.9Kg (6.39lb)



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Datasheet | M4250 series
AV Line Managed Switches

Components and Modules

M4250-10G2XF-PoE++ AV Line Managed Switch

Ordering information

- Americas: GSM4212UX-100NAS
- Europe: GSM4212UX-100EUS
- Asia Pacific: GSM4212UX-100AJS
- China: GSM4212UX-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- 8-port 10/100/1000BASE-T (RJ45) Ultra90 PoE++ with 720W PoE budget
- 2-port 10/100/1000BASE-T (RJ45)
- 2-port 1000/10GBASE-X (SFP+)
- Compatible 802.3af (15.4W), 802.3at (30W), 802.3bt (60, 75 and 90W)
- 60 Gbps non-blocking fabric across 12 ports
- Out-of-band 1G Ethernet management port
- USB-C and RJ45 RS232 console ports and USB-A storage port
- Front black display panel and all ports in the back
- Possible reversed mounting with ports in the front
- Rack-mounting standard brackets
- Longer brackets for recessed mounting (2 inches / 5 cm)
- Threaded hole in front (1xM10) for clamps
- Threaded holes on the bottom (4xM5) for 50x100mm VESA plates
- Selectable fan modes for fanless, quiet, or cool operation
- Dimensions (WxDxH): 440 x 257 x 43.2 mm
- Weight: 3.83Kg (8.44lb)



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Datasheet | M4250 series
AV Line Managed Switches

Components and Modules

M4250-12M2XF

AV Line Managed Switch

Ordering information

- Americas: MSM4214X-100NAS
- Europe: MSM4214X-100EUS
- Asia Pacific: MSM4214X-100AJS
- China: MSM4214X-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- 12-port 100/1000/2.5GBASE-T (RJ45)
- 2-port 1000/10GBASE-X (SFP+)
- 100 Gbps non-blocking fabric across 14 ports
- Out-of-band 1G Ethernet management port
- USB-C and RJ45 RS232 console ports and USB-A storage port
- Front black display panel and all ports in the back
- Possible reversed mounting with ports in the front
- Rack-mounting standard brackets
- Longer brackets for recessed mounting (2 inches / 5 cm)
- Threaded hole in front (1xM10) for clamps
- Threaded holes on the bottom (4xM5) for 50x100mm VESA plates
- Selectable fan modes for fanless, quiet, or cool operation
- Dimensions (WxDxH): 440 x 100 x 43.2 mm
- Weight: 1.74Kg (3.85lb)



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Datasheet | M4250 series
AV Line Managed Switches

Components and Modules

M4250-16XF

AV Line Managed Switch

Ordering information

- Americas: XSM4216F-100NAS
- Europe: XSM4216F-100EUS
- Asia Pacific: XSM4216F-100AJS
- China: XSM4216F-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- 16-port 10GBASE-X (SFP+)
- The first 12 ports support 1000BASE-X (1G) SFP modules
- 320 Gbps non-blocking fabric across 16 ports
- Out-of-band 1G Ethernet management port
- USB-C and RJ45 RS232 console ports and USB-A storage port
- Front black display panel and all ports in the back
- Possible reversed mounting with ports in the front
- Rack-mounting standard brackets
- Longer brackets for recessed mounting (2 inches / 5 cm)
- Threaded hole in front (1xM10) for clamps
- Threaded holes on the bottom (4xM5) for 50x100mm VESA plates
- Selectable fan modes for fanless, quiet, or cool operation
- Dimensions (WxDxH): 440 x 200 x 43.2 mm
- Weight: 1.74Kg (3.85lb)



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Datasheet | M4250 series

AV Line Managed Switches

Components and Modules

M4250-26G4F-PoE+

AV Line Managed Switch

Ordering information

- Americas: GSM4230P-100NAS
- Europe: GSM4230P-100EUS
- Asia Pacific: GSM4230P-100AJS
- China: GSM4230P-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- 24-port 10/100/1000BASE-T (RJ45) PoE+ with 300W PoE budget
- 2-port 10/100/1000BASE-T (RJ45)
- 4-port 1000BASE-X (SFP)
- 60 Gbps non-blocking fabric across 30 ports
- Out-of-band 1G Ethernet management port
- USB-C and RJ45 RS232 console ports and USB-A storage port
- Front black display panel and all ports in the back
- Possible reversed mounting with ports in the front
- Rack-mounting standard brackets
- Longer brackets for recessed mounting (2 inches / 5 cm)
- Threaded hole in front (1xM10) for clamps
- Threaded holes on the bottom (4xM5) for 50x100mm VESA plates
- Selectable fan modes for fanless, quiet, or cool operation
- Dimensions (WxDxH): 440 x 43.2 x 257 mm
- Weight: 4.30Kg (9.47lb)



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Datasheet | M4250 series
AV Line Managed Switches

Components and Modules

M4250-26G4F-PoE++ AV Line Managed Switch

Ordering information

- Americas: GSM4230UP-100NAS
- Europe: GSM4230UP-100EUS
- Asia Pacific: GSM4230UP-100AJS
- China: GSM4230UP-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- 24-port 10/100/1000BASE-T (RJ45) Ultra90 PoE++ with 1,440W PoE budget
- 2-port 10/100/1000BASE-T (RJ45)
- 4-port 1000BASE-X (SFP)
- Compatible 802.3af (15.4W), 802.3at (30W), 802.3bt (60, 75 and 90W)
- 2 internal, fixed PSUs (C14 inlets) with embedded RPS/UPS function
- When one PSU is used, PoE budget is 720W
- When two PSU are used, PoE budget is 1,440W
- 60 Gbps non-blocking fabric across 30 ports
- Out-of-band 1G Ethernet management port
- USB-C and RJ45 RS232 console ports and USB-A storage port
- Front black display panel and all ports in the back
- Possible reversed mounting with ports in the front
- Rack-mounting standard brackets
- Longer brackets for recessed mounting (2 inches / 5 cm)
- Threaded hole in front (1xM10) for clamps
- Threaded holes on the bottom (4xM5) for 50x100mm VESA plates
- Selectable fan modes for quiet or cool operation
- Dimensions (WxDxH): 440 x 43.2 x 400 mm
- Weight: 6.75Kg (14.87lb)



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AV Line Managed Switches

Components and Modules

M4250-26G4XF-PoE+

AV Line Managed Switch

Ordering information

- Americas: GSM4230PX-100NAS
- Europe: GSM4230PX-100EUS
- Asia Pacific: GSM4230PX-100AJS
- China: GSM4230PX-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- 24-port 10/100/1000BASE-T (RJ45) PoE+ with 480W PoE budget
- 2-port 10/100/1000BASE-T (RJ45)
- 4-port 1000/10GBASE-X (SFP+)
- 132 Gbps non-blocking fabric across 30 ports
- Out-of-band 1G Ethernet management port
- USB-C and RJ45 RS232 console ports and USB-A storage port
- Front black display panel and all ports in the back
- Possible reversed mounting with ports in the front
- Rack-mounting standard brackets
- Longer brackets for recessed mounting (2 inches / 5 cm)
- Threaded hole in front (1xM10) for clamps
- Threaded holes on the bottom (4xM5) for 50x100mm VESA plates
- Selectable fan modes for fanless, quiet, or cool operation
- Dimensions (WxDxH): 440 x 43.2 x 400 mm
- Weight: 5.45Kg (12.02lb)



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Datasheet | M4250 series
AV Line Managed Switches

Components and Modules

M4250-40G8F-PoE+

AV Line Managed Switch

Ordering information

- Americas: GSM4248P-100NAS
- Europe: GSM4248P-100EUS
- Asia Pacific: GSM4248P-100AJS
- China: GSM4248P-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- 40-port 10/100/1000BASE-T (RJ45) PoE+ with 480W PoE budget
- 8-port 1000BASE-X (SFP)
- 96 Gbps non-blocking fabric across 48 ports
- Out-of-band 1G Ethernet management port
- USB-C and RJ45 RS232 console ports and USB-A storage port
- Front black display panel and all ports in the back
- Possible reversed mounting with ports in the front
- Rack-mounting standard brackets
- Longer brackets for recessed mounting (2 inches / 5 cm)
- Threaded hole in front (1xM10) for clamps
- Threaded holes on the bottom (4xM5) for 50x100mm VESA plates
- Selectable fan modes for fanless, quiet, or cool operation
- Dimensions (WxDxH): 440 x 43.2 x 400 mm
- Weight: 5.85Kg (12.90lb)



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Datasheet | M4250 series
AV Line Managed Switches

Components and Modules

M4250-40G8XF-PoE+ AV Line Managed Switch

Ordering information

- Americas: GSM4248PX-100NAS
- Europe: GSM4248PX-100EUS
- Asia Pacific: GSM4248PX-100AJS
- China: GSM4248PX-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- 40-port 10/100/1000BASE-T (RJ45) PoE+ with 960W PoE budget
- 8-port 1000/10GBASE-X (SFP+)
- 240 Gbps non-blocking fabric across 48 ports
- Out-of-band 1G Ethernet management port
- USB-C and RJ45 RS232 console ports and USB-A storage port
- Front black display panel and all ports in the back
- Possible reversed mounting with ports in the front
- Rack-mounting standard brackets
- Longer brackets for recessed mounting (2 inches / 5 cm)
- Threaded hole in front (1xM10) for clamps
- Threaded holes on the bottom (4xM5) for 50x100mm VESA plates
- Selectable fan modes for quiet or cool operation
- Dimensions (WxDxH): 440 x 43.2 x 400 mm
- Weight: 6.31Kg (13.91lb)



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Datasheet | M4250 series
AV Line Managed Switches

Components and Modules

M4250-40G8XF-PoE++ AV Line Managed Switch

Ordering information

- Americas: GSM4248UX-100NAS
- Europe: GSM4248UX-100EUS
- Asia Pacific: GSM4248UX-100AJS
- China: GSM4248UX-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- 40-port 10/100/1000BASE-T (RJ45) Ultra90 PoE++ with 2,880W PoE budget
- 8-port 1000/10GBASE-X (SFP+)
- Compatible 802.3af (15.4W), 802.3at (30W), 802.3bt (60, 75 and 90W)
- 3 internal, fixed PSUs (C14 inlets) with embedded RPS/UPS function
- When one PSU is used, PoE budget is 720W
- When two PSU are used, PoE budget is 1,650W
- When three PSU are used, PoE budget is 2,880W
- 240 Gbps non-blocking fabric across 48 ports
- Out-of-band 1G Ethernet management port
- USB-C and RJ45 RS232 console ports and USB-A storage port
- Front black display panel and all ports in the back
- Possible reversed mounting with ports in the front
- Rack-mounting standard brackets
- Longer brackets for recessed mounting (2 inches / 5 cm)
- Threaded hole in front (1xM10) for clamps
- Threaded holes on the bottom (4xM5) for 50x100mm VESA plates
- Selectable fan modes for quiet or cool operation
- Dimensions (WxDxH): 440 x 86.4 x 350 mm (2U)
- Weight: 10.28Kg (22.72lb)



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Datasheet | M4250 series AV Line Managed Switches

GBIC SFP and SFP+ Optics for M4250 series

Ordering information • Worldwide: see table below • Warranty: 5 years	Multimode Fiber (MMF)		Single mode Fiber (SMF)
	OM1 or OM2 62.5/125µm	OM3 or OM4 50/125µm	9/125µm
10 Gigabit SFP+  • Fits into M4250 SFP+ interfaces	AXM763 10GBase-LRM long reach multimode 802.3aq - LC duplex connector up to 100m (328 ft) AXM763-10000S (1 unit)	AXM763 10GBase-LRM long reach multimode 802.3aq - LC duplex connector up to 165m (541 ft) AXM763-10000S (1 unit) AXM761 10GBase-SR short reach multimode LC duplex connector up to 300m (984 ft) AXM761-10000S (1 unit) AXM761P10-10000S (pack of 10 units)	AXM762 10GBase-LR long reach single mode LC duplex connector up to 10km (6.2 miles) AXM762-10000S (1 unit) AXM762P10-10000S (pack of 10 units) AXM764 10GBase-LR LITE single mode LC duplex connector up to 2km (1.2 mile) AXM764-10000S (1 unit)
Gigabit SFP  • Fits into M4250 SFP+ and SFP interfaces • M4250-16XF (XSM4216F) supports 1G modules on ports 1-12 only	AGM731F 1000Base-SX short range multimode LC duplex connector up to 275m (902 ft) AGM731F (1 unit)	AGM731F 1000Base-SX short range multimode LC duplex connector OM3: up to 550m (1,804 ft) OM4: up to 1,000m (3,280 ft) AGM731F (1 unit)	AGM732F 1000Base-LX long range single mode LC duplex connector up to 10km (6.2 miles) AGM732F (1 unit)

AGM734 1000BASE-T RJ45 SFP (Gigabit)	Ordering information • Worldwide: AGM734-10000S • Warranty: 5 years		• Fits into M4250 SFP+ and SFP interfaces • 1 port Gigabit RJ45 • Supports only 1000Mbps full-duplex mode • Up to 100m (328 ft) with Cat5 RJ45 or better • Conveniently adds 1G copper connectivity to M4250 fiber interfaces • M4250-16XF (XSM4216F) supports AGM734 on its ports 1 to 12 only
AXM765 10GBASE-T RJ45 SFP+ (10 Gigabit)	Ordering information • Worldwide: AXM765-20000S • Warranty: 5 years		• Fits into M4250 SFP+ interfaces • 1 port 10GBASE-T RJ45 • Copper connectivity up to 80m (262 ft) distance • CAT6a or better wiring required for 10GBASE-T up to 80 meters • Conveniently adds 10G copper connectivity to M4250 fiber interfaces

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Datasheet | M4250 series
AV Line Managed Switches

Direct Attach Cables for M4250 series

Ordering information • Worldwide: see table below • Warranty: 5 years	SFP+ to SFP+		
	1 meter (3.3 ft)	3 meters (9.8 ft)	5 meters (16.4 ft)
10 Gigabit DAC    • Fits into M4250 SFP+ interfaces	AXC761 10GSFP+ Cu (passive) SFP+ connectors AXC761-10000S (1 unit)	AXC763 10GSFP+ Cu (passive) SFP+ connectors AXC763-10000S (1 unit)	AXC765 10GSFP+ Cu (active) SFP+ connectors AXC765-10000S (1 unit)
	7 meters (23.0 ft)	10 meters (32.8 ft)	15 meters (49.2 ft)
	AXC767 10GSFP+ Cu (active) SFP+ connectors AXC767-10000S (1 unit)	AXC7610 10GSFP+ Cu (active) SFP+ connectors AXC7610-10000S (1 unit)	AXC7615 10GSFP+ (duplex fiber optic) SFP+ connectors AXC7615-10000S (1 unit)
	20 meters (65.6 ft)		
	AXC7620 10GSFP+ (duplex fiber optic) SFP+ connectors AXC7620-10000S (1 unit)		

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AV Line

Datasheet | **M4250 series**

AV Line Managed Switches

Technical Specifications

Requirements based on 13.0.4 software release



Model Name	Description	Model number
M4250-9G1F-PoE+	AV Line Desktop 8x1G PoE+ 110W 1x1G and 1xSFP Managed Switch	GSM4210PD
M4250-8G2XF-PoE+	AV Line Desktop 8x1G PoE+ 220W and 2xSFP+ Managed Switch	GSM4210PX
M4250-10G2F-PoE+	AV Line 8x1G PoE+ 125W 2x1G and 2xSFP Managed Switch	GSM4212P
M4250-10G2XF-PoE+	AV Line 8x1G PoE+ 240W 2x1G and 2xSFP+ Managed Switch	GSM4212PX
M4250-10G2XF-PoE++	AV Line 8x1G Ultra90 PoE++ 720W 2x1G and 2xSFP+ Managed Switch	GSM4212UX
M4250-26G4F-PoE+	AV Line 24x1G PoE+ 300W 2x1G and 4xSFP Managed Switch	GSM4230P
M4250-26G4F-PoE++	AV Line 24x1G Ultra90 PoE++ 1,440W 2x1G and 4xSFP Managed Switch	GSM4230UP
M4250-26G4XF-PoE+	AV Line 24x1G PoE+ 480W 2x1G and 4xSFP+ Managed Switch	GSM4230PX
M4250-40G8F-PoE+	AV Line 40x1G PoE+ 480W and 8xSFP Managed Switch	GSM4248P
M4250-40G8XF-PoE+	AV Line 40x1G PoE+ 960W and 8xSFP+ Managed Switch	GSM4248PX
M4250-40G8XF-PoE++	AV Line 40x1G Ultra90 PoE++ 2,880W and 8xSFP+ Managed Switch	GSM4248UX
M4250-12M2XF	AV Line 12x2.5G and 2xSFP+ Managed Switch	MSM4214X
M4250-16XF	AV Line 12x1G/10G SFP+ and 4x10G SFP+ Managed Switch	XSM4216F

Physical Interfaces

Gigabit and 10 Gigabit Ethernet Ports	Auto-sensing RJ45 PoE 10/100/1000BASE-T	Auto-sensing RJ45 10/100/1000BASE-T	Auto-sensing RJ45 100/1000/2.5GBASE-T	Auto-sensing SFP 1000BASE-X	Auto-sensing SFP+ 1000/10GBASE-X
M4250-9G1F-PoE+	8 ports PoE+ (110W)	1	-	1	-
M4250-8G2XF-PoE+	8 ports PoE+ (220W)	-	-	-	2
M4250-10G2F-PoE+	8 ports PoE+ (125W)	2	-	2	-
M4250-10G2XF-PoE+	8 ports PoE+ (240W)	2	-	-	2
M4250-10G2XF-PoE++	8 ports Ultra90 PoE++ (720W)	2	-	-	2
M4250-26G4F-PoE+	24 ports PoE+ (300W)	2	-	4	-
M4250-26G4F-PoE++	24 ports Ultra90 PoE++ (1,440W)	2	-	4	-
M4250-26G4XF-PoE+	24 ports PoE+ (480W)	2	-	-	4
M4250-40G8F-PoE+	40 ports PoE+ (480W)	-	-	8	-
M4250-40G8XF-PoE+	40 ports PoE+ (960W)	-	-	-	8
M4250-40G8XF-PoE++	40 ports Ultra90 PoE++ (2,880W)	-	-	-	8
M4250-12M2XF	-	-	12	-	2
M4250-16XF	-	-	-	-	16 (only Ports 1-12 support 1G)

Total Usable Port Count	1G Ports	2.5G Ports	10G Ports
M4250-9G1F-PoE+	10	-	-
M4250-8G2XF-PoE+	8	-	2
M4250-10G2F-PoE+	12	-	-
M4250-10G2XF-PoE+	10	-	2
M4250-10G2XF-PoE++	10	-	2
M4250-26G4F-PoE+	30	-	-
M4250-26G4F-PoE++	30	-	-
M4250-26G4XF-PoE+	26	-	4
M4250-40G8F-PoE+	48	-	-
M4250-40G8XF-PoE+	40	-	8
M4250-40G8XF-PoE++	40	-	8
M4250-12M2XF	-	12	2
M4250-16XF	-	-	16

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AV Line

Datasheet | M4250 series AV Line Managed Switches

Management Ports	Console ports	Service port (Out-of-band Ethernet)	Storage port
M4250-9G1F-PoE+, M4250-8G2XF-PoE+ desktop models	USB-C (front)	1 x RJ45 10/100/1000BASE-T (rear)	1 x USB-A (rear)
All rackmount other models	Serial RS232 RJ45 (rear); USB-C (rear)	1 x RJ45 10/100/1000BASE-T (rear)	1 x USB-A (front)
Fixed Power Supplies			
M4250-9G1F-PoE+, M4250-8G2XF-PoE+ desktop models	1 external power adapter with C14 inlet for standard AC power cord (C13)		
M4250-26G4F-PoE++	2 internal PSU (C14 inlets) with 1 on/off switch		
M4250-40G8XF-PoE++	3 internal PSU (C14 inlets) with 1 on/off switch		
All rackmount other models	1 internal PSU (C14 inlet) with 1 on/off switch		
Fixed fans			
M4250-9G1F-PoE+	Fanless		
All other models	Side-to-side airflow		
Power over Ethernet			
PSE Capacity	PoE+ Ports (802.3at)	Ultra90 PoE++ Ports (802.3bt)	
M4250-9G1F-PoE+	8	-	Ultra90 PoE++ 802.3bt is compatible with: 802.3af PoE (15.4W), 802.3at PoE++ (30W), and 802.3bt (60W, 75W and 90W).
M4250-8G2XF-PoE+	8	-	
M4250-10G2F-PoE+	8	-	
M4250-10G2XF-PoE+	8	-	
M4250-10G2XF-PoE++	-	8	
M4250-26G4F-PoE+	24	-	
M4250-26G4F-PoE++	-	24	
M4250-26G4XF-PoE+	24	-	
M4250-40G8F-PoE+	40	-	
M4250-40G8XF-PoE+	40	-	
M4250-40G8XF-PoE++	-	40	
PoE Budget			
PoE Budget @ 110V AC in			
M4250-9G1F-PoE+	110 Watts		
M4250-8G2XF-PoE+	220 Watts		
M4250-10G2F-PoE+	125 Watts		
M4250-10G2XF-PoE+	240 Watts		
M4250-10G2XF-PoE++	720 Watts		
M4250-26G4F-PoE+	300 Watts		
M4250-26G4F-PoE++	1 used PSU: 720Watts / 2 used PSU: 1,440 Watts		
M4250-26G4XF-PoE+	480 Watts		
M4250-40G8F-PoE+	480 Watts		
M4250-40G8XF-PoE+	960 Watts		
M4250-40G8XF-PoE++	1 used PSU: 720Watts / 2 used PSU: 1,650 Watts / 3 used PSU: 2,880 Watts		

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Datasheet | M4250 series AV Line Managed Switches

Features Support	M4250-9G1F-PoE+ / M4250-8G2XF-PoE+	M4250-10G2F-PoE+ / M4250-10G2XF-PoE+	M4250-10G2XF-PoE++/M4250-26G4F-PoE++
	M4250-26G4F-PoE+ / M4250-26G4XF-PoE+	M4250-40G8F-PoE+ / M4250-40G8XF-PoE+	M4250-40G8XF-PoE++
	IEEE 802.3af (up to 15.4W per port)	Yes	Yes
	IEEE 802.3at (up to 30W per port)	Yes	Yes
IEEE 802.3bt (up to 90W per port)	No	Yes	Yes
IEEE 802.3at Layer 2 (LLDP) method	Yes	Yes	Yes
IEEE 802.3at 2-event classification	Yes	Yes	Yes
IEEE 802.3bt Layer 2 (LLDP) method	No	Yes	Yes
IEEE 802.3bt auto-classification method	No	Yes	Yes
Pre-802.3bt standard method	No	Yes	Yes
PoE timer / schedule (week, days, hours)	Yes	Yes	Yes
Processor/Memory			
CPU			
M4250-26G4F-PoE+, M4250-26G4F-PoE++, M4250-26G4XF-PoE+, M4250-40G8F-PoE+, M4250-40G8XF-PoE+, M4250-40G8XF-PoE++	Dedicated Quad-Core Cortex-A57 ARMv8 1.8Ghz CPU (64-bit)		
All other models	Integrated ARM A9 1.25Ghz CPU in switching silicon (32-bit)		
System memory (RAM) - all models	2 GB		
Code storage (flash) - all models	256 MB	Dual firmware image	
Packet Buffer Memory			
M4250-40G8F-PoE+, M4250-40G8XF-PoE+, M4250-40G8XF-PoE++	32 Mb	Dynamically shared across only used ports	
All other models	16 Mb		
Performance Summary			
Switching fabric			
M4250-9G1F-PoE+	20 Gbps	Line-rate (non blocking fabric)	
M4250-8G2XF-PoE+	56 Gbps		
M4250-10G2F-PoE+	24 Gbps		
M4250-10G2XF-PoE+, M4250-10G2XF-PoE++	60 Gbps		
M4250-26G4F-PoE+, M4250-26G4F-PoE++	60 Gbps		
M4250-40G8F-PoE+	96 Gbps		
M4250-12M2XF	100 Gbps		
M4250-26G4XF-PoE+	132 Gbps		
M4250-40G8XF-PoE+, M4250-40G8XF-PoE++	240 Gbps		
M4250-16XF	320 Gbps		

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AV Line

Datasheet | **M4250 series**

AV Line Managed Switches

Throughput (64-byte frames)

M4250-9G1F-PoE+	14.80 Mpps
M4250-8G2XF-PoE+	41.67 Mpps
M4250-10G2F-PoE+	17.86 Mpps
M4250-10G2XF-PoE+, M4250-10G2XF-PoE++	44.64 Mpps
M4250-26G4F-PoE+, M4250-26G4F-PoE++	44.64 Mpps
M4250-40G8F-PoE+	71.42 Mpps
M4250-12M2XF	74.40 Mpps
M4250-26G4XF-PoE+	98.21 Mpps
M4250-40G8XF-PoE+, M4250-40G8XF-PoE++	178.56 Mpps
M4250-16XF	238.08 Mpps

Latency - 10G Fiber

	64-byte frames	512-byte frames	1024-byte frames	1518-byte frames
M4250-9G1F-PoE+	-	-	-	-
M4250-8G2XF-PoE+	0.838µs	0.821µs	0.820µs	0.819µs
M4250-10G2F-PoE+	-	-	-	-
M4250-10G2XF-PoE+	0.838µs	0.821µs	0.820µs	0.819µs
M4250-10G2XF-PoE++	0.807µs	0.791µs	0.790µs	0.789µs
M4250-26G4F-PoE+	-	-	-	-
M4250-26G4F-PoE++	-	-	-	-
M4250-26G4XF-PoE+	0.834µs	0.818µs	0.817µs	0.816µs
M4250-40G8F-PoE+	-	-	-	-
M4250-40G8XF-PoE+	0.709µs	0.717µs	0.730µs	0.714µs
M4250-40G8XF-PoE++	0.708µs	0.716µs	0.728µs	0.713µs
M4250-12M2XF	0.807µs	0.791µs	0.790µs	0.789µs
M4250-16XF	0.811µs	0.834µs	0.860µs	0.831µs

Latency - 1G Fiber

	64-byte frames	512-byte frames	1024-byte frames	1518-byte frames
M4250-9G1F-PoE+	2.271µs	2.257µs	2.267µs	2.266µs
M4250-8G2XF-PoE+	1.169µs	1.174µs	1.159µs	1.154µs
M4250-10G2F-PoE+	2.271µs	2.257µs	2.267µs	2.266µs
M4250-10G2XF-PoE+	1.169µs	1.174µs	1.159µs	1.154µs
M4250-10G2XF-PoE++	1.148µs	1.141µs	1.137µs	1.156µs
M4250-26G4F-PoE+	1.164µs	1.129µs	1.124µs	1.146µs
M4250-26G4F-PoE++	1.141µs	1.126µs	1.119µs	1.140µs
M4250-26G4XF-PoE+	1.130µs	1.123µs	1.119µs	1.120µs
M4250-40G8F-PoE+	1.074µs	1.109µs	1.106µs	1.102µs
M4250-40G8XF-PoE+	1.106µs	1.120µs	1.107µs	1.128µs
M4250-40G8XF-PoE++	1.084µs	1.103µs	1.098µs	1.115µs
M4250-12M2XF	1.186µs	1.178µs	1.156µs	1.173µs
M4250-16XF	1.274µs	1.292µs	1.291µs	1.297µs

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AV Line

Datasheet | M4250 series AV Line Managed Switches

Latency - 1G Copper	64-byte frames	512-byte frames	1024-byte frames	1518-byte frames
M4250-9G1F-PoE+	2.133μs	2.136μs	2.131μs	2.142μs
M4250-8G2XF-PoE+	2.140μs	2.140μs	2.137μs	2.144μs
M4250-10G2F-PoE+	2.133μs	2.136μs	2.131μs	2.142μs
M4250-10G2XF-PoE+	2.140μs	2.140μs	2.137μs	2.144μs
M4250-10G2XF-PoE++	1.837μs	1.829μs	1.828μs	1.826μs
M4250-26G4F-PoE+	2.146μs	2.148μs	2.140μs	2.150μs
M4250-26G4F-PoE++	2.139μs	2.140μs	2.133μs	2.146μs
M4250-26G4XF-PoE+	2.280μs	2.282μs	2.270μs	2.288μs
M4250-40G8F-PoE+	2.027μs	2.343μs	2.462μs	2.358μs
M4250-40G8XF-PoE+	2.220μs	2.595μs	2.744μs	2.613μs
M4250-40G8XF-PoE++	2.251μs	2.625μs	2.775μs	2.641μs
M4250-12M2XF	2.843μs	2.836μs	2.834μs	2.836μs
M4250-16XF	-	-	-	-
Latency - 2.5G Copper	64-byte frames	512-byte frames	1024-byte frames	1518-byte frames
M4250-9G1F-PoE+	-	-	-	-
M4250-8G2XF-PoE+	-	-	-	-
M4250-10G2F-PoE+	-	-	-	-
M4250-10G2XF-PoE+	-	-	-	-
M4250-10G2XF-PoE++	-	-	-	-
M4250-26G4F-PoE+	-	-	-	-
M4250-26G4F-PoE++	-	-	-	-
M4250-26G4XF-PoE+	-	-	-	-
M4250-40G8F-PoE+	-	-	-	-
M4250-40G8XF-PoE+	-	-	-	-
M4250-40G8XF-PoE++	-	-	-	-
M4250-12M2XF	6.013μs	6.014μs	6.012μs	6.016μs
M4250-16XF	-	-	-	-
Green Ethernet				
Energy Efficient Ethernet (EEE)	Compliant with IEEE 802.3az Energy Efficient Ethernet Task Force		Deactivated by default	

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AV Line

Datasheet | M4250 series

AV Line Managed Switches

Other Metrics

Forwarding mode	Store-and-forward	
Addressing	48-bit MAC address	
Address database size	16K MAC addresses	
Number of VLANs	4,093 VLANs (802.1Q) simultaneously	
Number of multicast groups filtered (IGMP)	4K total (2,048 IPv4 and 2,048 IPv6)	
Number of Link Aggregation Groups (LAGs)	8 LAGs with up to 8 ports per group	802.3ad / 802.1AX-2008
Number of hardware queues for QoS	8 queues	
Number of routes	894 IPv4 Unicast Routes in Default IPv4 Basic SDM Template 126 IPv6 Unicast Routes in Default IPv4 Basic SDM Template SDM (System Data Management, or switch database) templates allow for granular system resources distribution depending on IPv4 or IPv6 applications	
IPv4		
IPv6		
Number of static routes		
IPv4	64	
IPv6	64	
RIP application route scaling		
IPv4	32 in Default IPv4 Basic SDM Template	
Number of IP interfaces (port or VLAN)	128	
Jumbo frame support	up to 12KB packet size	

Acoustic noise

@ 25°C ambient (77°F)

Testing method	Following the ISO-7779 standard. Bystander Mode. Chamber Temp 25°C during testing unless noted otherwise. Full, 100%, Data and PoE loaded. Worst case.
SPL (Sound Pressure Level)	dBA values are SPL (Sound Pressure Level) values, testing following the ISO-7779 standard
Fan management	Three modes are configurable using the AV GUI or the CLI: Fan Off mode, Quiet mode (default), and Cool mode

Fan Off mode @ 25° C ambient (77° F) Maximum Conditions:	PoE Power Load	Internal Sensors	Case Temperature (Top)	Fan Duty	Acoustic Noise
M4250-9G1F-PoE+	110W (fanless)	50°C	35.3°C	N/A	0dBA
M4250-8G2XF-PoE+	180W (RJ45 only, no SFP+)	0dBA / 37.4°C Case Temp	S1&2 <= 60°C S3 <= 58°C	0	0dBA
M4250-10G2F-PoE+	80W (all ports can be used)	<= 42°C	41.8°C	0	0dBA
M4250-10G2XF-PoE+	90W (all ports can be used)	<= 44°C	39.6°C	0	0dBA
M4250-10G2XF-PoE++	45W (all ports can be used)	<= 67°C	44.6°C	0	0dBA
M4250-26G4F-PoE+	45W (no SFP)	S1<= 43°C S2<= 47°C	40.5°C	0	0dBA
M4250-26G4F-PoE++	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
M4250-26G4XF-PoE+	45W (8 ports PoE+, no SFP+)	S1<= 41°C S2<= 46°C	43.4°C	0	0dBA
M4250-40G8F-PoE+	30W (8 ports PoE+, no SFP)	S1<= 37°C S2<= 50°C	45.2°C	0	0dBA
M4250-40G8XF-PoE+	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
M4250-40G8XF-PoE++	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
M4250-12M2XF	(4 ports 2.5G used in block 1-6 and 4 ports 2.5G used in block 7-12, no SFP+)	<= 64°C	56°C	0	0dBA
M4250-16XF	(8 ports SFP+)	<= 78°C	41.3°C	0	0dBA

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AV Line

Datasheet | M4250 series

AV Line Managed Switches

Quiet mode @ 25° C ambient (77° F)	Conditions:	PoE Power Load	Internal Sensors	Case Temperature (Top)	Fan Duty	Acoustic Noise
M4250-9G1F-PoE+		N/A	N/A	N/A	N/A	N/A
M4250-8G2XF-PoE+		0-220W	<= 60°C	33.6°C	10	19.3dBA
M4250-10G2F-PoE+		0-125W	<= 36°C	35.9°C	25	27.38dBA
M4250-10G2XF-PoE+		0-240W	<= 37°C	40.6°C	25	27.4dBA
M4250-10G2XF-PoE++		0-250W	<= 49°C	42.9°C	25	34.57dBA
		250-380W	<= 49°C	43.3°C	30	40dBA
		380-500W	<= 49°C	44.9°C	35	44.22dBA
		500-720W	<= 49°C	52.1°C	40	47.19dBA
M4250-26G4F-PoE+		0-200W	S1<= 43°C S2<=47°C	43.5°C	25	28dBA
		200W-300W	S1<= 44°C S2<=48°C	51.3°C	30	34dBA
M4250-26G4F-PoE++		0-280W	S1<= 37°C S2<=39°C	52.9°C	20	28dBA
		280W-360W	S1<= 38°C S2<=40°C	57.4°C	25	36dBA
		360W-420W	S1<= 39°C S2<=41°C	54.4°C	30	41dBA
		420W-480W	S1<= 40°C S2<=42°C	53.3°C	35	47dBA
		480W-540W	S1<= 41°C S2<=43°C	52.3°C	40	50dBA
		540W-600W	S1<= 42°C S2<=44°C	54.4°C	45	54dBA
		600W-660W	S1<= 43°C S2<=45°C	53.6°C	50	57dBA
		660W-1,440W	S1<= 44°C S2<=46°C	55.7°C	55	60dBA
M4250-26G4XF-PoE+		0-350W	S1<= 41°C S2<=46°C	39.3°C	20	25dBA
		350W-480W	S1<= 42°C S2<=47°C	36.8°C	30	42dBA
M4250-40G8F-PoE+		0-150W	S1<= 37°C S2<=50°C	43.1°C	20	30dBA
		150W-200W	S1<= 38°C	42.1°C	25	36dBA
		200W-340W	S1<= 39°C S2<=51°C	44°C	30	40dBA
		340W-480W	S1<= 40°C	47.6°C	35	47dBA
M4250-40G8XF-PoE+		0-400W	S1<= 33°C S2<=46°C	54.2°C	20	29dBA
		400W-480W	S1<= 34°C S2<=47°C	42.8°C	25	35dBA
		480W-560W	S1<= 35°C S2<=48°C	41.9°C	30	41dBA
		560W-640W	S1<= 36°C S2<=49°C	42.1°C	35	48dBA
		640W-720W	S1<= 37°C S2<=50°C	40.9°C	40	51dBA
		720W-800W	S1<= 38°C S2<=51°C	40.7°C	45	54dBA
		800W-880W	S1<= 39°C S2<=52°C	40.4°C	50	57dBA
		880W-960W	S1<= 40°C S2<=53°C	40.5°C	55	59dBA
M4250-40G8XF-PoE++		0-160W	S1<= 37°C S2<=49°C	41.3°C	20	30dBA
		160W-240W	S1<= 38°C	38.8°C	25	36dBA
		240W-320W	S1<= 39°C S2<=50°C	36.4°C	30	42dBA
		320W-400W	S1<= 40°C	35.3°C	35	49dBA
		400W-480W	S1<= 41°C S2<=51°C	34.4°C	40	51dBA
		480W-560W	S1<= 42°C	34.3°C	45	55dBA
		560W-640W	S1<= 43°C S2<=52°C	35.1°C	50	57dBA
		660W-2,880W	S1<= 44°C	36.5°C	55	60dBA
M4250-12M2XF		-	<= 58°C	53.5°C	25	28.5dBA
M4250-16XF		-	<= 67°C	41.6°C	25	27.44dBA

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Datasheet | M4250 series AV Line Managed Switches

Cool mode @ 25 °C ambient (77 °F)	Case Temperature (Top)	Fan Duty	Acoustic Noise
M4250-9G1F-PoE+	N/A	N/A	N/A
M4250-8G2XF-PoE+	28.8°C	100	35.3dBA
M4250-10G2F-PoE+	27.2°C	100	55dBA
M4250-10G2XF-PoE+	30.9°C	100	56dBA
M4250-10G2XF-PoE++	41.8°C	100	66.23dBA
M4250-26G4F-PoE+	36.7°C	100	57dBA
M4250-26G4F-PoE++	(720W PoE) 36.7°C (1,440W PoE) 46°C	100	69dBA
M4250-26G4XF-PoE+	32.3°C	100	67dBA
M4250-40G8F-PoE+	35.4°C	100	68dBA
M4250-40G8XF-PoE+	36.1°C	100	69dBA
M4250-40G8XF-PoE++	(720W PoE) 31.4°C (1,650W PoE) 33.5°C (2,880W PoE) 35.4°C	100	71dBA
M4250-12M2XF	33.2°C	100	55dBA
M4250-16XF	30.3°C	100	57dBA
Heat Dissipation (BTU)	Without PoE, all ports	With Max PoE, all ports	Standby without any port connection
M4250-9G1F-PoE+	9.88W - 33.73 BTU/hr	132.25W - 451.5 BTU/hr	6.4W - 22.02 BTU/hr
M4250-8G2XF-PoE+	18.14W - 61.93 BTU/hr	257.9W - 880.47 BTU/hr	9.51W - 32.47 BTU/hr
M4250-10G2F-PoE+	17.32W - 59.13 BTU/hr	163.9W - 559.55 BTU/hr	8.53W - 29.12BTU/hr
M4250-10G2XF-PoE+	25W - 85.35 BTU/hr	306.4W - 1046.05 BTU/hr	12.96W - 44.24BTU/hr
M4250-10G2XF-PoE++	26.3W - 89.79 BTU/hr	837.7W - 2859.91 BTU/hr	18W - 61.45BTU/hr
M4250-26G4F-PoE+	35.8W - 122.22 BTU/hr	401W - 1369.01 BTU/hr	23.4W - 79.89 BTU/hr
M4250-26G4F-PoE++	48.8W - 166.6 BTU/hr	1 PSU: 889W - 3035.05 BTU/hr 2 PSU: 1734W - 5919.88 BTU/hr	36.9W - 125.98 BTU/hr
M4250-26G4XF-PoE+	46.8W - 159.78 BTU/hr	614W - 2096.2 BTU/hr	33.9W - 115.73 BTU/hr
M4250-40G8F-PoE+	59.5W - 203.13 BTU/hr	624.8W - 2133.07 BTU/hr	46.4W - 158.41 BTU/hr
M4250-40G8XF-PoE+	89.2W - 304.53 BTU/hr	1197W - 4086.56 BTU/hr	74.5W - 254.34 BTU/hr
M4250-40G8XF-PoE++	82.6W - 282 BTU/hr	1 PSU: 912W - 3113.57 BTU/hr 2 PSU: 1998W - 6821.17 BTU/hr 3 PSU: 3523W - 12027.52 BTU/hr	68.5W - 233.86 BTU/hr
M4250-12M2XF	37.9W - 129.39 BTU/hr	-	14.1W - 48.14BTU/hr
M4250-16XF	47.84W - 163.33 BTU/hr	-	19.27W - 65.78BTU/hr

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AV Line

Datasheet | **M4250 series**

AV Line Managed Switches

Mean Time Between Failures (MTBF)	@ 25 °C ambient (77 °F)	@ 45 °C ambient (113 °F)	@ 50 °C ambient (122 °F)
M4250-9G1F-PoE+	1020,808 hours (~116.5 years)	501,447 hours (~57.2 years)	-
M4250-8G2XF-PoE+	1484,652 hours (~169.5 years)	725,337 hours (~82.8 years)	-
M4250-10G2F-PoE+	778,769 hours (~88.9 years)	530,659 hours (~60.6 years)	-
M4250-10G2XF-PoE+	576,889 hours (~65.9 years)	562,708 hours (~64.2 years)	-
M4250-10G2XF-PoE++	947,871 hours (~108.2 years)	493,860 hours (~56.4 years)	-
M4250-26G4F-PoE+	511,054 hours (~58.3 years)	342,368 hours (~39.1 years)	-
M4250-26G4F-PoE++	491,282 hours (~56.1 years)	262,204 hours (~29.9 years)	-
M4250-26G4XF-PoE+	509,057 hours (~58.1 years)	285,719 hours (~32.6 years)	-
M4250-40G8F-PoE+	341,680 hours (~39 years)	342,368 hours (~39.1 years)	-
M4250-40G8XF-PoE+	487,900 hours (~55.7 years)	285,719 hours (~32.6 years)	-
M4250-40G8XF-PoE++	304,916 hours (~34.8 years)	262,204 hours (~29.9 years)	-
M4250-12M2XF	720,892 hours (~82.3 years)	-	416,021 hours (~47.5 years)
M4250-16XF	844,633 hours (~96.4 years)	-	490,265 hours (~56 years)

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Datasheet | M4250 series

AV Line Managed Switches

L2 Services - VLANs			
IEEE 802.1Q VLAN Tagging	Yes	802.1Q-1998	Up to 4,093 VLANs - 802.1Q Tagging
Auto-Trunk	Yes	Dynamic VLAN trunking as soon as a M4250 switch gets connected to another M4250 switch	
Protocol Based VLANs	Yes		
IP subnet	Yes		
ARP	Yes		
IPX	Yes		
Subnet based VLANs	Yes		
MAC based VLANs	Yes		
Voice VLAN	Yes	Based on phones OUI bytes (internal database, or user-maintained) or protocols (SIP, H323 and SCCP)	
Private Edge VLAN	Yes		
Private VLAN	Yes		
IEEE 802.1x	Yes	802.1x-2004	
Guest VLAN	Yes		
RADIUS based VLAN assignment via .1x	Yes	IP phones and PCs can authenticate on the same port but under different VLAN assignment policies	
RADIUS based Filter ID assignment via .1x	Yes		
MAC-based .1x	Yes		
Unauthenticated VLAN	Yes		
Double VLAN Tagging	Yes		
Enabling dvlan-tunnel makes interface	Yes		
Global ethertype (TPID)	Yes		
Interface ethertype (TPID)	Yes		
Customer ID using PVID	Yes		
GARP with GVRP/GMRP	Yes	Automatic registration for membership in VLANs or in multicast groups	
Multiple Registration Protocol (MRP)	Yes	Can replace GARP functionality	
Multicast VLAN Registration Protocol (MVRP)	Yes	Can replace GARP functionality	
MVR (Multicast VLAN registration)	Yes		
L2 Services - Availability			
IEEE 802.3ad - LAGs	Yes	Up to 8 LAGs and up to 8 ports per group	
LACP	Yes		
LACP automatically reverts to and from Static LAG	Yes		
Static LAGs	Yes		
LAG Hashing	Yes		
LAG Member Port Flaps Tracking	Yes		
Auto-LAG	Yes	If more than one link between two M4250 switches, a Link Aggregation Group is created, dynamically	
Storm Control	Yes		
IEEE 802.3x (Full Duplex and flow control)	Yes		
Per port Flow Control	Yes	Asymmetric and Symmetric Flow Control	
UDLD Support (Unidirectional Link Detection)	Yes		
Normal-Mode	Yes		
Aggressive-Mode	Yes		
Link Dependency	Yes	Allow the link status of specified ports to be dependent on the link status of other ports	
IEEE 802.1D Spanning Tree Protocol	Yes		
IEEE 802.1w Rapid Spanning Tree	Yes		
IEEE 802.1s Multiple Spanning Tree	Yes		
Per VLAN STP (PVSTP) with FastUplink and FastBackbone	Yes	PVST+ interoperability	

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Datasheet | M4250 series AV Line Managed Switches

Per VLAN Rapid STP (PVRSTP)	Yes	RPVST+ interoperability
STP Loop Guard	Yes	
STP Root Guard	Yes	
STP BPDU Guard	Yes	
STP BPDU Filtering	Yes	
STP BPDU Flooding	Yes	
L2 Services - Multicast Filtering		
IGMPv2 Snooping Support	Yes	
IGMPv3 Snooping Support	Yes	
NETGEAR IGMP Plus™ Enhanced Implementation	Yes	For automatic multicast across M4250 / M4300 / M4500 (Spine and Leaf) at Layer 2, removing the need for L3 PIM routing
MLDv1 Snooping Support	Yes	
MLDv2 Snooping Support	Yes	
Expedited Leave function	Yes	
Static L2 Multicast Filtering	Yes	
Enable IGMP / MLD Snooping per VLAN	Yes	
IGMPv1/v2 Snooping Querier, compatible v3 queries	Yes	
MLDv1 Snooping Querier	Yes	
MGMD Snooping		
Control Packet Flooding	Yes	
Flooding to mRouter Ports	Yes	
Remove Flood-All-Unregistered Option	Yes	
Multicast VLAN registration (MVR)	Yes	
L3 Services - Multicast Routing		
IGMP Proxy	Yes	
MLD Proxy	Yes	
Any Source Multicast (ASM)	Yes	
Source Specific Multicast (SSM)	Yes	
Multicast streams routing between subnets, VLANs	Yes	
Multicast static routes (IPv4, IPv6)	Yes	
Neighbor discovery	Yes	
PIM-DM (Multicast Routing - dense mode)	Yes	
PIM-DM (IPv6)	Yes	
PIM-SM (Multicast Routing - sparse mode)	Yes	
PIM-SM (IPv6)	Yes	
PIM multi-hop RP support	Yes	
PIM Timer Accuracy	Yes	
PIM-SM Unhandled Events	Yes	
IPMC replication (hardware support)	Yes	
L3 Services - DHCP		
DHCP IPv4 / DHCP IPv6 Client	Yes	
DHCP IPv4 / DHCP IPv6 Server (Stateless, Stateful)	Yes	
DHCP Snooping IPv4 / IPv6	Yes	
BootP Relay IPv4 / IPv6	Yes	
DHCP Relay IPv4 / IPv6	Yes	

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AV Line

Datasheet | M4250 series AV Line Managed Switches

DHCP Relay Option 82 circuit-id and remote-id for VLANs	Yes	
Multiple Helper IPs	Yes	
Auto Install (DHCP options 66, 67, 150 and 55, 125)	Yes	
L3 Services - Routing		
Static Routing / ECMP Static Routing	IPv4/IPv6	
Multiple next hops to a given destination	Yes	
Load sharing, Redundancy	Yes	
Default routes	Yes	
Static Reject routes	Yes	
Port Based Routing	Yes	
VLAN Routing	Yes	
802.3ad (LAG) for router ports	Yes	
Loopback Interfaces	Yes	
RIP	IPv4	
RIPv1/RIPv2	Yes	
IP Multinetting	Yes	
ICMP throttling	Yes	
Router Discovery Protocol	Yes	
DNS Client	IPv4/IPv6	
IP Helper	Yes	
Max IP Helper entries	512	
IP Event Dampening	IPv4/IPv6	
Proxy ARP	IPv4/IPv6	
ICMP	IPv4/IPv6	
ICMP redirect detection in hardware	Yes	
Policy Based Routing (PBR)	IPv4/IPv6	
Based on the size of the packet	Yes	
Based on the Protocol of the payload (Protocol ID field)	Yes	
Based on Source MAC address	Yes	
Based on Source or Destination IP address	Yes	
Based on VLAN tag	Yes	
Based on Priority(802.1P priority)	Yes	
Network Monitoring and Discovery Services		
ISDP (Industry Standard Discovery Protocol)	Yes	Can interoperate with devices running CDP
802.1ab LLDP	Yes	
802.1ab LLDP - MED	Yes	
SNMP	V1, V2, V3	
RMON 1,2,3,9	Yes	
sFlow	Yes (IPv4 and IPv6 headers)	
Security		
Network Storm Protection, DoS		
Broadcast, Unicast, Multicast DoS Protection	Yes	
Denial of Service Protection (control plane)	Yes	Switch CPU protection
Denial of Service Protection (data plane)	Yes	Switch Traffic protection

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AV Line

Datasheet | M4250 series

AV Line Managed Switches

DoS Attacks Protection		SIPDIP SMACDMAC FIRSTFRAG TCPFRAG TCPFLAG TCPPORT	UDPPORT TCPFLAGSEQ TCPOFFSET TCPSYN TCPSYNFIN TCPFINURGPSH	L4PORT ICMP ICMPV4 ICMPV6 ICMPFRAG PINGFLOOD	SYNACK
CPU Rate Limiting	Yes	Applied to IPv4 and IPv6 multicast packets with unknown L3 addresses when IP routing/multicast enabled			
ICMP throttling	Yes	Restrict ICMP, PING traffic for ICMP-based DoS attacks			
Management					
Management ACL (MACAL) Max Rules	Yes 64	Protects management CPU access through the LAN			
Out of band Management	Yes	In-band management can be shut down entirely when out-of-band management network			
Radius accounting	Yes	RFC 2565 and RFC 2866			
TACACS+	Yes				
Malicious Code Detection	Yes	Software image files and Configuration files with digital signatures			
Network Traffic					
Access Control Lists (ACLs)	L2 / L3 / L4	MAC, IPv4, IPv6, TCP, UDP			
Time-based ACLs	Yes				
Protocol-based ACLs	Yes				
ACL over VLANs	Yes				
Dynamic ACLs	Yes				
IEEE 802.1x Radius Port Access Authentication	Yes	Up to 48 clients (802.1x) per port are supported, including the authentication of the users domain			
802.1x MAC Address Authentication Bypass (MAB)	Yes	Supplemental authentication mechanism for non-802.1x devices, based on their MAC address only			
Network Authentication Successive Tiering	Yes	Dot1x-> MAP -> Captive Portal successive authentication methods based on configured time-outs			
Port Security	Yes				
IP Source Guard	Yes	IPv4 / IPv6			
DHCP Snooping	Yes	IPv4 / IPv6			
Dynamic ARP Inspection	Yes	IPv4 / IPv6			
IPv6 RA Guard Stateless Mode	Yes				
MAC Filtering	Yes				
Port MAC Locking	Yes				
Private Edge VLAN	Yes	A protected port doesn't forward any traffic (unicast, multicast, or broadcast) to any other protected port - same switch			
Private VLANs	Yes	Scales Private Edge VLANs by providing Layer 2 isolation between ports across switches in same Layer 2 network			
Quality of Service (QoS) - Summary					
Access Lists	Yes				
L2 MAC, L3 IP and L4 Port ACLs	Yes				
Ingress	Yes				
Egress	Yes				
Time-based	Yes				
802.3ad (LAG) for ACL assignment	Yes				
Binding ACLs to VLANs	Yes				
ACL Logging	Yes				
Support for IPv6 fields	Yes				

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AV Line

Datasheet | **M4250 series**

AV Line Managed Switches

DiffServ QoS	Yes
Edge Node applicability	Yes
Interior Node applicability	Yes
802.3ad (LAG) for service interface	Yes
Support for IPv6 fields	Yes
Ingress/Egress	Yes
IEEE 802.1p COS	Yes
802.3ad (LAG) for COS configuration	Yes
WRED (Weighted Deficit Round Robin)	Yes
Strict Priority queue technology	Yes
Single Rate Policing	Yes (CLI only)
Committed Information Rate	Yes
Committed Burst Size	Yes
Excessive Burst Size	Yes
DiffServ feature applied to class maps	Yes
Auto-VoIP	Yes, based on protocols (SIP, H323 and SCCP) or on OUI bytes (default database and user-based OUIs) in the phone source MAC address
QoS - ACL Feature Support	
ACL Support (general, includes IP ACLs)	Yes
MAC ACL Support	Yes
IP Rule Match Fields:	
Destination IP	Inbound/Outbound
Destination IPv6 IP	Inbound/Outbound
Destination L4 Port	Inbound/Outbound
Every Packet	Inbound/Outbound
IP DSCP	Inbound/Outbound
IP Precedence	Inbound/Outbound
IP TOS	Inbound/Outbound
Protocol	Inbound/Outbound
Source IP (for Mask support see below)	Inbound/Outbound
Source IPv6 IP	Inbound/Outbound
L3 IPv6 Flow Label	Inbound
Source L4 Port	Inbound/Outbound
TCP Flag (ack, est, fin)	Inbound/Outbound
Supports Masking	Inbound/Outbound
MAC Rule Match Fields	
COS	Inbound/Outbound
Destination MAC	Inbound/Outbound
Destination MAC Mask	Inbound/Outbound
Ethertype	Inbound/Outbound
Source MAC	Inbound/Outbound
Source MAC Mask	Inbound/Outbound
VLAN ID	Inbound/Outbound
Rules attributes	
Assign Queue	Inbound
Logging -- deny rules	Inbound/Outbound
Mirror (to supported interface types only)	Inbound
Redirect (to supported interface types only)	Inbound
Rate Limiting -- permit rules	Inbound/Outbound

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Datasheet | M4250 series AV Line Managed Switches

Interface	
Inbound direction	Yes
Outbound direction	Yes
Supports LAG interfaces	Yes
Supports Control-plane interface	Yes
Multiple ACLs per interface, dir	Yes
Mixed-type ACLs per interface, dir	Yes
Mixed L2/IPv4 ACLs per interface, inbound	Yes
Mixed IPv4/IPv6 ACLs per interface, inbound	Yes
Mixed IPv4/IPv6 ACLs per interface, outbound	Yes

QoS - DiffServ Feature Support

DiffServ Supported	Yes
Class Type	
All	Yes
Class Match Criteria	
COS	Inbound/Outbound
COS2 (Secondary COS)	Inbound
Destination IP (for Mask support see below)	Inbound/Outbound
Destination IPv6 IP	Inbound/Outbound
Destination L4 Port	Inbound/Outbound
Destination MAC (for Mask support see below)	Inbound/Outbound
Ethertype	Inbound/Outbound
Every Packet	Inbound/Outbound
IP DSCP	Inbound/Outbound
IP Precedence	Inbound/Outbound
IP TOS (for Mask support see below)	Inbound/Outbound
Protocol	Inbound/Outbound
Reference Class	Inbound/Outbound
Source IP (for Mask support see below)	Inbound/Outbound
Source IPv6 IP	Inbound/Outbound
L3 IPv6 Flow Label	Inbound
Source L4 Port	Inbound/Outbound
Source MAC (for Mask support see below)	Inbound/Outbound
VLAN ID (Source VID)	Inbound/Outbound
VLAN ID2 (Secondary VLAN) (Source VID)	Inbound/Outbound
Supports Masking	Inbound/Outbound

Policy	
Out Class Unrestricted	Yes

Policy Attributes -- Inbound	
Assign Queue	Yes
Drop	Yes
Mark COS	Yes
Mark COS-AS-COS2	Yes
Mark COS2 (Secondary COS)	Yes
Mark IP DSCP	Yes
Mark IP Precedence	Yes
Mirror (to supported interface types only)	Yes
Police Simple	Yes
Police Single-Rate	Yes
Police Two-Rate	Yes
Police Color Aware Mode	Yes
Redirect (to supported interface types only)	Yes

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Datasheet | **M4250 series**

AV Line Managed Switches

Policy Attributes -- Outbound	Yes
Drop	Yes
Mark COS	Yes
Mark IP DSCP	Yes
Mark IP Precedence	Yes
Mirror (to supported interface types only)	Yes
Police Simple	Yes
Police Single-Rate	Yes
Police Two-Rate	Yes
Police Color Aware Mode	Yes
Redirect (to supported interface types only)	Yes

Service Interface	
Inbound Slot.Port configurable	Yes
Inbound 'All' Ports configurable	Yes
Outbound Slot.Port configurable	Yes
Outbound 'All' Ports configurable	Yes
Supports LAG interfaces	Yes
Mixed L2/IPV4 match criteria, inbound	Yes
Mixed IPV4/IPV6 match criteria, inbound	Yes
Mixed IPV4/IPV6 match criteria, outbound	Yes

PHB Support	
EF	Yes
AF4x	Yes
AF3x	Yes
AF2x	Yes
AF1x	Yes
CS	Yes

Statistics -- Policy Instance	
Offered	packets
Discarded	packets

QoS - COS Feature Support

COS Support	Yes
Supports LAG interfaces	Yes

COS Mapping Config	
Configurable per-interface	Yes
IP DSCP Mapping	Yes

COS Queue Config	
Queue Parms configurable per-interface	Yes
Drop Parms configurable per-interface	Yes
Interface Traffic Shaping (for whole egress interface)	Yes
Minimum Bandwidth	Yes
Weighted Deficit Round Robin (WDRR) Support	Yes
Maximum Queue Weight	127
WRED Support	Yes

PTP - PTPv2 Feature Support

PTPv2	
IEEE 1588 PTPv2 Section 10 and 11.5	Yes
Implementation	Transparent Clock (TC) End-to-End implementation considering the residence time of PTPv2 packets from ingress to egress
Limitations	PTPv1 packets are forwarded but not processed (no PTPv1 support).
Method	Residence time of the PTPv2 packet at the egress port level
PTPv2 packet fields that are updated	The "Sync & Delay_Req" field of passing/egressing out PTPv2 packets is updated with the residence time in the switch
PTPv2 packet fields that are NOT updated	Other fields in PTPv2 packets ("Announce", "Delay_Resp", "Pdelay_Req" and "Pdelay_Resp") are not updated

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AV Line

Datasheet | M4250 series AV Line Managed Switches

TSN - Time Sensitive Networking AVB Feature Support

AVB	
IEEE 802.1BA-2011 Audio Video Bridging (AVB)	Yes
IEEE 802.1AS-2011 gPTP	Yes
IEEE 802.1Qav-2009 FQTSS	Yes
IEEE 802.1Qat-2010 MSRP	Yes
IEEE 802.1ak MMRP	Yes
IEEE 802.1ak MVRP	Yes
Max number of AVB streams	256 streams per switch
Limitations	AVB isn't supported on a LAG (link aggregation group, or port channel)

Functional Summary - IETF RFC Standards and IEEE Network Protocols

Core Management

RFC 854 – Telnet	RFC 3414 – User-Based Security Model
RFC 855 – Telnet option specifications	RFC 3415 – View-based Access Control Model
RFC 1155 – SMI v1	RFC 3416 – Version 2 of SNMP Protocol Operations
RFC 1157 – SNMP	RFC 3417 – Transport Mappings
RFC 1212 – Concise MIB definitions	RFC 3418 – Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
RFC 1867 – HTML/2.0 forms with file upload extensions	Configurable Management VLAN
RFC 1901 – Community-based SNMP v2	SSL 3.0 and TLS 1.2
RFC 1908 – Coexistence between SNMP v1 and SNMP v2	- RFC 2246 – The TLS protocol, version 1.0
RFC 2068 – HTTP/1.1 protocol as updated by draft-ietf-http-v11-spec-rev-03	- RFC 2346 – AES cipher suites for Transport layer security
RFC 2271 – SNMP framework MIB	- RFC 2818 – HTTP over TLS SSH 2.0
RFC 2295 – Transparent content negotiation	SSH 2.0
RFC 2296 – Remote variant selection; RSVA/1.0 state management cookies – draft-ietf-http-state-mgmt-05	- RFC 4253 – SSH transport layer protocol
RFC 2576 – Coexistence between SNMP v1, v2, and v3	- RFC 4252 – SSH authentication protocol
RFC 2578 – SMI v2	- RFC 4254 – SSH connection protocol
RFC 2579 – Textual conventions for SMI v2	- RFC 4251 – SSH protocol architecture
RFC 2580 – Conformance statements for SMI v2	- RFC 4716 – SECSH public key file format
RFC 3410 – Introduction and Applicability Statements for Internet Standard Management Framework	- RFC 4419 – Diffie-Hellman group exchange for the SSH transport layer protocol
RFC 3411 – An Architecture for Describing SNMP Management Frameworks	HTML 4.0 specification, December 1997
RFC 3412 – Message Processing & Dispatching	JavaScript™ 1.3
RFC 3413 – SNMP Applications	

Advanced Management

Industry-standard CLI with the following features:	
- Scripting capability	Optional user password encryption
- Command completion	Multisession Telnet server
- Context-sensitive help	Auto Image Upgrade

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AV Line

Datasheet | M4250 series

AV Line Managed Switches

Core Switching

IEEE 802.1AB – Link level discovery protocol	IEEE 802.1BA-2011, 802.1AS-2011 gPTP, 802.1Qav-2009 FQTS, 802.1Qat-2010 MSRP, 802.1ak MMRP, MVRP
IEEE 802.1D – Spanning tree	IEEE 802.3ac – VLAN tagging
IEEE 802.1p – Ethernet priority with user provisioning and mapping	IEEE 802.3ad – Link aggregation
IEEE 802.1Q – Virtual LANs w/ port-based VLANs	IEEE 802.3ae – 10 GbE
IEEE 802.1S – Multiple spanning tree compatibility	IEEE 802.3af – Power over Ethernet
IEEE 802.1v – Protocol-based VLANs	IEEE 802.3at – Power over Ethernet Plus
IEEE 802.1W – Rapid spanning tree	IEEE 802.3x – Flow control
IEEE 802.1AB – LLDP	ANSI/TIA-1057 – LLDP-MED
IEEE 802.1X – Port-based authentication	GARP – Generic Attribute Registration Protocol: clause 12, 802.1D-2004
IEEE 802.3 – 10Base-T	GMRP – Dynamic L2 multicast registration: clause 10, 802.1D-2004
IEEE 802.3u – 100Base-T	GVRP – Dynamic VLAN registration: clause 11.2, 802.1Q-2003
IEEE 802.3ab – 1000Base-T	RFC 4541 – IGMP snooping and MLD snooping
IEEE 802.3bz-2016 – 2.5GBASE-T	RFC 5171 – UniDirectional Link Detection (UDLD) Protocol

Additional Layer 2 Functionality

Broadcast storm recovery	IGMP and MLD snooping querier
Double VLAN/VLAN tagging	Port MAC locking
DHCP Snooping	MAC-based VLANs
Dynamic ARP inspection	IP source guard
Independent VLAN Learning (IVL) support	IP subnet-based VLANs
IPv6 classification APIs	Voice VLANs
Jumbo Ethernet frames	Protected ports
Port mirroring	IGMP snooping
Static MAC filtering	Green Ethernet power savings mode

System Facilities

Event and error logging facility	RFC 2030 – Simple Network Time Protocol (SNTP) V4 for IPv4, IPv6, and OSI
Runtime and configuration download capability	RFC 2131 – DHCP Client/Server
PING utility	RFC 2132 – DHCP options and BOOTP vendor extensions
XMODEM	RFC 2865 – RADIUS client
RFC 768 – UDP	RFC 2866 – RADIUS accounting
RFC 783 – TFTP	RFC 2868 – RADIUS attributes for tunnel protocol support
RFC 791 – IP	RFC 2869 – RADIUS extensions
RFC 792 – ICMP	RFC 2886bis – RADIUS support for Extensible Authentication Protocol (EAP)
RFC 793 – TCP	RFC 5176 – RADIUS Change of Auth

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AV Line

Datasheet | M4250 series

AV Line Managed Switches

RFC 826 – ARP	RFC 3164 – The BSD syslog protocol with RFC 5424 update
RFC 951 – BOOTP	RFC 3580 – 802.1X RADIUS usage guidelines
RFC 1321 – Message digest algorithm	Power Source Equipment (PSE) IEEE 802.af Powered Ethernet (DTE Power via MDI) standard
RFC 1534 – Interoperability between BOOTP and DHCP	

Core Routing

RFC 826 – Ethernet ARP	RFC 1812 – Requirements for IPv4 routers
RFC 894 – Transmission of IP datagrams over Ethernet networks	RFC 2082 – RIP-2 MD5 authentication
RFC 896 – Congestion control in IP/TCP networks	RFC 2131 – DHCP relay
RFC 1027 – Using ARP to implement transparent subnet gateways (Proxy ARP)	RFC 2385 – Protection of BGP Sessions via the TCP MD5 Signature Option
RFC 1256 – ICMP router discovery messages	RFC 2453 – RIP v2
RFC 1321 – Message digest algorithm	RFC 3021 – Using 31-Bit Prefixes on Point-to-Point Links
RFC 1519 – CIDR	RFC 3046 – DHCP/BOOTP relay

Quality of Service - DiffServ

RFC 2474 – Definition of the differentiated services field (DS Field) in IPv4/IPv6 headers	RFC 2697 – A Single Rate Three Color Marker
RFC 2475 – An architecture for differentiated services	RFC 3246 – An expedited forwarding PHB (Per-Hop Behavior)
RFC 2597 – Assured forwarding PHB group	RFC 3260 – New terminology and clarifications for DiffServ

Quality of Service - Access Control Lists (ACLs)

Permit/deny actions for inbound or outbound IP traffic classification based on:	Permit/deny actions for inbound or outbound Layer 2 traffic classification based on:
- Type of service (ToS) or differentiated services (DS) DSCP field - Source IP address - Destination IP address - TCP/UDP source port - TCP/UDP destination port - IPv6 flow label - IP protocol number	- Source MAC address - Destination MAC address - EtherType - VLAN identifier value or range (outer and/or inner VLAN tag) 802.1p user priority (outer and/or inner VLAN tag)
	Optional rule attributes:
	- Assign matching traffic flow to a specific queue - Redirect or mirror (flow-based mirroring) matching traffic flow to a specific port - Generate trap log entries containing rule hit counts

Quality of Service - Class of Service (CoS)

Direct user configuration of the following:	Auto VoIP
- IP DSCP to traffic class mapping - IP precedence to traffic class mapping - Interface trust mode: 802.1p, IP Precedence, IP DSCP, or untrusted - Interface traffic shaping rate - Minimum and maximum bandwidth per queue - Strict priority versus weighted (WRR/WDRR/WFQ) scheduling per queue - Tail drop versus Weighted Random Early Detection (WRED) queue depth management	

Core Multicast

RFC 1112 – Host extensions for IP multicasting	RFC3973 – PIM-DM
RFC 2236 – IGMP v2	RFC4601 – PIM-SM
RFC 2710 – MLDv1	Draft-ietf-magma-igmp-proxy-06.txt – IGMP/MLD-based multicast forwarding (IGMP/MLD proxying)

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AV Line

Datasheet | M4250 series AV Line Managed Switches

RFC 2365 – Administratively scoped boundaries	Draft-ietf-magma-igmpv3-and-routing-05.txt – IGMPv3 and multicast routing protocol interaction
RFC 3376 – IGMPv3	Static RP configuration
RFC3810 – MLDv2	Static RP configuration
Core IPv6 Routing	
RFC 1981 – Path MTU for IPv6	RFC 3493 – Basic socket interface for IPv6
RFC 2373 – IPv6 addressing	RFC 3513 – Addressing architecture for IPv6
RFC 2460 – IPv6 protocol specification	RFC 3542 – Advanced sockets API for IPv6
RFC 2461 – Neighbor discovery	RFC 3587 – IPv6 global unicast address format
RFC 2462 – Stateless autoconfiguration	RFC 3736 – Stateless DHCPv6
RFC 2464 – IPv6 over Ethernet	RFC 4213 – Basic transition mechanisms for IPv6
RFC 2711 – IPv6 router alert	RFC 4291 – Addressing architecture for IPv6
RFC 3056–Connection of IPv6 Domains via IPv4 Clouds	RFC 4443 – Internet Control Message Protocol (ICMPv6) for the IPv6 Specification
RFC 3315 –Dynamic Host Configuration Protocol for IPv6 (DHCPv6)	RFC 6164 – Using 127-Bit IPv6 Prefixes on Inter-Router Links
RFC 3484 – Default address selection for IPv6	RFC 6583 – Operational Neighbor Discovery Problems

Supported MIBs

Base Package MIBs

ANSI/TIA-1057 – LLDP-EXT-MED-MIB	RFC 2674 – Q-BRIDGE-MIB
DIFFSERV DSCP TC (Draft – no RFC)	RFC 2677 – IANA Address Family Numbers MIB
DNS-RESOLVER-MIB (IETF DNS Working Group)	RFC 2819 – RMON MIB
DNS-SERVER-MIB (IETF DNS Working Group)	RFC 2925 – DISMAN-PING-MIB and DISMAN-TRACEROUTE-MIB
GreenEthernet Private MIB	RFC 3273 – RMON MIB for High Capacity Networks
IANA-ADDRESS-FAMILY-NUMBERS-MIB (IANA (3/2002)	RFC 3411 – SNMP Management Frameworks MIB
IEEE 802.1AB-2004 – LLDP MIB	RFC 3411 – SNMP-FRAMEWORK-MIB
IEEE 802.1AB-2005 – LLDP-EXT-DOT3-MIB	RFC 3412 – SNMP-MPD-MIB
POWER ETHERNET MIB (Draft – no RFC)	RFC 3413 – SNMP-NOTIFICATION-MIB
RFC 1155 – SMI-MIB	RFC 3413 – SNMP-PROXY-MIB (initial revision published as RFC 2273)
RFC 1450 – SNMPV2-MIB	RFC 3413 – SNMP-TARGET-MIB (initial revision published as RFC 2273)
RFC 2273 – SNMP Notification MIB, SNMP Target MIB	RFC 3414 – User-based Security Model for SNMPv3 MIB
RFC 2392 – IANA RTPROTO-MIB	RFC 3415 – View-based Access Control Model for SNMP MIB
RFC 2572 – SNMP Message Processing and Dispatching MIB	RFC 3417 – SNMPV2-TM
RFC 2574 – User-based Security Model for SNMPv3 MIB	RFC 3418 – SNMPv2 MIB
RFC 2575 – View-based Access Control Model for SNMP MIB	RFC 3434 – RMON MIB Extensions for High Capacity Alarms
RFC 2576 – SNMP Community MIB	RFC 3584 – SNMP Community MIB
RFC 2578 – SNMPV2-SMI	RFC 3621 – POWER-ETHERNET-MIB

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AV Line

Datasheet | M4250 series

AV Line Managed Switches

RFC 2579 – SNMPV2-TC	SNMP-RESEARCH-MIB– SNMP research MIB definitions
RFC 2580– SNMPV2-CONF	SR-AGENT-INFO-MIB– SNMP research MIB definitions
RFC 2613 – SMON-MIB	USM-TARGET-TAG-MIB – SNMP research MIB definitions
Switching Package MIBs	
RFC 1213 – MIB-II	RFC 2011 – SNMPv2 Management Information Base
ANSI/TIA 1057 – LLDP-MED MIB	RFC 2213 – Integrated Services MIB
FASTPATH Enterprise MIBs supporting switching features	RFC 2233 – IF-MIB
FASTPATH-MMRP-MIB – MMRP private MIB for IEEE 802.1Q devices	RFC 2233 – The Interfaces Group MIB using SMI v2
FASTPATH-MSRP-MIB – MSRP private MIB for IEEE 802.1Q devices	RFC 2674 – VLAN and Ethernet Priority MIB (P-Bridge MIB)
FASTPATH-MVRP-MIB – MVRP private MIB for IEEE 802.1Q devices	RFC 2737 – Entity MIB (Version 2)
IANAIfType-MIB – IANAIfType Textual Convention	RFC 2819 – RMON Groups 1,2,3, & 9
IEEE 802.1AB – LLDP MIB	RFC 2863 – Interfaces Group MIB
IEEE 802.3AD MIB (IEEE8021-AD-MIB)	RFC 3291 – INET Address MIB
IEEE Draft P802.1AS/D7.0 (IEEE8021-AS-MIB)	RFC 3291 – Textual Conventions for Internet Network Addresses
IEEE LAG-MIB – Link Aggregation module for managing IEEE 802.3ad	RFC 3621 – Power Ethernet MIB
LLDP-EXT-DOT3-MIB (part of IEEE Std 802.1AB)	RFC 3635 – Etherlike MIB
LLDP-MIB (part of IEEE Std 802.1AB)	RFC 3636 – IEEE 802.3 Medium Attachment Units (MAUs) MIB
Private MIB for 802.1Qat, 802.1Qav Configuration	RFC 4022 – Management Information Base for the Transmission Control Protocol (TCP)
RFC 1493 – Bridge MIB	RFC 4113 – Management Information Base for the User Datagram Protocol (UDP)
RFC 1643 – Definitions of managed objects for the Ethernet-like interface types	RFC 4444 – IS-IS MIB
Routing Package MIBs	
FASTPATH Enterprise MIBs supporting routing features	RFC 2096 – IP Forwarding Table MIB
IANA-Address-Family-Numbers-MIB	RFC 2668 – IEEE 802.3 Medium Attachment Units (MAUs) MIB
IPv6 Management MIBs	
RFC 3419 – TRANSPORT-ADDRESS-MIB	IPv6-MIB (draft)
IPv6-ICMP-MIB (draft)	
IPv6 Routing MIBs	
RFC 2465 – IPv6 MIB	RFC 2466 – ICMPv6 MIB
QoS Package MIB	
RFC 3289 – DIFFSERV-MIB & DIFFSERV-DCSP-TC MIBs	Private MIBs for full configuration of DiffServ, ACL, and CoS functionality
Security MIB	
RFC 2618 – RADIUS Authentication Client MIB	IEEE8021-PAE-MIB – The Port Access Entity module for managing IEEE 802.1X
RFC 2620 – RADIUS Accounting MIB	IEEE 802.1X MIB (IEEE 8021-PAE-MIB 2004 Revision)

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AV Line

Datasheet | M4250 series AV Line Managed Switches

Multicast Package MIBs

RFC 2932 – IPv4 Multicast Routing MIB for PIMDMv4	draft-ietf-magma-mgmd-mib-05.txt – Multicast Group Membership Discovery MIB (both IGMP and MLD)
RFC 5060 – PIM-SM and PIM-DM MIB for IPv4 and IPv6	FASTPATH Enterprise MIBs supporting multicast features
RFC 5240 – BSR Protocol MIB	

NETGEAR-BOXSERVICES-PRIVATE-MIB for SFP/SFP+ MIB Support

boxServicesFiberPortsOpticsTable	boxServicesFiberPortOpticsPowerOut
BoxServicesFiberPortsOpticsEntry	boxServicesFiberPortOpticsPowerIn
boxServicesFiberPortIndex	boxServicesFiberPortOpticsTxFault
boxServicesFiberPortOpticsTemperature	boxServicesFiberPortOpticsLos
boxServicesFiberPortOpticsVoltage	boxServicesFiberPortOpticsFaultStatus
boxServicesFiberPortOpticsCurrent	

Management

Password management	Yes	
Configurable Management VLAN	Yes	
Out-of-band Management	Yes	In-band management can be shut down using Management ACLs when separate management network
Auto Install (BOOTP and DHCP options 66, 67, 150 and 55, 125)	Yes	Scalable deployment process (firmware, config)
Admin access control via Radius and TACACS+	Yes	Policies, Enable
Industry standard CLI (IS-CLI)	Yes	Command Line interface
CLI commands logged to a Syslog server	Yes	
Web-based graphical user interface (GUI)	Yes	Fully functional GUI (exceptions are noted below:)
Features without Web GUI support		
Authorization List	CLI only	
Control Plane ACL	CLI only	
UDLD	CLI only	
Policy Based Routing	CLI only	
LLPF	CLI only	
QoS Policy for Single Rate	CLI only	
DHCPv6 Snooping	CLI only	
IPv6 DHCP Relay	CLI only	
eMail Alerting	CLI only	
MMRP	CLI only	
Telnet	Yes	
IPv6 management	Yes	
Dual Software (firmware) image	Yes	Allows non disruptive firmware upgrade process
Editable Configuration file	Yes	Text-based (CLI commands) configuration file
Non disruptive Config Management	Yes	With new startup configuration file, the switch gracefully resolves any differences with the running config
IS-CLI Scripting	Yes	
Port descriptions	Yes	

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AV Line

Datasheet | M4250 series

AV Line Managed Switches

SNTP client over UDP port 123	Yes	Provides synchronized network timestamp either in broadcast or unicast mode
XMODEM	Yes	
SNMP v1/v2	Yes	
SNMP v3 with multiple IP addresses	Yes	
RMON 1,2,3,9	Yes	
Max Ether Stats entries	34	
Max History entries	102	
Max buckets per History entry	10	
Max Alarm entries	102	
Max Event entries	102	
Max Log entries per Event entry	10	
Port Mirroring	Yes	
Number of monitor sessions	1 (multiple sessions are configurable)	
Tx/Rx	Yes	
Many to One Port Mirroring	Yes	
LAG supported as source ports	Yes	
Max source ports in a session	Total switch port count	
Remote Port Mirroring (RSPAN)	Yes	When a particular session is enabled, any traffic entering or leaving the source ports of that session is copied (mirrored) onto a Remote Switched Port Analyzer (RSPAN) VLAN
Flow based mirroring	Yes	
Cable Test utility	Yes	CLI, Web GUI
Outbound Telnet	Yes	
SSHv2	Yes	Secure Shell version 2 (OpenSSH 7.5p1)
SSH Session Configuration	Yes	
SSL v3 and TLS v1.2 for HTTPS web-based access	Yes	Open SSL 1.0.2o)
2048-bit RSA key pairs	Yes	For SSLv3 and SSHv2
SHA2-256 and SHA2-512 cryptographic hash functions	Yes	For SSLv3 and SSHv2
File transfers (uploads, downloads)	TFTP / HTTP	
Secured protocols for file transfers	SCP / SFTP / HTTPS	
HTTP Max Sessions	16	
SSL/HTTPS Max Sessions	16	
HTTP Download (firmware)	Yes	
Email Alerting	Yes (CLI only)	
Syslog (RFC 3164) (RFC 5424)	Yes, forwarding messages via UDP using the Syslog protocol to one or more collectors or relays	
Persistent log supported	Yes	
User Admin Management		
User ID configuration	Yes	
Max number of configured users	6	
Support multiple READWRITE Users	Yes	
Max number of IAS users (internal user database)	100	
Authentication login lists	Yes	
Authentication Enable lists	Yes	

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AV Line

Datasheet | **M4250 series**

AV Line Managed Switches

Authentication HTTP lists	Yes
Authentication HTTPS lists	Yes
Authentication Dot1x lists	Yes
Accounting Exec lists	Yes
Accounting Commands lists	Yes
Login History	50
M4250 series - Platform Constants	
Maximum number of remote Telnet connections	5
Maximum number of remote SSH connections	5
Number of MAC Addresses	16K
Number of VLANs	4,093 VLANs (802.1Q) simultaneously
VLAN ID Range	1 - 4093
Number of 802.1p Traffic Classes	8 classes
IEEE 802.1x	48
Number of .1x clients per port	
Number of LAGs	8 LAGs with up to 8 ports per group
Maximum multiple spanning tree instances (MSTP)	16
Maximum per VLAN spanning tree instances (PVST)	32
MAC based VLANs	Yes
Number supported	256
Number of network buffers	182
Number of log messages buffered	200
Static filter entries	
Unicast MAC and source port	20
Multicast MAC and source port	20
Multicast MAC and destination port (only)	1024
Subnet based VLANs	Yes
Number supported	128
Protocol Based VLANs	Yes
Max number of groups	128
Max protocols	16
Maximum Multicast MAC Addresses entries	1K
Jumbo Frame Support	Yes
Max Size Supported	12k
Number of IP Source Guard stations	379
Number of DHCP snooping bindings	32K
Number of DHCPv6 snooping bindings	32K
Number of DHCP snooping static entries	1024
LLDP-MED number of remote nodes	32
LLDP Remote Management address buffers	32
LLDP Unknown TLV address buffers	100
LLDP Organisationally Defined Large TLV buffers	16
LLDP Organisationally Defined Small TLV buffers	100

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AV Line

Datasheet | **M4250 series**

AV Line Managed Switches

Port MAC Locking	Yes	
Dynamic addresses per port	600	
Static addresses per port	20	
sFlow		
Number of samplers	16	
Number of pollers	16	
Number of receivers	8	
Radius		
Max Authentication servers	32	
Max Accounting servers	32	
Number of Routes (v4/v6)		
IPv4 Unicast Routes in Default IPv4 Basic SDM Template	894	SDM (System Data Management, or switch database)
IPv6 Unicast Routes in Default IPv4 Basic SDM Template	126	
RIP application route scaling (IPv4 only)	32	
Number of routing interfaces (including port/vlan)	128	
Number of static routes (v4/v6)	64/64	
DHCP Server		
Max number of pools	256	
Total max leases	2K	
DNS Client		
Concurrent requests	16	
Name server entries	8	
Search list entries	6	
Static host entries	64	
Cache entries	128	
Domain search list entries	32	
DHCPv6 Server		
Max number of pools	16	
DNS domain names within a pool	5	
DNS server addresses within a pool	8	
Delegated prefix definitions within a pool	10	
Number of Host Entries (ARP/NDP)		
IPv4 only SDM build	4K	SDM (System Data Management, or switch database)
IPv4/IPv6 SDM build (v4/v6)	512	
Static v4 ARP Entries	128	
Number of ECMP Next Hops per Route	16	
Number of ECMP groups	128	
Total ECMP nexthops in Hardware	2048	
Maximum MFDB entries	1K	
IGMPv3 / MLDv2 Snooping Limits		
IGMPv3/MLDv2 HW entries when IP Multicast present	128/64	
IP Multicast		
IGMP Group Memberships per system	2K (IPv4) and 2K (IPv6)	
Multicast Routes	512 (IPv4) and 128 (IPv6)	
PIM-DM Neighbors	256	
PIM-SM Neighbors	256	
PIM-SM Static RP Entries	5	
PIM-SM Candidate RP Group Range Entries	20	
PIM-SM SSM Range Entries	5	
IGMP Sources processed per group per message	73	

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AV Line

Datasheet | M4250 series

AV Line Managed Switches

ACL Limits

Maximum Number of ACLs (any type)	100
Maximum Number Configurable Rules per List	1,023
Maximum ACL Rules per Interface and Direction	1,023 ingress / 511 ingress
Maximum ACL Rules per Interface and Direction (IPv6)	893 ingress / 253 egress
Maximum ACL Rules (system-wide)	16K
Maximum ACL Logging Rules (system-wide)	128
Maximum ACL per VLAN (system-wide)	64

COS Device Characteristics

Configurable Queues per Port	8 queues (standalone) 7 queues (stack)
Configurable Drop Precedence Levels	3

DiffServ Device Limits

Number of Queues	8 queues (standalone) 7 queues (stack)
Requires TLV to contain all policy instances combined	Yes
Max Rules per Class	13
Max Instances per Policy	28
Max Attributes per Instance	3
Max Service Interfaces	116
Max Table Entries	
Class Table	32
Class Rule Table	192
Policy Table	64
Policy Instance Table	768
Policy Attribute Table	2304
Max Nested Class Chain Rule Count	26

AutoVoIP number of voice calls	16
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Voice VLAN number of devices	16
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LEDs

Per port	Speed, Link, Activity, PoE - Available both in front and in the rear
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Per device	Power, Fan - Available both in front and in the rear
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Physical Specifications

Dimensions

M4250-9G1F-PoE+ (desktop switch)	Width: 8.27 inches (210 mm); Height: 1.57 inches (40 mm); Depth: 5.51 inches (140 mm)
M4250-9G1F-PoE+ (power adapter)	Width: 6.65 inches (169 mm); Height: 1.40 inches (35.5 mm); Depth: 2.83 inches (72 mm)
M4250-8G2XF-PoE+ (desktop switch)	Width: 8.27 inches (210 mm); Height: 1.57 inches (40 mm); Depth: 5.51 inches (140 mm)
M4250-8G2XF-PoE+ (power adapter)	Width: 7.76 inches (197 mm); Height: 1.54 inches (39 mm); Depth: 3.51 inches (89 mm)
M4250-10G2F-PoE+	Width: 17.32 inches (440 mm); Height: 1U - 1.70 inches (43.2 mm); Depth: 7.87 inches (200 mm)
M4250-10G2XF-PoE+	Width: 17.32 inches (440 mm); Height: 1U - 1.70 inches (43.2 mm); Depth: 7.87 inches (200 mm)
M4250-10G2XF-PoE++	Width: 17.32 inches (440 mm); Height: 1U - 1.70 inches (43.2 mm); Depth: 10.12 inches (257 mm)
M4250-26G4F-PoE+	Width: 17.32 inches (440 mm); Height: 1U - 1.70 inches (43.2 mm); Depth: 10.12 inches (257 mm)
M4250-26G4F-PoE++	Width: 17.32 inches (440 mm); Height: 1U - 1.70 inches (43.2 mm); Depth: 15.75 inches (400 mm)
M4250-26G4XF-PoE+	Width: 17.32 inches (440 mm); Height: 1U - 1.70 inches (43.2 mm); Depth: 15.75 inches (400 mm)
M4250-40G8F-PoE+	Width: 17.32 inches (440 mm); Height: 1U - 1.70 inches (43.2 mm); Depth: 15.75 inches (400 mm)
M4250-40G8XF-PoE+	Width: 17.32 inches (440 mm); Height: 1U - 1.70 inches (43.2 mm); Depth: 15.75 inches (400 mm)
M4250-40G8XF-PoE++	Width: 17.32 inches (440 mm); Height: 2U - 3.40 inches (86.4 mm); Depth: 13.78 inches (350 mm)
M4250-12M2XF	Width: 17.32 inches (440 mm); Height: 1U - 1.70 inches (43.2 mm); Depth: 3.94 inches (100 mm)
M4250-16XF	Width: 17.32 inches (440 mm); Height: 1U - 1.70 inches (43.2 mm); Depth: 7.87 inches (200 mm)

NETGEAR®

AV Line

Datasheet | **M4250 series**

AV Line Managed Switches

Weight	
M4250-9G1F-PoE+ (desktop switch)	2.13 lb (0.965 kg)
M4250-9G1F-PoE+ (power adapter)	1.21 lb (0.550 kg)
M4250-8G2XF-PoE+ (desktop switch)	2.13 lb (0.967 kg)
M4250-8G2XF-PoE+ (power adapter)	2.11 lb (0.955 kg)
M4250-10G2F-PoE+	6.28 lb (2.850 kg)
M4250-10G2XF-PoE+	6.39 lb (2.900 kg)
M4250-10G2XF-PoE++	8.44 lb (3.830 kg)
M4250-26G4F-PoE+	9.47 lb (4.300 kg)
M4250-26G4F-PoE++	14.87 lb (6.746 kg)
M4250-26G4XF-PoE+	12.02 lb (5.453 kg)
M4250-40G8F-PoE+	12.90 lb (5.852 kg)
M4250-40G8XF-PoE+	13.91 lb (6.312 kg)
M4250-40G8XF-PoE++	22.72 lb (10.280 kg)
M4250-12M2XF	3.85 lb (1.745 kg)
M4250-16XF	6.17 lb (2.800 kg)

Power Consumption

All ports used, max PoE load, line-rate traffic, maximum

M4250-9G1F-PoE+	132.25W - 451.5 BTU/hr
M4250-8G2XF-PoE+	257.9W - 880.47 BTU/hr
M4250-10G2F-PoE+	163.9W - 559.55 BTU/hr
M4250-10G2XF-PoE+	306.4W - 1046.05 BTU/hr
M4250-10G2XF-PoE++	837.7W - 2859.91 BTU/hr
M4250-26G4F-PoE+	401W - 1369.01 BTU/hr
M4250-26G4F-PoE++	1 PSU: 889W - 3035.05 BTU/hr 2 PSU: 1734W - 5919.88 BTU/hr
M4250-26G4XF-PoE+	614W - 2096.2 BTU/hr
M4250-40G8F-PoE+	624.8W - 2133.07 BTU/hr
M4250-40G8XF-PoE+	1197W - 4086.56 BTU/hr
M4250-40G8XF-PoE++	1 PSU: 912W - 3113.57 BTU/hr 2 PSU: 1998W - 6821.17 BTU/hr 3 PSU: 3523W - 12027.52 BTU/hr
M4250-12M2XF	-
M4250-16XF	-

All ports used, no PoE, line-rate traffic, maximum

M4250-9G1F-PoE+	9.88W - 33.73 BTU/hr
M4250-8G2XF-PoE+	18.14W - 61.93 BTU/hr
M4250-10G2F-PoE+	17.32W - 59.13 BTU/hr
M4250-10G2XF-PoE+	25W - 85.35 BTU/hr
M4250-10G2XF-PoE++	26.3W - 89.79 BTU/hr
M4250-26G4F-PoE+	35.8W - 122.22 BTU/hr
M4250-26G4F-PoE++	48.8W - 166.6 BTU/hr
M4250-26G4XF-PoE+	46.8W - 159.78 BTU/hr
M4250-40G8F-PoE+	59.5W - 203.13 BTU/hr
M4250-40G8XF-PoE+	89.2W - 304.53 BTU/hr
M4250-40G8XF-PoE++	82.6W - 282 BTU/hr
M4250-12M2XF	37.9W - 129.39 BTU/hr
M4250-16XF	47.84W - 163.33 BTU/hr

NETGEAR®

AV Line

Datasheet | **M4250 series**

AV Line Managed Switches

Standby, no connection on any port

M4250-9G1F-PoE+	6.4W - 22.02 BTU/hr
M4250-8G2XF-PoE+	9.51W - 32.47 BTU/hr
M4250-10G2F-PoE+	8.53W - 29.12BTU/hr
M4250-10G2XF-PoE+	12.96W - 44.24BTU/hr
M4250-10G2XF-PoE++	18W - 61.45BTU/hr
M4250-26G4F-PoE+	23.4W - 79.89 BTU/hr
M4250-26G4F-PoE++	36.9W - 125.98 BTU/hr
M4250-26G4XF-PoE+	33.9W - 115.73 BTU/hr
M4250-40G8F-PoE+	46.4W - 158.41 BTU/hr
M4250-40G8XF-PoE+	74.5W - 254.34 BTU/hr
M4250-40G8XF-PoE++	68.5W - 233.86 BTU/hr
M4250-12M2XF	14.1W - 48.14BTU/hr
M4250-16XF	19.27W - 65.78BTU/hr

Environmental Specifications

Operating:	
Temperature (non-PoE models: M4250-12M2XF, M4250-16XF)	32° to 122°F (0° to 50°C)
Temperature (all other models)	32° to 113°F (0° to 45°C)
Humidity	90% maximum relative humidity, non-condensing
Altitude	10,000 ft (3,000 m) maximum
Storage:	
Temperature	- 4° to 158°F (-20° to 70°C)
Humidity	95% maximum relative humidity, non-condensing
Altitude	10,000 ft (3,000 m) maximum

Electromagnetic Emissions and Immunity

Certifications	FCC: 47 CFR FCC Part 15, Class A; ANSI C63.4:2014 ISED: ICES-003:2016 Issue 7, Class A CE: EN 55032:2015, Class A; EN61000-3-2:2014, Class A; EN 61000-3-3:-2013; EN 55024:2010; EN 55035:2017 RCM: AS/NZS CISPR 32:2015, Class A CCC (China Compulsory Certificate): GB/T9254-2008, Class A VCCI: VCCI-CISPR 32:2016, Class A KC: KN32; KN 35, Class A EAC: GOST IEC 62311-2013; GOST30804.3.2-2013; GOST30804.3.3-2013; GOST 30805.22-2013; GOST CISPR 24-2013 BSMI: CNS 13438, Class A
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Safety

Certifications	CB report/Certificate: IEC 62368-1 Ed.2; IEC 60950-1 Ed.2 Am2 CSA: UL/ANSI 62368-1 ed.2; CAN/CSA C22.2 No. 62368-1-14 CE: EN 62368-1:2014 RCM: AZ/NZS 62368.1:2018 CCC (China Compulsory Certificate): GB4943.1-2011 KC: K 60950-1 (2011-12) EAC: GOST IEC 62368-1-2014 BSMI: CNS 14336-1
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NETGEAR®

AV Line

Datasheet | M4250 series AV Line Managed Switches

Package Content

M4250-9G1F-PoE+, M4250-8G2XF-PoE+ desktop models	Switch External power adapter (standard C13 inlet) Power cord(s) USB Type-C to USB-A 2.0 console cable Rubber caps for the SFP/SFP+ sockets Rubber footpads for tabletop installation Installation guide Two brackets and screws for flanges, allowing for mounting on the wall, under a table or behind a screen
All rackmount other models	Switch Power cord(s) RJ45 straight-through wiring serial console cable to DB9 USB Type-C to USB-A 2.0 console cable Rubber caps for the SFP/SFP+ sockets Rubber footpads for tabletop installation Installation guide Two regular (short) brackets and screws for two-post rack mount (for front posts) allowing for mounting with ports on the back, or ports on the front of the rack Two longer brackets for two-post rack mount (for front posts) recessing the switch by 2 inches in order to make room for the cabling

Optional Modules and Accessories

AGM731F	1000BASE-SX SFP LC Transceiver (multimode, 550m OM4/OM3 50/125µm, 275m OM2/OM1 62.5/125µm)	AGM731F
AGM732F	1000BASE-LX SFP LC Transceiver (single mode, 10km 9/125µm)	AGM732F
AGM734	1000BASE-T SFP RJ45 Transceiver	AGM734-10000S
AXC761	10G Direct Attach SFP+ to SFP+ 1 Meter Passive DAC Cable	AXC761-10000S
AXC763	10G Direct Attach SFP+ to SFP+ 3 Meter Passive DAC Cable	AXC763-10000S
AXC765	10G Direct Attach SFP+ to SFP+ 5 Meter Active DAC Cable	AXC765-10000S
AXC767	10G Direct Attach SFP+ to SFP+ 7 Meter Active DAC Cable	AXC767-10000S
AXC7610	10G Direct Attach SFP+ to SFP+ 10 Meter Active DAC Cable	AXC7610-10000S
AXC7615	10G Direct Attach SFP+ to SFP+ 15 Meter Fiber DAC Cable	AXC7615-10000S
AXC7620	10G Direct Attach SFP+ to SFP+ 20 Meter Fiber DAC Cable	AXC7620-10000S
AXM761	10GBASE-SR SFP+ LC Transceiver (multimode, 300m OM4/OM3 50/125µm, 33m OM2/OM1 62.5/125µm)	AXM761-10000S
AXM761 (pack of 10)	Pack of 10 AXM761 Transceivers (multimode, 300m OM4/OM3 50/125µm, 33m OM2/OM1 62.5/125µm)	AXM761P10-10000S
AXM762	10GBASE-LR SFP+ LC Transceiver (single mode, 10km 9/125µm)	AXM762-10000S
AXM762 (pack of 10)	Pack of 10 AXM762 Transceivers (single mode, 10km 9/125µm)	AXM762P10-10000S
AXM763	10GBASE-LRM SFP+ LC Transceiver (multimode, 165m OM4/OM3 50/125µm, 100m OM2/OM1 62.5/125µm)	AXM763-10000S
AXM764	10GBASE-LR LITE SFP+ LC Transceiver (single mode, 2km 9/125µm)	AXM764-10000S
AXM765	10GBASE-T SFP+ RJ45 Transceiver (80m)	AXM765-20000S

ProSAFE Warranty and Support

ProSAFE Limited Lifetime Hardware Warranty**	Included
90 days of Technical Support via phone and email*	Included, 90 days after purchase
Lifetime Technical Support through online chat	Included, lifetime
Lifetime Next Business Day hardware replacement	Included, lifetime

NETGEAR®

AV Line

Datasheet | M4250 series AV Line Managed Switches

ProSupport Service Packs

Installation contracts for:	All models	
PSB0304-10000S	Remote Installation Setup and Configuration Service Contract (2-hour planned appointment)	
Supplemental support contracts for:	M4250-9G1F-PoE+, M4250-8G2XF-PoE+, M4250-10G2F-PoE+, M4250-10G2XF-PoE+, M4250-10G2XF-PoE++, M4250-12M2XF, M4250-16XF, M4250-26G4F-PoE+	
PMB0312-10000S	OnCall 24x7 1-year Category 2	
PMB0332-10000S	OnCall 24x7 3-year Category 2	
PMB0352-10000S	OnCall 24x7 5-year Category 2	
Supplemental support contracts for:	M4250-26G4F-PoE++, M4250-26G4XF-PoE+, M4250-40G8F-PoE+, M4250-40G8XF-PoE+, M4250-40G8XF-PoE++	
PMB0313-10000S	OnCall 24x7 1-year Category 3	
PMB0333-10000S	OnCall 24x7 3-year Category 3	
PMB0353-10000S	OnCall 24x7 5-year Category 3	
AGM731F	1000BASE-SX SFP LC Transceiver (multimode, 550m OM4/OM3 50/125µm, 275m OM2/OM1 62.5/125µm)	AGM731F
AGM732F	1000BASE-LX SFP LC Transceiver (single mode, 10km 9/125µm)	AGM732F
AGM734	1000BASE-T SFP RJ45 Transceiver	AGM734-10000S
AXC761	10G Direct Attach SFP+ to SFP+ 1 Meter Passive DAC Cable	AXC761-10000S
AXC763	10G Direct Attach SFP+ to SFP+ 3 Meter Passive DAC Cable	AXC763-10000S
AXC765	10G Direct Attach SFP+ to SFP+ 5 Meter Active DAC Cable	AXC765-10000S
AXC767	10G Direct Attach SFP+ to SFP+ 7 Meter Active DAC Cable	AXC767-10000S
AXC7610	10G Direct Attach SFP+ to SFP+ 10 Meter Active DAC Cable	AXC7610-10000S
AXC7615	10G Direct Attach SFP+ to SFP+ 15 Meter Fiber DAC Cable	AXC7615-10000S
AXC7620	10G Direct Attach SFP+ to SFP+ 20 Meter Fiber DAC Cable	AXC7620-10000S
AXM761	10GBASE-SR SFP+ LC Transceiver (multimode, 300m OM4/OM3 50/125µm, 33m OM2/OM1 62.5/125µm)	AXM761-10000S
AXM761 (pack of 10)	Pack of 10 AXM761 Transceivers (multimode, 300m OM4/OM3 50/125µm, 33m OM2/OM1 62.5/125µm)	AXM761P10-10000S
AXM762	10GBASE-LR SFP+ LC Transceiver (single mode, 10km 9/125µm)	AXM762-10000S
AXM762 (pack of 10)	Pack of 10 AXM762 Transceivers (single mode, 10km 9/125µm)	AXM762P10-10000S
AXM763	10GBASE-LRM SFP+ LC Transceiver (multimode, 165m OM4/OM3 50/125µm, 100m OM2/OM1 62.5/125µm)	AXM763-10000S
AXM764	10GBASE-LR LITE SFP+ LC Transceiver (single mode, 2km 9/125µm)	AXM764-10000S
AXM765	10GBASE-T SFP+ RJ45 Transceiver (80m)	AXM765-20000S

NETGEAR®

AV Line

Datasheet | M4250 series AV Line Managed Switches

Ordering Information

NETGEAR Desktop AV Line M4250-9G1F-PoE+ Desktop 8x1G PoE+ 110W 1x1G and 1xSFP Managed Switch (GSM4210PD)

Americas	GSM4210PD-100NAS
Europe	GSM4210PD-100EUS
India	GSM4210PD-100INS
Japan	GSM4210PD-100JPS
South Korea	GSM4210PD-100KOS
Taiwan	GSM4210PD-100TWS
Hong Kong	GSM4210PD-100UKS
Australia	GSM4210PD-100AUS
China	GSM4210PD-100PRS
Other APAC	GSM4210PD-100PES

NETGEAR Desktop AV Line M4250-8G2XF-PoE+ Desktop 8x1G PoE+ 220W and 2xSFP+ Managed Switch (GSM4210PX)

Americas	GSM4210PX-100NAS
Europe	GSM4210PX-100EUS
India	GSM4210PX-100INS
Japan	GSM4210PX-100JPS
South Korea	GSM4210PX-100KOS
Taiwan	GSM4210PX-100TWS
Hong Kong	GSM4210PX-100UKS
Australia	GSM4210PX-100AUS
China	GSM4210PX-100PRS
Other APAC	GSM4210PX-100PES

NETGEAR AV Line M4250-10G2F-PoE+ 8x1G PoE+ 125W 2x1G and 2xSFP Managed Switch (GSM4212P)

Americas	GSM4212P-100NAS
Europe	GSM4212P-100EUS
Asia Pacific	GSM4212P-100AJS
China	GSM4212P-100PRS

NETGEAR AV Line M4250-10G2XF-PoE+ 8x1G PoE+ 240W 2x1G and 2xSFP+ Managed Switch (GSM4212PX)

Americas	GSM4212PX-100NAS
Europe	GSM4212PX-100EUS
Asia Pacific	GSM4212PX-100AJS
China	GSM4212PX-100PRS

NETGEAR AV Line M4250-10G2XF-PoE++ 8x1G Ultra90 PoE++ 802.3bt 720W 2x1G and 2xSFP+ Managed Switch (GSM4212UX)

Americas	GSM4212UX-100NAS
Europe	GSM4212UX-100EUS
Asia Pacific	GSM4212UX-100AJS
China	GSM4212UX-100PRS

NETGEAR AV Line M4250-26G4F-PoE+ 24x1G PoE+ 300W 2x1G and 4xSFP Managed Switch (GSM4230P)

Americas	GSM4230P-100NAS
Europe	GSM4230P-100EUS
Asia Pacific	GSM4230P-100AJS
China	GSM4230P-100PRS

NETGEAR AV Line M4250-26G4F-PoE++ 24x1G Ultra90 PoE++ 802.3bt 1,440W 2x1G and 4xSFP Managed Switch (GSM4230UP)

Americas	GSM4230UP-100NAS
Europe	GSM4230UP-100EUS
Asia Pacific	GSM4230UP-100AJS
China	GSM4230UP-100PRS

NETGEAR®

AV Line

Datasheet | M4250 series AV Line Managed Switches

NETGEAR AV Line M4250-26G4XF-PoE+ 24x1G PoE+ 480W 2x1G and 4xSFP+ Managed Switch (GSM4230PX)

Americas	GSM4230PX-100NAS
Europe	GSM4230PX-100EUS
Asia Pacific	GSM4230PX-100AJS
China	GSM4230PX-100PRS

NETGEAR AV Line M4250-40G8F-PoE+ 40x1G PoE+ 480W and 8xSFP Managed Switch (GSM4248P)

Americas	GSM4248P-100NAS
Europe	GSM4248P-100EUS
Asia Pacific	GSM4248P-100AJS
China	GSM4248P-100PRS

NETGEAR AV Line M4250-40G8XF-PoE+ 40x1G PoE+ 960W and 8xSFP+ Managed Switch (GSM4248PX)

Americas	GSM4248PX-100NAS
Europe	GSM4248PX-100EUS
Asia Pacific	GSM4248PX-100AJS
China	GSM4248PX-100PRS

NETGEAR AV Line M4250-40G8XF-PoE++ 40x1G Ultra90 PoE++ 802.3bt 2,880W and 8xSFP+ Managed Switch (GSM4248UX)

Americas	GSM4248UX-100NAS
Europe	GSM4248UX-100EUS
Asia Pacific	GSM4248UX-100AJS
China	GSM4248UX-100PRS

NETGEAR AV Line M4250-12M2XF 12x2.5G and 2xSFP+ Managed Switch (MSM4214X)

Americas	MSM4214X-100NAS
Europe	MSM4214X-100EUS
Asia Pacific	MSM4214X-100AJS
China	MSM4214X-100PRS

NETGEAR AV Line M4250-16XF 16xSFP+ Managed Switch (XSM4216F)

Americas	XSM4216F-100NAS
Europe	XSM4216F-100EUS
Asia Pacific	XSM4216F-100AJS
China	XSM4216F-100PRS

** This product comes with a limited warranty that is valid only if purchased from a NETGEAR authorized reseller, and covers unmodified hardware, fans and internal power supplies - not software or external power supplies, and requires product registration at <https://www.netgear.com/business/registration> within 90 days of purchase; see <https://www.netgear.com/about/warranty> for details. Intended for indoor use only.

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NETGEAR®
BUSINESS

Data Sheet | **M4300 series**
Intelligent Edge Managed Switches



SDVoE-Ready M4300-96X Up to 96-port 10G, PoE options

The NETGEAR® M4300 Stackable Switch Series delivers L2/L3/L4 and IPv4/IPv6 cost-effective services for mid-enterprise edge and SMB core deployments with unrivalled ease of use: 10/40 Gigabit models can seamlessly stack with 1 Gigabit models within the series, enabling spine and leaf line-rate topologies. Non-stop forwarding (NSF) virtual chassis architectures provide advanced High

Availability (HA) with hitless failover across the stack. Intelligent NETGEAR IGMP Plus™ multicast allows for scalable Pro AV installations at Layer 2 without the PIM complexity. Dual redundant, modular power supplies equipping full width models contribute to business continuity management. Layer 3 feature set includes static, dynamic and policy-based routing – as standard. The NETGEAR M4300

Switch Series is perfect for wireless access, unified communications and professional AV-over-IP installations.

NETGEAR Intelligent Edge Switch solutions combine latest advances in hardware and software engineering for higher flexibility, lower complexity and stronger investment protection, at a high-value price point.

Highlights

Best-in-class stacking

- M4300 is flexible enough for mixed stacking between 10/40 Gigabit and 1 Gigabit models, using any 10G/40G port with any media type (RJ45, SFP+, DAC cables)
- High-availability is another key differentiator for stackable solutions: in case of a master switch failure, NSF and hitless failover ensure the standby switch takes over while forwarding plane continues to forward traffic on the operational stack members without any service interruption

10G/40G modular solution

- The M4300-96X scales from 8 to 96 ports of 10G Ethernet by multiple of 8 ports, and from 2 to 24 ports of 40G Ethernet by multiple of 2 ports
- The 96X lets you start small with copper and fiber, including Multi-Gigabit 2.5G/5G and PoE+ over 10G, and grow later in “non-blocking” mode just by adding port expansion cards

Higher flexibility

- Two half-width M4300 switches can be paired in a single rack space for redundant Top of Rack installations with Auto-iSCSI prioritization
- Removing the need for Layer-3 PIM routing, IGMP Plus greatly simplifies system architectures with automated IGMP techniques across the entire AV over-IP network

NETGEAR[®] BUSINESS

Data Sheet | M4300 series Intelligent Edge Managed Switches

Lower complexity

- Entire feature set including PTPv2, L2 switching (IGMP Plus) and L3 routing (static, RIP, OSPF, VRRP, PIM-SSM, PBR) is available without license
- DHCP/BootP innovative auto-installation including firmware and configuration file upload automation

Investment protection

- Line-rate spine and leaf stacking topologies offer multiple possibilities in server rooms, in branch collapsed cores or at the edge of growing networks
- Even if an organization is not ready for high-speed backbone, 10G and 40G models can be added later to stacks of 1G models

Secure services

- With successive tiering, the Authentication Manager allows for authentication methods per port for a tiered authentication based on configured time-outs
- With BYOD, tiered Dot1x -> MAB Captive Portal authentication is powerful and simple to implement with strict policies

Industry standard management

- Industry standard command line interface (CLI), functional NETGEAR web interface (GUI), SNMP, sFlow and RSPAN
- Single-pane-of-glass NMS300 management platform with centralized firmware updates and mass-configuration support

Industry leading warranty

- NETGEAR M4300 series is covered under NETGEAR ProSAFE Limited Lifetime Hardware Warranty**
- 90 days of Technical Support via phone and email, Lifetime Technical Support through online chat and Lifetime Next Business Day hardware replacement



Hardware at a Glance

			FRONT			REAR		MANAGEMENT	
10G models Model name	Form-Factor	Switching Fabric	10GBASE-T RJ45 ports	10GBASE-X SFP+ ports	40GBASE-X QSFP+ports	PSU	Fans	Out-of-band Console	Model number
M4300-8X8F	Half-width 1-unit 1U 2-unit 1U rack mount	320 Gps	8 ports (independent) 100M; 1G; 10G	8 ports (independent) 1G; 10G	-	Modular 1 bay 1 PSU included: APS250W	Fixed Front-to-back 36.9dB	Ethernet: Out-of-band 1G port (Front) Console: RJ45 RS232 (Front) Console: Mini-USB (Front) Storage: USB (Front)	XSM4316S
M4300-16X	Half-width 1-unit 1U 2-unit 1U rack mount	320 Gps	16 ports PoE+100M; 1G; 2.5G; 5G; 10G	-	-	Modular 1 bay For either APS299W or APS600W	Fixed Front-to-back 35dB	Ethernet: Out-of-band 1G port (Back) Console: RJ45 RS232 (Back) Console: Mini-USB (Front) Storage: USB (Front)	
			199W PoE Budget			1 PSU included: APS299W			XSM4316PA
			500 W PoE Budget			1 PSU included: APS600W			XSM4316PB
M4300-12X12F	Half-width 1-unit 1U 2-unit 1U rack mount	480 Gps	12 ports (independent) 100M; 1G; 10G	12 ports (independent) 1G; 10G	-	Modular 1 bay 1 PSU included: APS250W	Fixed Front-to-back 36.9dB	Ethernet: Out-of-band 1G port (Back) Console: RJ45 RS232 (Back) Console: Mini-USB (Front) Storage: USB (Front)	XSM4324S
M4300-24X	Half-width 1-unit 1U 2-unit 1U rack mount	480 Gps	24 ports 100M; 1G; 10G	4 ports (shared, back) 1G; 10G	-	Modular 1 bay 1 PSU included: APS250W	Fixed Front-to-back 37dB	Ethernet: Out-of-band 1G port (Back) Console: RJ45 RS232 (Back) Console: Mini-USB (Front) Storage: USB (Front)	XSM4324CS
M4300-24XF	Half-width 1-unit 1U 2-unit 1U rack mount	480 Gps	2 ports (shared, back) 100M; 1G; 10G	24 ports 1G; 10G	-	Modular 1 bay 1 PSU included: APS250W	Fixed Front-to-back 39.07dB	Ethernet: Out-of-band 1G port (Back) Console: RJ45 RS232 (Back) Console: Mini-USB (Front) Storage: USB (Front)	XSM4324FS
M4300-24X24F	Full width 1-unit 1U rack mount	960 Gps	24 ports (independent) 100M; 1G; 10G	24 ports (independent) 1G; 10G	-	Modular 2 bays 1 PSU included: APS250W	Fixed Front-to-back 35.8dB	Ethernet: Out-of-band 1G port (Front) Console: RJ45 RS232 (Front) Console: Mini-USB (Front) Storage: USB (Front)	XSM4348S
M4300-48X	Full width 1-unit 1U rack mount	960 Gps	48 ports 100M; 1G; 10G	4 ports (shared) 1G; 10G	-	Modular 2 bays 1 PSU included: APS250W	Fixed Front-to-back 40.3dB	Ethernet: Out-of-band 1G port (Back) Console: RJ45 RS232 (Back) Console: Mini-USB (Front) Storage: USB (Front)	XSM4348CS
M4300-48XF	Full width 1-unit 1U rack mount	960 Gps	2 ports (shared) 100M; 1G; 10G	48 ports 1G; 10G	-	Modular 2 bays 1 PSU included: APS250W	Fixed Front-to-back 42.04dB	Ethernet: Out-of-band 1G port (Back) Console: RJ45 RS232 (Back) Console: Mini-USB (Front) Storage: USB (Front)	XSM4348FS
M4300-96X	Modular 1-unit 2U rack mount	1.920 Tbps	up to 96 ports 100M; 1G; 2.5G; 5G; 10G	up to 96 ports 1G; 10G	Up to 24 ports 40G	Modular 2 bays for APS600W or APS1200W	Fixed Front-to-back 35.8dB (no PoE) 66.8dB (max PoE)	Ethernet: Out-of-band 1G port (Back) Console: RJ45 RS232 (Back) Console: Mini-USB (Back) Storage: USB (Back)	
12 slots for port expansion cards:			APM408C (8 ports) APM408P (8 ports PoE+)*	APM408F (8 ports)	APM402XL (2 ports)	Empty switch version, no PSU (PSU must be purchased separately)			XSM4396K0
			* Only first 6 slots are delivering PoE power to APM408P cards for 48 PoE+ ports per switch. APS1200W PSU is preferred for PoE applications.			Starter Kit with the switch, 48 x SFP+ (6 x APM408F) and 1 PSU APS600W			XSM4396K1
			110V/220V AC	34W (min) 232W (max) PoE Budget with 1 x APS600W PSU, or 1+1 redundant*		110V/220V AC	1,440W (min/max) PoE Budget with 2 x APS1200W PSUs in shared mode*		
			110V/220V AC	634W (min) 832W (max) PoE Budget with 2 x APS600W PSUs in shared mode		110V AC	1,084W (min) 1,282W (max) PoE Budget with APS600W+APS1200W PSUs in shared mode		
			110V AC	484W (min) 682W (max) PoE Budget with 1 x APS1200W PSU, or 1+1 redundant		220V AC	1,234W (min) 1,432W (max) PoE Budget with APS600W+APS1200W PSUs in shared mode		
			220V AC	634W (min) 832W (max) PoE Budget with 1 x APS1200W PSU, or 1+1 redundant					
M4300-96X online configurator: www.netgear.com/96x-config									
* PoE Budget depends on number of PSU and APM port cards per switch. Min values above are guaranteed when 6xAPM408P (48x10G PoE+) plus any combination of 6 other port cards. Max values are guaranteed when only 6xAPM408P (48x10G PoE+) per switch, or less. APS600W provides 600W@110V/220VAC; APS1200W delivers 1,050W@110VAC or 1,200W@220VAC per PSU. The system consumes 110W, plus 5W per empty slot. APM408C/APM408P consume 3.8W per port card. APM408F/APM402XL consume 2.3W per port card.									

M4300-96X online configurator: www.netgear.com/96x-config

* PoE Budget depends on number of PSU and APM port cards per switch. Min values above are guaranteed when 6xAPM408P (48x10G PoE+) plus any combination of 6 other port cards. Max values are guaranteed when only 6xAPM408P (48x10G PoE+) per switch, or less. APS600W provides 600W@110V/220VAC; APS1200W delivers 1,050W@110VAC or 1,200W@220VAC per PSU. The system consumes 110W, plus 5W per empty slot. APM408C/APM408P consume 38W per port card. APM408F/APM402XL consume 23W per port card.

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Hardware at a Glance

			FRONT			REAR		MANAGEMENT	
1G models Model name	Form-Factor	Switching Fabric	10/100/ 1000 BASE-T RJ45 ports	100/1000/ 10G BASE-T RJ45 ports	1000/10G BASE-X SFP+ ports	PSU	Fans	Out-of-band Console	Model number
M4300-28G	Full width 1-unit 1U rack mount	128 Gps	24 ports (No 10M/half on ports 17-24)	2 ports (independent) 100M; 1G; 10G	2 ports (independent) 1G; 10G	Modular 2 bays 1 PSU included: APS150W	Fixed Front-to-back 30.3dB	Ethernet: Out-of-band 1G port (Front) Console: RJ45 RS232 (Back) Console: Mini-USB (Front) Storage: USB (Front)	GSM4328S
M4300-52G	Full width 1-unit 1U rack mount	176 Gps	48 ports (No 10M/half 17-24 and 41-48)	2 ports (independent) 100M; 1G; 10G	2 ports (independent) 1G; 10G	Modular 2 bays 1 PSU included: APS150W	Fixed Front-to-back 31.5dB	Ethernet: Out-of-band 1G port (Front) Console: RJ45 RS232 (Back) Console: Mini-USB (Front) Storage: USB (Front)	GSM4352S
M4300-28G-PoE+	Full width 1-unit 1U rack mount	128 Gps	24 ports PoE+ (No 10M/half on ports 17-24)	2 ports (independent) 100M; 1G; 10G	2 ports (independent) 1G; 10G	Modular 2 bays 1 PSU included: APS550W	Fixed Front-to-back 39.8dB	Ethernet: Out-of-band 1G port (Front) Console: RJ45 RS232 (Back) Console: Mini-USB (Front) Storage: USB (Front)	GSM4328PA
									GSM4328PB
M4300-52G-PoE+	Full width 1-unit 1U rack mount	176 Gps	48 ports PoE+ (No 10M/half 17-24 and 41-48)	2 ports (independent) 100M; 1G; 10G	2 ports (independent) 1G; 10G	Modular 2 bays RPS connector 1 PSU included: APS550W	Fixed Front-to-back 39.8dB	Ethernet: Out-of-band 1G port (Front) Console: RJ45 RS232 (Back) Console: Mini-USB (Front) Storage: USB (Front)	GSM4352PA
									GSM4352PB

PoE models: APS550W and APS1000W cannot be mixed and matched. A switch can only have two APS550W, or two APS1000W. PA versions can be upgraded to PB, but their APS550W must be replaced by APS1000W (and reversely).

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 Intelligent Edge Managed Switches

Software at a Glance

LAYER 3 PACKAGE												
Model name	Management	Usability Enhancements	IPv4/IPv6 ACL and QoS, DiffServ	IPv4/IPv6 Multicast filtering	IPv4 / IPv6 Policing and Convergence	Spanning Tree Green Ethernet	VLANs	Trunking Port Channel	IPv4/IPv6 Authentication Security	IPv4/IPv6 Static Routing	IPv4/IPv6 Dynamic Routing	Model number
M4300 series	Out-of-band; Web GUI; HTTPs; CLI; Telnet; SSH SNMP, MIBs RSPAN Radius Users, TACACS+	Stacking NSF with Hitless Failover Link Dependency (Enable or Disable one or more ports based on the link state of one or more different ports) Syslog and Packet Captures can be sent to USB storage	Ingress/ egress 1 Kbps shaping Time-based Single Rate Policing	NETGEAR IGMP Plus™ for automatic IGMP IGMPv3 MLDv2 Snooping, Proxy ASM & SSM IGMPv1,v2 Querier (compatible v3) Control Packet Flooding	Auto-VoIP Auto-iSCSI Policy-based routing (PBR) LLDP-MED IEEE 1588 PTPv2** 1-Step End-to-End Transparent Clock	STP, MTP, RSTP PV(R)STP¹ BPDU/STRG Root Guard EEE (802.3az)	Static, Dynamic, Voice, MAC GVRP/ GMRP Double VLAN mode Private VLANs	Distributed LAG across the stack Static or Dynamic LACP (LACP automatically reverts to and from Static LAG) Seven (7) L2/ L3/L4 hashing algorithms	Successive Tiering (DOT1X; MAB; Captive Portal) DHCP Snooping Dynamic ARP Inspection IP Source Guard	Port, Subnet, VLAN routing, DHCP Relay; Multicast static routes; Stateful DHCPv6 Server	IPv4: RIP, VRRP IPv4/IPv6: OSPF, Proxy ARP, PIM-SM, PIM-DM, 6-to-4 tunnels	All models

¹ CLI only ** All M4300 models except 48-port 10G platforms (M4300-24X24F, M4300-48X, M4300-48XF). Standalone mode, or Stack Master only. On M4300-52G and M4300-52G-PoE+ models, PTP is supported between port 1 and port 24, and between port 25 and port 48.

Performance at a Glance

TABLE SIZE*													
Model name	MAC ARP/ NDP	Routing / Switching Capacity	Through-put	Application Route Scaling	Packet Buffer	Latency	IP Multicast Forwarding Entries	CPU	Multicast IGMP Group membership	VLANs	DHCP	sFlow	Model number
M4300-96X	256K MAC* 8K ARP/ NDP*	1,920 Tbps Line-rate	2,857 Mpps	Static: 64v4/ 64v6 RIP: 512 OSPF: 12,000	96Mb	64-byte frames <2.56µs 10G RJ45 <0.89µs 10G SFP	2,048 IPv4 1,024 IPv6	CPU 1.4 Ghz 2GB RAM 256MB Flash	2K IPv4 2K IPv6	4K VLANs	DHCP Server: 2K leases IPv4: 256 pools IPv6: 16 pools	416 samplers 416 pollers 8 receivers	XSM4396K0 XSM4396K1
M4300-24X24F M4300-48X M4300-48XF	128K MAC* 8K ARP/ NDP*	960 Gbps Line-rate	714 Mpps	Static: 64v4/ 64v6 RIP: 512 OSPF: 12,000	56Mb	M4300-24X24F <2.39µs 10G RJ45 <0.88µs 10G SFP+ M4300-48X <2.41µs 10G RJ45 <1.51µs 10G SFP+ M4300-48XF <1.245µs 10G RJ45 <0.9µs 10G SFP+	1,024 IPv4 512 IPv6	CPU 800 Mhz 1GB RAM 256MB Flash					XSM4348S XSM4348CS XSM4348FS
M4300 other models	16K MAC 888 ARP/ NDP	Up to 480 Gbps All models Line-rate	Up to 357 Mpps	Static: 64v4/ 64v6 RIP: 512 OSPF: 512	M4300-12X12F, 24X and 24XF: 32Mb Others: 16Mb	M4300-8X8F: <2.43µs 10G RJ45 <0.89µs 10G SFP+ All others: <2.76µs 10G RJ45 <1.83µs 10G SFP+	96 IPv4 32 IPv6	CPU 800 Mhz 1GB RAM 256MB Flash					All other models

* For mixed stacking between more capable devices and less capable devices, SDM mixed stacking template is used based on "least common denominator" set of capacities and capabilities. Other SDM "native" templates can be used on superior platforms, for a larger table size. A stack requires an uniform table size across all stack members.

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Data Sheet | M4300 series Intelligent Edge Managed Switches

Product Brief

The M4300 Stackable L3 Managed Switch Series comes with 40G, 10G and 1G models in a variety of form factors including PoE+ full provisioning. M4300 Switch Series delivers IPv4/IPv6 rich services for mid-enterprise edge and SMB core with mixed stacking between 40-, 10- and 1-Gigabit models. Layer 3 feature set includes static and policy-based routing, RIP, VRRP, OSPF, and PIM dynamic routing. M4300 is ideal for server aggregation, wireless access, unified communications and Video-over-IP.

NETGEAR M4300 series key features:

- Cost effective 1G access layer in campus LAN networks, and high performance 10G/40G distribution layer for midsize organizations networks
- Zero Touch AV-over-IP with pre-configured L2 Multicast (SDVoE-ready)
- Advanced Layer 2, Layer 3 and Layer 4 feature set - no license required - including Policy Based Routing, RIP, VRRP, OSPF and PIM
- Innovative mixed "Spine and Leaf", 1G, 10G and 40G stacking with nonstop forwarding (NSF) and hitless failover redundancy
- Low acoustics, half-width 16-port and 24-port 10G models can be paired in a single rack space for redundant Top of Rack
- Modular 12-slot 2RU model scaling up to 96-port 10G by multiple of 8 ports or 24-port 40G by multiple of 2 ports
- Up to 768 (10 Gigabit) ports, 192 (40 Gigabit) ports or 384 (1 Gigabit) ports, or a combination in a single logical switch
- PoE+ (30 watts per port) with hot swap, redundant power supplies and full provisioning

NETGEAR M4300 series software features:

- Advanced classifier-based, time-based hardware implementation for L2 (MAC), L3 (IP) and L4 (UDP/TCP transport ports) security and prioritization
- Selectable Port-Channel/LAG (802.3ad - 802.1AX) L2/L3/L4 hashing for fault tolerance and load sharing with any type of Ethernet channeling
- Voice VLAN with SIP, H323 and SCCP protocols detection and LLDP-MED IP phones automatic QoS and VLAN configuration
- Efficient authentication tiering with successive DOT1X, MAB and Captive Portal methods for streamlined BYOD
- Comprehensive IPv4/IPv6 static and dynamic routing including Proxy ARP, OSPF, Policy-based routing and automatic 6-to-4 tunneling
- Scalable Pro AV deployments with NETGEAR IGMP Plus™ automatic L2 multicast (only subscribed videos flow from one switch to the other across the L2 topology)
- High performance IPv4/IPv6 multicast routing with PIM timer accuracy and unhandled PIM (S,G,rpt) state machine events transitioning
- Advanced IPv4/IPv6 security implementation including malicious code detection, DHCP Snooping, IP Source Guard protection and DoS attacks mitigation
- Innovative multi-vendor Auto-iSCSI capabilities for easier virtualization optimization

NETGEAR M4300 series resiliency and availability features:

- Dual redundant, modular power supplies equipping full width models contribute to business continuity management
- Vertical or horizontal flexible stacking with management unit hitless failover and nonstop forwarding (NSF) across operational stack members
- Spine and leaf architecture with every leaf switch (1G access switches) connecting to every spine switch (distributed 10G "core" switches)
- Stacking and distributed link aggregation allow for multi-resiliency with zero downtime and load balancing capabilities
- Link Dependency new feature enables or disables ports based on the link state of different ports
- Per VLAN Spanning Tree and Per VLAN Rapid Spanning Tree (PVSTP/ PVRSTP) offer interoperability with PVST+ infrastructures

NETGEAR M4300 series management features:

- DHCP/BootP innovative auto-installation including firmware and configuration file upload automation
- Industry standard SNMP, RMON, MIB, LLDP, AAA, sFlow, RSPAN and PTPv2 1-step transparent clock implementation (select M4300 models)
- Service port for out-of-band Ethernet management (OOB)
- Standard RS232 straight-through serial RJ45 and Mini-USB ports for local management console
- Standard USB port for local storage, logs, configuration or image files
- Dual firmware image for updates with minimum service interruption
- Industry standard command line interface (CLI) for IT admins used to other vendors commands
- Fully functional Web console (GUI) for IT admins who prefer an easy to use graphical interface
- Single-pane-of-glass NMS300 management platform with mass-configuration support

NETGEAR M4300 series warranty and support:

- NETGEAR ProSAFE Limited Lifetime Hardware Warranty**
- Included Lifetime Technical Support
- Included Lifetime Next Business Day Hardware Replacement

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Modern access layer features highlights

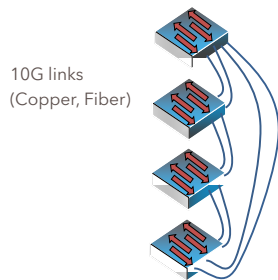
High Density Layer 2/Layer 3/Layer 4 Stackable Switch Solution

M4300 switch series supports Nonstop Forwarding (NSF) virtual chassis stacking with up to 8 switches in a single logical switch, with hitless management failover

- Any 40G or 10G port (copper, fiber) and any media type (RJ45, SFP+, DAC) can be used for stacking on any M4300 models
- Hot-swappable stacking of up to 8 units, vertical or horizontal
- 40G and 10G models can stack with 1G models in legacy dual ring topologies, or innovative spine and leaf topologies
- L2, L3 and L4 switching features (access control list, classification, filtering, IPv4/IPv6 routing, IPv6 transition services) are performed in hardware at interface line rate for voice, video, and data convergence

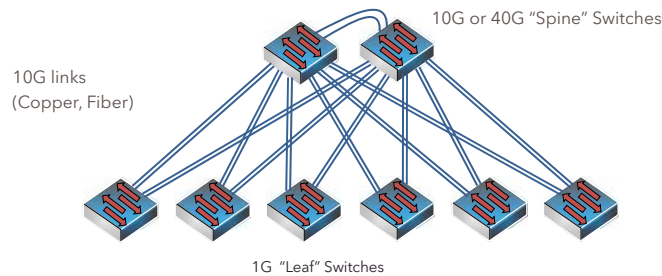
M4300 series Layer 3 software package provides advanced IPv4/IPv6 fault tolerant routing capabilities for interfaces, VLANs, subnets and multicast

Example of single or dual ring topology:



1G models: up to (4) 10G ports per switch can be used for stacking (depending on inter-switch links oversubscription requirements)

Example of spine and leaf topology:



10G/40G models: up to (16) 40G or 10G ports per switch can be used for stacking (again, depending on oversubscription requirements between switches)

Best value switching performance:

96p 10G models: 256K MAC address table, 4K concurrent VLANs and 12K Layer 3 route table size for the most demanding enterprise or campus networks

48p 10G models: 128K MAC address table and same other constants as 96p 10G models

All other models: 16K MAC address table, 4K concurrent VLANs and 512 Layer 3 route table size for typical midsize environments

Mixed stacking between more capable and less capable devices uses SDM template based on "least common denominator" set of capacities and capabilities

Each switch provides line-rate local switching and routing capacity

80 PLUS certified power supplies for energy high efficiency

Full width models come with two PSU bays: a second PSU (sold separately) will add 1+1 power redundancy

Increased packet buffering with up to 96Mb (96p 10G models), 72 Mb (48p 10G models), 32 Mb (24p 10G models) and 16 Mb (all other models)

Low latency at all network speeds, including 40 Gigabit and 10 Gigabit copper / fiber interfaces

Jumbo frames support of up to 9Kb accelerating storage performance for backup and cloud applications

iSCSI Flow Acceleration and Automatic Protection/
QoS for virtualization and server room networks
containing iSCSI initiators and iSCSI targets

- Detecting the establishment and termination of iSCSI sessions and connections by snooping packets used in the iSCSI protocol
- Maintaining a database of currently active iSCSI sessions and connections to store data, including classifier rules for desired QoS treatment
- Installing and removing classifier rule sets as needed for the iSCSI session traffic
- Monitoring activity in the iSCSI sessions to allow for aging out session entries if the session termination packets are not received
- Avoiding session interruptions during times of congestion that would otherwise cause iSCSI packets to be dropped

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Tier 1 availability

Virtual Chassis Stacking technology upsurges overall network availability, providing both better resiliency in network architectures, and better performance with advanced load balancing capabilities between network uplinks

- Up to (8) M4300 switches can be aggregated using a virtual back plane and a single console or web management interface
- There is no 10G or 40G port pre-configured as Stacking port: all 10G or 40G ports are configured in Ethernet mode by default
 - Port configuration can be changed to Stack mode in Web GUI (System/ Stacking/Advanced/Stack-port Configuration)
 - Or using CLI command << #stack-port unit/slot/port stack >> in Stack Global Configuration section
- Other devices in the network see the stack as a single bridge or a single router
- Within the stack, a switch is elected (or chosen based on priority settings) as the “management unit” responsible for the stack members’ routing tables
- Another switch is designated (or chosen based on priority settings) as an alternate, backup management unit
- In typical spine and leaf architectures, 10G / 40G “spine” switches are meant to handle management unit and backup management unit roles
- The Non-Stop Forwarding (NSF) feature enables the stack to secure forwarding end-user traffic when the management unit fails
- Non-Stop Forwarding is supported for the following events:
 - Power failure of the management unit
 - Other hardware failure causing the management unit to hang or to reset
 - Software failure causing the management unit to hang or to reset
 - Failover initiated by the administrator
 - Loss of cascade connectivity between the management unit and the backup unit
- As the backup management unit takes over, end-user data streams may lose a few packets, but do not lose their IP sessions, such as VoIP calls
- Instant failover from management unit to redundant management unit is hitless for world-class resiliency and availability
- Back to normal production conditions, hitless fallback requires a command in CLI or in GUI, for more control

Adding a second PSU to full width models enables redundant 1+1 power protection and contributes to business continuity management

Distributed Link Aggregation, also called Port Channeling or Port Trunking, offers powerful network redundancy and load balancing between stacked members

- Servers and other network devices benefit from greater bandwidth capacity with active-active teaming (LACP-link aggregation control protocol)
- From a system perspective, a LAG (Link Aggregation Group) is treated as a physical port by M4300 stack for even more simplicity

Rapid Spanning Tree (RSTP) and Multiple Spanning Tree (MSTP) allow for rapid transitioning of the ports to the Forwarding state and the suppression of Topology Change Notification

NETGEAR PVSTP implementation (CLI only) follows the same rules than other vendor's Per VLAN STP for strict interoperability

- Including industry-standard PVST+ interoperability
- PVSTP is similar to the MSTP protocol as defined by IEEE 802.1s, the main difference being PVSTP runs one instance per VLAN
- In other words, each configured VLAN runs an independent instance of PVSTP
- FastUplink feature immediately moves an alternate port with lowest cost to forwarding state when the root port goes down to reduce recovery time
- FastBackbone feature selects new indirect port when an indirect port fails

NETGEAR PVRSTP implementation (CLI only) follows the same rules than other vendor's Per VLAN RSTP for strict interoperability

- Including industry-standard RPVST+ interoperability
- PVRSTP is similar to the RSTP protocol as defined by IEEE 802.1w, the main difference being PVRSTP runs one instance per VLAN
- In other words, each configured VLAN runs an independent instance of PVRSTP
- Each PVRSTP instance elects a root bridge independent of the other
- Hence there are as many Root Bridges in the region as there are VLANs configured
- Per VLAN RSTP has in built support for FastUplink and FastBackbone

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Intelligent Edge Managed Switches

IP address conflict detection performed by embedded DHCP servers prevents accidental IP address duplicates from perturbing the overall network stability

IP Event Dampening reduces the effect of interface flaps on routing protocols: the routing protocols temporarily disable their processing (on the unstable interface) until the interface becomes stable, thereby greatly increasing the overall stability of the network

Ease of deployment

Automatic configuration with DHCP and BootP Auto Install eases large deployments with a scalable configuration files management capability, mapping IP addresses and host names and providing individual configuration files to multiple switches as soon as they are initialized on the network

Both the Switch Serial Number and Switch primary MAC address are reported by a simple "show" command in the CLI - facilitating discovery and remote configuration operations

M4300 DHCP L2 Relay agents eliminate the need to have a DHCP server on each physical network or subnet

- DHCP Relay agents process DHCP messages and generate new DHCP messages
- Supports DHCP Relay Option 82 circuit-id and remote-id for VLANs
- DHCP Relay agents are typically IP routing-aware devices and can be referred to as Layer 3 relay agents

Automatic Voice over IP prioritization with Auto-VoIP simplifies most complex multi-vendor IP telephones deployments either based on protocols (SIP, H323 and SCCP) or on OUI bytes (default database and user-based OUIs) in the phone source MAC address; providing the best class of service to VoIP streams (both data and signaling) over other ordinary traffic by classifying traffic, and enabling correct egress queue configuration

An associated Voice VLAN can be easily configured with Auto-VoIP for further traffic isolation

When deployed IP phones are LLDP-MED compliant, the Voice VLAN will use LLDP-MED to pass on the VLAN ID, 802.1P priority and DSCP values to the IP phones, accelerating convergent deployments

Versatile connectivity

24- and 48-port 1G models with 10G uplinks, including 2-port 10GBASE-T and 2-port 10GBASE-X SFP+

IEEE 802.3at Power over Ethernet Plus (PoE+) provides up to 30W power per port using 2 pairs while offering backward compatibility with 802.3af

- IEEE 802.3at Layer 2 LLDP method and 802.3at PoE+ 2-event classification method fully supported for compatibility with most PoE+ PD devices

16-, 24-, 48- and 96-port 10G models with a variety of 10GBASE-T and 10GBASE-X SFP+ interfaces

M4300-96X offers 12 slots for 8x10G or 2x40G port expansion cards and hundreds of combinations

Large 10 Gigabit choice with SFP+ ports for fiber or short, low-latency copper DAC cables; 10GBASE-T ports for legacy Cat6 RJ45 short connexions (up to 55m) and Cat6A / Cat7 connections up to 100m

Automatic MDIX and Auto-negotiation on all ports select the right transmission modes (half or full duplex) as well as data transmission for crossover or straight-through cables dynamically for the admin

1G models (M4300-28G and M4300-52G, PoE+ versions included): the 10 Mbps / Half Duplex mode isn't supported on ports 17-24 and 41-48

Link Dependency feature enables or disables one or more ports based on the link state of one or more different ports

IPv6 full support with IPv6 host, dual stack (IPv4 and IPv6), multicasting (MLD for IPv6 filtering and PIM-SM / PIM-DM for IPv6 routing), ACLs and QoS, static routing and dynamic routing (OSPFv3) as well as Configured 6to4 and Automatic 6to4 tunneling for IPv6 traffic encapsulation into IPv4 packets

Ease of management and granular control

Dual firmware image and dual configuration file for transparent firmware updates / configuration changes with minimum service interruption

Flexible Port-Channel/LAG (802.3ad - 802.1AX) implementation for maximum compatibility, fault tolerance and load sharing with any type of Ethernet channeling from other vendors switch, server or storage devices conforming to IEEE 802.3ad - including static (selectable hashing algorithms) - or to IEEE 802.1AX with dynamic LAGs or port-channel (highly tunable LACP Link Aggregation Control Protocol)

LACP mode automatically reverts to and from Static LAG, useful when the host isn't LACP anymore, for instance during a factory reset or re-configuration

Unidirectional Link Detection Protocol (UDLD) and Aggressive UDLD detect and avoid unidirectional links automatically, in order to prevent forwarding anomalies in a Layer 2 communication channel in which a bi-directional link stops passing traffic in one direction

Port names feature allows for descriptive names on all interfaces and better clarity in real word admin daily tasks

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Intelligent Edge Managed Switches

SDM (System Data Management, or switch database) templates allow for granular system resources distribution depending on IPv4 or IPv6 applications

- ARP Entries (the maximum number of entries in the IPv4 Address Resolution Protocol ARP cache for routing interfaces)
- IPv4 Unicast Routes (the maximum number of IPv4 unicast forwarding table entries)
- IPv6 NDP Entries (the maximum number of IPv6 Neighbor Discovery Protocol NDP cache entries)
- IPv6 Unicast Routes (the maximum number of IPv6 unicast forwarding table entries)
- ECMP Next Hops (the maximum number of next hops that can be installed in the IPv4 and IPv6 unicast forwarding tables)
- IPv4 Multicast Routes (the maximum number of IPv4 multicast forwarding table entries)
- IPv6 Multicast Routes (the maximum number of IPv6 multicast forwarding table entries)

Loopback interfaces management for routing protocols administration

Private VLANs and local Proxy ARP help reduce broadcast with added security

Management VLAN ID is user selectable for best convenience

Industry-standard VLAN management in the command line interface (CLI) for all common operations such as VLAN creation; VLAN names; VLAN "make static" for dynamically created VLAN by GVRP registration; VLAN trunking; VLAN participation as well as VLAN ID (PVID) and VLAN tagging for one interface, a group of interfaces or all interfaces at once

Simplified VLAN configuration with industry-standard Access Ports for 802.1Q unaware endpoints and Trunk Ports for switch-to-switch links with Native VLAN

System defaults automatically set per-port broadcast, multicast, and unicast storm control for typical, robust protection against DoS attacks and faulty clients which can, with BYOD, often create network and performance issues

IP Telephony administration is simplified with consistent Voice VLAN capabilities per the industry standards and automatic functions associated

Comprehensive set of "system utilities" and "Clear" commands help troubleshoot connectivity issues and restore various configurations to their factory defaults for maximum admin efficiency: traceroute (to discover the routes that packets actually take when traveling on a hop-by-hop basis and with a synchronous response when initiated from the CLI), clear dynamically learned MAC addresses, counters, IGMP snooping table entries from the Multicast forwarding database etc...

Syslog and Packet Captures can be sent to USB storage for rapid network troubleshooting

Replaceable factory-default configuration file for predictable network reset in distributed branch offices without IT personnel

All major centralized software distribution platforms are supported for central software upgrades and configuration files management (HTTP, TFTP), including in highly secured versions (HTTPS, SFTP, SCP)

Simple Network Time Protocol (SNTP) can be used to synchronize network resources and for adaptation of NTP, and can provide synchronized network timestamp either in broadcast or unicast mode (SNTP client implemented over UDP - port 123)

Embedded RMON (4 groups) and sFlow agents permit external network traffic analysis

Engineered for convergence and AV-over-IP

Audio (Voice over IP) and Video (multicasting) comprehensive switching, filtering, routing and prioritization

Auto-VoIP, Voice VLAN and LLDP-MED support for IP phones QoS and VLAN configuration

IEEE 1588 (section 10 and 11.5) PTPv2 Transparent Clock (TC) End-to-End implementation considering the residence time of PTPv2 packets from ingress to egress

- The 48-port 10G models (M4300-24X24F, M4300-48X, M4300-48XF) don't support PTPv2 E2E TC
- 1-step Transparent Clock mode, using the residence time of the PTPv2 packet at the egress port level in Standalone mode, or Stack Master only
- On M4300-52G and M4300-52G-PoE+ models, PTPv2 is supported between port 1 and port 24, and between port 25 and port 48
- The "Sync & Delay_Req" field of passing/egressing out PTPv2 packets is updated with the residence time in the switch, the other fields in PTPv2 packets ("Announce", "Delay_Resp", "Pdelay_Req" and "Pdelay_Resp") are not updated
- IGMP Plus is pre-configured on default VLAN 1 out of the box in all M4300 and M4500 models (M4300: starting 12.0.8.x release)
- IGMP Plus can be configured on another VLAN for automatic IGMP across switches on that VLAN (uplinks can make part of that VLAN in trunk mode)
- IGMP Plus allow AV-over-IP devices (TX/Encoders and RX/Decoders) to be connected across multiple M4300 and M4500 switches in a star topology
- New show igmpsnoping group command in CLI and GUI displays the Source and Group IP addresses along with their corresponding MAC addresses that are learnt through IGMP Snooping in a given VLAN on a given interface

NETGEAR IGMP Plus™ enhanced implementation for automatic multicast across a M4300 / M4500 L2 network (Spine and Leaf topologies), removing the need for L3 PIM routing

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IGMP Snooping and Proxy for IPv4, MLD Snooping and Proxy for IPv6, and Querier mode facilitate fast receivers joins and leaves for multicast streams and ensure multi-cast traffic only reaches interested receivers everywhere in a Layer 2 or a Layer 3 network, including source-specific (SSM) and any-source (ASM) multicast

Multicast VLAN Registration (MVR) uses a dedicated Multicast VLAN to forward multicast streams and avoid duplication for clients in different VLANs

Distance Vector Multicast Routing Protocol (DVMRP) is a dense mode multicast protocol also called Broadcast and Prune Multicasting protocol

- DVMRP uses a distributed routing algorithm to build per-source-group multicast trees
- DVMRP assumes that all hosts are part of a multicast group until it is informed of multicast group changes
- It dynamically generates per-source-group multicast trees using Reverse Path Multicasting
- Trees are calculated and updated dynamically to track membership of individual groups

Multicast routing (PIM-SM and PIM-DM, both IPv4 and IPv6) ensure multicast streams can reach receivers in different L3 subnets

- Multicast static routes allowed in Reverse Path Forwarding (RPF) selection
- Multicast dynamic routing (PIM associated with OSPF) including PIM multi-hop RP support for routing around damage advanced capabilities
- Full support of PIM (S,G,Rpt) state machine events as described in RFC 4601
- Improved Multicast PIM timer accuracy with hardware abstraction layer (HAPI) polling hit status for multicast entries in real time (without caching)

PoE power management and schedule enablement

Power redundancy for higher availability when mission critical convergent installation, including hot-swap main PSU replacement without interruption

Layer 3 routing package

Static Routes/ECMP Static Routes for IPv4 and IPv6

- Static and default routes are configurable with next IP address hops to any given destination
- Permitting additional routes creates several options for the network administrator
- The admin can configure multiple next hops to a given destination, intending for the router to load share across the next hops
- The admin distinguishes static routes by specifying a route preference value: a lower preference value is a more preferred static route
- A less preferred static route is used if the more preferred static route is unusable (down link, or next hop cannot be resolved to a MAC address)
- Preference option allows admin to control the preference of individual static routes relative to routes learned from other sources (such as OSPF) since a static route will be preferred over a dynamic route when routes from different sources have the same preference

Advanced Static Routing functions for administrative traffic control

- Static Reject Routes are configurable to control the traffic destined to a particular network so that it is not forwarded through the router
- Such traffic is discarded and the ICMP destination unreachable message is sent back to the source
- Static reject routes can be typically used to prevent routing loops
- Default routes are configurable as a preference option

In order to facilitate VLAN creation and VLAN routing using Web GUI, a VLAN Routing Wizard offers following automated capabilities:

- Create a VLAN and generate a unique name for VLAN
- Add selected ports to the newly created VLAN and remove selected ports from the default VLAN
- Create a LAG, add selected ports to a LAG, then add this LAG to the newly created VLAN
- Enable tagging on selected ports if the port is in another VLAN
- Disable tagging if a selected port does not exist in another VLAN
- Exclude ports that are not selected from the VLAN
- Enable routing on the VLAN using the IP address and subnet mask entered as logical routing interface

DHCP Relay Agents relay DHCP requests from any routed interface, including VLANs, when DHCP server doesn't reside on the same IP network or subnet

- The agent relays requests from a subnet without a DHCP server to a server or next-hop agent on another subnet
- Unlike a router which switches IP packets transparently, a DHCP relay agent processes DHCP messages and generates new DHCP messages
- Supports DHCP Relay Option 82 circuit-id and remote-id for VLANs
- Multiple Helper IPs feature allows to configure a DHCP relay agent with multiple DHCP server addresses per routing interface and to use different server addresses for client packets arriving on different interfaces on the relay agent server addresses for client packets arriving on different interfaces on the relay agent

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Virtual Router Redundancy Protocol (VRRP) provides backup for any statically allocated next-hop router address going down, based on RFC 3768 (IPv4)

- VRRP is based on the concept of having more than one router recognize the same router IP address
- VRRP increases the availability of the default path without requiring configuration of dynamic routing, or router discovery protocols on end stations
- Multiple virtual routers can be defined on any single router interface
- One of the routers is elected the master router and handles all traffic sent to the specified virtual router IP address
- When the master router fails, one of the backup routers is elected in its place and starts handling traffic sent to the address

As an enhancement to RFC 3768, VRRP Interface can be configured as pingable to help troubleshoot network connectivity issues

- In that case, VRRP master responds to both fragmented and unfragmented ICMP echo requests packets destined to VRRP address(es)
- VRRP master responds with VRRP address as the source IPv4 address and VRMAC as the source MAC address
- A virtual router in backup state discards these ICMP echo requests

VRRP Route/Interface Tracking feature extends the capability of the Virtual Router Redundancy Protocol (VRRP)

- Allows tracking of specific route/interface IP states, within the router, that can alter the priority level of a virtual router for a VRRP group
- It ensures the best VRRP router is master for the group

Router Discovery Protocol is an extension to ICMP and enables hosts to dynamically discover the IP address of routers on local IP subnets

- Based on RFC 1256 for IPv4
- Routers periodically send router discovery messages to announce their presence to locally-attached hosts
- The router discovery message advertises one or more IP addresses on the router that hosts can use as their default gateway
- Hosts can send a router solicitation message asking any router that receives the message to immediately send a router advertisement
- Router discovery eliminates the need to manually configure a default gateway on each host
- It enables hosts to switch to a different default gateway if one goes down

Loopback interfaces are available as dynamic, stable IP addresses for other devices on the network, and for routing protocols

Tunnel interfaces are available for IPv4 and IPv6

- Each router interface (port, or VLAN interface) can have multiple associated tunnel interfaces
- Support for Configured 6to4 (RFC 4213) and Automatic 6to4 tunneling (RFC 3056) for IPv6 traffic encapsulation into IPv4 packets
- 6to4 tunnels are automatically formed for IPv4 tunnels carrying IPv6 traffic
- M4300 can act as a 6to4 border router that connects a 6to4 site to a 6to4 domain

Support of Routing Information Protocol (RIPv2) as a distance vector protocol specified in RFC 2453 for IPv4

- Each route is characterized by the number of gateways, or hops, a packet must traverse to reach its intended destination

Route Redistribution feature enables the exchange of routing information among different routing protocols all operating within a router

- Categorized as an interior gateway protocol, RIP operates within the scope of an autonomous system
- Configurable when different routing protocols use different ways of expressing the distance to a destination or different metrics and formats
- For instance, when OSPF redistributes a route from RIP, and needs to know how to set each of the route's path attributes

Open Shortest Path First (OSPF) link-state protocol for IPv4 and IPv6

- For IPv4 networks, OSPF version 2 is supported in accordance with RFC 2328, including compatibility mode for the RFC 1583 older specification
- For IPv6 networks, OSPF version 3 is fully supported
- OSPF can operate within a hierarchy, the largest entity within the hierarchy is the autonomous system (AS)
- An AS is a collection of networks under a common administration sharing a common routing strategy (routing domain)
- An AS can be divided into a number of areas or groups of contiguous networks and attached hosts
- Two different types of OSPF routing occur as a result of area partitioning: Intra-area and Inter-area
- Intra-area routing occurs if a source and destination are in the same area
- Inter-area routing occurs when a source and destination are in different areas
- An OSPF backbone distributes information between areas

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Advanced OSPF implementation for large routing domains

- OSPF NSSA feature supports RFC 3101, The OSPF Not-So-Stubby Area (NSSA) Option
- Forwarding of OSPF Opaque LSAs is enabled by default
- Passive interface feature can disable sending OSPF routing updates on an interface
- Static Area Range Costs feature allows to configure a fixed OSPF cost that is always advertised when an area range is active
- OSPF Equal Cost Multipath (ECMP) feature allows to forward traffic through multiple paths, taking advantage of more bandwidth
- ECMP routes can be learned dynamically, or configured statically with multiple static routes to same destination but with different next hops
- OSPF Max Metric feature allows to override the metric in summary type 3 and type 4 LSAs while in stub router mode
- Automatic Exiting of Stub Router Mode feature allows to exit stub router mode, reoriginating the router LSA with proper metric values on transit links
- Static Area Range Costs feature allows to configure a fixed OSPF cost that is always advertised when an area range is active

OSPF LSA Pacing feature improves the efficiency of LSA flooding, reducing or eliminating the packet drops caused by bursts in OSPF control packets

- LSA transmit pacing limits the rate of LS Update packets that OSPF can send
- With LSA refresh groups, OSPF efficiently bundles LSAs into LS Update packets when periodically refreshing self-originated LSAs

OSPF Flood Blocking feature allows to disable LSA flooding on an interface with area or AS (domain-wide) scope

- In that case, OSPF does not advertise any LSAs with area or AS scope in its database description packets sent to neighbors

OSPF Transit-Only Network Hiding is supported based on RFC 6860 with transit-only network defined as a network connecting only routers

- Transit-only networks are usually configured with routable IP addresses which are advertised in LSAs but are not needed for data traffic
- If router-to-router subnets are advertised, remote attacks can be launched against routers by sending packets to these transit-only networks
- Hiding transit-only networks speeds up network convergence and reduces vulnerability to remote attacks
- 'Hiding' implies that the prefixes are not installed in the routing tables on OSPFv2 and OSPFv3 routers

IP Multinetting allows to configure more than one IP address on a network interface (other vendors may call it IP Aliasing or Secondary Addressing)

ICMP Throttling feature adds configuration options for the transmission of various types of ICMP messages

- ICMP Redirects can be used by a malicious sender to perform man-in-the-middle attacks, or divert packets to a malicious monitor, or to cause Denial of Service (DoS) by blackholing the packets
- ICMP Echo Requests and other messages can be used to probe for vulnerable hosts or routers
- Rate limiting ICMP error messages protects the local router and the network from sending a large number of messages that take CPU and bandwidth

The Policy Based Routing feature (PBR) overrides routing decision taken by the router and makes the packet to follow different actions based on a policy

- It provides freedom over packet routing/forwarding instead of leaving the control to standard routing protocols based on L3
- For instance, some organizations would like to dictate paths instead of following the paths shown by routing protocols
- Network Managers/Administrators can set up policies such as:
 - My network will not carry traffic from the Engineering department
 - Traffic originating within my network with the following characteristics will take path A, while other traffic will take path B
 - When load sharing needs to be done for the incoming traffic across multiple paths based on packet entities in the incoming traffic

Enterprise security

Traffic control MAC Filter and Port Security help restrict the traffic allowed into and out of specified ports or interfaces in the system in order to increase overall security and block MAC address flooding issues

DHCP Snooping monitors DHCP traffic between DHCP clients and DHCP servers to filter harmful DHCP message and builds a bindings database of (MAC address, IP address, VLAN ID, port) tuples that are considered authorized in order to prevent DHCP server spoofing attacks

IP source guard and Dynamic ARP Inspection use the DHCP snooping bindings database per port and per VLAN to drop incoming packets that do not match any binding and to enforce source IP/MAC addresses for malicious users traffic elimination

Time-based Layer 2 / Layer 3-v4 / Layer 3-v6 / Layer 4 Access Control Lists (ACLs) can be binded to ports, Layer 2 interfaces, VLANs and LAGs (Link Aggregation Groups or Port channel) for fast unauthorized data prevention and right granularity

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For in-band switch management, management ACLs on CPU interface (Control Plane ACLs) are used to define the IP/MAC or protocol through which management access is allowed for increased HTTP/HTTPS or Telnet/SSH management security

Out-of-band management is available via dedicated service port (1G RJ45 OOB) when in-band management can be prohibited via management ACLs

Bridge protocol data unit (BPDU) Guard allows the network administrator to enforce the Spanning Tree (STP) domain borders and keep the active topology consistent and predictable - unauthorized devices or switches behind the edge ports that have BPDU enabled will not be able to influence the overall STP by creating loops

Spanning Tree Root Guard (STRG) enforces the Layer 2 network topology by preventing rogue root bridges potential issues when for instance, unauthorized or unexpected new equipment in the network may accidentally become a root bridge for a given VLAN

Dynamic 802.1x VLAN assignment mode, including Dynamic VLAN creation mode and Guest VLAN / Un-authenticated VLAN are supported for rigorous user and equipment RADIUS policy server enforcement

802.1x MAC Address Authentication Bypass (MAB) is a supplemental authentication mechanism that lets non-802.1x devices bypass the traditional 802.1x process altogether, letting them authenticate to the network using their client MAC address as an identifier

- Up to 48 clients (802.1x) per port are supported, including the authentication of the users domain, in order to facilitate convergent deployments. For instance when IP phones connect PCs on their bridge, IP phones and PCs can authenticate on the same switch port but under different VLAN assignment policies (Voice VLAN versus other Production VLANs)
- A list of authorized MAC addresses of client NICs is maintained on the RADIUS server for MAB purpose
- MAB can be configured on a per-port basis on the switch
- MAB initiates after unsuccessful dot1x authentication process (configurable time out), when clients don't respond to any of EAPOL packets
- When 802.1X unaware clients try to connect, the switch sends the MAC address of each client to the authentication server
- The RADIUS server checks the MAC address of the client NIC against the list of authorized addresses
- The RADIUS server returns the access policy and VLAN assignment to the switch for each client
- By default, configuration authentication methods are tried in this order: Dot1x, then MAB, then Captive Portal (web authentication)
- With BYOD, such Tiered Authentication is powerful and simple to implement with strict policies
 - For instance, when a client is connecting, M4300 tries to authenticate the user/client using the three methods above, the one after the other
- The admin can restrict the configuration such that no other method is allowed to follow the captive portal method, for instance

With Successive Tiering, the Authentication Manager allows for authentication methods per port for a Tiered Authentication based on configured time-outs

Double VLANs (DVLAN) pass traffic from one customer domain to another through the "metro core" in a multi-tenancy environment: customer VLAN IDs are preserved and a service provider VLAN ID is added to the traffic so the traffic can pass the metro core in a simple, secure manner

Private VLANs (with Primary VLAN, Isolated VLAN, Community VLAN, Promiscuous port, Host port, Trunks) provide Layer 2 isolation between ports that share the same broadcast domain, allowing a VLAN broadcast domain to be partitioned into smaller point-to-multipoint subdomains across switches in the same Layer 2 network

- Private VLANs are useful in DMZ when servers are not supposed to communicate with each other but need to communicate with a router
- They remove the need for more complex port-based VLANs with respective IP interface/subnets and associated L3 routing
- Another Private VLANs typical application are carrier-class deployments when users shouldn't see, snoop or attack other users' traffic

SSL version 3 and TLS version 2 ensure Web GUI sessions are secured

Secure Shell (SSH version 2) and SNMPv3 (with or without MD5 or SHA authentication) ensure SNMP and Telnet sessions are secured

2048-bit RSA key pairs, SHA2-256 and SHA2-512 cryptographic hash functions for SSLv3 and SSHv2 are supported on all M4300 models

TACACS+ and RADIUS enhanced administrator management provides strict "Login" and "Enable" authentication enforcement for the switch configuration, based on latest industry standards: exec authorization using TACACS+ or RADIUS; command authorization using TACACS+ and RADIUS Server; user exec accounting for HTTP and HTTPS using TACACS+ or RADIUS; and authentication based on user domain in addition to user ID and password

Superior quality of service

Advanced classifier-based hardware implementation for Layer 2 (MAC), Layer 3 (IP) and Layer 4 (UDP/TCP transport ports) prioritization

8 queues (7 in a stack) for priorities and various QoS policies based on 802.1p (CoS) and DiffServ can be applied to interfaces and VLANs

Advanced rate limiting down to 1 Kbps granularity and minimum-guaranteed bandwidth can be associated with ACLs for best granularity

Single Rate Policing feature enables support for Single Rate Policer as defined by RFC 2697

- Committed Information Rate (average allowable rate for the class)
- Committed Burst Size (maximum amount of contiguous packets for the class)
- Excessive Burst Size (additional burst size for the class with credits refill at a slower rate than committed burst size)
- DiffServ feature applied to class maps

Automatic Voice over IP prioritization with protocol-based (SIP, H323 and SCCP) or OUI-based Auto-VoIP up to 144 simultaneous voice calls

iSCSI Flow Acceleration and automatic protection / QoS with Auto-iSCSI

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Data Sheet | M4300 series Intelligent Edge Managed Switches

Flow Control

802.3x Flow Control implementation per IEEE 802.3 Annex 31B specifications with Symmetric flow control, Asymmetric flow control or No flow control

Allows traffic from one device to be throttled for a specified period of time: a device that wishes to inhibit transmission of data frames from another device on the LAN transmits a PAUSE frame

The Priority Flow Control (PFC) is standardized by the IEEE 802.1Qbb specification and enables flow control per traffic class on IEEE 802 full-duplex links

- Asymmetric flow control allows the switch to respond to received PAUSE frames, but the ports cannot generate PAUSE frames
- Symmetric flow control allows the switch to both respond to, and generate MAC control PAUSE frames
- A device that wishes to inhibit transmission of data frames from another device on the LAN transmits a PAUSE frame
- By pausing congested priorities independently, highly loss sensitive protocols can share the same link with traffic that has different loss tolerances
- The priorities are differentiated by the priority field of the 802.1Q VLAN header
- PFC uses a new control packet defined in 802.1Qbb and therefore disables 802.3x standard flow control on PFC configured interfaces
- PFC comes with CLI configuration and it is only supported on M4300-12X12F, 24X, 24X24F, 48X and 96X models

UDLD Support

UDLD implementation detects unidirectional links physical ports (UDLD must be enabled on both sides of the link in order to detect an unidirectional link)

- UDLD protocol operates by exchanging packets containing information about neighboring devices
- The purpose is to detect and avoid unidirectional link forwarding anomalies in a Layer 2 communication channel

Both "normal-mode" and "aggressive-mode" are supported for perfect compatibility with other vendors implementations, including port "D-Disable" triggering cases in both modes



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Data Sheet | M4300 series Intelligent Edge Managed Switches

Target Application (IT)

Building 1

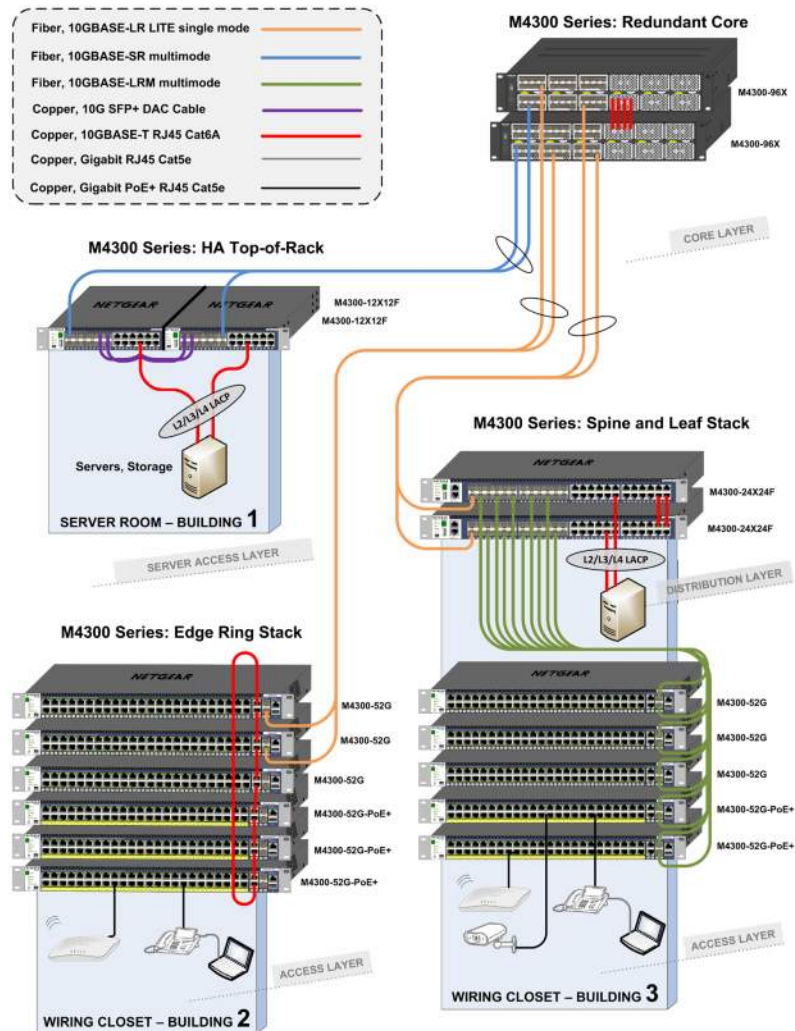
- For midsize server installations, two half-width M4300 10GbE models can be paired in a single rack space for redundant top-of-rack
- Compared with single top-of-rack switch installation, such two-unit horizontal stacking is cost-effective yet highly efficient for HA
- Management unit hitless failover and nonstop forwarding ensure no single point of failure for servers and storage

Building 2

- Common for intermediate distribution frames (IDF) in K-12 and other large campuses, stacking topologies greatly simplify deployments at the edge
- While reducing the number of logical units to manage, stacking also brings network resiliency with distributed uplinks in aggregation to the core
- Management unit hitless failover and nonstop forwarding ensures continuous uptime for clients across the stack

Building 3

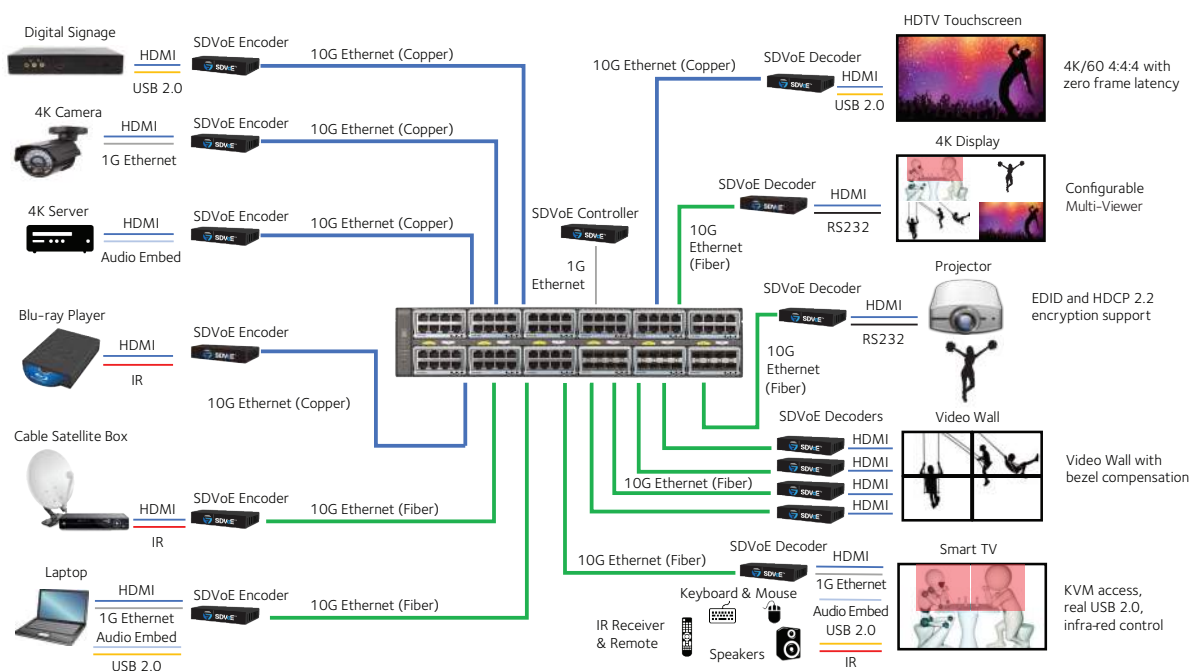
- For typical collapsed core installations, with a variety of 1G and 10G access ports in branch offices, server rooms or campus high performance labs
- M4300 10G models can stack with M4300 1G models, enabling innovative "spine and leaf" topologies
- Spine and leaf architectures deliver highest performance with every leaf switch (1G) connecting to every spine switch (10G) for a fully non-blocking deployment
- With management unit hitless failover and nonstop forwarding, leaf switches keep forwarding L2 and L3 traffic in and out, while backup spine unit guarantees connectivity to the core



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Data Sheet | M4300 series
Intelligent Edge Managed Switches

Target Application (SDVoE)



To take the complexity out of your AV-over-IP deployment, NETGEAR created M4300 switches that are preconfigured for easy, true AV and multi-cast Zero Touch network configuration. Namely, IGMP Snooping, IGMP Fast Leave, IGMP Querier are already enabled for the default VLAN 1 that all your devices will automatically use. Connect your encoder and decoder devices, and power on the switch – it just works!

Enabling Zero-Touch install of SDVoE Video-over-IP

- M4300-96X streamlines AV-over-IP SDVoE solutions, replacing 48x48 switchers and any other in/out distribution
 - Non-blocking fabric for 96x10G or 24x40G or a combination
 - 12 empty slots in 2RU for 8x10G or 2x40G port expansion cards
- Use the M4300-96X online configurator to design your modular switch
 - www.netgear.com/96x-config
- Plug and play and ready to grow as per your requirements
- Takes the complexity out of your AV-over-IP deployment
- Zero Touch AV-over-IP with pre-configured L2 Multicast (SDVoE-ready)
 - IGMP Snooping, IGMP Fast Leave, IGMP Querier are already enabled
- Easy-to-use Web browser-based management GUI

The SDVoE Alliance is an eco-system of companies in and around the AV-over-IP space, working together to create a platform for the next generation of audiovisual applications. NETGEAR SDVoE Partners provide the SDVoE audio-video products and NETGEAR provides the backbone network that makes it all possible.



SDVoE is a trademark of the SDVoE Alliance
www.sdvoe.org

PAGE 17 of 60

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Data Sheet | M4300 series
Intelligent Edge Managed Switches

Components and Modules

M4300-8X8F

Stackable Managed Switch

Ordering information

- Americas, Europe: XSM4316S-100NES
- Asia Pacific: XSM4316S-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 8-port 10GBASE-T (RJ45) all independent
- 8-port 10GBASE-X (SFP+) all independent
- 320Gbps non-blocking fabric across 16 ports
- Out-of-band 1G Ethernet management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Half-width form factor with one- and two-unit rack mount kit
- Two half-width switches can be installed in a single rack space for redundant top-of-rack
- Ships with one modular APS250W PSU in its power supply slot
- Low acoustics (36.9dB @25°C / 77°F), or fans off



To install a single half-width switch in a rack, a 19-inch rack-mount kit is supplied with the switch:



To install two half-width switches in a rack, inside and outside middle mounts and rack-mount brackets are supplied with the switches:



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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Components and Modules

M4300-12X12F

Stackable Managed Switch

Ordering information

- Americas, Europe: XSM4324S-100NES
- Asia Pacific: XSM4324S-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 12-port 10GBASE-T (RJ45) all independent
- 12-port 10GBASE-X (SFP+) all independent
- 480Gbps non-blocking fabric across 24 ports
- Out-of-band 1G Ethernet management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Half-width form factor with one- and two-unit rack mount kit
- Two half-width switches can be installed in a single rack space for redundant top-of-rack
- Ships with one modular APS250W PSU in its power supply slot
- Low acoustics (36.9dB @25°C / 77°F)



M4300-16X

Stackable Managed Switch

Ordering information

- Americas, Europe (299W PSU): XSM4316PA-100NES
- Americas, Europe (600W PSU): XSM4316PB-100NES
- Asia Pacific (299W PSU): XSM4316PA-100AJS
- Asia Pacific (600W PSU): XSM4316PB-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 16-port 100M/1G/2.5G/5G/10GBASE-T with PoE+ (copper RJ45)
- 320Gbps non-blocking fabric across 16 ports
- Out-of-band 1G Ethernet management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Half-width form factor with one- and two-unit rack mount kit
- Two half-width switches can be installed in a single rack space for redundant top-of-rack
- (XSM4316PA) Ships with one modular APS299W PSU in its power supply slot
- (XSM4316PB) Ships with one modular APS600W PSU in its power supply slot
- Low acoustics (36dB with APS299W, 35dB with APS600W, @25°C / 77°F)



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Data Sheet | M4300 series
Intelligent Edge Managed Switches

Components and Modules

M4300-24X

Stackable Managed Switch

Ordering information

- Americas, Europe: XSM4324CS-100NES
- Asia Pacific: XSM4324CS-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 24-port 10GBASE-T (RJ45)
- 4-port 10GBASE-X (SFP+) (shared, back)
- 480Gbps non-blocking fabric across 24 ports
- Out-of-band 1G Ethernet management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Half-width form factor with one- and two-unit rack mount kit
- Two half-width switches can be installed in a single rack space for redundant top-of-rack
- Ships with one modular APS250W PSU in its power supply slot
- Low acoustics (37dB @25°C / 77°F)



M4300-24XF

Stackable Managed Switch

Ordering information

- Americas, Europe: XSM4324FS-100NES
- Asia Pacific: XSM4324FS-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 24-port 10GBASE-X (SFP+)
- 2-port 10GBASE-T (RJ45) (shared, back)
- 480Gbps non-blocking fabric across 24 ports
- Out-of-band 1G Ethernet management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Half-width form factor with one- and two-unit rack mount kit
- Two half-width switches can be installed in a single rack space for redundant top-of-rack
- Ships with one modular APS250W PSU in its power supply slot
- Low acoustics (39.7dB @25°C / 77°F)



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Data Sheet | M4300 series
Intelligent Edge Managed Switches

Components and Modules

M4300-24X24F Stackable Managed Switch

Ordering information

- Americas, Europe: XSM4348S-100NES
- Asia Pacific: XSM4348S-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 24-port 10GBASE-T (RJ45) all independent
- 24-port 10GBASE-X (SFP+) all independent
- 960Gbps non-blocking fabric across 48 ports
- Out-of-band 1G Ethernet Management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Full width form factor with one-unit rack mount kit
- Ships with one modular APS250W PSU in first power supply slot
- Ship with a blank cover in the second power supply slot
- Low acoustics (35.8dB @25°C / 77°F)



M4300-48X Stackable Managed Switch

Ordering information

- Americas, Europe: XSM4348CS-100NES
- Asia Pacific: XSM4348CS-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 48-port 10GBASE-T (RJ45)
- 4-port 10GBASE-X (SFP+) (shared)
- 960Gbps non-blocking fabric across 48 ports
- Out-of-band 1G Ethernet Management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Full width form factor with one-unit rack mount kit
- Ships with one modular APS250W PSU in first power supply slot
- Ship with a blank cover in the second power supply slot
- Low acoustics (40.3dB @25°C / 77°F)



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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Components and Modules

M4300-48XF Stackable Managed Switch

Ordering information

- Americas, Europe: XSM4348FS-100NES
- Asia Pacific: XSM4348FS-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 48-port 10GBASE-X (SFP+)
- 2-port 10GBASE-T (RJ45) (shared)
- 960Gbps non-blocking fabric across 48 ports
- Out-of-band 1G Ethernet Management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Full width form factor with one-unit rack mount kit
- Ships with one modular APS250W PSU in first power supply slot
- Ship with a blank cover in the second power supply slot
- Low acoustics (42.4dB @25°C / 77°F)



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Data Sheet | M4300 series Intelligent Edge Managed Switches

Components and Modules

M4300-96X Stackable and Modular Managed Switch

Ordering information

- Worldwide (Empty Switch, No PSU): XSM4396K0-10000S
- Americas, Europe (Starter Kit 48xSFP+): XSM4396K1-100NES
- Asia Pacific (Starter Kit 48xSFP+): XSM4396K1-100AJS
- Worldwide (10G Copper card): APM408C-10000S
- Worldwide (10G Copper PoE+ card): APM408P-10000S
- Worldwide (10G Fiber card): APM408F-10000S
- Worldwide (40G Fiber card): APM402XL-10000S
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**

- 1.92Tbps non-blocking fabric for 96-port 10G or 24-port 40G or a combination
 - 12 slots (front) available in 2RU for 8x10G or 2x40G port expansion cards
 - XSM4396K0 is the SKU for the M4300-96X empty switch (no PSU)
 - XSM4396K1 is the starter kit including 48xSFP+ and 1x600W PSU
- 4 port cards and hundreds of combinations
 - APM408C features 8-port 100M/1G/2.5G/5G/10GBASE-T (copper RJ45)
 - APM408P features 8-port 100M/1G/2.5G/5G/10GBASE-T with PoE+ (copper RJ45)
 - APM408F features 8-port 1G/10GBASE-X (fiber SFP+)
 - APM402XL features 2-port 40GBASE-X (QSFP+)
- PoE over 10G is supported up to 48 x 10G PoE+ 30W per system (first 6 slots)
- Out-of-band 1G Ethernet Management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Full width 2RU form factor with 2-post and 4-post rack mount kit
- Ships with blank covers in empty slots (front I/O; rear PSU)
- Low acoustics (35.8dB @25°C / 77°F) when no PoE
- 66.8dB @25°C / 77°F with Max PoE (1,440W)



Empty version (XSM4396K0)



48xSFP+ and 1x600W PSU Starter Kit (XSM4396K1)



Use the M4300-96X online configurator to design your modular switch: www.netgear.com/96x-config



8x10GBASE-T Port Card - 100M/1G/2.5G/5G/10G (APM408C)



8xSFP+ Port Card - 1G/10G (APM408F)



8x10GBASE-T PoE+ Port Card - 100M/1G/2.5G/5G/10G (APM408P)



2xQSFP+ Port Card - 40G (APM402XL)

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Components and Modules

M4300-28G Stackable Managed Switch

Ordering information

- Americas, Europe: GSM4328S-100NES
- Asia Pacific: GSM4328S-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 24-port 1000BASE-T (RJ45)
- 2-port 10GBASE-T (RJ45) all independent
- 2-port 10GBASE-X (SFP+) all independent
- 128Gbps non-blocking fabric across 28 ports
- Out-of-band 1G Ethernet Management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Full width form factor with one-unit rack mount kit
- Ships with one modular APS150W PSU in first power supply slot
- Ship with a blank cover in the second power supply slot
- Low acoustics (30.3dB @25°C / 77°F)



M4300-52G Stackable Managed Switch

Ordering information

- Americas, Europe: GSM4352S-100NES
- Asia Pacific: GSM4352S-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 48-port 1000BASE-T (RJ45)
- 2-port 10GBASE-T (RJ45) all independent
- 2-port 10GBASE-X (SFP+) all independent
- 176Gbps non-blocking fabric across 52 ports
- Out-of-band 1G Ethernet Management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Full width form factor with one-unit rack mount kit
- Ships with one modular APS150W PSU in first power supply slot
- Ship with a blank cover in the second power supply slot
- Low acoustics (31.5dB @25°C / 77°F)



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Data Sheet | M4300 series
Intelligent Edge Managed Switches

Components and Modules

M4300-28G-PoE+ Stackable Managed Switch

Ordering information

- Americas, Europe (550W PSU): GSM4328PA-100NES
- Americas, Europe (1,000W PSU): GSM4328PB-100NES
- Asia Pacific (550W PSU): GSM4328PA-100AJS
- Asia Pacific (1,000W PSU): GSM4328PB-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 24-port 1000BASE-T (RJ45) PoE+
- 2-port 10GBASE-T (RJ45) all independent
- 2-port 10GBASE-X (SFP+) all independent
- 128Gbps non-blocking fabric across 28 ports
- Out-of-band 1G Ethernet Management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Full width form factor with one-unit rack mount kit
- (GSM4328PA) Ships with one modular APS550W PSU in first power supply slot
- (GSM4328PB) Ships with one modular APS1000W PSU in first power supply slot
- Ship with a blank cover in the second power supply slot



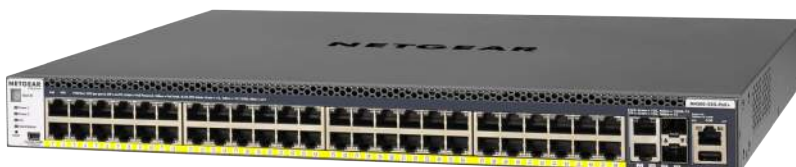
M4300-52G-PoE+ Stackable Managed Switch

Ordering information

- Americas, Europe (550W PSU): GSM4352PA-100NES
- Americas, Europe (1,000W PSU): GSM4352PB-100NES
- Asia Pacific (550W PSU): GSM4352PA-100AJS
- Asia Pacific (1,000W PSU): GSM4352PB-100AJS
- Warranty: Limited Lifetime ProSAFE Hardware Warranty**



- 48-port 1000BASE-T (RJ45) PoE+
- 2-port 10GBASE-T (RJ45) all independent
- 2-port 10GBASE-X (SFP+) all independent
- 176Gbps non-blocking fabric across 52 ports
- Out-of-band 1G Ethernet Management port
- Mini-USB and RJ45 RS232 console ports and USB storage port
- Full L3 feature set and non-stop forwarding (NSF) stacking
- Full width form factor with one-unit rack mount kit
- (GSM4352PA) Ships with one modular APS550W PSU in first power supply slot
- (GSM4352PB) Ships with one modular APS1000W PSU in first power supply slot
- Ship with a blank cover in the second power supply slot



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Data Sheet | M4300 series Intelligent Edge Managed Switches

Accessories

RPS4000v2 RPS unit for up to 4 concurrent switches

Ordering information

- Americas, Europe: RPS4000-200NES
- Asia Pacific: RPS4000-200AJS
- Warranty: 5 years

RPS mode: provide N+1 redundancy to M4300-52G-PoE+ when its two internal PSUs are used in EPS (shared) mode

- One APS1000W per M4300-52G-PoE+ connected to the RPS4000 unit
- Up to four (4) M4300-52G-PoE+ switches per RPS4000 unit



Front view

- RPS4000 is 1RU unit with four (4) empty slots

Rear view

- Four (4) embedded RPS connectors
- Switch selectors for RPS/EPS power modes

Included:

- Four (4) RPS cables - 60cm each (~2 ft)
- Rack mount kit



APS1200W Power Supply Unit

Ordering information

- Americas, Europe: APS1200W-100NES
- Asia Pacific: APS1200W-100AJS
- Warranty: 5 years



- Modular PSU for M4300-96X (PoE applications)
- C15 connector
- Capacity:
 - 110V-240V AC power input
 - Up to 1,050W output power at 110V AC
 - Up to 1,200W output power at 220V AC

APS1000W Power Supply Unit

Ordering information

- Americas, Europe: APS1000W-100NES
- Asia Pacific: APS1000W-100AJS
- Warranty: 5 years



- Power module for RPS4000 unit
- Additional PSU for M4300-28G-PoE+ (GSM4328PB) and M4300-52G-PoE+ (GSM4352PB)
- C15 connector
- Capacity:
 - 110V-240V AC power input
 - Up to 640W output power at 110V AC
 - Up to 910W output power at 220V AC

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Data Sheet | M4300 series Intelligent Edge Managed Switches

Accessories

APS600W Power Supply Unit

Ordering information

- Americas, Europe: APS600W-100NES
- Asia Pacific: APS600W-100AJS
- Warranty: 5 years



- Modular PSU for M4300-96X (non-PoE applications)
- Replacement PSU for M4300-16X (PoE applications)
- C14 connector
- Capacity:
 - 110V-240V AC power input
 - Up to 600W output power at 110/220V AC

APS550W Power Supply Unit

Ordering information

- Americas, Europe: APS550W-100NES
- Asia Pacific: APS550W-100AJS
- Warranty: 5 years



- Additional PSU for M4300-28G-PoE+ (GSM4328PA) and M4300-52G-PoE+ (GSM4352PA)
- C14 connector
- Capacity:
 - 110V-240V AC power input
 - Up to 575W output power at 110/220V AC

APS299W Power Supply Unit

Ordering information

- Americas, Europe: APS299W-100NES
- Asia Pacific: APS299W-100AJS
- Warranty: 5 years



- Replacement PSU for M4300-16X (no or limited PoE applications)
- C14 connector
- Capacity:
 - 110V-240V AC power input
 - Up to 250W output power at 110/220V AC

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Data Sheet | M4300 series Intelligent Edge Managed Switches

Accessories

APS250W Power Supply Unit

Ordering information

- Americas, Europe: APS250W-100NES
- Asia Pacific: APS250W-100AJS
- Warranty: 5 years



- Replacement PSU for M4300-8X8F, M4300-12X12F, M4300-24X, M4300-24XF
- Additional PSU for M4300-24X24F, M4300-48X, M4300-48XF
- C14 connector
- Capacity
 - 110V-240V AC power input
 - Up to 250W output power at 110/220V AC

APS150W Power Supply Unit

Ordering information

- Americas, Europe: APS150W-100NES
- Asia Pacific: APS150W-100AJS
- Warranty: 5 years



- Additional PSU for M4300-28G and M4300-52G
- C14 connector
- Capacity:
 - 110V-240V AC power input
 - Up to 150W output power at 110/220V AC

Copper SFP and SFP+ Optics for M4300 series

AGM734 1000BASE-T RJ45 SFP (Gigabit)

Ordering information

- Worldwide: AGM734-10000S
- Warranty: 5 years



- Fits into M4300 models SFP+ interfaces
- 1 port Gigabit RJ45
- Supports only 1000Mbps full-duplex mode
- Up to 100m (328 ft) with Cat5 RJ45 or better
- Conveniently adds 1G copper connectivity to M4300 fiber interfaces

AXM765 10GBASE-T RJ45 SFP+ (10 Gigabit)

Ordering information

- Worldwide: AXM765-10000S
- Warranty: 5 years



- Fits into M4300 models SFP+ interfaces
- 1 port 10GBASE-T RJ45
- Copper connectivity up to 30 m (98 feet) distance
- CAT6a or better wiring required for 10GBASE-T up to 30 meters
- Conveniently adds 10G copper connectivity to M4300 fiber interfaces

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Data Sheet | M4300 series
Intelligent Edge Managed Switches

GBIC SFP and SFP+ Optics for M4300 series

ORDERING INFORMATION WORLDWIDE: SEE TABLE BELOW WARRANTY: 5 YEARS	Multimode Fiber (MMF)		Single mode Fiber (SMF)
	OM1 or OM2 62.5/125µm	OM3 or OM4 50/125µm	9/125µm
40 Gigabit QSFP+  Fits into M4300-96X / APM402XL QSFP+ interfaces		AXLM761 40GBASE-MR4 Duplex 1 MMF link - LC duplex connector up to 150m (492 ft) AXLM761-10000S (1 unit)	AXLM762 40GBASE-LR4 long reach single mode LC duplex connector up to 10km (6.2 miles) AXLM762-10000S (1 unit)
10 Gigabit SFP+  Fits into M4300 models SFP+ interfaces	AXM763 10GBase-LRM long reach multimode 802.3aq - LC duplex connector up to 220m (722 ft) AXM763-10000S (1 unit)	AXM763 10GBase-LRM long reach multimode 802.3aq - LC duplex connector up to 260m (853 ft) AXM763-10000S (1 unit)	AXM762 10GBase-LR long reach single mode LC duplex connector up to 10km (6.2 miles) AXM762-10000S (1 unit) AXM762P10-10000S (pack of 10 units)
		AXM761 10GBase-SR short reach multi-mode LC duplex connector OM3: up to 300m (984 ft) OM4: up to 550m (1,804 ft) AXM761-10000S (1 unit) AXM761P10-10000S (pack of 10 units)	AXM764 10GBase-LR LITE single mode LC duplex connector up to 2km (1.2 mile) AXM764-10000S (1 unit)
Gigabit SFP  Fits into M4300 models SFP+ interfaces	AGM731F 1000Base-SX short range multi-mode LC duplex connector up to 275m (902 ft) AGM731F (1 unit)	AGM731F 1000Base-SX short range multimode LC duplex connector OM3: up to 550m (1,804 ft) OM4: up to 1,000m (3,280 ft) AGM731F (1 unit)	AGM732F 1000Base-LX long range single mode LC duplex connector up to 10km (6.2 miles) AGM732F (1 unit)

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Direct Attach Cables for M4300 series

ORDERING INFORMATION WORLDWIDE: SEE TABLE BELOW WARRANTY: 5 YEARS	SFP+ to SFP+		
	1 meter (3.3 ft)	3 meters (9.8 ft)	
40 Gigabit DAC  Fits into M4300-96X / APM402XL QSFP+ interfaces	AXLC761 40G QSFP+ Cu (passive) QSFP+ connectors AXLC761-10000S (1 unit)	AXLC763 40G QSFP+ Cu (passive) QSFP+ connectors AXLC763-10000S (1 unit)	
10 Gigabit DAC   	1 meter (3.3 ft)	3 meters (9.8 ft)	5 meters (16.4 ft)
	AXC761 10GSFP+ Cu (passive) SFP+ connectors AXC761-10000S (1 unit)	AXC763 10GSFP+ Cu (passive) SFP+ connectors AXC763-10000S (1 unit)	AXC765 10GSFP+ Cu (active) SFP+ connectors AXC765-10000S (1 unit)
	7 meters (23.0 ft)	10 meters (32.8 ft)	15 meters (49.2 ft)
	AXC767 10GSFP+ Cu (active) SFP+ connectors AXC767-10000S (1 unit)	AXC7610 10GSFP+ Cu (active) SFP+ connectors AXC7610-10000S (1 unit)	AXC7615 10GSFP+ (duplex fiber optic) SFP+ connectors AXC7615-10000S (1 unit)
	20 meters (65.6 ft)		
	AXC7620 10GSFP+ (duplex fiber optic) SFP+ connectors AXC7620-10000S (1 unit)		

• Fits into M4300 models SFP+ interfaces

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Intelligent Edge Managed Switches

Aurora Multimedia™ 24 port 10G PoE+ injector



NETGEAR has validated the Aurora Multimedia IP-24PoE+ injector for use with the M4300 switches. It can add PoE/PoE+ up to 30W per port to any 1G or 10G M4300 model. The IP-24PoE+ allows for a clean installation of 1G or 10G PD capable devices, such as 10G AV over IP encoders and decoders.



IP-24PoE+

Highlights

- Input (top): 24 ports 1G/10GBASE-T
- Output (bottom): 24 ports 1G/10GBASE-T with added PoE+
- 30 Watts per port (IEEE 802.3af, IEEE 802.3at)
- 750 Watts total power, 1RU

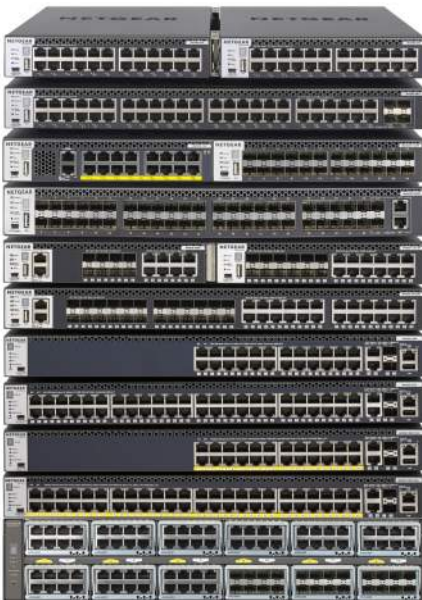
Please visit <https://auroramultimedia.com/products/ip-24poe/> for more information or send an email to sales@aurorammm.com for procurement.

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Technical Specifications

Requirements based on 12.0 software release



Model Name	Description	Model number
M4300-8X8F	Half-Width 16x10G including 8x10GBASE-T and 8xSFP+	XSM4316S
M4300-12X12F	Half-Width 24x10G including 12x10GBASE-T and 12xSFP+	XSM4324S
M4300-16X	Half-Width 16x100M/1G/2.5G/5G/10GBASE-T with PoE+ (299W PSU)	XSM4316PA
	Half-Width 16x100M/1G/2.5G/5G/10GBASE-T with PoE+ (600W PSU)	XSM4316PB
M4300-24X	Half-Width 24x10G including 24x10GBASE-T and 4xSFP+ (shared)	XSM4324CS
M4300-24XF	Half-Width 24x10G including 24xSFP+ and 2x10GBASE-T (shared)	XSM4324FS
M4300-24X24F	48x10G including 24x10GBASE-T and 24xSFP+	XSM4348S
M4300-48X	48x10G including 48x10GBASE-T and 4xSFP+ (shared)	XSM4348CS
M4300-48XF	48x10G including 48xSFP+ and 2x10GBASE-T (shared)	XSM4348FS
M4300-96X	12-slot 2RU empty switch (no PSU)	XSM4396K0
	48x10G SFP+ starter kit (600W PSU)	XSM4396K1
APM408C	8x100M/1G/2.5G/5G/10GBASE-T Port Card	APM408C
APM408P	8x100M/1G/2.5G/5G/10GBASE-T PoE+ Port Card (6 first slots)	APM408P
APM408F	8x1G/10G SFP+ Port Card	APM408F
APM402XL	2x40G QSFP+ Port Card	APM402XL
M4300-28G	24x1G with 2x10GBASE-T and 2xSFP+	GSM4328S
M4300-28G-PoE+	24x1G PoE+ with 2x10GBASE-T and 2xSFP+ (550W PSU)	GSM4328PA
	24x1G PoE+ with 2x10GBASE-T and 2xSFP+ (1,000W PSU)	GSM4328PB
M4300-52G	48x1G with 2x10GBASE-T and 2xSFP+	GSM4352S
M4300-52G-PoE+	48x1G PoE+ with 2x10GBASE-T and 2xSFP+ (550W PSU)	GSM4352PA
	48x1G PoE+ with 2x10GBASE-T and 2xSFP+ (1,000W PSU)	GSM4352PB
APS150W	PSU for M4300-28G; M4300-52G	APS150W
APS250W	PSU for M4300-8X8F; -12X12F; -24X; -24XF; -24X24F; -48X; -48XF	APS250W
APS299W	PSU for M4300-16X (non- or limited PoE applications, PA version)	APS299W
APS550W	PSU for M4300-28G-PoE+; M4300-52G-PoE+ (PA versions)	APS550W
APS600W	PSU for M4300-16X (PoE applications), M4300-96X (non-PoE applications)	APS600W
APS1000W	PSU for M4300-28G-PoE+; M4300-52G-PoE+ (PB versions)	APS1000W
APS1200W	PSU for M4300-96X (PoE applications)	APS1200W

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Physical Interfaces					
Gigabit and 10 Gigabit Ethernet Ports	Auto-sensing RJ45 10/100/1000BASE-T	Auto-sensing RJ45 100/1000/10GBASE-T	Auto-sensing RJ45 100/1000/2.5/5/10GBASE-T	Auto-sensing SFP+ ports 1000/10GBASE-X	QSFP+ 40GBASE-X
M4300-8X8F	-	8	-	8 (independent)	-
M4300-12X12F	-	12	-	12 (independent)	-
M4300-16X	-	-	16	-	-
M4300-24X	-	24	-	4 (shared, back)	-
M4300-24XF	-	2 (shared, back)	-	24	-
M4300-24X24F	-	24	-	24 (independent)	-
M4300-48X	-	48	-	4 (shared)	-
M4300-48XF	-	2 (shared, back)	-	48	-
M4300-96X (12 slots for port cards)	-	-	Up to 96 (independent)	Up to 96 (independent)	Up to 24 (independent)
APM408C Port Card	-	-	8	-	-
APM408P Port Card	-	-	8 (first 6 slots for PoE+)	-	-
APM408F Port Card	-	-	-	8	-
APM402XL Port Card	-	-	-	-	2
M4300-28G, M4300-28G-PoE+	24	2	-	2 (independent)	-
M4300-52G, M4300-52G-PoE+	48	2	-	2 (independent)	-
M4300-28G, M4300-28G-PoE+, M4300-52G, M4300-52G-PoE+	10M Half-Duplex isn't supported on ports 17-24 and 41-48				
Total Usable Port Count	1G Ports	10G Ports	40G Ports		
M4300-8X8F, M4300-16X	-	16	-		
M4300-12X12F, M4300-24X, M4300-24XF	-	24	-		
M4300-24X24F, M4300-48X, M4300-48XF	-	48	-		
M4300-96X	-	Up to 96	Up to 24		
M4300-28G, M4300-28G-PoE+	24	4	-		
M4300-52G, M4300-52G-PoE+	48	4	-		
Management Ports	Console ports		Service port (Out-of-band Ethernet)		Storage port
M4300-8X8F, M4300-24X24F	Serial RS232 RJ45 (front) ; Mini-USB (front)		1 x RJ45 10/100/1000BASE-T (front)		1 x USB (front)
M4300-12X12F, -16X, -24X, -24XF, -48X, -48XF	Serial RS232 RJ45 (back) ; Mini-USB (front)		1 x RJ45 10/100/1000BASE-T (back)		1 x USB (front)
M4300-96X	Serial RS232 RJ45 (back) ; Mini-USB (back)		1 x RJ45 10/100/1000BASE-T (back)		1 x USB (back)
M4300-28G, M4300-28G-PoE+, M4300-52G, M4300-52G-PoE+	Serial RS232 RJ45 (back) ; Mini-USB (front)		1 x RJ45 10/100/1000BASE-T (front)		1 x USB (front)

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Modular Power Supplies	PSU Slots	Included PSU	Application with 2nd PSU (sold separately)		
M4300-8X8F, M4300-12X12F, M4300-24X, M4300-24XF	1	1 x APS250W	-		
M4300-16X (XSM4316PA version 199W PSU)	1	1 x APS299W	-		
M4300-16X (XSM4316PB version 600W PSU)	1	1 x APS600W	-		
M4300-24X24F, M4300-48X, M4300-48XF	2	1 x APS250W	RPS (redundant) mode		
M4300-96X (XSM4396K0 empty version)	2	None (APS600W or APS1200W sold separately)		RPS (redundant) or EPS (shared) modes	
M4300-96X (XSM4396K1 starter kit)	2	1 x APS600W	RPS (redundant) or EPS (shared) modes		
M4300-28G, M4300-52G	2	1 x APS150W	RPS (redundant) mode		
M4300-28G-PoE+ (GSM4328PA version 550W PSU)	2	1 x APS550W	RPS (redundant) or EPS (shared) modes		
M4300-28G-PoE+ (GSM4328PB version 1,000W PSU)	2	1 x APS1000W	RPS (redundant) or EPS (shared) modes		
M4300-52G-PoE+ (GSM4352PA version 550W PSU)	2 + external RPS port	1 x APS550W	RPS (redundant) or EPS (shared) modes		
M4300-52G-PoE+ (GSM4352PB version 1,000W PSU)	2 + external RPS port	1 x APS1000W	RPS (redundant) or EPS (shared) modes		
Fixed fans					
All models	Front-to-back airflow				
Power over Ethernet					
PSE Capacity	PoE+ ports				
M4300-16X (all versions)	16				
M4300-96X	Up to 48	Only first 6 slots are delivering PoE power to APM408P cards for 48 PoE+ ports per switch. APS1200W preferred.			
M4300-28G-PoE+ (all versions)	24				
M4300-52G-PoE+ (all versions)	48				
PoE Budget	PoE Budget @ 110V AC in		PoE Budget @ 220V AC in		External RPS Application
	1 PSU or 2 in RPS mode	2 PSUs in EPS mode	1 PSU or 2 in RPS mode	2 PSUs in EPS mode	
M4300-16X (XSM4316PA version APS299W PSU)	199 Watts	-	199 Watts	-	
M4300-16X (XSM4316PB version APS600W PSU)	500 Watts	-	500 Watts	-	
M4300-96X (APS600W PSU and 48x10G PoE+)	232 Watts	832 Watts	232 Watts	832 Watts	
M4300-96X (APS600W PSU and 96x10GBT incl. 48 PoE+)	34 Watts	634 Watts	34 Watts	634 Watts	
M4300-96X (APS600W+APS1200W PSU and 48x10G PoE+)	-	1,282 Watts	-	1,432 Watts	
M4300-96X (APS600W+APS1200W PSU and 96x10GBT incl. 48 PoE+)	-	1,084 Watts	-	1,234 Watts	
M4300-96X (APS1200W PSU and 48x10G PoE+)	682 Watts	1,440 Watts	832 Watts	1,440 Watts	
M4300-96X (APS1200W PSU and 96x10GBT incl. 48 PoE+)	484 Watts	1,440 Watts	634 Watts	1,440 Watts	
M4300-96X (PoE Budget depends on number of PSU and APM port cards per switch)	APS600W provides 600W@110V/220VAC; APS1200W delivers 1,050W@110VAC or 1,200W@220VAC per PSU. The system consumes 110W, plus 5W per empty slot; APM408C/ APM408P: 38W; APM408F/APM402XL: 23W.				
M4300-28G-PoE+ (GSM4328PA version 550W PSU)	480 Watts	720 Watts	480 Watts	720 Watts	
M4300-28G-PoE+ (GSM4328PB version 1,000W PSU)	630 Watts	720 Watts	720 Watts	720 Watts	
M4300-52G-PoE+ (GSM4352PA version 550W PSU)	480 Watts	720 Watts	480 Watts	720 Watts	Power redundancy (RPS) when 2 PSUs in EPS mode
M4300-52G-PoE+ (GSM4352PB version 1,000W PSU)	591 Watts	1,010 Watts	860 Watts	1,440 Watts	

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Features Support

IEEE 802.3af (up to 15.4W per port)	Yes
IEEE 802.3at (up to 30W per port)	Yes
IEEE 802.3at Layer 2 (LLDP) method	Yes
IEEE 802.3at 2-event classification	Yes
PoE timer/schedule (week, days, hours)	Yes

Processor/Memory

Processor (CPU) - M4300-96X	Integrated 1.4Ghz CPU in switching silicon
Processor (CPU) - all other models	Integrated 800Mhz CPU in switching silicon
System memory (RAM) - M4300-96X	2 GB
System memory (RAM) - all other models	1 GB
Code storage (flash) - all other models	256 MB
	Dual firmware image

Packet Buffer Memory

M4300-96X	96 Mb	Dynamically shared across only used ports
M4300-24X24F, M4300-48X, M4300-48XF	56 Mb	
M4300-12X12F, M4300-24X, M4300-24XF	32 Mb	
All other models	16 Mb	

Virtual Chassis Stacking

Max physical switches per stack	8 (any combination of M4300 switches)
Max physical ports per stack	384 x 1G ports or 768 x 10G ports or 192 x 40G ports or a combination
Mixed stacking between 1G models and 10G/40G models	Yes
Mixed stacking table size	Mixed stacking SDM template is used based on "least common denominator" set of capacities
Stacking ports (pre-configuration)	No pre-configured stacking port: any 40G or 10G port (copper, fiber) and any media type (RJ45, SFP+, DAC) can be used for stacking
Stacking ports (max number)	1G models: up to 4 ports per switch 10G models: up to 16 ports per switch
Vertical and horizontal stacking topologies	Chain, single ring, dual ring, mesh, spine and leaf
Distant stacking using fiber	Yes
Non-stop forwarding (NSF)	Yes
Hitless management unit failover and failback	Yes, no service interruption across the stack
Automatic unit replacement (AUR)	Yes
Distributed Link Aggregation (LAGs across the stack)	Yes
Stack with previous M5300, M7100, M7300 versions	Not supported

Performance Summary

Switching fabric

M4300-8X8F, M4300-16X	320 Gbps	Line-rate (non blocking fabric)
M4300-12X12F, M4300-24X, M4300-24XF	480 Gbps	
M4300-24X24F, M4300-48X, M4300-48XF	960 Gbps	
M4300-96X	1.920 Tbps	
M4300-28G, M4300-28G-PoE+	128 Gbps	
M4300-52G, M4300-52G-PoE+	176 Gbps	

Throughput

M4300-8X8F, M4300-16X	238 Mpps
M4300-12X12F, M4300-24X, M4300-24XF	357 Mpps
M4300-24X24F, M4300-48X, M4300-48XF	714 Mpps
M4300-96X	2,857 Mpps
M4300-28G, M4300-28G-PoE+	95.2 Mpps
M4300-52G, M4300-52G-PoE+	130.9 Mpps

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Latency - 10G Fiber	64-byte frames	512-byte frames	1024-byte frames	1518-byte frames
M4300-8X8F	0.889µs	0.874µs	0.876µs	0.87µs
M4300-16X	-	-	-	-
M4300-12X12F	1.189µs	1.313µs	1.373µs	1.309µs
M4300-24X	1.827µs	1.919µs	1.971µs	1.905µs
M4300-24XF	1.323µs	1.432µs	1.489µs	1.421µs
M4300-24X24F	0.879µs	0.889µs	0.89µs	0.88µs
M4300-48X	1.508µs	1.516µs	1.516µs	1.523µs
M4300-48XF	0.9µs	0.907µs	0.91µs	0.898µs
M4300-96X	0.75µs	1.170µs	1.603µs	1.970µs
M4300-28G, M4300-28G-PoE+	1.961µs	1.952µs	1.941µs	1.95µs
M4300-52G, M4300-52G-PoE+	1.24µs	1.225µs	1.232µs	1.196µs
Latency - 10G Copper	64-byte frames	512-byte frames	1024-byte frames	1518-byte frames
M4300-8X8F	2.432µs	2.421µs	2.421µs	2.414µs
M4300-16X	2.470µs	2.460µs	2.458µs	2.453µs
M4300-12X12F	2.755µs	2.879µs	2.938µs	2.876µs
M4300-24X	2.728µs	2.85µs	2.904µs	2.841µs
M4300-24XF	2.722µs	2.844µs	2.895µs	2.84µs
M4300-24X24F	2.387µs	2.407µs	2.415µs	2.402µs
M4300-48X	2.409µs	2.425µs	2.43µs	2.432µs
M4300-48XF	1.245µs	1.247µs	1.287µs	1.265µs
M4300-96X	1.491µs	1.921µs	2.354µs	2.722µs
M4300-28G, M4300-28G-PoE+	2.74µs	2.71µs	2.732µs	2.706µs
M4300-52G, M4300-52G-PoE+	2.71µs	2.7µs	2.692µs	2.676µs
Latency - 1G Fiber	64-byte frames	512-byte frames	1024-byte frames	1518-byte frames
M4300-8X8F	2.622µs	2.543µs	2.538µs	2.557µs
M4300-16X	-	-	-	-
M4300-12X12F	2.741µs	2.875µs	2.901µs	2.853µs
M4300-24X	2.289µs	2.393µs	2.423µs	2.379µs
M4300-24XF	2.333µs	2.403µs	2.427µs	2.383µs
M4300-24X24F	2.752µs	2.767µs	2.784µs	2.752µs
M4300-48X	2.285µs	2.39µs	2.426µs	2.379µs
M4300-48XF	2.153µs	2.162µs	2.176µs	2.165µs
M4300-96X	TBD	TBD	TBD	TBD
M4300-28G, M4300-28G-PoE+	1.908µs	1.914µs	1.918µs	1.936µs
M4300-52G, M4300-52G-PoE+	1.618µs	1.594µs	1.578µs	1.576µs
Latency - 1G Copper	64-byte frames	512-byte frames	1024-byte frames	1518-byte frames
M4300-8X8F	2.572µs	2.564µs	2.592µs	2.589µs
M4300-16X	4.479µs	4.309µs	4.298µs	4.432µs
M4300-12X12F	2.751µs	2.848µs	2.941µs	2.868µs
M4300-24X	2.707µs	2.821µs	2.866µs	2.826µs
M4300-24XF	3.805µs	3.774µs	3.822µs	3.795µs
M4300-24X24F	2.772µs	2.79µs	2.814µs	2.784µs
M4300-48X	2.702µs	2.714µs	2.73µs	2.709µs
M4300-48XF	2.83µs	2.82µs	2.822µs	2.802µs
M4300-96X	TBD	TBD	TBD	TBD
M4300-28G, M4300-28G-PoE+	3.745µs	3.756µs	3.746µs	3.762µs
M4300-52G, M4300-52G-PoE+	2.688µs	2.644µs	2.648µs	2.666µs
Green Ethernet				
Energy Efficient Ethernet (EEE)	Compliant with IEEE 802.3az Energy Efficient Ethernet Task Force		Deactivated by default	

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Data Sheet | **M4300 series**
 Intelligent Edge Managed Switches

Other Metrics			
Forwarding mode		Store-and-forward	
Addressing		48-bit MAC address	
Address database size	(M4300-96X)	256K MAC addresses	
	(M4300-24X24F, M4300-48X, M4300-48XF)	128K MAC addresses	
	(all other models)	16K MAC addresses	
Number of VLANs		4,093 VLANs (802.1Q) simultaneously - standalone mode	
		4,093 VLANs - stack mode (except when mixed stacks of M4300-96X with other models - 1,024 VLANs only)	
Number of multicast groups filtered (IGMP)		4K total (2,048 IPv4 and 2,048 IPv6)	
Number of Link Aggregation Groups (LAGs)		128 LAGs with up to 8 ports per group	802.3ad / 802.1AX-2008
Number of hardware queues for QoS (Standalone)		8 queues	
Number of hardware queues for QoS (Stack)		7 queues	
Number of routes	(M4300-24X24F, -48X, -48XF, -96X)	12,288 IPv4 Unicast Routes in IPv4 Routing Default SDM Template	
	IPv4	4,096 IPv6 Unicast Routes in Dual IPv4 and IPv6 SDM Template	
	IPv6		
	(all other models)	512 IPv4 Unicast Routes in IPv4 Routing Default SDM Template	
	IPv4	256 IPv6 Multicast Routes in Dual IPv4 and IPv6 SDM Template	
	IPv6		
Number of static routes			
	IPv4	64	
	IPv6	64	
RIP application route scaling			
	IPv4	512	
OSPF application route scaling			
	(M4300-24X24F, -48X, -48XF, -96X)	12,288	
	IPv4	4,096	
	IPv6		
	(all other models)	512	
	IPv4	256	
	IPv6		
Number of IP interfaces (port or VLAN)		128	
Jumbo frame support		up to 9KB packet size	
Acoustic noise (ANSI-S10.12)		@ 25°C ambient (77°F)	
M4300-8X8F		36.9 dB	
M4300-16X (XSM4316PA version, APS299W PSU)		36 dB	
M4300-16X (XSM4316PB version, APS600W PSU)		35 dB	
M4300-12X12F		36.9 dB	
M4300-24X		37dB	
M4300-24XF		39.7 dB	
M4300-24X24F		35.8 dB	
M4300-48X		40.3dB	
M4300-48XF		42.4 dB	
M4300-96X		35.8dB (no PoE); 66.8dB (max PoE)	
M4300-28G		30.3 dB	
M4300-28G-PoE+		39.8 dB	
M4300-52G		31.5 dB	
M4300-52G-PoE+		39.8 dB	

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Heat Dissipation (BTU)	1 PSU	2 PSUs in RPS mode	2 PSUs in EPS mode	2 PSUs in EPS mode with external RPS
M4300-8X8F	185.77 BTU/hr	-	-	-
M4300-16X (APS199W, without PoE)	186 BTU/hr	-	-	-
M4300-16X (APS199W PSU, with max PoE 199W)	1,053.43 BTU/hr	-	-	-
M4300-16X (APS600W PSU, with max PoE 500W)	2,081.64 BTU/hr	-	-	-
M4300-12X12F	367.75 BTU/hr	-	-	-
M4300-24X	473.9 BTU/hr	-	-	-
M4300-24XF	330.6 BTU/hr	-	-	-
M4300-24X24F	610.39 BTU/hr	610.39 BTU/hr	-	-
M4300-48X	899.9 BTU/hr	899.9 BTU/hr	-	-
M4300-48XF	577.8 BTU/hr	-	-	-
M4300-96X (without PoE)	2145.82 BTU/hr	2145.82 BTU/hr		-
M4300-96X (with max PoE: 1,440W)	-	-	7,605.15 BTU/hr	-
M4300-28G	117.78 BTU/hr	117.78 BTU/hr	-	-
M4300-28G-PoE+ (GSM4328PA version 550W PSU)	1,969.88 BTU/hr	1,963.05 BTU/hr	2,720.96 BTU/hr	-
M4300-28G-PoE+ (GSM4328PB version 1,000W PSU)	2,844.55 BTU/hr	2,842.15 BTU/hr	2,844.55 BTU/hr	-
M4300-52G	161.82 BTU/hr	161.82 BTU/hr	-	-
M4300-52G-PoE+ (GSM4352PA version 550W PSU)	2,079.13 BTU/hr	2,085.95 BTU/hr	2,953.11 BTU/hr	3,123.81 BTU/hr
M4300-52G-PoE+ (GSM4352PB version 1,000W PSU)	3,031.63 BTU/hr	3,079.43 BTU/hr	5,411.19 BTU/hr	5,650.17 BTU/hr
Mean Time Between Failures (MTBF)	@ 25°C ambient (77°F)		@ 50°C ambient (131°F)	
M4300-8X8F	196,120 hours (~22.4 years)		123,644 hours (~14.1 years)	
M4300-16X	690,301 hours (~78.8 years)		207,500 hours (~23.7 years)	
M4300-12X12F	192,898 hours (~22 years)		121,331 hours (~13.9 years)	
M4300-24X	247,437 hours (~28.2 years)		153,855 hours (~17.5 years)	
M4300-24XF	968,447 hours (~110.6 years)		159,042 hours (~18.2 years)	
M4300-24X24F	133,176 hours (~15.2 years)		111,734 hours (~12.8 years)	
M4300-96X	519,784 hours (~59.3 years)		196,635 hours (~22.4 years)	
M4300-48X	249,393 hours (28.4 years)		154,220 hours (17.6 years)	
M4300-48XF	657,392 hours (~75 years)		10,2690 hours (~11.7 years)	
M4300-28G	1,328,968 hours (~151.7 years)		444,117 hours (~50.7 years)	
M4300-28G-PoE+	1,189,685 hours (~135.8 years)		491,811 hours (~56.1 years)	
M4300-52G	578,472 hours (~66 years)		301,524 hours (~34.4 years)	
M4300-52G-PoE+	673,207 hours (~76.9 years)		247,969 hours (~28.3 years)	
L2 Services - VLANs				
IEEE 802.1Q VLAN Tagging	802.1Q-1998		Up to 4,093 VLANs - 802.1Q Tagging	
Protocol Based VLANs			Yes	
IP subnet			Yes	
ARP			Yes	
IPX			Yes	
Subnet based VLANs			Yes	
MAC based VLANs			Yes	
Voice VLAN	Yes		Based on phones OUI bytes (internal database, or user-maintained) or protocols (SIP, H323 and SCCP)	
Private Edge VLAN			Yes	

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Private VLAN	Yes	
IEEE 802.1x	Yes	802.1x-2004
Guest VLAN	Yes	
RADIUS based VLAN assignment via .1x	Yes	IP phones and PCs can authenticate on the same port but under different VLAN assignment policies
RADIUS based Filter ID assignment via .1x	Yes	
MAC-based .1x	Yes	
Unauthenticated VLAN	Yes	
Double VLAN Tagging	Yes	
Enabling dvlan-tunnel makes interface	Yes	
Global ethertype (TPID)	Yes	
Interface ethertype (TPID)	Yes	
Customer ID using PVID	Yes	
GARP with GVRP/GMRP	Yes	Automatic registration for membership in VLANs or in multicast groups
Multiple Registration Protocol (MRP)		Can replace GARP functionality
Multicast VLAN Registration Protocol (MVRP)	Yes	Can replace GARP functionality
MVR (Multicast VLAN registration)	Yes	
L2 Services - Availability		
IEEE 802.3ad - LAGs	Yes	Up to 128 LAGs and up to 8 ports per group
LACP	Yes	
LACP automatically reverts to and from Static LAG	Yes	
Static LAGs	Yes	
Local Preference per LAG	Yes	
LAG Hashing		Yes
LAG Member Port Flaps Tracking		Yes
LAG Local Preference	Yes	Known unicast traffic egresses only out of local blade LAG interface members
Distributed Link Aggregation	Yes	LAGs across the stack
Storm Control	Yes	
IEEE 802.3x (Full Duplex and flow control)	Yes	Asymmetric and Symmetric Flow Control
Per port Flow Control	Yes	
Priority Flow Control (PFC) Standardized by IEEE 802.1Qbb	M4300-12X12F, 24X, 24XF, 24X24F, 48X, 48XF and 96X only	Enables Flow Control per traffic class, full-duplex, CLI
UDLD Support (Unidirectional Link Detection)		Yes
Normal-Mode		Yes
Aggressive-Mode		Yes
Link Dependency	Yes	Allow the link status of specified ports to be dependent on the link status of other ports
IEEE 802.1D Spanning Tree Protocol		Yes
IEEE 802.1w Rapid Spanning Tree		Yes
IEEE 802.1s Multiple Spanning Tree		Yes
Per VLAN STP (PVSTP) with FastUplink and FastBackbone	Yes (CLI only)	PVST+ interoperability
Per VLAN Rapid STP (PVRSTP)	Yes (CLI only)	RPVST+ interoperability
STP Loop Guard		Yes
STP Root Guard		Yes
STP BPDU Guard		Yes
STP BPDU Filtering		Yes
STP BPDU Flooding		Yes

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

L2 Services - Multicast Filtering

IGMPv2 Snooping Support	Yes
IGMPv3 Snooping Support	Yes
NETGEAR IGMP Plus™ Enhanced Implementation	Yes For automatic multicast across M4300/M4500 (Spine and Leaf) at Layer 2, removing the need for L3 PIM routing
MLDv1 Snooping Support	Yes
MLDv2 Snooping Support	Yes
Expedited Leave function	Yes
Static L2 Multicast Filtering	Yes
Enable IGMP / MLD Snooping per VLAN	Yes
IGMPv1/v2 Snooping Querier, compatible v3 queries	Yes
MLDv1 Snooping Querier	Yes
IGMP Snooping	
Enable IGMP Snooping per VLAN	Yes
Snooping Querier	Yes
MGMd Snooping	
Control Packet Flooding	Yes
Flooding to mRouter Ports	Yes
Remove Flood-All-Unregistered Option	Yes
Multicast VLAN registration (MVR)	Yes

L3 Services - Multicast Routing

IGMP Proxy	Yes
MLD Proxy	Yes
Any Source Multicast (ASM)	Yes
Source Specific Multicast (SSM)	Yes
Multicast streams routing between subnets, VLANs	Yes
Multicast static routes (IPv4, IPv6)	Yes
DVMRP (Distance Vector Multicast Routing Protocol)	Yes
Neighbor discovery	Yes
PIM-DM (Multicast Routing - dense mode)	Yes
PIM-DM (IPv6)	Yes
PIM-SM (Multicast Routing - sparse mode)	Yes
PIM-SM (IPv6)	Yes
PIM multi-hop RP support	Yes
PIM Timer Accuracy	Yes
PIM-SM Unhandled Events	Yes
IPMC replication (hardware support)	Yes

L3 Services - DHCP

DHCP IPv4 / DHCP IPv6 Client	Yes
DHCP IPv4 / DHCP IPv6 Server (Stateless, Stateful)	Yes
DHCP Snooping IPv4 / IPv6	Yes
BootP Relay IPv4 / IPv6	Yes
DHCP Relay IPv4 / IPv6	Yes
DHCP Relay Option 82 circuit-id and remote-id for VLANs	Yes
Multiple Helper IPs	Yes
Auto Install (DHCP options 66, 67, 150 and 55, 125)	Yes

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Data Sheet | M4300 series
Intelligent Edge Managed Switches

L3 Services - Routing

Static Routing / ECMP Static Routing		IPv4/IPv6
Multiple next hops to a given destination		Yes
Load sharing, Redundancy		Yes
Default routes		Yes
Static Reject routes		Yes
Port Based Routing		Yes
VLAN Routing		Yes
802.3ad (LAG) for router ports		Yes
VRRP		IPv4
Pingable VRRP interface		Yes
VRRP Route/Interface Tracking		Yes
Loopback Interfaces		Yes
Tunnel interfaces		IPv4 / IPv6
Configured 6to4 tunnels		Yes
Automatic 6to4 tunnels		Yes
6to4 Border Router		Yes
RIP		IPv4
RIPv1/RIPv2		Yes
Route Redistribution	Yes	Enables the exchange of routing information among different routing protocols operating within a router
OSPF		IPv4/IPv6
OSPFv2 RFC 2328 including older RFC 1583 support		Yes
OSPFv3		Yes
OSPF Not-So-Stubby Area (NSSA) Option		Yes
Forwarding of OSPF Opaque LSAs		Yes
Passive interface feature		Yes
Static Area Range Costs feature		Yes
OSPF Equal Cost Multipath (ECMP)		Yes
Dynamically learned ECMP routes		Yes
Statically learned ECMP routes		Yes
OSPF Max Metric feature		Yes
Automatic Exiting of Stub Router Mode feature		Yes
Static Area Range Costs feature		Yes
OSPF LCA Pacing feature		Yes
OSPF Flood Blocking feature		Yes
OSPF Transit-Only Network Hiding		Yes
IP Multinetting		Yes
ICMP throttling		Yes
Router Discovery Protocol		Yes
DNS Client		IPv4/IPv6
IP Helper		Yes
Max IP Helper entries		512
IP Event Dampening		IPv4/IPv6
Proxy ARP		IPv4/IPv6
ICMP		IPv4/IPv6
ICMP redirect detection in hardware		Yes
Policy Based Routing (PBR)		IPv4/IPv6
Based on the size of the packet		Yes
Based on the Protocol of the payload (Protocol ID field)		Yes
Based on Source MAC address		Yes
Based on Source or Destination IP address		Yes
Based on VLAN tag		Yes
Based on Priority(802.1P priority)		Yes

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Network Monitoring and Discovery Services

ISDP (Industry Standard Discovery Protocol)	Yes	Can interoperate with devices running CDP
802.1ab LLDP		Yes
802.1ab LLDP - MED		Yes
SNMP		V1, V2, V3
RMON 1,2,3,9		Yes
sFlow		Yes (IPv4 and IPv6 headers)

Security

Network Storm Protection, DoS

Broadcast, Unicast, Multicast DoS Protection	Yes	
Denial of Service Protection (control plane)	Yes	Switch CPU protection
Denial of Service Protection (data plane)	Yes	Switch Traffic protection
DoS Attacks Protection	SIPDIP SMACDMAC FIRSTFRAG TCPFRAG TCPFLAG TCPPOINT	UDPPORT TCPFLAGSEQ TCPOFFSET TCPSYN TCPSYNFIN TCPFINURGPSH L4PORT ICMP ICMPV4 ICMPV6 ICMPFRAG PINGFLOOD SYNACK
CPU Rate Limiting	Yes	Applied to IPv4 and IPv6 multicast packets with unknown L3 addresses when IP routing/multicast enabled
ICMP throttling	Yes	Restrict ICMP, PING traffic for ICMP-based DoS attacks

Management

Management ACL (MACAL)	Yes	Protects management CPU access through the LAN
Max Rules	64	
Out of band Management	Yes	In-band management can be shut down entirely when out-of-band management network
Radius accounting	Yes	RFC 2565 and RFC 2866
TACACS+		Yes
Malicious Code Detection	Yes	Software image files and Configuration files with digital signatures

Network Traffic

Access Control Lists (ACLs)	L2 / L3 / L4	MAC, IPv4, IPv6, TCP, UDP
Time-based ACLs		Yes
Protocol-based ACLs		Yes
ACL over VLANs		Yes
Dynamic ACLs		Yes
IEEE 802.1x Radius Port Access Authentication	Yes	Up to 48 clients (802.1x) per port are supported, including the authentication of the users domain
802.1x MAC Address Authentication Bypass (MAB)	Yes	Supplemental authentication mechanism for non-802.1x devices, based on their MAC address only
Network Authentication Successive Tiering	Yes	Dot1x-> MAP -> Captive Portal successive authentication methods based on configured time-outs
Port Security		Yes
IP Source Guard	Yes	IPv4 / IPv6
DHCP Snooping	Yes	IPv4 / IPv6
Dynamic ARP Inspection	Yes	IPv4 / IPv6
IPv6 RA Guard Stateless Mode		Yes

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Intelligent Edge Managed Switches

MAC Filtering	Yes	
Port MAC Locking	Yes	
Private Edge VLAN	Yes	A protected port doesn't forward any traffic (unicast, multicast, or broadcast) to any other protected port - same switch
Private VLANs	Yes	Scales Private Edge VLANs by providing Layer 2 isolation between ports across switches in same Layer 2 network
Quality of Service (QoS) - Summary		
Access Lists	Yes	
L2 MAC, L3 IP and L4 Port ACLs	Yes	
Ingress	Yes	
Egress	Yes	
802.3ad (LAG) for ACL assignment	Yes	
Binding ACLs to VLANs	Yes	
ACL Logging	Yes	
Support for IPv6 fields	Yes	
DiffServ QoS	Yes	
Edge Node applicability	Yes	
Interior Node applicability	Yes	
802.3ad (LAG) for service interface	Yes	
Support for IPv6 fields	Yes	
Ingress/Egress	Yes	
IEEE 802.1p COS	Yes	
802.3ad (LAG) for COS configuration	Yes	
WRED (Weighted Deficit Round Robin)	Yes	
Strict Priority queue technology	Yes	
Single Rate Policing	Yes (CLI only)	
Committed Information Rate	Yes	
Committed Burst Size	Yes	
Excessive Burst Size	Yes	
DiffServ feature applied to class maps	Yes	
Auto-VoIP	Yes, based on protocols (SIP, H323 and SCCP) or on OUI bytes (default database and user-based OUIs) in the phone source MAC address	
iSCSI Flow Acceleration	Yes	
Dot1p Marking	Yes	
IP DSCP Marking	Yes	
QoS - ACL Feature Support		
ACL Support (general, includes IP ACLs)	Yes	
MAC ACL Support	Yes	
IP Rule Match Fields:		
Destination IP	Inbound/Outbound	
Destination IPv6 IP	Inbound/Outbound	
Destination L4 Port	Inbound/Outbound	
Every Packet	Inbound/Outbound	
IP DSCP	Inbound/Outbound	
IP Precedence	Inbound/Outbound	
IP TOS	Inbound/Outbound	

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Intelligent Edge Managed Switches

Protocol	Inbound/Outbound
Source IP (for Mask support see below)	Inbound/Outbound
Source IPv6 IP	Inbound/Outbound
L3 IPv6 Flow Label	Inbound
Source L4 Port	Inbound/Outbound
TCP Flag	Inbound/Outbound
Supports Masking	Inbound/Outbound
MAC Rule Match Fields	
COS	Inbound/Outbound
Destination MAC	Inbound/Outbound
Destination MAC Mask	Inbound/Outbound
Ethertype	Inbound/Outbound
Source MAC	Inbound/Outbound
Source MAC Mask	Inbound/Outbound
VLAN ID	Inbound/Outbound
Rules attributes	
Assign Queue	Inbound
Logging -- deny rules	Inbound/Outbound
Mirror (to supported interface types only)	Inbound
Redirect (to supported interface types only)	Inbound
Rate Limiting -- permit rules	Inbound/Outbound
Interface	
Inbound direction	Yes
Outbound direction	Yes
Supports LAG interfaces	Yes
Supports Control-plane interface	Yes
Multiple ACLs per interface, dir	Yes
Mixed-type ACLs per interface, dir	Yes
Mixed L2/IPv4 ACLs per interface, inbound	Yes
Mixed IPv4/IPv6 ACLs per interface, inbound	Yes
Mixed IPv4/IPv6 ACLs per interface, outbound	Yes
QoS - DiffServ Feature Support	
DiffServ Supported	Yes
Class Type	
All	Yes
Class Match Criteria	
COS	Inbound/Outbound
COS2 (Secondary COS)	Inbound
Destination IP (for Mask support see below)	Inbound/Outbound
Destination IPv6 IP	Inbound/Outbound
Destination L4 Port	Inbound/Outbound
Destination MAC (for Mask support see below)	Inbound/Outbound
Ethertype	Inbound/Outbound
Every Packet	Inbound/Outbound
IP DSCP	Inbound/Outbound
IP Precedence	Inbound/Outbound
IP TOS (for Mask support see below)	Inbound/Outbound
Protocol	Inbound/Outbound
Reference Class	Inbound/Outbound
Source IP (for Mask support see below)	Inbound/Outbound
Source IPv6 IP	Inbound/Outbound
L3 IPv6 Flow Label	Inbound
Source L4 Port	Inbound/Outbound
Source MAC (for Mask support see below)	Inbound/Outbound
VLAN ID (Source VID)	Inbound/Outbound
VLAN ID2 (Secondary VLAN) (Source VID)	Inbound/Outbound
Supports Masking	Inbound/Outbound

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Intelligent Edge Managed Switches

Policy	
Out Class Unrestricted	Yes
Policy Attributes -- Inbound	
Assign Queue	Yes
Drop	Yes
Mark COS	Yes
Mark COS-AS-COS2	Yes
Mark COS2 (Secondary COS)	Yes
Mark IP DSCP	Yes
Mark IP Precedence	Yes
Mirror (to supported interface types only)	Yes
Police Simple	Yes
Police Single-Rate	Yes
Police Two-Rate	Yes
Police Color Aware Mode	Yes
Redirect (to supported interface types only)	Yes
Policy Attributes -- Outbound	Yes
Drop	Yes
Mark COS	Yes
Mark IP DSCP	Yes
Mark IP Precedence	Yes
Mirror (to supported interface types only)	Yes
Police Simple	Yes
Police Single-Rate	Yes
Police Two-Rate	Yes
Police Color Aware Mode	Yes
Redirect (to supported interface types only)	Yes
Service Interface	
Inbound Slot.Port configurable	Yes
Inbound 'All' Ports configurable	Yes
Outbound Slot.Port configurable	Yes
Outbound 'All' Ports configurable	Yes
Supports LAG interfaces	Yes
Mixed L2/IPv4 match criteria, inbound	Yes
Mixed IPv4/IPv6 match criteria, inbound	Yes
Mixed IPv4/IPv6 match criteria, outbound	Yes
PHB Support	
EF	Yes
AF4x	Yes
AF3x	Yes
AF2x	Yes
AF1x	Yes
CS	Yes
Statistics -- Policy Instance	
Offered	packets
Discarded	packets
QoS - COS Feature Support	
COS Support	Yes
Supports LAG interfaces	Yes
COS Mapping Config	
Configurable per-interface	Yes
IP DSCP Mapping	Yes

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Intelligent Edge Managed Switches

COS Queue Config	
Queue Pkts configurable per-interface	Yes
Drop Pkts configurable per-interface	Yes
Interface Traffic Shaping (for whole egress interface)	Yes
Minimum Bandwidth	Yes
Weighted Deficit Round Robin (WDRR) Support	Yes
Maximum Queue Weight	127
WRED Support	Yes

PTP - PTPv2 Feature Support

PTPv2	All M4300 models, except 48-port 10G models (M4300-24X24F, M4300-48X, M4300-48XF)
IEEE 1588 PTPv2 Section 10 and 11.5	Yes
Implementation	Transparent Clock (TC) End-to-End implementation considering the residence time of PTPv2 packets from ingress to egress
Limitations	Standalone mode, or Stack Master only. On M4300-52G and M4300-52G-PoE+ models, PTPv2 is supported between port 1 and port 24, and between port 25 and port 48. PTPv1 packets are forwarded but not processed (no PTPv1 support).
Method	Residence time of the PTPv2 packet at the egress port level
PTPv2 packet fields that are updated	The "Sync & Delay_Req" field of passing/egressing out PTPv2 packets is updated with the residence time in the switch
PTPv2 packet fields that are NOT updated	Other fields in PTPv2 packets ("Announce", "Delay_Resp", "Pdelay_Req" and "Pdelay_Resp") are not updated

Functional Summary - IETF RFC Standards and IEEE Network Protocols

Core Management

RFC 854 – Telnet	RFC 3414 – User-Based Security Model
RFC 855 – Telnet option specifications	RFC 3415 – View-based Access Control Model
RFC 1155 – SMI v1	RFC 3416 – Version 2 of SNMP Protocol Operations
RFC 1157 – SNMP	RFC 3417 – Transport Mappings
RFC 1212 – Concise MIB definitions	RFC 3418 – Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
RFC 1867 – HTML/2.0 forms with file upload extensions	Configurable Management VLAN
RFC 1901 – Community-based SNMP v2	SSL 3.0 and TLS 1.2
RFC 1908 – Coexistence between SNMP v1 and SNMP v2	- RFC 2246 – The TLS protocol, version 1.0
RFC 2068 – HTTP/1.1 protocol as updated by draft-ietf-http-v11-spec-rev-03	- RFC 2346 – AES cipher suites for Transport layer security
RFC 2271 – SNMP framework MIB	- RFC 2818 – HTTP over TLS SSH 2.0
RFC 2295 – Transparent content negotiation	- RFC 4253 – SSH transport layer protocol
RFC 2296 – Remote variant selection; RSVA/1.0 state management cookies – draft-ietf-http-state-mgmt-05	- RFC 4252 – SSH authentication protocol
RFC 2576 – Coexistence between SNMP v1, v2, and v3	- RFC 4254 – SSH connection protocol
RFC 2578 – SMI v2	- RFC 4251 – SSH protocol architecture
RFC 2579 – Textual conventions for SMI v2	- RFC 4716 – SECSH public key file format
RFC 2580 – Conformance statements for SMI v2	- RFC 4419 – Diffie-Hellman group exchange for the SSH transport layer protocol
RFC 3410 – Introduction and Applicability Statements for Internet Standard Management Framework	
RFC 3411 – An Architecture for Describing SNMP Management Frameworks	HTML 4.0 specification, December 1997
RFC 3412 – Message Processing & Dispatching	
RFC 3413 – SNMP Applications	JavaScript™ 1.3

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Intelligent Edge Managed Switches

Advanced Management

Industry-standard CLI with the following features:

- Scripting capability
- Command completion
- Context-sensitive help
- Optional user password encryption
- Multisession Telnet server
- Auto Image Upgrade

Core Switching

IEEE 802.1AB – Link level discovery protocol	IEEE 802.3ba – 40GbE (M4300-96X)
IEEE 802.1D – Spanning tree	IEEE 802.3ad – Link aggregation
IEEE 802.1p – Ethernet priority with user provisioning and mapping	IEEE 802.3ae – 10 GbE
IEEE 802.1Q – Virtual LANs w/ port-based VLANs	IEEE 802.3af – Power over Ethernet
IEEE 802.1S – Multiple spanning tree compatibility	IEEE 802.3at – Power over Ethernet Plus
IEEE 802.1v – Protocol-based VLANs	IEEE 802.3x – Flow control
IEEE 802.1W – Rapid spanning tree	ANSI/TIA-1057 – LLDP-MED
IEEE 802.1AB – LLDP	GARP – Generic Attribute Registration Protocol: clause 12, 802.1D-2004
IEEE 802.1X – Port-based authentication	GMRP – Dynamic L2 multicast registration: clause 10, 802.1D-2004
IEEE 802.3 – 10Base-T	GVRP – Dynamic VLAN registration: clause 11.2, 802.1Q-2003
IEEE 802.3u – 100Base-T	RFC 4541 – IGMP snooping and MLD snooping
IEEE 802.3bz-2016 – 2.5G and 5GBASE-T (M4300-96X)	RFC 5171 – UniDirectional Link Detection (UDLD) Protocol

Additional Layer 2 Functionality

Broadcast storm recovery	IGMP and MLD snooping querier
Double VLAN/VLAN tagging	Port MAC locking
DHCP Snooping	MAC-based VLANs
Dynamic ARP inspection	IP source guard
Independent VLAN Learning (IVL) support	IP subnet-based VLANs
IPv6 classification APIs	Voice VLANs
Jumbo Ethernet frames	Protected ports
Port mirroring	IGMP snooping
Static MAC filtering	Green Ethernet power savings mode

System Facilities

Event and error logging facility	RFC 2030 – Simple Network Time Protocol (SNTP) V4 for IPv4, IPv6, and OSI
Runtime and configuration download capability	RFC 2131 – DHCP Client/Server
PING utility	RFC 2132 – DHCP options and BOOTP vendor extensions
XMODEM	RFC 2865 – RADIUS client
RFC 768 – UDP	RFC 2866 – RADIUS accounting

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Intelligent Edge Managed Switches

RFC 783 – TFTP	RFC 2868 – RADIUS attributes for tunnel protocol support
RFC 791 – IP	RFC 2869 – RADIUS extensions
RFC 792 – ICMP	RFC 28869bis – RADIUS support for Extensible Authentication Protocol (EAP)
RFC 793 – TCP	RFC 5176 – RADIUS Change of Auth
RFC 826 – ARP	RFC 3164 – The BSD syslog protocol with RFC 5424 update
RFC 951 – BOOTP	RFC 3580 – 802.1X RADIUS usage guidelines
RFC 1321 – Message digest algorithm	Power Source Equipment (PSE) IEEE 802.af Powered Ethernet (DTE Power via MDI) standard
RFC 1534 – Interoperability between BOOTP and DHCP	

Core Routing

RFC 826 – Ethernet ARP	RFC 2328 – OSPFv2
RFC 894 – Transmission of IP datagrams over Ethernet networks	RFC 2385–Protection of BGP Sessions via the TCP MD5 Signature Option
RFC 896 – Congestion control in IP/TCP networks	RFC 2453 – RIP v2
RFC 1027 – Using ARP to implement transparent subnet gateways (Proxy ARP)	RFC 3021 – Using 31-Bit Prefixes on Point-to-Point Links
RFC 1256 – ICMP router discovery messages	RFC 3046 – DHCP/BOOTP relay
RFC 1321 – Message digest algorithm	RFC 3101 – The OSPF “Not So Stubby Area” (NSSA) option
RFC 1519 – CIDR	RFC 3768 – Virtual Router Redundancy Protocol (VRRP)
RFC 1765 – OSPF database overflow	RFC 3623–Graceful OSPF Restart
RFC 1812 – Requirements for IPv4 routers	Route redistribution across RIP, BGP, and OSPF
RFC 2082 – RIP-2 MD5 authentication	VLAN routing
RFC 2131 – DHCP relay	

Quality of Service - DiffServ

RFC 2474 – Definition of the differentiated services field (DS Field) in IPv4/IPv6 headers	RFC 2697 – A Single Rate Three Color Marker
RFC 2475 – An architecture for differentiated services	RFC 3246 – An expedited forwarding PHB (Per-Hop Behavior)
RFC 2597 – Assured forwarding PHB group	RFC 3260 – New terminology and clarifications for DiffServ

Quality of Service - Access Control Lists (ACLs)

Permit/deny actions for inbound or outbound IP traffic classification based on:

- Type of service (ToS) or differentiated services (DS) DSCP field
- Source IP address
- Destination IP address
- TCP/UDP source port
- TCP/UDP destination port
- IPv6 flow label
- IP protocol number

Permit/deny actions for inbound or outbound Layer 2 traffic classification based on:

- Source MAC address
 - Destination MAC address
 - EtherType
 - VLAN identifier value or range (outer and/or inner VLAN tag)
 - 802.1p user priority (outer and/or inner VLAN tag)
- Optional rule attributes:
- Assign matching traffic flow to a specific queue
 - Redirect or mirror (flow-based mirroring) matching traffic flow to a specific port
 - Generate trap log entries containing rule hit counts

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 Intelligent Edge Managed Switches

Quality of Service - Class of Service (CoS)

- | | |
|--|-----------|
| Direct user configuration of the following: | Auto VoIP |
| - IP DSCP to traffic class mapping | |
| - IP precedence to traffic class mapping | |
| - Interface trust mode: 802.1p, IP Precedence, IP DSCP, or untrusted | |
| - Interface traffic shaping rate | |
| - Minimum and maximum bandwidth per queue | |
| - Strict priority versus weighted (WRR/WDRR/WFQ) scheduling per queue | |
| - Tail drop versus Weighted Random Early Detection (WRED) queue depth management | |

Core Multicast

- | | |
|--|--|
| RFC 1112 – Host extensions for IP multicasting | RFC3973 – PIM-DM |
| RFC 2236 – IGMP v2 | RFC4601 – PIM-SM |
| RFC 2710 – MLDv1 | Draft-ietf-idmr-dvmrp-v3-10 – DVMRP |
| RFC 2365 – Administratively scoped boundaries | Draft-ietf-magma-igmp-proxy-06.txt – IGMP/MLD-based multicast forwarding (IGMP/MLD proxying) |
| RFC 3376 – IGMPv3 | Draft-ietf-magma-igmpv3-and-routing-05.txt – IGMPv3 and multicast routing protocol interaction |
| RFC3810 – MLDv2 | Static RP configuration |

Core IPv6 Routing

- | | |
|--|--|
| RFC 1981 – Path MTU for IPv6 | RFC 3513 – Addressing architecture for IPv6 |
| RFC 2373 – IPv6 addressing | RFC 3542 – Advanced sockets API for IPv6 |
| RFC 2460 – IPv6 protocol specification | RFC 3587 – IPv6 global unicast address format |
| RFC 2461 – Neighbor discovery | RFC 3736 – Stateless DHCPv6 |
| RFC 2462 – Stateless autoconfiguration | RFC 4213 – Basic transition mechanisms for IPv6 |
| RFC 2464 – IPv6 over Ethernet | RFC 4291 – Addressing architecture for IPv6 |
| RFC 2711 – IPv6 router alert | RFC 4443 – Internet Control Message Protocol (ICMPv6) for the IPv6 Specification |
| RFC 3056 – Connection of IPv6 Domains via IPv4 Clouds | RFC 5340 – OSPF for IPv6 |
| RFC 3315 – Dynamic Host Configuration Protocol for IPv6 (DHCPv6) | RFC 5187 – OSPFv3 Graceful Restart |
| RFC 3484 – Default address selection for IPv6 | RFC 6164 – Using 127-Bit IPv6 Prefixes on Inter-Router Links |
| RFC 3493 – Basic socket interface for IPv6 | RFC 6583 – Operational Neighbor Discovery Problems |

Supported MIBs

Base Package MIBs

MIBs can be downloaded here: <http://www.netgear.com/support/product/M4300-8X8F?cid=#download>

- | | |
|--|--|
| ANSI/TIA-1057 – LLDP-EXT-MED-MIB | RFC 2674 – Q-BRIDGE-MIB |
| DIFFSERV DSCP TC (Draft – no RFC) | RFC 2677 – IANA Address Family Numbers MIB |
| DNS-RESOLVER-MIB (IETF DNS Working Group) | RFC 2819 – RMON MIB |
| DNS-SERVER-MIB (IETF DNS Working Group) | RFC 2925 – DISMAN-PING-MIB and DISMAN-TRACEROUTE-MIB |
| GreenEthernet Private MIB | RFC 3273 – RMON MIB for High Capacity Networks |
| IANA-ADDRESS-FAMILY-NUMBERS-MIB (IANA (3/2002) | RFC 3411 – SNMP Management Frameworks MIB |
| IEEE 802.1AB-2004 – LLDP MIB | RFC 3411 – SNMP-FRAMEWORK-MIB |

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Intelligent Edge Managed Switches

IEEE 802.1AB-2005 – LLDP-EXT-DOT3-MIB	RFC 3412 – SNMP-MPD-MIB
POWER ETHERNET MIB (Draft – no RFC)	RFC 3413 – SNMP-NOTIFICATION-MIB
RFC 1155 – SMI-MIB	RFC 3413 – SNMP-PROXY-MIB (initial revision published as RFC 2273)
RFC 1450 – SNMPV2-MIB	RFC 3413 – SNMP-TARGET-MIB (initial revision published as RFC 2273)
RFC 2273 – SNMP Notification MIB, SNMP Target MIB	RFC 3414 – User-based Security Model for SNMPv3 MIB
RFC 2392 – IANA RTPROTO-MIB	RFC 3415 – View-based Access Control Model for SNMP MIB
RFC 2572 – SNMP Message Processing and Dispatching MIB	RFC 3417 – SNMPV2-TM
RFC 2574 – User-based Security Model for SNMPv3 MIB	RFC 3418 – SNMPv2 MIB
RFC 2575 – View-based Access Control Model for SNMP MIB	RFC 3434 – RMON MIB Extensions for High Capacity Alarms
RFC 2576 – SNMP Community MIB	RFC 3584 – SNMP Community MIB
RFC 2578 – SNMPV2-SMI	RFC 3621 – POWER-ETHERNET-MIB
RFC 2579 – SNMPV2-TC	SNMP-RESEARCH-MIB– SNMP research MIB definitions
RFC 2580– SNMPV2-CONF	SR-AGENT-INFO-MIB– SNMP research MIB definitions
RFC 2613 – SMON-MIB	USM-TARGET-TAG-MIB – SNMP research MIB definitions
Switching Package MIBs	
RFC 1213 – MIB-II	RFC 2011 – SNMPv2 Management Information Base
ANSI/TIA 1057 – LLDP-MED MIB	RFC 2213 – Integrated Services MIB
FASTPATH Enterprise MIBs supporting switching features	RFC 2233 – IF-MIB
FASTPATH-MMRP-MIB – MMRP private MIB for IEEE 802.1Q devices	RFC 2233 – The Interfaces Group MIB using SMI v2
FASTPATH-MSRP-MIB – MSRP private MIB for IEEE 802.1Q devices	RFC 2674 – VLAN and Ethernet Priority MIB (P-Bridge MIB)
FASTPATH-MVRP-MIB – MVRP private MIB for IEEE 802.1Q devices	RFC 2737 – Entity MIB (Version 2)
IANAifType-MIB – IANAifType Textual Convention	RFC 2819 – RMON Groups 1,2,3, & 9
IEEE 802.1AB – LLDP MIB	RFC 2863 – Interfaces Group MIB
IEEE 802.3AD MIB (IEEE8021-AD-MIB)	RFC 3291 – INET Address MIB
IEEE Draft P802.1AS/D7.0 (IEEE8021-AS-MIB)	RFC 3291 – Textual Conventions for Internet Network Addresses
IEEE LAG-MIB – Link Aggregation module for managing IEEE 802.3ad	RFC 3621 – Power Ethernet MIB
LLDP-EXT-DOT3-MIB (part of IEEE Std 802.1AB)	RFC 3635 – Etherlike MIB
LLDP-MIB (part of IEEE Std 802.1AB)	RFC 3636 – IEEE 802.3 Medium Attachment Units (MAUs) MIB
Private MIB for 802.1Qat, 802.1Qav Configuration	RFC 4022 – Management Information Base for the Transmission Control Protocol (TCP)
RFC 1493 – Bridge MIB	RFC 4113 – Management Information Base for the User Datagram Protocol (UDP)
RFC 1643 – Definitions of managed objects for the Ethernet-like interface types	RFC 4444 – IS-IS MIB
Routing Package MIBs	
FASTPATH Enterprise MIBs supporting routing features	RFC 2096 – IP Forwarding Table MIB
IANA-Address-Family-Numbers-MIB	RFC 2668 – IEEE 802.3 Medium Attachment Units (MAUs) MIB

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Intelligent Edge Managed Switches

RFC 1724 – RIP v2 MIB Extension

RFC 1850 – OSPF MIB

RFC 2787 – VRRP MIB

IPv6 Management MIBs

RFC 3419 – TRANSPORT-ADDRESS-MIB

IPv6-ICMP-MIB (draft)

IPv6-MIB (draft)

IPv6 Routing MIBs

RFC 2465 – IPv6 MIB

RFC 2466 – ICMPv6 MIB

QoS Package MIB

RFC 3289 – DIFFSERV-MIB & DIFFSERV-DCSP-TC MIBs

Private MIBs for full configuration of DiffServ, ACL, and CoS functionality

Security MIB

RFC 2618 – RADIUS Authentication Client MIB

RFC 2620 – RADIUS Accounting MIB

IEEE8021-PAE-MIB – The Port Access Entity module for managing IEEE 802.1X

IEEE 802.1X MIB (IEEE 8021-PAE-MIB 2004 Revision)

Multicast Package MIBs

RFC 2932 – IPv4 Multicast Routing MIB (for DVMRPv4 and PIMDMv4)

RFC 5060 – PIM-SM and PIM-DM MIB for IPv4 and IPv6

RFC 5240 – BSR Protocol MIB

draft-ietf-idmr-dvmrp-mib-11.txt – DVMRP MIB

draft-ietf-magma-mgmd-mib-05.txt – Multicast Group Membership Discovery MIB (both IGMP and MLD)

FASTPATH Enterprise MIBs supporting multicast features

Management

Password management

Yes

Configurable Management VLAN

Yes

Out-of-band Management

Yes

In-band management can be shut down using Management ACLs when separate management network

Auto Install
(BOOTP and DHCP options 66, 67, 150 and 55, 125)

Yes

Scalable deployment process (firmware, config)

Admin access control via Radius and TACACS+

Yes

Policies, Enable

Industry standard CLI (IS-CLI)

Yes

Command Line interface

CLI commands logged to a Syslog server

Yes

Web-based graphical user interface (GUI)

Yes

Fully functional GUI (exceptions are noted below:)

Features without Web GUI support

PFC (Priority Flow Control)

PV(R)STP

Authorization List

Control Plane ACL

UDLD

Policy Based Routing

LLPF

QoS Policy for Single Rate

DHCPv6 Snooping

IPv6 DHCP Relay

eMail Alerting

MMRP

CLI only

CLI only

CLI only

CLI only

CLI only

CLI only

CLI only

CLI only

CLI only

CLI only

CLI only

CLI only

PFC only supported on M4300-12X12F, 24X, 24X24F, 48X and 96X

Telnet

Yes

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Intelligent Edge Managed Switches

IPv6 management	Yes	
Dual Software (firmware) image	Yes	Allows non disruptive firmware upgrade process
Editable Configuration file	Yes	Text-based (CLI commands) configuration file
Non disruptive Config Management	Yes	With new startup configuration file, the switch gracefully resolves any differences with the running config
IS-CLI Scripting	Yes	
Port descriptions	Yes	
SNTP client over UDP port 123	Yes	Provides synchronized network timestamp either in broadcast or unicast mode
XMODEM	Yes	
SNMP v1/v2	Yes	
SNMP v3 with multiple IP addresses	Yes	
RMON 1,2,3,9		Yes
Max History entries		3 * (number of ports in the chassis + LAG + 10)
Max buckets per History entry		10
Max Alarm entries		3 * (number of ports in the chassis + LAG + 10)
Max Event entries		3 * (number of ports in the chassis + LAG + 10)
Max Log entries per Event entry		10
Port Mirroring		Yes
Number of monitor sessions		1 (multiple sessions are configurable)
Tx/Rx		Yes
Many to One Port Mirroring		Yes
LAG supported as source ports		Yes
Max source ports in a session		Total switch port count
Remote Port Mirroring (RSPAN)	Yes	When a particular session is enabled, any traffic entering or leaving the source ports of that session is copied (mirrored) onto a Remote Switched Port Analyzer (RSPAN) VLAN
Flow based mirroring	Yes	
Cable Test utility	Yes	CLI, Web GUI
Outbound Telnet	Yes	
SSHv2	Yes	Secure Shell version 2 (OpenSSH 7.5p1)
SSH Session Configuration	Yes	
SSL v3 and TLS v1.2 for HTTPS web-based access	Yes	(Open SSL 1.0.2o)
2048-bit RSA key pairs	Yes	For SSLv3 and SSHv2
SHA2-256 and SHA2-512 cryptographic hash functions	Yes	For SSLv3 and SSHv2
File transfers (uploads, downloads)		TFTP / HTTP
Secured protocols for file transfers		SCP / SFTP / HTTPS
HTTP Max Sessions		16
SSL/HTTPS Max Sessions		16
HTTP Download (firmware)	Yes	
Email Alerting	Yes (CLI only)	
Syslog (RFC 3164) (RFC 5424)	Yes, forwarding messages via UDP using the Syslog protocol to one or more collectors or relays	
Persistent log supported	Yes	

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

User Admin Management

User ID configuration	Yes
Max number of configured users	6
Support multiple READWRITE Users	Yes
Max number of IAS users (internal user database)	100

Authentication login lists	Yes
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Authentication Enable lists	Yes
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Authentication HTTP lists	Yes
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Authentication HTTPS lists	Yes
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Authentication Dot1x lists	Yes
----------------------------	-----

Accounting Exec lists	Yes
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Accounting Commands lists	Yes
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Login History	50
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M4300 series - Platform Constants

Maximum number of remote Telnet connections	5
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Maximum number of remote SSH connections	5
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Number of MAC Addresses	256K (M4300-96X)	128K (M4300-24X24F, M4300-48X, M4300-48XF)	16K (all other models)
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Number of VLANs	4,093 VLANs (802.1Q) simultaneously - standalone mode 4,093 VLANs - stack mode (except when mixed stacks of M4300-96X with other models - 1,024 VLANs only)		
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VLAN ID Range	1 - 4093
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Number of 802.1p Traffic Classes	8 classes (standalone)	7 classes (stack)
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IEEE 802.1x	48
Number of .1x clients per port	

Number of LAGs	128 LAGs with up to 8 ports per group
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Maximum multiple spanning tree instances (MSTP)	32
---	----

Maximum per VLAN spanning tree instances (PVST)	32
---	----

MAC based VLANs	Yes
Number supported	256

Number of network buffers	246
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Number of log messages buffered	200
---------------------------------	-----

Static filter entries	
Unicast MAC and source port	20
Multicast MAC and source port	20
Multicast MAC and destination port (only)	2,048

Subnet based VLANs	Yes
Number supported	128

Protocol Based VLANs	Yes
Max number of groups	128
Max protocols	16

Maximum Multicast MAC Addresses entries	2K
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Jumbo Frame Support	Yes
Max Size Supported	9k

Number of IP Source Guard stations	379
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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Number of DHCP snooping bindings	32K
Number of DHCPv6 snooping bindings	32K
Number of DHCP snooping static entries	1024
LLDP-MED number of remote nodes	2 x Total stack port count
LLDP Remote Management address buffers	2 x Total stack port count
LLDP Unknown TLV address buffers	100
LLDP Organisationally Defined Large TLV buffers	Total stack port count
LLDP Organisationally Defined Small TLV buffers	12 x Total stack port count
Port MAC Locking	Yes
Dynamic addresses per port	4096
Static addresses per port	48
sFlow	
Number of samplers	Total stack port count
Number of pollers	Total stack port count
Number of receivers	8
Radius	
Max Authentication servers	32
Max Accounting servers	32
Number of Routes (v4/v6)	
IPv4 only SDM build	12K (M4300-24X24F, -48X, -48XF, 96X) 512 (all other models) SDM (System Data Management, or switch database)
IPv4/IPv6 SDM build	
IPv4 routes	8K (M4300-24X24F, -48X, -48XF, 96X) 512 (all other models)
IPv6 routes	4K (M4300-24X24F, -48X, -48XF, 96X) 256 (all other models)
RIP application route scaling	512
OSPF application route scaling	12K (M4300-24X24F, -48X, -48XF, 96X) 512 (all other models)
Number of routing interfaces (including port/vlan)	128
Number of static routes (v4/v6)	64/64
OSPF	
OSPFv2 max neighbors	400
OSPFv3 max neighbors	400
OSPFv3 max neighbors per interface	100
Tunnels	
Number of configured v6-over-v4 tunnels	8
Number of automatic (6to4) tunnels	1
Number of 6to4 next hops	16
DHCP Server	
Max number of pools	256
Total max leases	2K
DNS Client	
Concurrent requests	16
Name server entries	8
Search list entries	6
Static host entries	64
Cache entries	128
Domain search list entries	32
DHCPv6 Server	
Max number of pools	16
DNS domain names within a pool	5
DNS server addresses within a pool	8
Delegated prefix definitions within a pool	10

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Number of Host Entries (ARP/NDP)	
IPv4 only SDM build	8192 (M4300-24X24F, -48X, 96X) 888 (all other models) SDM (System Data Management, or switch database) 6144 / 2560 (M4300-24X24F, -48X, 96X) 760 / 128 (all other models)
IPv4/IPv6 SDM build (v4/v6)	
Static v4 ARP Entries	128
Number of ECMP Next Hops per Route	16 (M4300-24X24F, -48X, -48XF, 96X) 4 (all other models)
Number of ECMP groups	256 (M4300-24X24F, -48X, -48XF, 96X) 128 (all other models)
Total ECMP nexthops in Hardware	4,096 (M4300-24X24F, -48X, -48XF, 96X) 2,048 (all other models)
Maximum MFDB entries	
Native SDM template	2K (M4300-24X24F, -48X, -48XF, 96X) 1K (all other models) SDM (System Data Management, or switch database)
Mixed Stacking mode template	1K (M4300-24X24F, -48X, -48XF, 96X) 1K (all other models)
IGMPv3 / MLDv2 Snooping Limits	
IGMPv3/MLDv2 HW entries when IP Multicast present	512/512 (M4300-24X24F, -48X, -48XF, 96X) 64/32 (all other models)
IP Multicast	
Number of IPv4/IPv6 Multicast Forwarding Entries	1,024/512 (M4300-24X24F, -48X, -48XF, 96X) 96/32 (all other models)
IGMP Group Memberships per system	2K (IPv4) and 2K (IPv6)
IPv4 Multicast routes (IPv4 only)	1.5K (M4300-24X24F, -48X, -48XF, 96X) 128 (all other models)
DVMRP Neighbors	256
PIM-DM Neighbors	256
PIM-SM Neighbors	256
PIM-SM Static RP Entries	5
PIM-SM Candidate RP Group Range Entries	20
PIM-SM SSM Range Entries	5
IGMP Sources processed per group per message	73
ACL Limits	
Maximum Number of ACLs (any type)	100
Maximum Number Configurable Rules per List	1,023 ingress / 511 ingress
Maximum ACL Rules per Interface and Direction	1,023 ingress / 511 ingress
Maximum ACL Rules per Interface and Direction (IPv6)	893 ingress / 509 egress
Maximum ACL Rules (system-wide)	16K
Maximum ACL Logging Rules (system-wide)	128
COS Device Characteristics	
Configurable Queues per Port	8 queues (standalone) 7 queues (stack)
Configurable Drop Precedence Levels	3
DiffServ Device Limits	
Number of Queues	8 queues (standalone) 7 queues (stack)
Requires TLV to contain all policy instances combined	Yes
Max Rules per Class	13
Max Instances per Policy	28
Max Attributes per Instance	3
Max Service Interfaces	116
Max Table Entries	
Class Table	32
Class Rule Table	416
Policy Table	64
Policy Instance Table	1,792
Policy Attribute Table	5,376
Max Nested Class Chain Rule Count	26
AutoVoIP number of voice calls	20
iSCSI Flow Acceleration	
Max Monitored TCP Ports/IP Addresses	16
Max Sessions	192
Max Connections	192

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

LEDs

Per port	Speed, Link, Activity
Per device (half-width models)	Power, Fan, Stack Master, Stack ID
Per device (full width models)	Power 1, Power 2, Fan, Stack Master, Stack ID

Physical Specifications

Dimensions

M4300-8X8F, -16X, -12X12F, -24X, -24XF	Width: 8.35 inches (21.2 cm) (half-width); Height: 1U - 1.73 inches (4.4 cm); Depth: 13.58 inches (34.5 cm)
M4300-24X24F, M4300-48X, M4300-48X	Width: 17.32 inches (44 cm); Height: 1U - 1.73 inches (4.4 cm); Depth: 13.58 inches (34.5 cm)
M4300-96X	Width: 17.32 inches (44 cm); Height: 2U - 3.47 inches (8.8 cm); Depth: 21.08 inches (53.5 cm)
M4300-28G, M4300-28G-PoE+, M4300-52G	Width: 17.32 inches (44 cm); Height: 1U - 1.73 inches (4.4 cm); Depth: 12.2 inches (31 cm)
M4300-52G-PoE+	Width: 17.32 inches (44 cm); Height: 1U - 1.73 inches (4.4 cm); Depth: 15.28 inches (38.8 cm)

Weight

M4300-8X8F	7.31 lb (3.32 kg)		
M4300-16X	7.11 lb (3.22 kg)		
M4300-12X12F	8.14 lb (3.69 kg)		
M4300-24X	9.12 lb (4.14 kg)		
M4300-24XF	7.85 lb (3.56 kg)		
M4300-24X24F	13.48 lb (6.12 kg)		
M4300-48X	14.44 lb (6.55 kg)		
M4300-48XF	12.92 lb (5.86 kg)		
M4300-96X (XSM4396K0 empty version)	25.90 lb (11.76 kg)	APM408C: 0.81 lb (0.37 kg)	APM408F: 0.67 lb (0.30 kg)
M4300-96X (XSM4396K1 starter kit)	35.86 lb (16.28 kg)	APM408P: 0.95 lb (0.43 kg)	APM402XL: 0.66 lb (0.30 kg)
M4300-28G	9.94 lb (4.51 kg)		
M4300-28G-PoE+ (GSM4328PA version 550W PSU)	11.21 lb (5.09 kg)		
M4300-28G-PoE+ (GSM4328PB version 1,000W PSU)	11.47 lb (5.20 kg)		
M4300-52G	10.81 lb (4.91 kg)		
M4300-52G-PoE+ (GSM4352PA version 550W PSU)	14.44 lb (6.55 kg)		
M4300-52G-PoE+ (GSM4352PB version 1,000W PSU)	14.7 lb (6.67 kg)		

Power Consumption

Worst case, all ports used, full PoE, line-rate traffic

M4300-8X8F	49W max
M4300-16X (APS199W, without PoE)	49W max
M4300-16X (APS199W PSU, with max PoE 199W)	308.7W max
M4300-16X (APS600W PSU, with max PoE 500W)	610W max
M4300-12X12F	97W max
M4300-24X	125W max
M4300-24XF	87.2W max
M4300-24X24F	161W max
M4300-48X	237.2W max
M4300-48XF	152.4W max
M4300-96X (without PoE)	566W max
M4300-96X (with max PoE: 1,440W)	2,006W max
M4300-28G	34.5W max
M4300-28G-PoE+ (GSM4328PA version 550W PSU)	577W (1 PSU); 575W (2 PSUs in RPS mode); 797W (2 PSUs in EPS share mode) max
M4300-28G-PoE+ (GSM4328PB version 1,000W PSU)	833.2W (1 PSU); 832.5W (2 PSUs in RPS mode); 833.2W (2 PSUs in EPS share mode) max
M4300-52G	47.4W max
M4300-52G-PoE+ (GSM4352PA version 550W PSU)	609W (1 PSU); 611W (2 PSUs in RPS mode); 865W (2 PSUs in EPS share mode); 915W (2 PSUs in EPS share mode with external RPS) max
M4300-52G-PoE+ (GSM4352PB version 1,000W PSU)	888W (1 PSU); 902W (2 PSUs in RPS mode); 1,585W (2 PSUs in EPS share mode); 1,655W (2 PSUs in EPS share mode with external RPS) max

Environmental Specifications

Operating:

Temperature	32° to 122°F (0° to 50°C)
Humidity	90% maximum relative humidity, non-condensing
Altitude	10,000 ft (3,000 m) maximum

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Data Sheet | **M4300 series**
 Intelligent Edge Managed Switches

Storage:	
Temperature	- 4° to 158°F (-20° to 70°C)
Humidity	95% maximum relative humidity, non-condensing
Altitude	10,000 ft (3,000 m) maximum
Electromagnetic Emissions and Immunity	
Certifications	CE: EN 55032:2012+AC:2013/CISPR 32:2012, EN 61000-3-2:2014, Class A, EN 61000-3-3:2013, EN 55024:2010 VCCI : VCCI-CISPR 32:2016, Class A RCM: AS/NZS CISPR 32:2013 Class A CCC: GB4943.1-2011; YD/T993-1998; GB/T9254-2008 (Class A) FCC: 47 CFR FCC Part 15, Class A, ANSI C63.4:2014 ISED: ICES-003:2016 Issue 6, Class A, ANSI C63.4:2014 BSMI: CNS 13438 Class A
Safety	
Certifications	CB report / certificate IEC 60950-1:2005 (ed.2)+A1:2009+A2:2013 UL listed (UL 1950)/cUL IEC 950/EN 60950 CE LVD: EN 60950-1: 2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 RCM (AS/NZS) 60950.1:2015 CCC (China Compulsory Certificate): GB4943.1-2011; YD/T993-1998; GB/T9254-2008 (Class A) BSMI: CNS 14336-1
Package Content	
All models	Power cord(s) RJ45 straight-through wiring serial console cable to DB9 Mini-USB console cable Rubber caps for the SFP+ sockets Rubber footpads for tabletop installation Installation guide Resource CD with a link to the following manuals and software: - Software setup manual - CLI manual - Software administration guide - Hardware installation guide - The driver for use with The Mini-USB console cable
M4300-8X8F, M4300-12X12F, M4300-24X, M4300-24XF	Half-width switch with one APS250W power supply unit 1-unit rack-mounting kit: one long bracket, one regular (short) bracket, and screws (for front posts) 2-unit rack-mounting kit: one pair of inside and outside middle mounts (for combining two half-width M4300 switches)
M4300-16X (XSM4316PA version 199W PSU)	Half-width switch with one APS199W power supply unit Two regular (short) brackets and screws for two-post rack mount (for front posts)
M4300-16X (XSM4316PB version 600W PSU)	Half-width switch with one APS600W power supply unit Two regular (short) brackets and screws for two-post rack mount (for front posts)
M4300-24X24F, M4300-48X, M4300-48XF	Full width switch with one APS250W power supply unit Two regular (short) brackets and screws for two-post rack mount (for front posts)
M4300-96X (XSM4396K0 empty version)	2RU empty switch without power supply unit (to be purchased separately) Two regular (short) brackets and screws for two-post rack mount (for front posts) Rails and screws for four-post rack mount (for rear posts)
M4300-96X (XSM4396K1 starter kit)	2RU switch with one APS600W power supply unit and six APM408F units (8x1G/10GBASE-X SFP+ Port Cards) in their packaging each Two regular (short) brackets and screws for two-post rack mount (for front posts) Rails and screws for four-post rack mount (for rear posts)
M4300-28G, M4300-52G	Full width switch with one APS150W power supply unit Two regular (short) brackets and screws for two-post rack mount (for front posts)
M4300-28G-PoE+ (GSM4328PA version 550W PSU) M4300-52G-PoE+ (GSM4352PA version 550W PSU)	Full width switch with one APS550W power supply unit Two regular (short) brackets and screws for two-post rack mount (for front posts)
M4300-28G-PoE+ (GSM4328PB version 1,000W PSU) M4300-52G-PoE+ (GSM4352PB version 1,000W PSU)	Full width switch with one APS1000W power supply unit Two regular (short) brackets and screws for two-post rack mount (for front posts)

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Optional Modules and Accessories

APS150W	150W AC PSU for M4300-28G and M4300-52G	APS150W-100NES/AJS
APS199W	199W AC PSU for M4300-16X (non- or limited PoE applications)	APS199W-100NES/AJS
APS250W	250W AC PSU for M4300-8X8F, M4300-12X12F, M4300-24X, M4300-24X24F and M4300-48X	APS250W-100NES/AJS
APS550W	550W AC PSU for M4300-28G-PoE+ (GSM4328PA) and M4300-52G-PoE+ (GSM4352PA)	APS550W-100NES/AJS
APS600W	600W AC PSU for M4300-96X (preferred for non-PoE applications) and M4300-16X (PoE applications)	APS600W-100NES/AJS
APS1000W	1,000W AC PSU for M4300-28G-PoE+ (GSM4328PB), M4300-52G-PoE+ (GSM4352PB) and RPS4000	APS1000W-100NES/AJS
APS1200W	1,200W AC PSU for M4300-96X (preferred for non-PoE applications)	APS1200W-100NES/AJS
RPS4000	External / Redundant Power Supply (up to four switches) for M4300-52G-PoE+	RPS4000-200NES/AJS
AGM731F	1000BASE-SX SFP GBIC (Multimode)	AGM731F
AGM732F	1000BASE-LX SFP GBIC (Single mode)	AGM732F
AGM734	1000BASE-T RJ45 SFP GBIC	AGM734-10000S
AXC761	10GSFP+ Cu (passive) SFP+ to SFP+ Direct Attach Cable 1m	AXC761-10000S
AXC763	10GSFP+ Cu (passive) SFP+ to SFP+ Direct Attach Cable 3m	AXC763-10000S
AXC765	10GSFP+ Cu (active) SFP+ to SFP+ Direct Attach Cable 5m	AXC765-10000S
AXC767	10GSFP+ Cu (active) SFP+ to SFP+ Direct Attach Cable 7m	AXC767-10000S
AXC7610	10GSFP+ Cu (active) SFP+ to SFP+ Direct Attach Cable 10m	AXC7610-10000S
AXC7615	10GSFP+ (Duplex Fiber Optic) SFP+ to SFP+ Direct Attach Cable 15m	AXC7615-10000S
AXC7620	10GSFP+ (Duplex Fiber Optic) SFP+ to SFP+ Direct Attach Cable 20m	AXC7620-10000S
AXLC761	40GBASE-CR4 (passive) QSFP+ to QSFP+ Direct Attach Cable 1m	AXLC761-10000S
AXLC763	40GBASE-CR4 (passive) QSFP+ to QSFP+ Direct Attach Cable 3m	AXLC763-10000S
AXM761	10GBASE-SR SFP+ GBIC (OM3/OM4 Multimode)	AXM761-10000S
AXM761 (Pack of 10 units)	10GBASE-SR SFP+ GBIC (OM3/OM4 Multimode)	AXM761P10-10000S
AXM762	10GBASE-LR SFP+ GBIC (Single mode)	AXM762-10000S
AXM762 (Pack of 10 units)	10GBASE-LR SFP+ GBIC (Single mode)	AXM762P10-10000S
AXM763	10GBASE-LRM SFP+ GBIC (Long Reach Multimode for OM1/OM2, also compatible with OM3/OM4)	AXM763-10000S
AXM764	10GBASE-LR LITE SFP+ GBIC (Single mode)	AXM764-10000S
AXM765	10GBASE-T RJ45 SFP+ GBIC up to 30 meters on CAT6a or better	AXM765-10000S
AXLM761	40GBASE-MR4 Duplex LC (one duplex OM3/OM4 Multimode link) 150m QSFP+ Transceiver	AXLM761-10000S
AXLM762	40GBASE-LR4 Duplex LC (one duplex Single Mode link) 10km QSFP+ Transceiver	AXLM762-10000S

Warranty and Support

Limited Lifetime ProSAFE Hardware Warranty**	Included, limited lifetime
90 days of Technical Support via phone and email*	Included, 90 days after purchase
Lifetime Technical Support through online chat*	Included, lifetime
Lifetime Next Business Day hardware replacement*	Included, lifetime

ProSupport Service Packs

Installation contracts for:	All models
PSB0304-10000S	Remote Installation Setup and Configuration Service Contract
Supplemental support contracts for:	M4300-8X8F and -16X M4300-28G M4300-28G-PoE+ M4300-52G M4300-52G-PoE+
PMB0313-10000S	OnCall 24x7 1-year CAT 3
PMB0333-10000S	OnCall 24x7 3-year CAT 3
PMB0353-10000S	OnCall 24x7 5-year CAT 3
Supplemental support contracts for:	M4300-12X12F M4300-24X and -24XF M4300-24X24F M4300-48X and -48XF M4300-96X
PMB0314-10000S	OnCall 24x7 1-year CAT 4
PMB0334-10000S	OnCall 24x7 3-year CAT 4
PMB0354-10000S	OnCall 24x7 5-year CAT 4

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Data Sheet | **M4300 series**
Intelligent Edge Managed Switches

Ordering Information

Ordering Information

M4300-8X8F	
Americas, Europe	XSM4316S-100NES
Asia Pacific	XSM4316S-100AJS
China	XSM4316S-100PRS
M4300-16X with 199W PSU	
Americas, Europe	XSM4316PA-100NES
Asia Pacific	XSM4316PA-100AJS
China	XSM4316PA-100PRS
M4300-16X with 600W PSU	
Americas, Europe	XSM4316PB-100NES
Asia Pacific	XSM4316PB-100AJS
China	XSM4316PB-100PRS
M4300-12X12F	
Americas, Europe	XSM4324S-100NES
Asia Pacific	XSM4324S-100AJS
China	XSM4324S-100PRS
M4300-24X	
Americas, Europe	XSM4324CS-100NES
Asia Pacific	XSM4324CS-100AJS
China	XSM4324CS-100PRS
M4300-24XF	
Americas, Europe	XSM4324FS-100NES
Asia Pacific	XSM4324FS-100AJS
China	XSM4324FS-100PRS
M4300-24X24F	
Americas, Europe	XSM4348S-100NES
Asia Pacific	XSM4348S-100AJS
China	XSM4348S-100PRS
M4300-48X	
Americas, Europe	XSM4348CS-100NES
Asia Pacific	XSM4348CS-100AJS
China	XSM4348CS-100PRS
M4300-48XF	
Americas, Europe	XSM4348FS-100NES
Asia Pacific	XSM4348FS-100AJS
China	XSM4348FS-100PRS
M4300-96X	
Worldwide (Empty Switch, No PSU)	XSM4396K0-10000S
Americas, Europe (Starter Kit 48xSFP+)	XSM4396K1-100NES
Asia Pacific (Starter Kit 48xSFP+)	XSM4396K1-100AJS
Worldwide (10G Copper card)	APM408C-10000S
Worldwide (10G Copper PoE+ card)	APM408P-10000S
Worldwide (10G Fiber card)	APM408F-10000S
Worldwide (40G Fiber card)	APM402XL-10000S
Americas, Europe (600W PSU)	APS600W-100NES
Asia Pacific (600W PSU)	APS600W-100AJS
Americas, Europe (1,200W PSU)	APS1200W-100NES
Asia Pacific (1,200W PSU)	APS1200W-100AJS
M4300-28G	
Americas, Europe	GSM4328S-100NES
Asia Pacific	GSM4328S-100AJS
China	GSM4328S-100PRS



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Intelligent Edge Managed Switches

M4300-28G-PoE+ with 550W PSU	
Americas, Europe	GSM4328PA-100NES
Asia Pacific	GSM4328PA-100AJS
China	GSM4328PA-100PRS

M4300-28G-PoE+ with 1,000W PSU	
Americas, Europe	GSM4328PB-100NES
Asia Pacific	GSM4328PB-100AJS
China	GSM4328PB-100PRS

M4300-52G	
Americas, Europe	GSM4352S-100NES
Asia Pacific	GSM4352S-100AJS
China	GSM4352S-100PRS

M4300-52G-PoE+ with 550W PSU	
Americas, Europe	GSM4352PA-100NES
Asia Pacific	GSM4352PA-100AJS
China	GSM4352PA-100PRS

M4300-52G-PoE+ with 1,000W PSU	
Americas, Europe	GSM4352PB-100NES
Asia Pacific	GSM4352PB-100AJS
China	GSM4352PB-100PRS

** This product comes with a limited warranty that is valid only if purchased from a NETGEAR authorized reseller, and covers unmodified hardware, fans and internal power supplies - not software or external power supplies, and requires product registration at <https://www.netgear.com/business/registration> within 90 days of purchase; see <https://www.netgear.com/about/warranty> for details. Intended for indoor use only.

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NETGEAR, Inc. 350 E. Plumeria Drive, San Jose, CA 95134-1911 USA, 1-888-NETGEAR (638-4327), E-mail: info@NETGEAR.com, www.NETGEAR.com

DS-M4300-6Jan20



AcousticCoverage™ Series AC-C6T

KEY FEATURES

- High quality transducers provide exceptional clarity through the critical voice range.
- Improved musicality often not seen in typical BGM class products.
- Ported baffle for increased low frequency extension down to 65 Hz.
- Low saturation 70/100 V transformers with 8Ω bypass.
- 4-pole Euroblock connector eases system wiring.
- Advanced voicing via QSC Intrinsic Correction™, applied using the Q-SYS™ Platform or CXD Series amplifier platforms.
- White (RAL 9010) with UV inhibitors to match complimenting QSC product families.
- Complete EASE, CF2, CAD, & BIM information available online.



AcousticCoverage™ Series AC-C6T

Two-way, ceiling mount loudspeaker

The QSC AcousticCoverage™ Series AC-C6T is a ceiling-mounted 6.5-inch two-way loudspeaker with 70/100V transformer, suitable for a wide variety of audio/video conferencing reinforcement, voice paging and background music applications.

AcousticCoverage™ Series is designed to offer integrators a cost-effective solution for applications where voice reinforced coverage is of primary concern, while providing improved musicality often not seen in typical BGM class products.

The high quality 6.5-inch polypropylene cone transducer with butyl rubber surround and the sensitivity matched coaxially mounted .86-inch silk dome tweeter offers pristine clarity through the critical vocal range for increased speech intelligibility. With 110 degrees of conical coverage, the AC-C6T reduces the number of loudspeakers required for even coverage in low ceiling applications.

The easy-to-install blind mount assembly features a ported baffle which optimally tunes the galvanized steel backcan for added musicality, creating low frequency extension down to 65 Hz. To maintain this frequency response, the AC-C6T utilizes a 30-watt low-saturation and low-loss 70/100V transformer with varying selectable taps, including an 8Ω bypass. The rotary tap selector switch is accessible under the painted steel grille.

To further enhance performance and speed of install with optimum result, advanced voicing via QSC Intrinsic Correction™ techniques are obtainable using the Q-SYS™ Platform, or CXD Series amplifiers for a complete QSC systems solution.

Installers will appreciate the 4-pole Euroblock connector for loop-thru wiring, located under a quick access swivel plate. Eliminating the termination hassles of star topology wiring designs, the generous Euroblock of the AC-C6T can accept four 18AWG pairs.

A safety tether tab is affixed to the adjustable conduit clasp plate for seismic-sensitive installations. C-ring and tile rails are included with each pair packed assembly, complete with joining screws and cut-out template.

The AC-C6T baffle and grille are QSC standard white (RAL 9010) to match complimenting QSC product families and includes UV inhibitors to prevent discoloration over time. The AC-C6T may also be painted to match any décor.

For your system integration needs, complete EASE, CF2, CAD, and BIM files are available for download at QSC.com.

AC-C6T

System details	AC-C6T
Effective frequency range¹	65 Hz – 20 kHz
Rated noise power / voltage²	30 watts / 15.5 volts (rms)
Broad-band sensitivity³	89 dB SPL
Coverage angle (-6 dB)	110° (500 Hz - 5 kHz)
Maximum continuous SPL⁴	104 dB
Maximum peak SPL⁴	110 dB
Rated Bypass Impedance	8 Ω
Transformer taps	70 V: 30, 15, 7.5, 3.7, 1.9 watts 100 V: 30, 15, 7.5, 3.8 watts 8 ohm bypass
HF Transducer	22 mm [.86 in] silk dome tweeter, coaxially mounted
LF Transducer	6.5 in Polypropylene cone with butyl rubber surround
Input connector type	Euroblock connector with parallel output terminals
Baffle material	Painted ABS polymer
Grille material	Painted steel
Back can material	Galvanized steel
Testing	Listed UL1480, UL2043 safe for use in air handling space
Net weight	3.5 kg [7.6 lb]
Product dimensions	Ø 260 x 213 mm [Ø 10.24 x 8.4 in]
Cut-Out dimensions	Ø 229 mm [Ø 9 in]
Ceiling capture thickness	6.35 - 38.1 mm [0.25 - 1.5 in]
Shipping weight	9.5 kg [21 lb] (pair packed)
Shipping dimensions	622 x 318 x 324 mm [24.5 x 12.5 x 12.8 in]
Included accessories	Rails & C-ring for ceiling tile installation
Optional accessories	AC-MR6 (pre-install mud ring)

1. Half-space, -10 dB from on-axis sensitivity

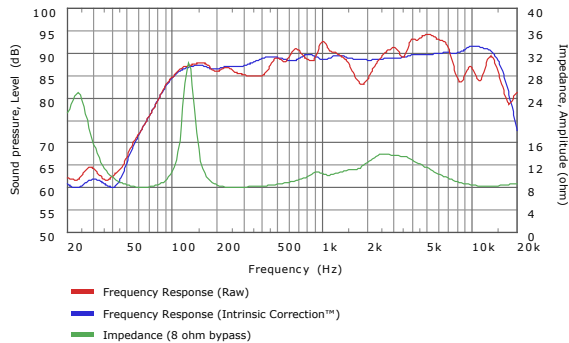
2. IEC60268-1 noise signal for 2 Hrs

3. On-Axis, free-field sensitivity, 2.83 V, 1m

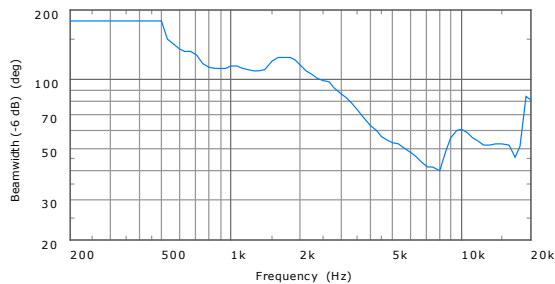
4. Calculated from rated noise voltage and sensitivity

AC-C6T

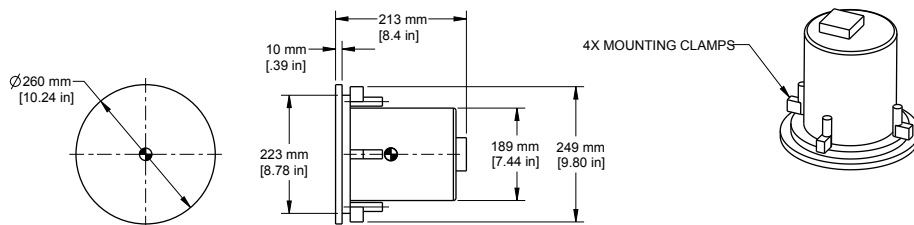
Impedance/Frequency Response:



Beamwidth:



Dimensions



As part of Q-SYS's ongoing commitment to product development, specifications are subject to change without notice.



PRELIMINARY - SUBJECT TO CHANGE WITHOUT NOTICE

Q-SYS Core 24f

Network + analog I/O processor

KEY FEATURES

- Up to 160 × 160 network I/O channels
- 24x channels of analog I/O, including 8x software-definable flex channels
- 8 × 8 GPIO to integrate third-party device control connectivity
- Includes 8 × 8 Software-based Dante channels (licensable up to 64 × 64)
- 24x AEC channels @ 200 ms
- Integrated AV bridging via USB-C
- Two (2) 2.5 Gbps Ethernet ports for redundant networked audio (QLAN, AES67, VoIP, WAN, Media Streaming, etc.)
- Two (2) 2.5 Gbps independent, auxiliary Ethernet ports
- Supports up to ten (10) Q-SYS NM-T1 tabletop microphones
- 8x VoIP instances
- Includes OLED front display
- 1RU form factor



The Q-SYS Core 24f ushers in the next-generation of Q-SYS processing capabilities, delivering a fully integrated audio, video, and control solution that enables a blank canvas to deliver unique experiences across a broad range of application types. Combining the convenience of ample onboard I/O with robust processing and network I/O capacity, the Core 24f can serve a broad range of corporate, higher education, entertainment and hospitality applications requiring in-room processing.

THE RIGHT CAPABILITIES FOR DEMANDING APPLICATIONS

As the evolutionary successor to the Q-SYS Core 110f, the Core 24f expands on the foundation set by the industry's first truly integrated audio, video, and control processor, offering a significant increase in processing power and updated I/O to meet the performance needs of modern AV environments. It features 24x onboard audio channels, integrated AV bridging via USB-C, GPIO and RS232 control connectivity and 4x network ports for a variety of applications requiring in-room processing.

Q-SYS CONTROL IS INTRINSIC TO Q-SYS

The Core 24f processor leverages the full capabilities of the Q-SYS control engine without the need for feature licenses. This allows you to design and deliver a user control & automation experience tailor-made for each unique space, with a set of tools that match any programming comfort level on a single, scalable platform.

INTEGRATED AUDIO, VIDEO AND CONTROL

The Core 24f processor is driven by the Q-SYS Full Stack AV Platform, which unifies data, devices and a cloud-first open architecture to deliver a fully integrated audio, video and control solution that offers simpler integration and software-based scalability.

Q-SYS Core 24f

Q-SYS CAPACITIES

Network audio I/O	160 × 160
Analog I/O	8x mic/line in, 8x line out, 8x software-definable flex channels
Dante channels	8 × 8 included (up to 64 × 64 with Software-based Dante feature license)
AEC channels	24
Q-SYS NM-T1 capacity	10
WAN / Media channel capacity	36 × 36
Network peripherals	Up to 96 (including native Q-SYS cameras, I/O, NV, TSCs, paging stations, extensions and plugins with their "Is Managed" property set to "Yes". It does not include streaming I/O, loudspeakers, scripts or plugins with their "Is Managed" property set to "No")
VoIP softphones	8
Audio recording / playback	4 channels recording / 16 channels playback, [expandable up to 64 channels playback with optional multi track playback license (SLMTP-32) stackable up to 2x]
Media drive capacity	128 GB (at least 100 GB available for user media, or at least 200 hours of uncompressed 48kHz, 24 bit, mono WAV format audio files)

PROCESSING

Processor	Intel 64-bit architecture
Audio processing	32-bit floating point
Q-LAN network audio transport	32-bit floating point

CONTROL

RS232	2 ports
GPIO	8 × 8

CONTROLS AND INDICATORS

Front	Power LED 2 × 20 character OLED display PAGE button provides navigation between screens on the front display (forward direction only) ID button and indicator (blinks when enabled from Q-SYS designer Software)
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USB INPUTS & OUTPUTS

USB	2x USB-A and 1x USB-C port
AV bridging	Via USB-C
USB HID routing	Via USB-C
USB audio device hosting	Support for standard USB headset, speakerphone on USB-C connection (3 devices max at a time, each having up to 8 × 8 USB audio channels, up to 16 × 16 total channels)
USB-C (Audio bridging)	
Bit depth	24 bit
Channel count	16 × 16
Sample rate	48 kHz
USB-A Input	
Sample rate	48 kHz or 16 kHz, mono
Resolution	8-bit, 16-bit, 24-bit or 32-bit, float
Format	Little-endian, signed or unsigned

Q-SYS Core 24f

USB-A Output	
Sample rate	48 kHz only, stereo
Resolution	8-bit, 16-bit, 24-bit or 32-bit, float
Format	Little-endian, signed or unsigned
AUDIO INPUTS	
Phantom power	+48 VDC, 10 mA per input channel
A/D-D/A converters	24 bit
Sample rate	48 kHz
Input frequency response, 20 Hz to 20 kHz	+/- 0.5 dB, all sensitivities
EIN (120 Ω termination, no weighting, 20 Hz to 20 kHz)	< -123 dB
Input impedance	5 k Ω single-ended, 10 k Ω balanced
Input sensitivity range (1 dB steps)	-36 dBu minimum to +24 dBu maximum
Input common mode noise rejection @ 20 Hz - 20 kHz	< 70 dB, all input sensitivities
Input to input crosstalk @ 1 kHz	> 111 dB typical, all input sensitivities
INPUT THD+N @ 1KHZ	
@ +24 dBu sensitivity & +24 dBu input	< 0.0008%
@ +10 dBu sensitivity & +8 dBu input	< 0.0005%
@ -10 dBu sensitivity & -10.5 dBu input	< 0.0006%
@ -36 dBu sensitivity & -36.5 dBu input	< 0.006%
INPUT DYNAMIC RANGE	
@ +24 dBu sensitivity	> 111 dB
@ +10 dBu sensitivity	> 110 dB
@ -10 dBu sensitivity	> 106 dB
@ -36 dBu sensitivity	> 88 dB
AUDIO OUTPUTS	
Output frequency response, 20 Hz to 20 kHz	+/- 0.5 dB
Output THD @ 20 Hz to 20 kHz	< 0.008% at max output level
Output crosstalk @ 1 kHz	> 110 dB typical, > 100 dB max
Output dynamic range	> 111 dB
Output audio range level	-36 dBu to +24 dBu
Output impedance (balanced)	100 Ω

Q-SYS Core 24f

PHYSICAL

Product dimensions (L x W x H)	19.0 x 12.2 x 1.7 in (482.6 x 310.9 x 43.6 mm)
Product weight	12.0 lb (5.44 kg)
Shipping carton dimensions (L x W x H)	22.4 x 16.1 x 4.65 in (569 x 410 x 118 mm)
Shipping weight	12.3 lb (5.58 kg)
Included accessories	Removable rack ears 1x AC mains power cords I/O connector kit Regulatory and safety pamphlet Warranty statement

ENVIRONMENTAL & SAFETY

Power consumption	60 W typical, 150 W maximum
Line voltage	100 - 240 VAC, ~50 / 60 Hz
Operating temperature range	0°C to +50°C
Storage temperature	-20°C to +70°C
BTU / hour	136 BTU / Hr
Humidity	5% to 85%
Regulatory	FCC 47 CFR Part 15 Subpart B, Canada ICES-003, EN 55032, EN 55035, EU RoHS directive 2011/65/EU, WEEE directive 2012/19/EU, REACH, China RoHS GB/T26572, RCM, IEC/EN/UL 62368-1





Q-SYS NC-110
Q-SYS NC-12x80
Q-SYS NC-20x60

KEY FEATURES

- NC-110: fixed-lens, electronic pan, tilt, zoom (ePTZ) with 110° horizontal field of view
- NC-12x80: 12x optical zoom, 80° horizontal field of view
- NC-20x60: 20x optical zoom, 60° horizontal field of view
- Professional quality video conferencing for the Q-SYS AV-to-USB bridging solution
- Distribute video via the Q-LAN network anywhere it is needed
- Add as many network-based NC Series cameras to a design as needed to enable multi-camera functionality when integrating web conferencing platforms
- Distribute video via the Q-LAN network anywhere it is needed
- Simultaneously stream IP feeds and HDMI or SDI (PTZ models only)
- User-configurable resolution and quality for IP streams (up to 1080p), providing greater flexibility for a wide variety of use cases
- Comprehensive management via Q-SYS Designer Software and Q-SYS Reflect Enterprise Manager
- Complete camera imaging controls, including white balance, focus and exposure
- Image Rotation control inverts the video when the camera is mounted upside down. For PTZ cameras, the optional ceiling mount accessory is the PTZ-CMB1
- Power over Ethernet
- Local 12 V connection for PTZ models (power supply not included)
- PTZ models include PTZ-WMB1 wall mount bracket for simple installation; ePTZ model has built-in mounting hardware
- Includes lens cover for privacy (NC-110 only)



Q-SYS NC Series Cameras
Network cameras for collaboration

The Q-SYS NC Series conference cameras deliver high-quality video feeds natively to the Q-SYS Platform. With three models to choose from, these network cameras offer a simple and scalable video solution for any size meeting space.

Driven by the Q-SYS OS, the NC Series integrate seamlessly into any Q-SYS system, allowing for easy camera feed routing anywhere on the network without the need for complicated programming or video matrix hardware. These camera video feeds are delivered to any modern video conferencing applications such as Microsoft Teams, Zoom, Google Meet, and Cisco Webex via any Q-SYS AV bridging peripheral

BENEFITS

Rightsized camera options: Choose the right camera for your room. The Q-SYS NC-110 EPTZ camera drives the Q-SYS AV bridging solution into smaller, wider or more value-engineered room types and applications, while the Q-SYS NC-12x80 and Q-SYS NC-20x60 deliver professional PTZ functionality and presets, enabling larger and/or reconfigurable room layouts.

Network transport, USB delivery: NC Series solves the cable length limitations of traditional cameras solutions by enlisting a single network cable for video, power and control data transport into Q-SYS, and then employs USB technology to deliver the video to its intended PC/compute device. This greatly simplifies system design and deployment by eliminating the need for costly, unreliable USB cabling. Furthermore, NC Series goes beyond the traditional 1-to-1 limitation found in most USB cameras by allowing for a “many-to-any” scenario that allows users to integrate as many NC Series cameras as needed in their Q-SYS system design

and take advantage of network-based realtime camera switching

Multiple camera support for UC platforms: Q-SYS uses the power of the network (rather than dedicated switching hardware) to allow you to add as many NC Series cameras to your system as you desire and do live switching between the cameras, all while delivering a singular UVC/UAC stream to your application of choice

Universal Compatibility: The feeds from NC Series cameras, along with Q-SYS room audio, can be delivered to the conferencing application of your choice. With this functionality, Q-SYS can scale the meeting experience for Zoom, Microsoft Teams, Google Meet, Cisco Webex and more into rooms of any size or configuration to ensure a great experience parity for both in-room and remote meeting participants.

Designed for Q-SYS: NC Series collaboration cameras are native to Q-SYS, a cloud-manageable audio, video and control **platform**, built to deliver scalable, flexible AV solutions into the future. At its foundation, the **Q-SYS OS** serves as the software foundation that manages your NC Series cameras along with a multitude of other native **Q-SYS Products** in the platform. Additionally, its modern IT architecture and development tools of the **Q-SYS Platform** enables an entire **Ecosystem** of third-party devices developed by approved Q-SYS Partners, as well as a worldwide community of Q-SYS developers.

Q-SYS NC Series Conference Cameras

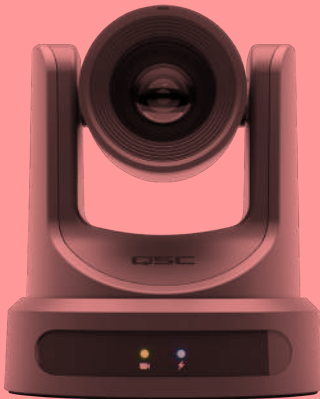
	NC-12x80	NC-20x60	NC-110
System Details			
Description	Network PTZ conference camera		Network EPTZ conference camera
Image sensor	1/2.8" low-noise CMOS	1/1.8" low-noise CMOS	1/2.8" low-noise CMOS
Lens characteristics (wide to tele)	12x optical zoom f=3.47 to 41.65 mm F1.84 to F3.72	20x optical zoom f=6.25 to 125 mm F1.58 to F3.95	Fixed focus Lens 8x max zoom, 2x lossless f=1.86 mm Supports EPTZ
System scanning mode	Progressive		
Signal-to-noise ratio	≥ 55 dB		
Horizontal rotation range	± 170°		Supports EPTZ
Vertical rotation range	-30° to +90°		Supports EPTZ
Pan speed range	1.7° to 100°/s		
Tilt speed range	1.7° to 69.9°/s		
Horizontal and vertical flip	Supported (enables ceiling-mounted installations)		
Camera Imaging			
Minimum illumination	0.5 Lux @ (F1.8, AGC ON)		
Shutter	1/30s to 1/1000s		
White balance	Auto, indoor, outdoor, one push, manual, specified color temperature		
Digital noise reduction	3D digital noise reduction		
Supported Video Formats			
Supported bridging formats	Core Nano, Core 8 Flex, NV-32-H (Core Capable), I/O-USB Bridge: MJPEG & YUY2		
	Core 110f: YUY2 (360p max resolution on USB 2.0, 1080p30 max resolution on USB 3.0)		
Supported bridging resolutions	1080p: 30, 15 fps 720p: 30, 15 fps 360p: 30, 15 fps 180p: 30, 15 fps		
IP stream resolutions (preview window)	H.264 @ 360p, 270p or 180p		
HDMI output (RGB 4:4:4 8 bit)	2160p @ 25, 29.97, 30 fps 1080p @ 25, 29.97, 30, 50, 59.94, 60 fps 1080i @ 50, 59.94, 60 fps 720p @ 30, 50, 59.94, 60 fps		No HDMI output
3G-SDI output	1080p @ 25, 29.97, 30, 50, 59.94, 60 fps 1080i @ 50, 59.94, 60 fps 720p @ 50, 59.94, 60 fps		No SDI output
Power			
DC power input	12 V (±20%), 12 W, JEITA connector		N/A
Power over Ethernet (PoE)	PoE Type 1, Class 3		PoE Type 1, Class 2
Power consumption	12.95 W max		6.4 W max
General Specifications			
Network interface	1000BaseT (IEEE 802.3ab) Ethernet interface		
Operating temperature	0°C - 40°C		
Storage temperature	-40°C - 60°C		
Size	6.7 x 7.95 x 5.6 in (170 x 201 x 142 mm)		7.6 x 2.2 x 3.8 in (194.5 x 54.7 x 95.7 mm), with bracket
Net weight	3.5 lbs (1.6 kg)		0.9 lbs (0.4 kg), with bracket

Q-SYS NC Series Cameras

NC-110



NC-12x80



NC-20x60

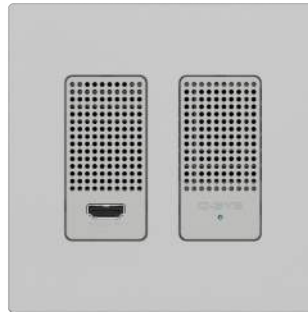




Q-SYS NV-1-H-WE

FEATURES

- Single-channel HDMI wallplate encoder
- Native HDMI video and audio distribution for Q-SYS
- Q-SYS Shift™ adaptive video compression



Q-SYS NV-1-H-WE

Native Network Video Endpoint for Q-SYS

The Q-SYS NV Series NV-1-H-WE is a single-channel HDMI wallplate encoder optimized for spaces where traditional surface-mount enclosures are not ideal, including flexible and divisible spaces or spaces with reconfigurable furniture. As a native Q-SYS peripheral, the NV-1-H-WE seamlessly integrates into your Q-SYS system, enabling no-code deployments and intelligent automation.

FLEXIBLE AND SCALABLE

NV-1-H-WE extends the Q-SYS NV Series portfolio to enable designers to customize and optimize their systems by mixing and matching endpoints to tailor their video distribution solutions based on connectivity requirements, I/O density and physical form factor.

Q-SYS SHIFT™

NV Series distributes visually lossless, low-latency video signals of up to 4K60 4:4:4 throughout your Q-SYS system using Q-SYS Shift™. This adaptive codec efficiently manages network bitrate by refreshing only the changes between frames, significantly reducing bandwidth without compromising quality or latency.

DESIGNED FOR Q-SYS

As native Q-SYS peripherals powered by the Q-SYS OS, NV Series devices seamlessly integrate into your Q-SYS system, regardless of size or complexity, delivering effortless no-code deployments and highly intelligent automated solutions without additional management or control hardware.

Q-SYS NV-1-H-WE

Video I/O

HDMI 2.0 input	1 x HDMI 2.0, capable of receiving input video formats up to 4K60 4:4:4 HDCP 2.3 and HDCP 1.4 compliant
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Audio I/O

HDMI inputs	8-channel PCM audio, Q-SYS routable
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Other connectors

LAN	1000BASE-T, 2.5GBASE-T compliant
Power Over Ethernet	802.3at Type 2, Class 4 (30 W from PSE, 25.5 W at NV-1-H-WE)

General

Dimensions	4.06 x 3.43 x 2.64 in (103 x 87 x 67 mm)
Weight	0.84 lbs / 0.38 kg
Installation	The NV-1-H-WE is designed to be installed into dual gang electrical boxes that are common in North America. A variety of alternate electrical boxes and brackets with similar mounting hole placement may be accommodated, though mounting procedures for these alternate solutions are not documented here. Ensure installation meets the following: - Environment A per IEEE 802.3at - Wiring methods and materials shall be in accordance with NFPA 70, the National Electrical Code (NEC), in particular Section 725.130. - Conductors and equipment shall be installed in accordance with NFPA 70, the National Electrical Code (NEC), in particular Section 725.133.

Environmental

Ambient operating temperature range	0°C to 40°C (32°F to 104°F)
Storage temperature	-20°C to +70°C (-4°F to 158°F)
Operating humidity range	5% to 90% RH non-condensing
Storage humidity range	5% to 90% RH non-condensing

What's in the box?

NV-1-H-WE Decora screwless wallplate kit (white) Safety and warranty statements



Q-SYS NV-21-HU

STANDARD FEATURES

- Single cable solution for video distribution, AV bridging¹, and device charging².
- Native HDMI video and audio distribution for Q-SYS
- Q-SYS Shift™ adaptive video compression
- Software configurable as an encoder or decoder
- Dual Streaming via HDMI and USB-C

LICENSABLE FEATURES

- Q-SYS AV Bridging feature license¹



Q-SYS NV-21-HU

Native Network Video Endpoint for Q-SYS

The Q-SYS NV Series NV-21-HU enables native video distribution on the Q-SYS Platform. The NV-21-HU is a software configurable endpoint offering a comprehensive single-cable solution for video distribution, AV bridging, and device charging via USB-C. The NV-21-HU's compact size and reduced I/O make it ideal for supporting meeting rooms, learning spaces, hospitality and entertainment installations. The NV-21-HU can be used alongside other Q-SYS NV Series video endpoints, providing system design flexibility. Like all Q-SYS products, the NV-21-HU offers native integration and control, simplifying configuration and operation.

SINGLE CABLE SOLUTION

The Q-SYS NV-21-HU simplifies the user experience and intuitively supports a wide range of devices. A single USB-C connection to the NV-21-HU enables a user's device to distribute video formats up to 4K60 4:4:4 via Q-SYS Shift™ video codec, integrates Q-SYS video camera and audio feeds into a supported collaboration application¹ and charges their device simultaneously².

MAXIMIZE FLEXIBILITY IN DESIGN & SPECIFICATION

The NV-21-HU is software-configurable as an encoder or decoder in Q-SYS Designer Software and offers the ability to operate in either HDMI or USB-C mode, supporting a broader range of user devices without adapters or converters. In addition, the NV-21-HU supports the AV Bridging feature license to function as an AV bridging endpoint when needed.

- **HDMI Mode:** In HDMI mode, the NV-21-HU enables video distribution from the HDMI input and uses the USB-C connection to offer AV bridging and device charging.
- **USB-C Mode:** In USB-C mode, the NV-21-HU enables video distribution, AV bridging and device charging via the USB-C connection.
- **Dual Streaming Mode:** In dual streaming mode, the NV-21-HU enables network encoding via both the HDMI and USB-C inputs simultaneously. The USB-C connection also supports AV Bridging and device charging. When dual streaming, a max of 1080p60 is supported on each input.

RIGHT-SIZED

The NV-21-HU provides designers with a more compact endpoint within the NV Series. The smaller design and reduced I/O (compared to the Q-SYS NV-32-H) enable simple and scalable designs across various applications, including meeting rooms, learning spaces, hospitality, and entertainment installations.

DESIGNED FOR Q-SYS

Q-SYS NV Series network video endpoints are native to Q-SYS, which is powered by the Q-SYS OS; this software foundation manages NV Series endpoints and all other Q-SYS Products from a single application. The Q-SYS Platform's modern IT architecture and development tools enable an entire ecosystem of third-party integrations developed by approved Q-SYS Partners and a worldwide community of developers using the available tools found in Q-SYS Open.

IMPORTANT NOTE: There are temporary software limitations for the NV-21-HU. Please visit qsys.com/nv21 for more details and for on targeted resolution dates.

¹ Optional AV Bridging feature license is required to activate AV Bridging on the NV-21-HU. However, until further notice, the AV Bridging feature license is included with NV-21-HU purchase.

² An external power supply is required for any device charging over the USB-C connection. NV-21-PSU available separately.

Q-SYS NV-21-HU

CONTROL

- **RS-232:** Three Pin Euro terminal connection to control third-party devices with Q-SYS Control, user-configurable.

USB

- **USB HID control:** Control host PCs with a USB connection using USB HID components in Q-SYS Designer Software.
- **Q-SYS AV Bridging:** The Q-SYS AV Bridging feature licenses¹ expands the functionality of the NV-21-HU, allowing users to connect their devices via USB-C directly to the network video endpoint to integrate Q-SYS audio and camera feeds for remote meetings easily. The NV-21-HU emulates a webcam (for video streams from Q-SYS network cameras), a speakerphone, and a multi-channel soundcard over a single driverless USB connection.

AUDIO

- **HDMI Audio Input:** Receive up to 8 channels of PCM audio from your video source, which are routable within Q-SYS Designer Software.
- **USB-C Audio Input:** Receive up to 8 channels of PCM Audio* from your video source, which are routable within Q-SYS Designer. Additional 1x1 Speakerphone and 2x2 Soundcard options are available with the Q-SYS AV Bridging feature licenses¹.
- **HDMI Audio Output:** Embed up to 8 channels of PCM audio from Q-SYS to the HDMI output of the NV-21-HU to utilize the built-in speakers of a display as a Q-SYS audio destination for source audio content or any other audio, including paging, background music, etc.

SECURITY AND AUTHENTICATION

- **AES-128:** NV Series supports AES-128 encryption for audio and video signals from encoders to decoders
- **Content Protection:** HDCP 1.4 & HDCP 2.3 complaint
- **802.1x:** 802.1x authentication is available and configurable through Q-SYS Peripheral Manager

Q-SYS SHIFT™ ADAPTIVE BITRATE CODEC

The NV-21-HU uses Q-SYS Shift™ video compression to provide high-quality, low-latency video streaming supporting video formats up to 4K60 4:4:4 over a standard gigabit network. Q-SYS Shift™ leverages DCT and temporal compression technologies, much like those found in H.264 and H.265 video compression codecs. Q-SYS optimized Shift™ to provide flawless image quality from the most demanding content sources. Further, Shift™ intelligently manages and optimizes the resulting network bitrate by only refreshing changes within each frame, allowing for significantly reduced bandwidth usage as compared to other compression codecs.

- **Modes:** Multicast and Unicast
- **Bitrates:** 10 Mbps - 800 Mbps
- **Streaming Protocol:** RTP

SUPPORTED VIDEO FORMAT

Resolution	Frame rate (Hz)	Chroma sampling level	Bit Depth
3840 x 2160 (4K UHD)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
3440 x 1400	60	4:4:4	8 bit
2560 x 1600	60	4:4:4	8 bit
2560 x 1440	60	4:4:4	8 bit
2560 x 1080	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
1920 x 1200	60	4:4:4	8 bit
1920 x 1080 (1080 p)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
1920 x 720 (720 p)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
640 x 480	60	4:4:4	8 bit

* All video formats are progressive
4:2:0 Chroma subsampling and HDR not supported

SCALER

The NV-21-HU features a robust 4K60 4:4:4 scaler that can accommodate the most challenging resolution and frame rate conversions from network streams or local HDMI and USB-C sources. The scaler is capable of operating in three modes (configurable within Q-SYS Designer Software):

- Stretch-to-fit
- Maintain aspect ratio
- 1:1 pixel mapping

Q-SYS
SHIFT™
Video Codec for the Q-SYS Ecosystem

¹ Optional AV Bridging feature license is required to activate AV Bridging on the NV-21-HU. However, until further notice, the AV Bridging feature license is included with NV-21-HU purchase.

*Not supported at initial release, please use the 2x2 USB Soundcard for USB-C audio routing.

Q-SYS NV-21-HU

CONNECTORS

- **Power In:** Two-pin euroblock terminal connection for an external 12 V DC, 9 A power supply (not included, NV-21-PSU available separately). **An external power supply connection is required for any device charging over the USB-C connection.**
- **POE/LAN:** Connection to Q-LAN network; includes PoE Type 3, Class 5 capability via a network switch or midspan injector. **When powered via PoE, the NV-21-HU cannot charge devices over the USB connection.**
- **USB-A:** Supports USB HID Routing (5 V DC 900 mA)
- **RS-232:** Three-pin euroblock terminal connection for extension of the Q-SYS Control Engine to third-party devices.
- **USB-C:** USB-C connection capable of receiving alt-mode DisplayPort video formats up to 4K60 4:4:4, Q-SYS Audio and Video Bridging and device charging up to 65 W. **An external power supply is required for any device charging over the USB-C connection.**
- **HDMI IN:** HDMI connection capable of receiving video formats up to 4K60 4:4:4, up to 8 channels PCM Audio from a connected source.
- **HDMI OUT:** HDMI connection capable of transmitting video formats up to 4K60 4:4:4, up to 8 channels PCM Audio to a connected output.
- **Simple Mounting:** Optional surface mounting brackets (included) provide installers with multiple options to optimize airflow in various installation scenarios. Mounting options and installation instructions are available in the hardware user guide.



Q-SYS NV-21-HU

Video I/O

HDMI 2.0 input	1x HDMI 2.0, capable of receiving input video formats up to 4K60 4:4:4
USB-C input	USB 3.2 Gen 1x1 (5Gbps) Type-C Device Port - supporting DisplayPort Alt-Mode (DP 1.4 Sink) - USB Power Delivery up to 65 W
HDMI 2.0 output	1x HDMI capable of scaling and outputting video formats up to 4K60 4:4:4
Scaler	HDMI output features a robust 4K60 4:4:4 scaler that can accommodate the most challenging resolution and frame rate conversions.

Audio I/O

HDMI inputs	8-channel PCM audio, Q-SYS routable
USB Type C input	8-channel PCM audio ¹ , 1x1 speakerphone ² , 2x2 soundcard ² , Q-SYS routable
HDMI output	8-channel PCM audio, Q-SYS routable

Other connectors

USB Type C input	AV Bridging: Route Q-SYS network camera and audio feeds to a host via USB connection ² . Device Charging: Supports charging up to 65 Watts ⁴ - 3A: 5V, 9V, 12V, 15V - 3.25A: 20V
USB Type A input	USB HID Routing - 5 V DC 900 mA
LAN	1000BASE-T, 2.5GBASE-T compliant
Power Over Ethernet	PoE Type 3, Class 5 (40W at PD, 45W at PSE) ³
Auxiliary Power Supply	12 V DC 9 A Power Supply. NV-21-PSU sold separately ⁴

General

Dimensions	7.3 x 5.2 x 1.2 in (185 x 131.5 x 30.5 mm)
Weight	1.75 lbs (794 g)
Mounting options	Flexible surface mounting hardware included

Environmental

Ambient operating temperature range	0° to 40° C
Humidity	5 to 90 RH % non-condensing
Storage temperature	-20 to 70° C
Expected Product lifecycle	10 years

What's in the box?

NV-21-HU video endpoint
Euro Terminal connector for RS-232
Surface mounting accessories
Safety and warranty statements

¹ Not supported on initial release of Q-SYS Designer Software v9.8.1. Please use the 2x2 USB Soundcard for USB-C audio routing. Visit qsys.com/nv21 for more information and resolution schedule.

² Requires optional AV Bridging feature license. However, until further notice, the AV Bridging feature license is included with NV-21-HU purchase.

³ When powered via PoE, the NV-21-HU cannot charge devices over the USB-C connection.

⁴ An external power supply is required for any device charging over the USB-C connection.



PS-TSCG3-G PS-TSCG3-H

KEY FEATURES

- Desktop model with replaceable gooseneck microphone and an embedded push-to-talk button (PS-TSCG3-G)
- Wall-mount model with replaceable handheld microphone and an integrated push-to-talk button (PS-TSCG3-H)
- Turnkey paging solution for Q-SYS [TSC-70-G3](#) touchscreens (sold separately or bundled)
- Create custom user control interfaces via Q-SYS control engine
- Supports standard paging elements and non-paging control elements
- Customizable LED status indicators, integrated proximity detection, and ambient light sensors ([TSC-70-G3](#) touchscreen)



Q-SYS PS-TSCG3
Touchscreen Paging Stations

The Q-SYS PS-TSCG3 Touchscreen Paging Station pairs with the TSC-70-G3 touchscreen and Q-SYS control engine to enable paging applications across transportation, education, hospitality, entertainment and beyond. By leveraging Q-SYS Control capabilities, the Q-SYS PS-TSCG3 paging peripheral provides live paging and pre-recorded message playback, alongside traditional functions such as BGM management and device control in a modernized way.

BENEFITS

Modernized User Experience: The Q-SYS Control engine allows you to design fully customized user control interfaces that combine paging functions with device control based on how the space is utilized. It also removes the need for inputting PIN codes for page zone destinations, resulting in a more modern and intuitive user experience.

Complete Q-SYS Paging Solution: The Q-SYS PS-TSCG3 Touchscreen Paging Station lets you take advantage of all existing Q-SYS paging functionality, including priority levels message queueing, preamble playback, pre-recorded message playback and more.

The Right Option for any Space: Available in two models, this page station solution is available as either a desktop model with a replaceable gooseneck microphone and an embedded push-to-talk button (PS-TSCG3-G), as well as a wall-mount model with a replaceable handheld microphone and an integrated push-to-talk button (PS-TSCG3-H).

Q-SYS PS-TSCG3

	PS-TSCG3-G	PS-TSCG3-H
Display (Q-SYS TSC-70-G3 Touch Screen)		
Type	Projective capacitive (PCAP) multi-touch, high-resolution 24-bit color display	
Viewable screen dimensions (diagonal)	7 in (177.8 mm)	
Resolution	1280 x 800 px	
Aspect Ratio	16:10	
Contrast Ratio	850:1	
Brightness	450 Nits	
Customizable LED status indicators	Yes	
Sensors	Ambient Light Sensor, Proximity Detection	
Audio		
Polar pattern	Cardioid	Omnidirectional
Frequency response (-10 dB relative to 1 KHz)	100 Hz to 16 KHz	300 Hz to 11 KHz
Sensitivity	-75 dB ± 3 dB (0 dB = 1 uBar @ 1 KHz)	-70 dB ± 3 dB (0 dB = 1 uBar @ 1 KHz)
General		
Dimensions (assembled, with TSC-70-G3)	10.5 x 3.40 x 4.49 in (266 x 86.4 x 114 mm)	10.5 x 4.57 x 2.13 in (266 x 116 x 54.1 mm)
Weight (not including TSC-70-G3)	2.6 lbs (1.18 kg)	3.99 lbs (1.81 kg)
LAN	1x RJ45, 1 Gbps	
PoE (Power over Ethernet)	IEEE 802.3af Type 1 Class 3 (PoE)	
USB	Type C, USB 3.1	
Optional accessories	N/A	PS-DB (desktop base)
Environmental		
Ambient operating temperature range	0°-50° C (32°-122° F)	
Humidity	5-85% RH non-condensing	
Storage temperature	-20° to 70° C	



Q-SYS SPA-Q Series Network Amplifiers

KEY FEATURES

- Two or four output channel models at 60 W per channel
- Two onboard software-definable flex channels (as mic/line inputs with 48V phantom power, or as line level outputs)
- Four bi-directional GPIO connections
- Discrete half-rack, 1RU footprint and included mounting hardware
- Network operability enables close proximity installation to connected loudspeakers and other in-room endpoints



Q-SYS SPA-Q Series Network Amplifiers

Small-format network amplifier with onboard Flex I/O

The Q-SYS SPA-Q Series network amplifiers continue the Q-SYS Platform evolution of pairing centralized Core OS processing with expanding network endpoint utility, delivering rightsized amplification as well as flexible Q-SYS system configuration and control to a wide variety of space-types.

BENEFITS

Rightsized for Smaller Spaces: With two or four output channel models at 60 W per channel, the Q-SYS SPA-Q network amplifiers bring the audio quality you've come to expect into compact high-impact spaces. The half-rack, 1RU footprint and included hardware for multiple mounting options allows for flexible placement within your rooms, including within podiums or behind monitors, and its convection-cooled design means that you can rely on quiet, continuous performance.

Feature-Focused System Design and Scalability: The Q-SYS SPA-Q Series network amplifiers operate on your network, so you can install your amplifier closer to its connected loudspeakers and other in-room endpoints, freeing you to choose between placing your Q-SYS Core processor in-room, OR centralizing it to serve multiple spaces around the building.

Q-SYS SPA-Q Series network amplifiers join a host of other Q-SYS products (like QIO Series as well as Q-SYS Feature and Scaling Licenses) that pair perfectly with smaller Q-SYS Cores (like the Q-SYS Core Nano processor) to decouple the physical I/O from the processor and allow for an unmatched degree of system customization and scalability without over investing in unused onboard I/O channels or processing power.

Untethered Processing Through Flexible Network I/O Endpoints: SPA-Q models feature convenient additional audio and control integration points into your Q-SYS system. Two onboard software-definable flex channels (as mic/line inputs with 48V phantom power, or as line level outputs) route legacy analog microphones anywhere on the network or provide signal to an external recorder. Leverage the available onboard GPIO to power/control microphone LEDs or any required sensors or buttons using four bi-directional GPIO pins.

Designed for Q-SYS: The Q-SYS SPA-Q Series network amplifiers are native to Q-SYS, a cloud-manageable audio, video and control platform, built to deliver scalable, flexible AV solutions well into the future. At its foundation, the **Q-SYS OS** serves as the software foundation that manages your Q-SYS SPA-Q network amplifiers, along with a multitude of other native **Q-SYS Products** in the platform. Additionally, the modern IT architecture and development tools of the Q-SYS Platform enable an entire Ecosystem of third-party devices developed by approved **Q-SYS Partners**, as well as a worldwide community of Q-SYS developers using the available tools found in **Q-SYS Open**.

SPA-Q Network Amplifiers

	Q-SYS SPA-Qf 60x2	Q-SYS SPA-Qf 60x4
POWER MATRIX		
Amplifier Channels	2	4
Single Ended*		
8 Ω	60 W	60 W
4 Ω	60 W	60 W
16 Ω	60 W	60 W
BTL Power		
4 Ω	100 W	100 W
8 Ω	120 W	120 W
16 Ω	120 W	120 W
70 Vrms	120 W	120 W
100 Vrms	120 W	120 W
Frequency Response (8 Ω)	20 Hz - 20 kHz (+0.2/-0.8 dB)	
Voltage Peak Rating	75 Vpk	
Current Peak Rating	12 Apk	
Signal to Noise (20 Hz – 20 kHz)	>100 dB	
Output Circuitry	Class D	
Voltage Gain (Lo-Z/70 V/100 V)	29/36/39 dB(Vrms/FS)	
High-Z setting (software setting)	70V RMS or 100 V RMS	
Low-Z operation range	2 - 16 Ω	
Controls & Indicators (front)	Signal (Blue), Limit (Yellow) / Protect (Red), Power (Blue), Fault (Yellow)	
Flex IO Connector	2 x 3.5 mm 3 position Euro (blue)	
Output Connectors	1 x 5 mm 4 position Euro (green) with screw locks	2 x 5 mm 4 position Euro (green) with screw locks
GPIO	1 x 3.5 mm 6 position Euro (Black) 4x bi-direction pins, 1 x Power Pin (3.3 V, 100 mA), 1x Ground Pin	
FLEX INPUTS/OUTPUTS		
Audio flex channel capacity	2	
Audio flex channel assignments	Each channel can be configured as a mic / line input or as a line output (configured through Q-SYS Designer Software)	
Input frequency response (20 Hz- 20 kHz)	+0.5 dB / -0.5 dB	
Input THD+N @1 kHz	<0.006% @ 0 dB gain (+4 dBu Input)	
Input dynamic range (analog input to amplifier output)	>109 dB	
Input impedance (balanced) @1 kHz	10.5 K Ω	
Input sensitivity range (1 dB steps)	-30 dBu to +20 dBu	
Phantom power	48 V	
Mic preamp EIN (typical)	< -123 dBu	

SPA-Q Network Amplifiers

Q-SYS SPA-Qf 60x2		Q-SYS SPA-Qf 60x4
Output frequency response (20 Hz – 20 kHz)	+0.5 dB / -0.5 dB	
Output THD	<0.005%	
Output impedance (balanced)	100 Ω @1 kHz	
Output level range (1 dB steps)	-40 dBu to +21 dBu	
Output dynamic range	>109 dB	
Sample rate	48 kHz	
A/D – D/A converters	24-bit	
MISCELLANEOUS		
Amplifier and load protection	Short circuit, open circuit, over current, over voltage, thermal, RF, DC fault shutdown, active inrush limiting, on/off muting	
AC Power Input	Universal Power Supply 100 – 240 VAC + / -10%, 50 – 60 Hz with PFC	
Operating Temperature Range	32° - 104° F (0° - 40° C)	
Storage Temperature	-4° - 158° F (-20° - 70° C)	
Cooling	Convection	
Product Dimensions (HWD)	1.75 x 8.7 x 11.25 in (44 x 221 x 286 mm)	
Shipping Dimensions (HWD)	3.54 x 13.5 x 15 in (89.9 x 342.9 x 381 mm)	
Shipping Weight	6.2 lb (2.81 kg)	6.4 lb (2.90 kg)
Agency Approvals (tentative)	UL, CE, RoHS / WEEE compliant, FCC Class B (conducted and radiated emissions), CCC, NOM	
Included Accessories	Rack / wall mounting kit and power cord	

*Power rating is after 100 mS, all channels driven



Q-SYS SPA-Qf 60x2



Q-SYS SPA-Qf 60x4



Included rack and mounting hardware



TSC-50-G3
TSC-70-G3
TSC-101-G3

KEY FEATURES

- High performance network touch screen controllers for Q-SYS
- Enhanced onboard processor with increased resolution and significantly improved screen transitions on all models
- Customizable RGB LED status indicators (7-inch and 10-inch models only)
- Integrated proximity sensor wakes the screen on approach while an ambient light sensor adjusts screen brightness
- Build intuitive and scalable UCIs in the same software program as your DSP and control programming for a streamlined design and deployment process
- Supports CSS-based styling letting users build more dynamic UCI themes and apply global styles across multiple UCIs
- UCI Controller (in Beta) is an alternative method of building UCIs from a template of control types to simplify deployment and scalability of multiple UCIs
- Supports Power over Ethernet to allow for power and data on a single cable for simple, single-cable installation
- All models support landscape/portrait orientation when wall-mounted
- Optional table top mount accessory available (5-inch model supports landscape/portrait mounting)
- Universal mounting options: Included accessories for mounting to US standard and European wall and junction boxes
- Available in three sizes (5-inch, 7-inch, 10.1-inch)



Q-SYS TSC-G3 Series

Network touch screen controllers for Q-SYS

The Q-SYS TSC Series Gen 3 are high-performance network touch screen controllers native to Q-SYS. Available in three sizes (5-inch, 7-inch, 10-inch), these PoE-capable (power over Ethernet) devices support a wide range of applications needing a fully-customizable user control interface (UCI).

Like all Q-SYS products, the TSC Series Gen 3 integrate seamlessly into a system design and take full advantage of drag-and-drop integration and robust control engine within Q-SYS to provide users with intuitive AV controls for any space.

The Next Generation of Q-SYS Touch Screens – The TSC Series Gen 3 network touch screen controllers offer a complete redesign, built for higher performance and modern aesthetics. This series offers increased resolutions with significantly improved screen transitions on all models. Furthermore, the enhanced onboard video processor makes these screens future-ready for upcoming Q-SYS video features.

The 7-inch and 10-inch models also feature RGB LED status indicators on the side of the touchscreen that can be fully customizable to signify anything from call/mute status, room-in-use, and beyond.

Lastly, each model supports vertical and horizontal orientation, and allows for wall-mounting in a single-gang wall box (TSC-50-G3), dual-gang wall box (TSC-70-G3 & TSC-101-G3), or table-top mounting with optional accessory (not included).

Fully Customizable User Control Interface –

Q-SYS offers a unique drag-and-drop UCI creation utility within Q-SYS Designer Software for building intuitive and scalable interfaces without the need for any programming. Each TSC Series Gen 3 network touchscreen can display anything from a few simple controls on single page GUIs to comprehensive GUI's with reactive controls that change based on system status. It's also simple to import corporate logos and other graphical elements to enable UCIs tailored to each customer's unique requirements.

Additionally, Q-SYS supports CSS-based styling, which allows integrators to build more dynamic UCI themes and apply global styles across multiple UCIs (or system designs). Q-SYS also offers the new UCI Controller feature (in Beta) that make it much simpler to copy, reuse, and modify UCIs to allow for easier deployment and scalability of multiple UCIs.

Designed for Q-SYS – TSC Series Gen 3 network touch screen controllers are high-performance devices native to Q-SYS, a cloud-manageable audio, video, and control platform, built to deliver scalable, flexible AV solutions well into the future. At its foundation, the **Q-SYS OS** serves as the software foundation that manages your TSC Series devices along with a multitude of other native **Q-SYS Products**. Additionally, the modern IT architecture and development tools of the Q-SYS Platform enable an entire Ecosystem of third-party devices developed by approved **Q-SYS Partners**, as well as a worldwide community of Q-SYS developers using the available tools found in **Q-SYS Open**.

Q-SYS TSC-G3 Series

	TSC-50-G3	TSC-70-G3	TSC-101-G3
Display			
Type	Projective capacitive (PCAP) multi-touch technology, high-resolution 24-bit color display		
Panel dimensions (WHD)	5.55 x 3.2 x 1.49 in (141 x 81.3 x 37.8 mm)	7.28 x 4.53 x 1.54 in (185 x 115 x 39.1 mm)	9.97 x 6.24 x 1.54 in (253.2 x 158.5 x 39.1 mm)
Viewable screen dimensions (diagonal)	4.99 in (126.7 mm)	7 in (177.8 mm)	10.07 in (255.8 mm)
Resolution	1280 x 720 px	1280 x 800 px	1920 x 1200 px
Aspect ratio	16:9	16:10	16:10
Contrast ratio	800:1	850:1	800:1
Brightness	450 Nits	400 Nits	380 Nits
Customizable LED status indicators	No	Yes	Yes
Panel orientation	Landscape / portrait	Landscape / portrait	Landscape / portrait
Wall-mountable	Yes (accessories included)	Yes (accessories included)	Yes (accessories included)
Table top	Optional table top stand accessory	Optional table top stand accessory, supports landscape orientation only	Optional table top stand accessory, supports landscape orientation only
Sensors			
Ambient light sensor	Yes	Yes	Yes
Proximity detection (wake on approach)	No	Yes	Yes
I/O			
LAN (1x RJ45)		1 Gbps	
USB 3.1 (1x Type-C)	No	Yes (for future use)	Yes (for future use)
Power			
Power over Ethernet	PoE Class 2	PoE Class 3	PoE+ Class 4
Weight			
Product weight (net)	8.8 oz (249 g)	19.9 oz (564 g)	33.4 oz (947 g)
Environmental			
Operating temperature		0°-50° C (32°-122° F)	
BTUs	18 typical	26 typical	47 typical
Humidity		5-85% rh non-condensing	

* Specs subject to change without notice

TSC-101-G3



(shown with optional table top stand, available for TSC-70-G3 and TSC-101-G3)



QSC Self Help Portal

Read knowledge base articles and discussions, download software and firmware, view product documents and training videos, and create support cases.

<https://qscprod.force.com/selfhelpportal/s/>

Customer Support

Refer to the Contact Us page on the QSC website for Technical Support and Customer Care, including their phone numbers and hours of operation.

<https://www.qsc.com/contact-us/>



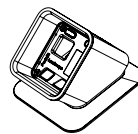
Quick Start Guide



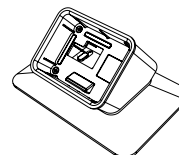
Tabletop Stand Accessory

TSC-50t-G3 (for TSC-50-G3)

TSC-710t-G3 (for TSC-70-G3 or TSC-101-G3)



TSC-50t-G3



TSC-710t-G3



Fixed Installation



Movable Installation

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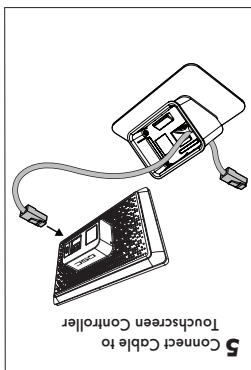
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<http://patents.qsc.com>

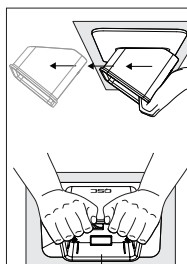
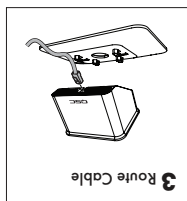
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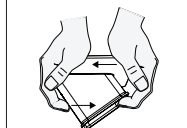
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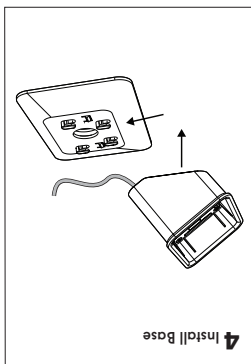
3 Route Cable



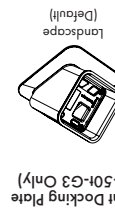
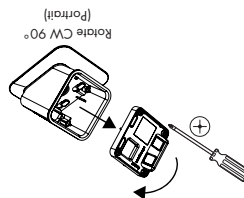
2 Remove Base (Method 1)



4 Install Base



2



1 Orient Docking Plate (TSC-50t-G3 Only)

Caution: Do not attempt to assemble or disassemble the stand while the touchscreen controller is attached.

Movable Installation TSC-50t-G3 / TSC-710t-G3



Hardware User Manual for other cable requirements.
• QSC recommends using a category cable without a moulded strain relief boot. Refer to the Dimensions drawings and product specifications available online at www.qsc.com.

Specifications

• Tool-less assembly	• Portrait and landscape configurations	• Non-skid, low profile design
• Movable or fixed installation options		

Tabletop Features

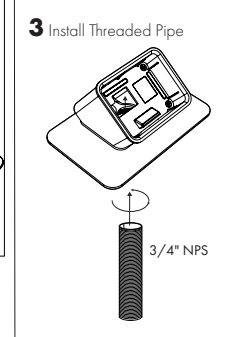
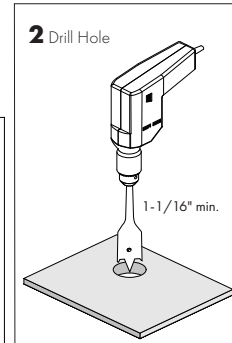
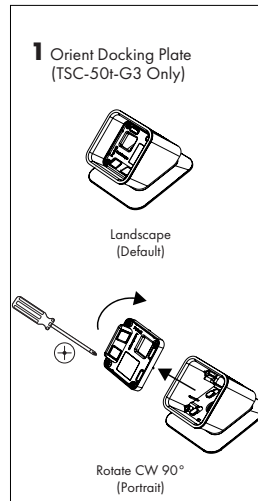
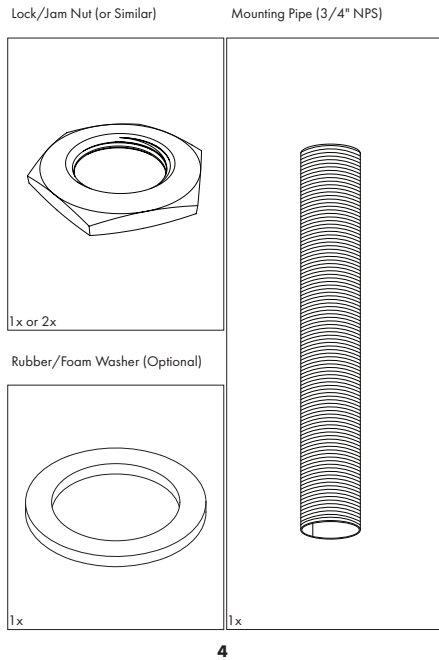
For a copy of the QSC Limited Warranty, visit the QSC, LLC, website at www.qsc.com.

Warranty

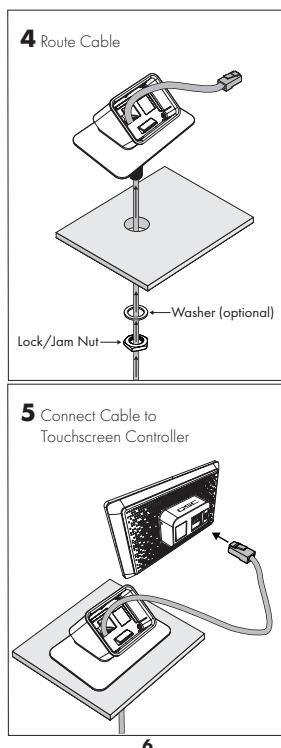
Fixed Installation TSC-50t-G3 / TSC-710t-G3

User Supplied Parts

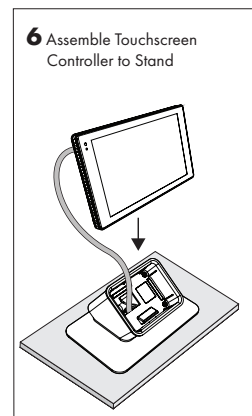
These parts are required only for the fixed installation.



Assembly and Installation



Assembly and Installation (continued)



QSC

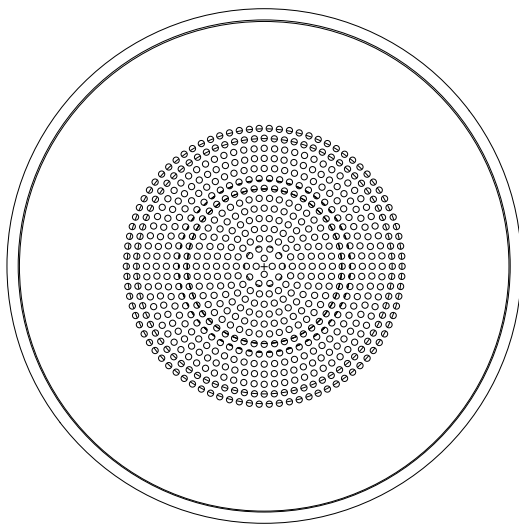
BEAM MOUNT LOUDSPEAKER

Quam BB2

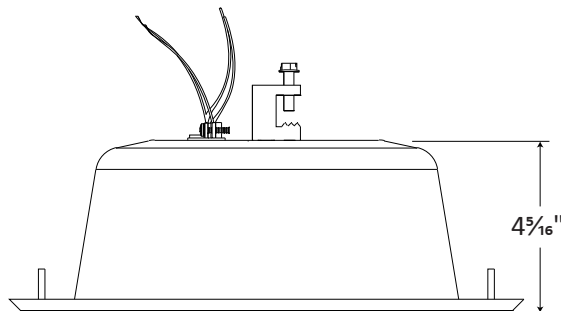
The BB2 is a complete, beam mount loudspeaker system consisting of an 8" O.D., dual cone loudspeaker with a 10 oz. magnet and a 5W, 25/70V transformer. Components are mounted on a round, studded baffle that is attached to a steel backbox with two (2) beam clamps for a secure, permanent installation. The BB2 has a white, powder coat finish and is shipped as a fully assembled unit.



APPLICATION	Intended Use:	Indoor environment
	Program Material:	Signal tones, voice and music
	Installation:	Downward firing on a steel "I" beam of 5.25" maximum width
AUDIO PERFORMANCE	Average Sensitivity:	95dB SPL, 1W/1M
	Loudspeaker Power Rating:	102dB SPL, 5W/1M
	Calculated Output:	20W RMS, EIA 426A Standard
	Magnet Type & Weight:	BeFe Ceramic, 10 oz. Nominal
	Frequency Response:	65Hz - 17kHz EIA, 426A Standard
	Nominal Coverage Angle:	90° Included Angle, -6dB/2kHz, Half Space
	Audio Connection:	7", Color-coded, Pre-tinned Leads
COMPONENT	Dimensions:	12 ⁵ / ₁₆ " (DIA) x 4 ⁵ / ₁₆ " (H)
	Weight:	7.0 lbs.
	Loudspeaker:	8C10PAX
	Transformer:	TBLU: 5W, 25/70V, with 5 taps (0.31W, 0.63W, 1.25W, 2.5W, 5.0W)
	Finish	White powder coat
	Other:	Two (2) beam clamps



12 ⁵/₁₆" DIA



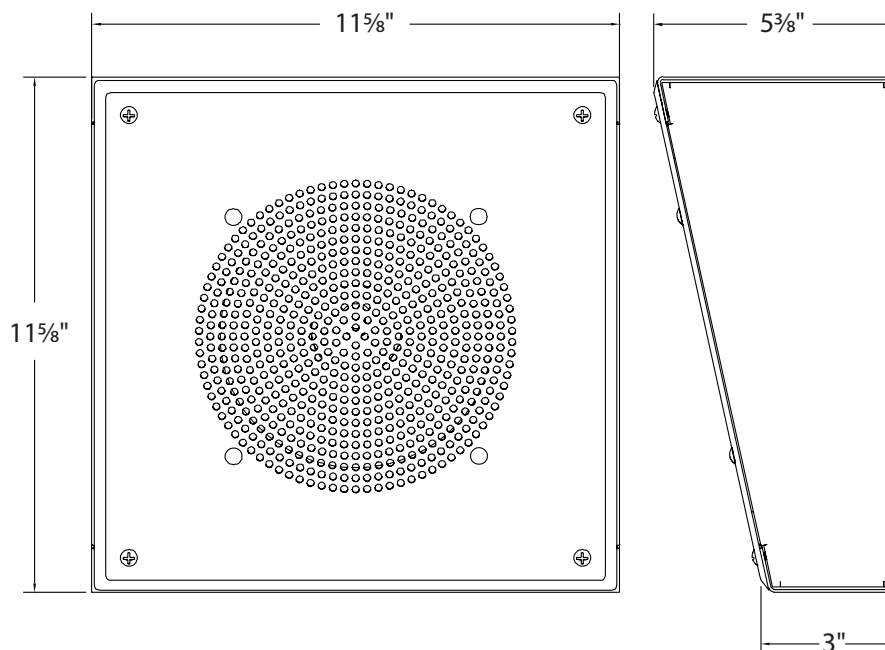
SURFACE MOUNT LOUDSPEAKER

Quam SYSTEM 2

SYSTEM 2 is a complete loudspeaker system consisting of an 8" O.D., dual cone loudspeaker and a 5W, 25/70V transformer mounted on a square, screw mount, steel baffle with a slanted, steel, vandal resistant, surface mount enclosure with four (4) 8-32 threaded inserts, a single 1/2" conduit entrance on the back, and two (2) Wiremold knockouts and a white, powder coat finish.



APPLICATION	Intended Use:	Indoor environment
	Program Material:	Signal tones, voice and music
	Installation:	Horizontal or vertical surface mount
AUDIO PERFORMANCE	Average Sensitivity:	92dB SPL, 1W/1M
	Loudspeaker Power Rating:	12W RMS, EIA 426A Standard
	Maximum Output:	15W @ 8 Ohms
	Calculated Output:	99dB SPL, 5W/1M
	Magnet Type & Weight:	BeFe Ceramic, 5 oz. Nominal
	Frequency Response:	65Hz - 17kHz EIA, 426A Standard
	Nominal Coverage Angle:	100° Included Angle, -6dB/2kHz, Half Space
	Audio Connection:	7", Color-coded, Pre-tinned Leads
COMPONENT	Dimensions:	11 5/8" (H) x 11 5/8" (W) x 5 3/8" (D)
	Weight:	10 lbs.
	Loudspeaker:	8C5PAX
	Transformer:	TBLU: 5W, 25/70V, with 5 taps (0.31W, 0.63W, 1.25W, 2.5W, 5.0W)
	Baffle:	BS8W
	Backbox:	SE2WVP with four (4) 8-32 threaded inserts
	Finish:	White powder coat



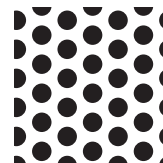
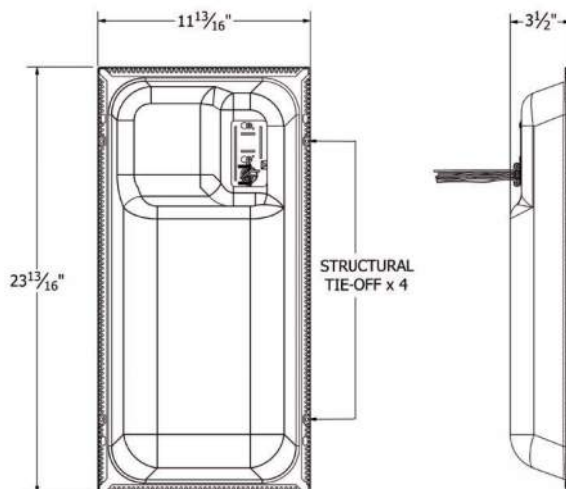
1' X 2' TILE REPLACEMENT LOUDSPEAKER

Quam SYSTEM 5

SYSTEM 5 is a complete, UL Listed, shallow depth, lightweight, 1' x 2' ceiling tile replacement loudspeaker system consisting of a 8" O.D., dual cone loudspeaker with a 5 oz. magnet and a 5W, 25/70V transformer. The molded fiber enclosure is 617 CID. The SYSTEM 5 has a powder coated steel baffle with standard perforation and four (4) seismic tie-off points. The cable clamp and one (1), 24" "T" rail are included. No assembly required.



APPLICATION	Intended Use: Program Material: Installation: City of Chicago Approved:	Indoor environment Signal tones, voice, and music Mounted parallel to floor plane in a 24" wide suspended ceiling tile grid Material and construction permits use where ceiling plenum is part of the air handling system.
AUDIO PERFORMANCE	Average Sensitivity: Loudspeaker Power Rating: Maximum Power Rating: Calculated Output: Magnet Type & Weight: Frequency Response: Nominal Coverage Angle: Audio Connection:	92dB SPL, 1W/1M 12W RMS, EIA 426A Standard 15W @ 8 Ohms 99dB SPL, 5W/1M BeFe Ceramic, 5 oz. Nominal 65Hz - 17kHz, EIA 426A Standard 100° Included Angle, -6dB/2kHz, Half Space 4", Color-coded, Pre-tinned Leads
COMPONENT	Dimension: Weight: Loudspeaker Model: Loudspeaker Specs: Transformer: Integral Enclosure: Grille: Finish:	3 1/2" (H) x 23 13/16" (W) x 11 13/16" (D) 3.85 lbs. 8C5PAX 8" O.D. loudspeaker, 5 oz. magnet TBLU; 5W, 25/70V, with 5 taps (0.31W, 0.63W, 1.25W, 2.5W, 5W) 617 CID molded fiber Standard perforated steel with four (4) seismic tie-off points White powder coat finish
CERTIFICATION	UL Listed 1480 UL Listed 2043	When installed with supplied installation instructions and requirements of NEC /AHJ. (UEAY, UEAY7- Canada) Suitable for use in air-handling spaces



Standard Perforation Pattern
Shown as 1" Square Sample

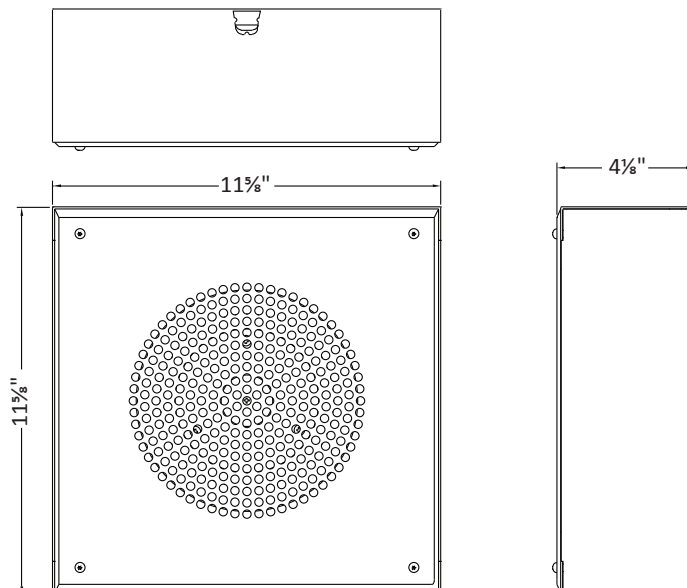
VANDAL RESISTANT LOUDSPEAKER

Quam SYSTEM 6VPS

The SYSTEM 6VPS is a complete, vandal resistant horn assembly featuring a double re-entrant, compression horn with an integrated 16W, 25/70V, multi-tap transformer that is mounted on a vandal resistant, stainless steel baffle. It also includes a square, heavy gauge stainless steel, surface mount enclosure with four (4) threaded inserts for baffle attachment, a single ½" conduit entrance and a Wiremold entrance on the top and bottom. Tamper resistant, 8-32 x 1", 'pin-in-torx' screws are included. It has a high durability, white, powder coat finish.



APPLICATION	Intended Use:	Indoor or outdoor environment
	Program Material:	Signal tones, and voice
	Installation:	Vertical or horizontal surface mount
AUDIO PERFORMANCE	Average Sensitivity:	96dB SPL, 1W/1M
	Loudspeaker Power Rating:	16W RMS, EIA 426A Standard
	Calculated Output:	108dB SPL, 16W/1M
	Magnet Type & Weight:	BeFe Ceramic, 5 oz. Nominal
	Frequency Response:	350Hz - 10kHz, EIA 426A Standard
	Nominal Coverage Angle:	90° Included Angle, -6dB/2kHz, Half Space
COMPONENT	Audio Connection:	7", Color-coded, Pre-tinned Leads
	Dimensions:	11 ⅞" (H) x 11 ⅞" (W) x 4 ⅞" (D)
	Weight:	12 lbs.
	Loudspeaker Model:	H16
	Loudspeaker Specs:	Double re-entrant horn
	Transformer:	16W, 25/70V, with 5 taps (1W, 2W, 4W, 8W, 16W)
	Baffle:	BS8VPS: square, stainless steel
	Enclosure:	SE1WVPS, stainless steel
	Finish:	White powder coat finish
	Other:	Tamper resistant, 8-32x1" 'pin-in-torx' hardware included





A PADDLE ISN'T GOOD
ENOUGH ANYMORE

Diversity Architectural™ Antenna

Compact diversity antenna for wall and ceiling mounting applications

FOR MICs 
470-698 MHz

#1 Recommendation for installed systems where distances don't exceed 200'

1 NEEDED FOR A DIVERSITY MIC SYSTEM

BENEFITS:

- Outperforms two paddle of wall panel antennas
- Reduces install time
- Nearly invisible when mounted

TARGET AUDIENCE AND VENUES:

Wireless mic users in houses of worship, conference rooms, schools, auditoriums, night club, etc.

PATTERN AND RANGE*:

140°conical pattern with typical range to 200'

*Range will depend on many factors and is subject to your local conditions

PLACEMENT EXAMPLE:

Put it at stage wings of front of house (FOH). Point at transmitters (or where the talent is).

SKU:

D-ARC - white

D-ARCB - black

BUNDLED PACKS AVAILABLE:

D-ARCDISTRO4

D-ARCBDS

D-ARCBDISTRO4

D-ARCD9

D-ARCD5

D-ARCBDS

Product Page:



FAQ

How does this antenna compare to the Diversity Fin?

More aesthetically pleasing look. Intended for use indoors and has slightly lower gain with a conical pattern.

In what situations would you not recommend ceiling mounting the D-ARC?

Ceiling height must be considered when you want to use multi-zone and when you want to exclude things like interference from other items in the room/area.



Downloaded: August 6, 2025

Advanced Full-Motion Premium TV Mount for 46" to 95" TVs **SKU: VXF730-B2**

Specifications

Dimensions & Measurements

Depth	2.46 in (6.3 cm)
Height	22.03 in (56 cm)
Shipping Dimensions	39.97" x 23.5" x 4.83" (1015.3 x 596.9 x 122.7 mm)
Shipping Weight	65.99 lbs (29.9 kg)
TV Max Weight	175 lbs (79.4 kg)
Typical Screen Size	46" - 95" (117cm - 241cm)
Width	36.73 in (93.3 cm)

Characteristics &

Features

Application	Wall
Color	Black
Installation Items	• 1/2" Socket Wrench • 1/4" Drill Bit • 5/16" Drill Bit • 7/16" Socket Wrench • Electric Drill • Level • Pencil • Phillips Head Screwdriver • Stud Finder • Tape Measure • Wrench
Roll	+2° / -2°
Swivel	+90° / -90°
Tilt	+5° / -15°
UPC	793795533937
VESA Mounting Pattern	• 200 x 200 • 300 x 200 • 300 x 300 • 400 x 200 • 400 x 300 • 400 x 400 • 500 x 400 • 600 x 400

Certifications &

Warranties

Certifications	UL Listed
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Source: <https://www.legrandav.com/products/mounts/display-tv-mounts/vxf730/vxf730-b2>

Orchestrating a brighter world **NEC**

40", 48" and 55" Commercial Touchscreens Ideal for Interactive Applications

NEC Commercial Large Format Displays



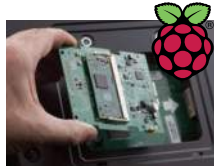
Brand new aesthetically-focused design and integrated IR touch technology allows for seamless integration into any environment while maintaining the professional ruggedness necessary for all commercial markets

Beyond Standard Signage

Create maximum visual impact through seamless simplicity with the new professional NEC V Series products with integrated touch. New contemporary and slim mechanical design with focused aesthetics allows for the smooth and stylistic integration into any type of environment. Their full metal chassis coupled with real-time temperature sensors and integrated cooling fans maintain the professional quality necessary for commercial environments. Integrated IR scanning touch technology coupled with anti-glare protective glass provides a professional touch solution for all markets. With a wide range of the latest connectivity interfaces including resolution support up to Ultra High Definition at 60Hz, these displays offer the future-proofing necessary for the investment. These displays also include expandability options such as the Open Pluggable Specification (OPS) and Raspberry Pi Compute Module slots for source integration directly into the display. The NEC V Series boasts 500 cd/m² brightness along with a new anti-glare surface that allows for efficient readability in normal ambient light situations and is ideal for 24/7 signage in retail, education and restaurants applications.

Scalable Computing Power

Integrated computing options allow for cable free signage for any type of situation. The on-board multimedia player can be utilized for simple signage applications by allowing auto-play off of USB or SD card and content transfer via LAN. For more advanced signage systems, these displays contain an industry first ability to integrate a Raspberry Pi Compute module for near limitless potential and application. Finally, each display adheres to the Open Pluggable Specification that gives the ability to seamlessly integrate a full PC, HDBaseT receiver or other options directly into the unit. Internal connectivity allows for touch communication when using a Raspberry Pi device or OPS PC option.



Advanced Heat Management

Monitoring and managing the temperature of each display is crucial to secure reliability and longevity. An industrial-strength, premium-grade panel with additional thermal protection, internal temperature sensors with self-diagnostics, and fan-based technology allows for 24/7 operation, and protects your display investment. Without thermal management, displays can be prone to damaging heat over time. This damaging heat will lower the picture quality and life expectancy of the product. Integrated cooling fans automatically turn on and stay on when high internal temperatures are detected. These will stay on until the heat is properly dissipated and the display remains under proper temperature thresholds.

L-Shaped Connectivity

Connectivity is located on both the bottom and side of the display to allow for easy access regardless of orientation



MultiSync® V404-T/V484-T/V554-T

Blue ON LED and Ambient Light Sensor

New mechanical structure allows for sleeker LED and ambient light sensor design. Auto dimming of the LED backlights can be utilized through the ambient light sensor allowing for the brightness to change depending on the external lux in the room of installation.



Proof of Play

This function provides accurate proof that displays are working as established when checking from an external location. Information regarding video source, time on, audio source and more can be pulled through the display when coupled with NaViSet Administrator 2.

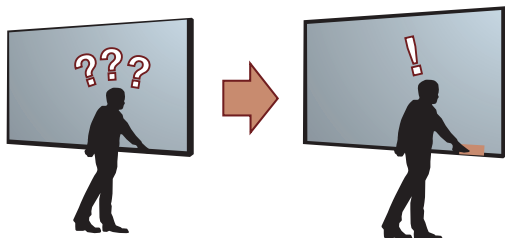
SpectraView Engine

Enhanced imaging performance through advanced settings of all relevant parameters allow full control of brightness, color, gamma and uniformity via integrated color-critical chipset.



Key Guide

New Key Guide function allows for easier access to buttons when manually controlling the unit via the buttons on the back of the display by adding a graphic on the screen that directs the customer to the correct button layout in both landscape and portrait modes.



(EXIT) (▼) (▲) (←) (→) (SET) (MUTE) (|)

NaViSet Administrator 2

This software is an all-in-one remote support solution that runs from a central location and provides monitoring, asset management and control functionality of the majority of NEC display devices and Windows computers. It is ideal for multi-device installations over larger infrastructures.



Intelligent Wireless Data Function

The built-in near field communication (NFC) chip allows data to be read and written via a mobile phone or tablet PC. Users can significantly reduce installation costs as displays can be easily configured and serviced using the NEC NFC Android app. This is extremely useful for larger rollouts as it can be utilized even when the display is powered off.



Protective Glass

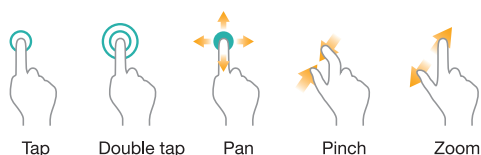
The display is protected with tempered and anti-glare coated glass that allows for smooth finger-sliding and resistance from minor scratches and other impact.



*Example image.

Integrated IR Touch

Integrated touch sensors allow for up to 10 simultaneous points of contact.*

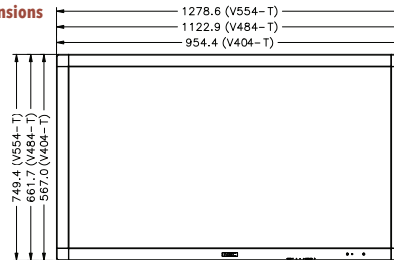


*Note - dependent on source and application

Specifications

		V404-T	V484-T	V554-T
LCD MODULE				
Panel Technology		SPVA		S-IPS
Viewable Image Size		40"	48"	55"
Native Resolution		1920 x 1080		
Brightness (Typical)		440 cd/m ²		
Contrast Ratio (Typical)		4000:1		1300:1
Viewing Angle		178° Vert., 178° Hor. (89U/89D/89L/89R) @ CR>10		
Aspect Ratio		16:9		
Displayable Colors		Over 1.07 Billion		
Orientation		Landscape, Portrait, Face Up, Face Down		
CONNECTIVITY				
Input Terminals	Digital	HDMI 2.0 x2 (with HDCP), DVI-D (with HDCP), DisplayPort x2 (with HDCP)		
	Analog	VGA 15-pin D-SUB, RCA Composite		
	Audio	3.5mm Audio Mini Jack x2, DisplayPort Audio x2, HDMI Audio x2		
	External Control	LAN (100Mbps), 3.5 Mini Jack IR Remote, RS232C		
Output Terminals	Data	microSD (Media Player), USB 2.0 (Media Player), USB 2.0 (Service), USB Type-B (Upstream), USB 2.0 x2 (Compute Module, Powered 5V/2A)		
	Digital	DisplayPort (Outputs DisplayPort or OPS)		
	Audio	3.5mm Audio Mini Jack		
	External Control	LAN (100Mb)		
POWER CONSUMPTION				
On (Typ/Max)		75W/95W	85W/105W	110W/150W
Network Standby		3W		
Normal Standby		<0.5W		
Current Rating		2.7A - 1.1A @ 100V - 240V	2.7A - 1.1A @ 100V - 240V	3.3A - 1.4A @ 100V - 240V
Speaker Rating		Integrated 10W x 10W, Optional 15W x 2		
PHYSICAL SPECIFICATIONS				
Bezel Width (L/R, T/B)		33.4mm/33.4mm/33.4mm/33.4mm		
Net Dimensions (Without stand; W x H x D)		37.6 x 22.3 x 3.1 in. 954.4 x 567.0 x 77.7 mm	44.2 x 26.1 x 3.1 in. 1122.9 x 661.7 x 77.7 mm	50.3 x 29.5 x 3.4 in. 1278.6 x 749.4 x 85.9 mm
Net Weight (Without Stand)		50.0lbs / 22.7kg	62.8 lbs. / 28.5kg	86.0 lbs. / 39.0kg
VESA Hole Configuration		4x M6 x 12mm (300 x 300)		
SENSORS				
Ambient Light Sensor		Integrated and programmable		
Human Sensor		Optional through KT-RC2 Accessory		
Temperature Sensor		Integrated and programmable; linked to cooling fans		
NFC Sensor		Integrated; works in conjunction with free NEC Intelligent Wireless Data Application		
ENVIRONMENTAL CONDITIONS				
Operating Temperature		0 to 40C		
Operating Humidity		20-80%		
Operating Altitude		3000m (9843ft)		
TOUCH PANEL				
Glass Type		Thermal Tempered Singled-sided AG		
Touch Technology		IR Scanning		
Operating System Support		Windows		
Object Size		±2.0mm at 90% of touchable active area		
LIMITED WARRANTY		3 years Advanced Replacement		
ADDITIONAL FEATURES		Ambient Light Sensor, AMX Support, Auto ID/Auto TileMatrix, Automated Email Alert Function, CEC Support through HDMI, Creston Roomview Support, DICOM Simulation, Display Browser Control, Display Wall Calibrator Compatible, High Haze Panel, Image Flip, Intelligent Wireless Data (NFC), Key Guide, Media Player through Browser Control/SD Card/USB, Multi Picture Mode, Nav/Set Administrator 2 Compatible, OSD Rotation for Portrait Orientation, OPS Compatible, Integrated anti-glare and tempered protective glass, Integrated IR Touch, PJ Link Support, Point Zoom Function, Power USB Port (5V/2A), Programmable LUT x3, Raspberry Pi Compute Module Compatible, Removable Logo Ornament, Real Time Clock, SpectraView Engine Support, SNMP Support, 24-Hour Scheduler Function, UHD Support through HDMI/DisplayPort		
SHIPS WITH		3m AC Power Cord, 1.8m DVI Cable, IR Remote Control, Batteries, CD-ROM (User Manual)		
OPTIONAL ACCESSORIES		Table Top Stand (ST-401), Optional Speakers (SP-1F1), All OPS Option Cards, Raspberry Pi Compute Module 1 and 3 with optional NEC Interface Board, Wall Mount (WMK-3298T), Slim Wall Mount (WMK-3255S), Human Sensor (KT-RC2)		

Dimensions



Options

OPS PC's

OPS-TCIS-PS
OPS-PCAEQ-PS2
OPS-API5-PS



SDI

HD-SDI SB-01HC
3G-SDI SB-04HC



HDBaseT SB-07BC



Compute Module

Compute Module Interface Board D51-IF10CE
NEC Raspberry Pi Compute Module RP3CM16GB



Tabletop Stand ST-401



Speaker SP-1F1



Input Panels

1. DVI-D
2. HDMI IN2
3. DisplayPort IN2
4. DisplayPort IN1
5. DisplayPort OUT
6. VGA (RGB, YPbPr)
7. Audio IN1
8. Audio IN2
9. External Speaker Terminal
10. Internal/External Speaker Switch
11. Audio OUT
12. USB1
13. USB2
14. USB CM1 (2A)
15. USB CM2
16. LAN1
17. LAN2
18. VIDEO IN
19. USB MP
20. microSD
21. REMOTE IN
22. RS-232C
23. HDMI IN1



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MXA920

Specifications

Specifications for Shure MXA920-S and MXA920-R ceiling array microphones.
Version: 0.1 (2022-D)



Shure Incorporated

Table of Contents

MXA920 Specifications	3	MXA920 Frequency Response	4
		Dimensions	5

MXA920 Specifications

General

Coverage Type

Automatic or steerable

Power Requirements

Power over Ethernet (PoE), Class 0

Power Consumption

10.1 W maximum

Control Software

Designer or web application

Plenum Rating

MXA920-S	UL2043 (Suitable for Air Handling Spaces)
MXA920-R	Not rated

Dust Protection

IEC 60529 IP5X Dust Protected

Operating Temperature Range

-6.7°C (20°F) to 40°C (104°F)

Storage Temperature Range

-29°C (-20°F) to 74°C (165°F)

Networking

Cable Requirements

Cat5e or higher (shielded cable recommended)

Connector Type

RJ45

Audio

AES67 or Dante Digital Output

Channel Count	Automatic coverage on	2 total channels (1 output, 1 AEC reference in channel)
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Shure Incorporated

	Automatic coverage off	10 total channels (8 independent transmit channels, 1 automix output, 1 AEC reference in channel)
Sampling Rate		48 kHz
Bit Depth		24

Sensitivity

at 1 kHz

-1.74 dBFS/Pa

Maximum SPL

Relative to 0 dBFS overload

95.74 dBSPL

Signal-to-Noise Ratio

Ref. 94 dBSPL at 1 kHz

75.76 dB A-weighted

Latency

Does not include Dante latency

Direct outputs (Automatic coverage off)	15.9 ms
Automix output (Includes IntelliMix processing)	26.6 ms

Self Noise

18.24 dB SPL-A

Dynamic Range

77.5 dB

Digital Signal Processing

Automatic mixing, acoustic echo cancellation (AEC), noise reduction, automatic gain control, compressor, delay, equalizer (4-band parametric), mute, gain (140 dB range)

Acoustic Echo Cancellation Tail Length

Up to 250 ms

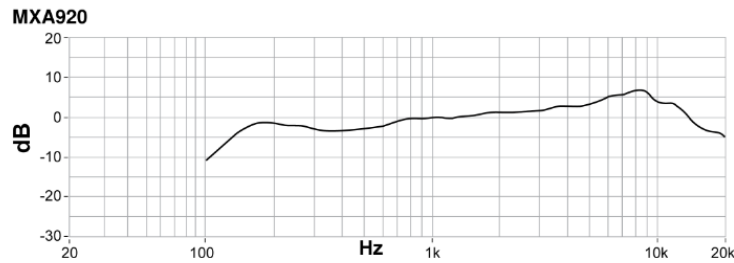
Frequency Response

125 Hz to 20,000 Hz

MXA920 Frequency Response

Frequency response measured directly on-axis from a distance of 6 feet (1.83 m).

Shure Incorporated



Dimensions

Weight

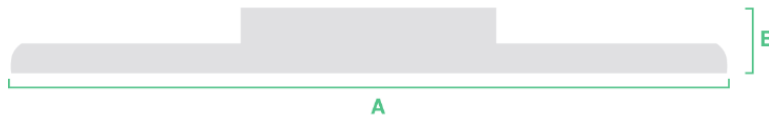
- MXA920-S: 11.8 lbs (5.4 kg)
- MXA920-R: 12.7 lbs (5.8 kg)

MXA920-S



- A (Microphone flange): 0.41 in. (10.5 mm)
- B (Edge to edge): 23.77 in. (603.8 mm)
- C (Height): 2.15 in. (54.69 mm)

MXA920-S-60CM



- A (Edge to edge): 23.38 in. (593.8 mm)
- B (Height): 2.15 in. (54.69 mm)

Shure Incorporated

MXA920-R



- A (Height to top of eyelets): 2.4 in. (61.3 mm)
- B (Outer diameter): 25 in. (635.4 mm)

SLX-D DIGITAL WIRELESS SYSTEMS



Your performance should never be in question. Whether presenting, educating, praising or entertaining, your relationship with your audience is singular. With SLX-D Digital Wireless you can stand confidently on a strong foundation and build the wireless installation to match ongoing demands, from day-long conference to nighttime performances.

ALWAYS COME THROUGH CLEAR

In front of an audience, clarity is simply essential. SLX-D provides crystal-clear digital audio quality with >118 dB dynamic range.

DROPOUTS ARE OUT

From the leader in digital wireless technology, SLX-D maintains stable signals with high efficiency for rock-solid, reliable performance.

KEEP THE SHOW GOING

Ready to perform for all-day conferences and nighttime performances—up to 8 hours of use from either 2 AA batteries (included) or optional Shure SB903 Li-ion rechargeable batteries and charging accessories.

APPLICATIONS

Event, Presentation and Speech

House of Worship

Performance and Clubs

PRODUCT HIGHLIGHTS

Extended 20 Hz to 20 kHz frequency range
(microphone dependent)

118 dB dynamic range

Digital predictive switching diversity

44 MHz tuning bandwidth (region dependent)

32 available channels per frequency band (region dependent)

Up to 10 compatible systems per 6MHz TV band; 12
systems per 8 MHz band

Easy pairing of transmitters and receivers over IR scan
and sync

Compatible with Shure Wireless Workbench® control
software

Remote control via ShurePlus™ Channels mobile app

Up to 8 hours from 2 AA batteries or optional Shure
SB903 rechargeable battery

SHURE

SLX-D DIGITAL WIRELESS SYSTEMS

SYSTEM SPECIFICATIONS (SUBJECT TO CHANGE)

RF	
RF Carrier Frequency Range	470–937.5 MHz <i>Varies by Region. See Frequency Range and Output Power Table.</i>
Working Range	100 m (328 ft) <i>Note: Actual range depends on RF signal absorption, reflection and interference.</i>
RF Tuning Step Size	JB Band: 125 kHz All Other Bands: 25 kHz <i>Varies by region.</i>
Image Rejection	>70 dB <i>typical</i>
RF Sensitivity	–97 dBm at 10 ^{–5} BER
AUDIO	
Latency	3.2 ms
High-Pass/Low Cut Filter	150 Hz, –12 dB/octave <i>Note: factory default is for the HPF to be off</i>
Audio Frequency Response	20 Hz–20 kHz (+1, –2 dB)
Audio Dynamic Range <i>A-weighted, 20 Hz–20 kHz, typical</i>	118 dB @1% THD
Total Harmonic Distortion	<0.02%
System Audio Polarity	XLR: Positive pressure on microphone diaphragm produces positive voltage on pin 2 with respect to pin 3 of XLR output. TRS: Positive pressure on microphone diaphragm produces positive voltage on the tip of the 6.35 mm (1/4-inch) with respect to the ring of the 6.35 mm output.
Mic Offset Range	0 to 21 dB (in 3 dB steps)
TEMPERATURE RANGE <i>Note: Battery characteristics may limit this range.</i>	
Operating Temperature Range	0 °F to 122 °F (–18 °C to 50 °C)
Storage Temperature Range	–20 °F to 165 °F (–29 °C to 74 °C)

NOTE: This Radio equipment is intended for use in musical professional entertainment and similar applications. This Radio apparatus may be capable of operating on some frequencies not authorized in your region. Please contact your national authority to obtain information on authorized frequencies and RF power levels for wireless microphone products.

FREQUENCY RANGE

Band	Range (MHz)	Transmitter Output (mW)
G58	470 to 514	1/10
G59	470 to 514	1/10
G60	470 to 510	1/10
G61	479 to 523	1/10
G62	510 to 530	1/10
H55	514 to 558	1/10
H56	518 to 562	1/10
H57	520 to 564	1/10
J52	558 to 602, 614 to 616	1/10
J53	562 to 606	1/10
J54	562 to 606	1/10
JB	806 to 810	1/10
K59	606 to 650	1/10
L55	646 to 690	1/10
L56	650 to 694	1/10
L57	650 to 694	1/10
L58	630 to 674	1/10
L59	654 to 698	1/10
M55	694 to 703, 748 to 758	1/10
S50	823 to 832	1/10
X51	925 to 937.5	1/10

*Note: Not all frequencies available in all regions.
Contact your authorized Shure dealer for availability.

AVAILABLE CONFIGURATIONS

SLXD14	Wireless System with SLXD1 Bodypack Transmitter and WA305 Instrument Cable	SLXD24/SM58	Wireless System with SM58® Handheld Transmitter
SLXD14/DL4	Wireless System with SLXD1 Bodypack Transmitter and DL4B Lavalier Microphone	SLXD24/SM86	Wireless System with SM86 Handheld Transmitter
SLXD14/83	Wireless System with SLXD1 Bodypack Transmitter and WL183 Lavalier Microphone	SLXD24/B58	Wireless System with Beta® 58A Handheld Transmitter
SLXD14/85	Wireless System with SLXD1 Bodypack Transmitter and WL185 Lavalier Microphone	SLXD24/B87A	Wireless System with Beta® 87A Handheld Transmitter
SLXD14/93	Wireless System with SLXD1 Bodypack Transmitter and WL93 Miniature Lavalier Microphone	SLXD24/B87C	Wireless System with Beta® 87C Handheld Transmitter
SLXD14/153B	Wireless System with SLXD1 Bodypack Transmitter and MX153 (Black) Omni. Condenser Earset	SLXD24/K8B	Wireless System with KSM8 Duality™ Handheld Transmitter
SLXD14/153T	Wireless System with SLXD1 Bodypack Transmitter and MX153 (Tan) Omni. Condenser Earset	SLXD24D/SM58	Dual Wireless System with 2 SLXD2/SM58 Handheld Transmitters
SLXD14/98H	Wireless System with SLXD1 Bodypack Transmitter and Beta® 98H/C Miniature Instrument Microphone	SLXD24D/B58	Dual Wireless System with 2 SLXD2/B58 Handheld Transmitters
SLXD14/SM35	Wireless System with SLXD1 Bodypack Transmitter and SM35 Headset Microphone	SLXD14D	Dual Wireless System with two SLXD1 Bodypack Transmitters
SLXD124/85	Handheld and Lavalier Combo Wireless System		

Not all systems are available in all regions. Contact your Authorized Shure Dealer for availability in your region.

OPTIONAL ACCESSORIES (SEE SHURE.COM FOR MORE)

SB903	Shure Lithium Ion Rechargeable Battery	UA8IAST	Inline Power Supply	UA221	UHF Passive Antenna Splitter
SBC203	Dual Docking Charger	UA834	Inline Antenna Amplifier	UA600	Front Mount Antenna Kit
SBC10-903	Single Battery Charger	UA874	Active Directional Antennas	UA505	Remote Antenna Bracket with BNC Bulkhead Adapter
UA8	Half-Wave Omnidirectional Receiver Antennas	PA8055WB	Directional Wideband Antenna, 470–952 MHz	HA-8089	Helical Antenna
UA844+SWB	Antenna/Power Distribution System 470–960 MHz	PA805X	Directional Wideband Antenna, 650–1100 MHz		
UA845UWB	Ultra Wideband Antenna/Power Distribution System, 174–1804 MHz	UA860	Passive Omnidirectional Antenna, 470–1100 MHz		

SLXD4 DIGITAL WIRELESS RECEIVER

SPECIFICATIONS

(SUBJECT TO CHANGE)

Dimensions (H x W x D)	1.65 x 7.76 x 5.98 in (42 x 197 x 152 mm)
Weight	1.8 lb (816 g) without antennas
Housing	Galvanized Steel
Power Requirements	15 VDC @ 600 mA Supplied by external power supply (tip positive)

RF INPUT

Spurious Rejection	>75 dB Typical
Connector Type	BNC
Impedance	50 Ω

AUDIO OUTPUT

Gain Adjustment Range	-18 to +42 dB in 1 dB steps
Configuration	1/4" (6.35 mm): Balanced (Tip=audio +, Ring=audio -, Sleeve=ground) XLR: Balanced (1=ground, 2=audio +, 3=audio -)
Impedance	1/4" (6.35 mm): 1.3 kΩ (670 Ω Unbalanced) XLR (line): 400 Ω (200 Ω Unbalanced) XLR (mic): 150 Ω
Full Scale Output	1/4" (6.35 mm): +15 dBV differentially (+9 dBV single) XLR (LINE setting): +15 dBV XLR (MIC setting): -15 dBV
Mic/Line Switch	30 dB pad
Phantom Power Protection	1/4" (6.35 mm): Yes XLR: Yes

NETWORKING

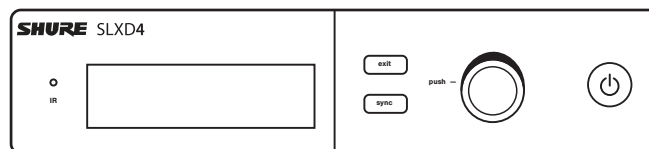
Network Interface	Single Port Ethernet 10/100 Mbps
Network Addressing Capability	DHCP or Manual IP address
Maximum Cable Length	100 m (328 ft)

OVERVIEW

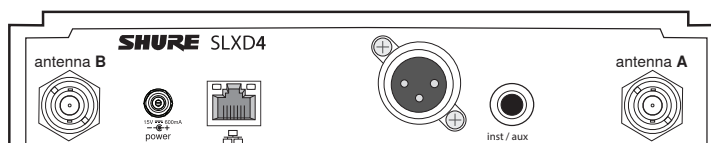
SLX-D Digital Wireless delivers transparent, 24-bit digital audio and rock solid RF performance with easy setup and rechargeability options in a suite of versatile wireless system configurations. Featuring industry-leading digital wireless technology and design, the SLXD4 easily syncs wireless transmitters. A variety of interchangeable vocal microphone choices guarantees the right solution for a wide range of applications, from day-long conference to nighttime performances.

FEATURES

- Transparent 24-bit digital audio
- Extended 20 Hz to 20 kHz frequency range (microphone dependent)
- 118 dB dynamic range
- Digital predictive switching diversity
- 44 MHz tuning bandwidth (region dependent)
- 32 available channels per frequency band (region dependent)
- Up to 10 compatible systems per 6MHz TV band; 12 systems per 8 MHz band
- Easy pairing of transmitters and receivers over scan and IR sync
- Compatible with Shure Wireless Workbench® control software
- Remote monitoring and control via ShurePlus™ Channels app
- Rugged metal construction



SLXD4
Front Panel



SLXD4
Back Panel

SLXD4D DUAL-CHANNEL DIGITAL WIRELESS RECEIVER

SPECIFICATIONS

(SUBJECT TO CHANGE)

Dimensions (H x W x D)	1.65 x 15.5 x 5.98 in (42 x 393 x 152 mm)
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Weight	3.2 lb (1451 g) without antennas
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Housing	Galvanized Steel
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Power Requirements	15 VDC @ 600 mA Supplied by external power supply (tip positive)
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RF INPUT

Spurious Rejection	>75 dB Typical
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Connector Type	BNC
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Impedance	50 Ω
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AUDIO OUTPUT

Gain Adjustment Range	-18 to +42 dB in 1 dB steps
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Configuration	1/4" (6.35 mm): Balanced (Tip=audio +, Ring=audio -, Sleeve=ground) XLR: Balanced (1=ground, 2=audio +, 3=audio -)
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Impedance	1/4" (6.35 mm): 1.3 k Ω (670 Ω Unbalanced) XLR (line): 400 Ω (200 Ω Unbalanced) XLR (mic): 150 Ω
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Full Scale Output	1/4" (6.35 mm): +15 dB differentially (+9 dBV single) XLR (LINE setting): +15 dBV XLR (MIC setting): -15 dBV
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Mic/Line Switch	30 dB pad
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Phantom Power Protection	1/4" (6.35 mm): Yes XLR: Yes
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NETWORKING

Network Interface	Single Port Ethernet 10/100 Mbps
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Network Addressing Capability	DHCP or Manual IP address
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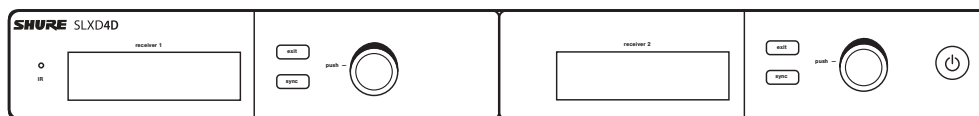
Maximum Cable Length	100 m (328 ft)
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OVERVIEW

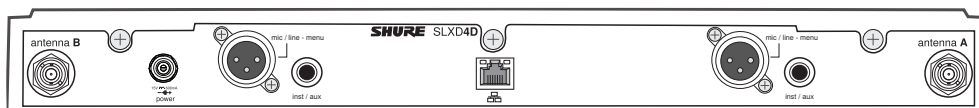
SLX-D Digital Wireless delivers transparent, 24-bit digital audio and rock solid RF performance with easy setup and rechargeability options in a suite of versatile wireless system configurations. Featuring industry-leading digital wireless technology and design, the SLXD4D easily syncs wireless transmitters. A variety of interchangeable vocal microphone choices guarantees the right solution for a wide range of applications, from day-long conference to nighttime performances.

FEATURES

- Transparent 24-bit digital audio
- Extended 20 Hz to 20 kHz frequency range (microphone dependent)
- 118 dB dynamic range
- Digital predictive switching diversity
- 44 MHz tuning bandwidth (region dependent)
- 32 available channels per frequency band (region dependent)
- Up to 10 compatible systems per 6MHz TV band; 12 systems per 8 MHz band
- Easy pairing of transmitters and receivers over scan and IR sync
- Compatible with Shure Wireless Workbench® control software
- Remote monitoring and control via ShurePlus™ Channels app
- Rugged metal construction



SLXD4D
Front Panel



SLXD4D
Back Panel

SLXD1 DIGITAL WIRELESS BODYPACK TRANSMITTER

SPECIFICATIONS

(SUBJECT TO CHANGE)

Battery Type	Rechargeable Li-Ion or 1.5 V AA batteries
Dimensions (H x W x D)	3.86 x 2.68 x 1.0 in (98 x 68 x 25.5 mm)
Weight	3.1 oz (89 g)
Housing	PC/ABS

AUDIO INPUT

Connector	4-Pin male mini connector (TA4M)
Configuration	Unbalanced
Impedance	1 MΩ
Maximum Input Level	8.2 dBV (2.57 Vrms, 7.27 Vpp)
Preamplifier Equivalent Input Noise (EIN)	-118 dBV

RF OUTPUT

Antenna Type	1/4 Wave
Occupied Bandwidth	<200 kHz
Modulation Type	Shure Proprietary Digital
Power	1 mW/10 mW Varies by region. See Frequency Range and Output Power Table.

MICROPHONE OPTIONS SEE SHURE.COM FOR MORE OPTIONS

DL4B	DuraPlex™ Omnidirectional Waterproof Lavalier Microphone
WL183	Omnidirectional Condenser Lavalier Microphone
WL185	Cardioid Condenser Lavalier Microphone
WL93	Omnidirectional Miniature Condenser Microphone
MX153T	Microflex® Headworn Earset Microphone, Tan
MX153B	Microflex® Headworn Earset Microphone, Black
SM35	Cardioid Condenser Headworn Microphone
WB98H/C	Beta® 98H/C Clip-On Condenser Instrument Microphone
WA305	1/4" Locking Instrument Cable

OVERVIEW

SLX-D Digital Wireless delivers transparent, 24-bit digital audio and rock solid RF performance with easy setup and rechargeability options in a suite of versatile wireless system configurations. Featuring industry-leading digital wireless technology and design, the SLXD1 easily syncs with a wireless receiver. TQG connectivity to a variety of microphone options guarantees the right solution for a wide range of applications, from day-long conference to nighttime performances.

FEATURES

- Transparent 24-bit digital audio
- Extended 20 Hz to 20 kHz frequency range (microphone dependent)
- 118 dB dynamic range
- Digital predictive switching diversity
- 44 MHz tuning bandwidth (region dependent)
- 32 available channels per frequency band (region dependent)
- Up to 10 compatible systems per 6MHz TV band; 12 systems per 8 MHz band
- Easy pairing of transmitters and receivers over scan and IR sync
- Up to 8 hours from 2 AA batteries or optional Shure SB903 rechargeable battery
- TQG connectivity offers a variety of microphone options
- Ergonomic, durable plastic construction



SLXD1
Bodypack Transmitter

SLXD2 DIGITAL WIRELESS HANDHELD TRANSMITTER

SPECIFICATIONS

(SUBJECT TO CHANGE)

Battery Type	Rechargeable Li-Ion or 1.5 V AA batteries
Dimensions (Dia. x L)	1.46 x 6.93 in (37.1 x 176 mm)
Weight	5.2 oz. (147 g)
Housing	Aluminum

AUDIO INPUT

Configuration	Unbalanced
Maximum Input Level	8.2 dBV (2.57 Vrms, 7.27 Vpp) <i>Note: Dependent on Microphone Type</i>

RF OUTPUT

Antenna Type	Integrated Single-Band Helical
Occupied Bandwidth	<200 kHz
Modulation Type	Shure Proprietary Digital
Power	1 mW/10 mW <i>Varies by region. See Frequency Range and Output Power Table.</i>

MICROPHONE OPTIONS SEE SHURE.COM FOR MORE OPTIONS

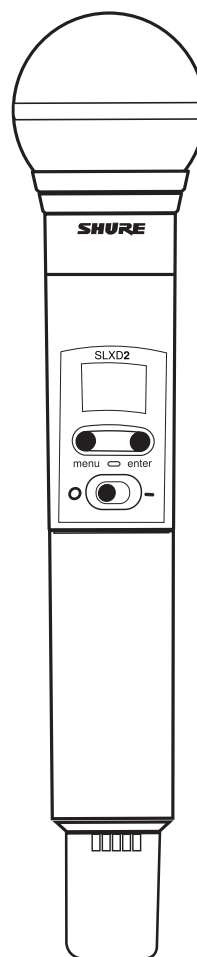
SM58®	Industry Standard Cardoid Dynamic Vocal Microphone
Beta® 87A	Supercardioid Condenser Vocal Microphone
Beta® 87C	Cardioid Condenser Vocal Microphone
SM86	Cardioid Condenser Vocal Microphone
KSM8	Dual-Diaphragm Dynamic Vocal Microphone

OVERVIEW

SLX-D Digital Wireless delivers transparent, 24-bit digital audio and rock solid RF performance with easy setup and rechargeability options in a suite of versatile wireless system configurations. Featuring industry-leading digital wireless technology and design, the SLXD2 easily syncs with a wireless receiver. A variety of interchangeable vocal microphone choices guarantees the right solution for a wide range of applications, from day-long conference to nighttime performances.

FEATURES

- Transparent 24-bit digital audio
- Extended 20 Hz to 20 kHz frequency range (microphone dependent)
- 118 dB dynamic range
- Digital predictive switching diversity
- 44 MHz tuning bandwidth (region dependent)
- 32 available channels per frequency band (region dependent)
- Up to 10 compatible systems per 6MHz TV band; 12 systems per 8 MHz band
- Easy pairing of transmitters and receivers over scan and IR sync
- Up to 8 hours from 2 AA batteries or optional Shure SB903 rechargeable battery
- Interchangeable microphone capsules
- Rugged metal construction



SLXD2
Handheld Transmitter

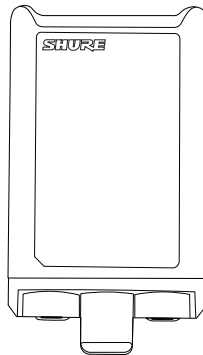
SLX-D DIGITAL WIRELESS RECHARGEABLE POWER MANAGEMENT

SPECIFICATIONS

(SUBJECT TO CHANGE)

SB903 LI-ION RECHARGEABLE BATTERY

Charge Voltage	4.2 V (+0.03 V)
Charge Current	SBC10-903: 220 mA SBC203: 625 mA (normal) 250 mA (reduced)
Nominal Voltage	3.6 V
Nominal Capacity	1200 mAh
Housing	Molded Polycarbonate
Charging Temperature Range	SBC10-903: 50 °F to 113 °F (10 °C to 45 °C) SBC203: 50 °F to 113 °F (10 °C to 45 °C), normal 32 °F to 50 °F (0 °C to 10 °C), reduced
Dimensions (H × W × L)	0.57 × 1.28 × 2.19 in (14.5 × 32.5 × 55.5 mm)
Weight	1 oz. (28 g)



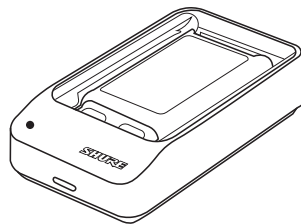
SB903
Rechargeable Lithium Ion Battery

SB903 LITHIUM-ION RECHARGEABLE BATTERY

Want to know the exact amount of battery charge left? SB903 rechargeable lithium-ion batteries unlock real-time battery life and battery health features for SLX-D Digital Wireless transmitters.

SBC10-903 SINGLE BATTERY CHARGING SLED

DC Input Voltage Range	5 VDC
Charge Current	220 mA USB-powered
Charge Time	50%: 3 hours 100%: 5 hours, 30 minutes
Charge Voltage	4.2 V
Charging Temperature Range	50 °F to 113 °F 10 °C to 45 °C
Dimensions (H × W × L)	0.81 × 1.48 × 3.13 in (20.5 × 37.5 × 79.5 mm)
Weight	1.3 oz (39 g)
Housing	Molded Polycarbonate
POWER SUPPLY	
Input Voltage Range	100 to 240 VAC
Operating Frequency	50 to 60 Hz
Maximum Input Power	0.2 A at 100 VAC full load
Output Voltage	4.75 to 5.25 VDC
Maximum Output Power	1.0 A at 5 VDC
Charging Temperature Range	32 °F to 140 °F (0 °C to 60 °C)



SBC10-903
Single Battery Charging Sled

SBC10-903 SINGLE BATTERY CHARGER FOR SB903 BATTERY

USB single battery charger can be powered from A/C power sources and USB ports to charge one Shure SB903 Lithium-Ion Rechargeable Battery for use with SLX-D Digital Wireless Transmitters.

SLX-D DIGITAL WIRELESS RECHARGEABLE POWER MANAGEMENT

SPECIFICATIONS

(SUBJECT TO CHANGE)

SBC203 DUAL-DOCKING RECHARGING STATION

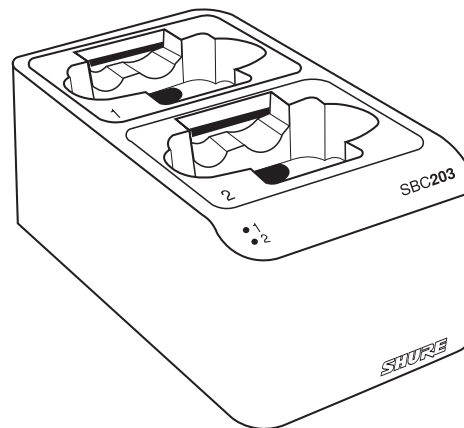
Charge Current	625 mA or 250 mA <i>Lower current used when using another power source, or operating between 32 °F and 50 °F (0 °C and 10 °C)</i>
Charge Time	50%: 1 hour, 15 minutes 100%: 2 hours, 30 minutes
External Power Supply	SBC10-USB15W or SBC10-USB15WS
Power Requirements	5 VDC, 3 A max
Charging Temperature Range for Battery	32 °F to 113 °F (0 °C to 45 °C)
Dimensions (H x W x L)	2.6 x 3.9 x 6.5 in 66 x 99 x 165 mm
Weight	10.0 oz (284 g)
Housing	ABS

POWER SUPPLY

Input Voltage Range	100 to 240 VAC
Operating Frequency	50 to 60 Hz
Maximum Input Power	0.6 A at 100 VAC full load
Output Voltage	4.75 to 5.25 VDC
Maximum Output Power	3.0 A at 5 V
Operating Temperature Range	32 °F to 140 °F (0 °C to 60 °C)

SBC203 DUAL-DOCKING RECHARGING STATION FOR SB903 LITHIUM-ION BATTERY

Dual docking recharging station charges two SB903 lithium-ion batteries in or out of their transmitters. Built to charge two batteries, two body pack transmitters, two handheld transmitters or any pairing of two SLX-D transmitters or SB903 batteries.



SBC203
Dual-Docking Recharging Station

WL18XM LOW-PROFILE LAVALIER MICROPHONES

OVERVIEW

Shure WL185m, WL184m, and WL183m are professional low-profile lavalier microphones for use with compatible wireless bodypack transmitters. 8 mm shorter than their predecessors, the WL185m, WL184m, and WL183m lavaliers deliver full and accurate sound quality with an improved presence response that reproduces crystal clear vocals. For flexible placement on speakers, presenters, and performers, each lavalier is available in either black or white with LEMO or TA4F connector options, and the innovative tie clip can be rotated in 90° intervals for accurate positioning. Shure WL185m, WL184m, and WL183m professional lavaliers include a snap-fit windscreen, single tie clip, and zippered bag for storage and transport.

FEATURES

- Professional low-profile lavalier condenser microphones
- Cardioid (WL185m), Supercardioid (WL184m), and Omnidirectional (WL183m) polar pattern options
- 8 mm shorter than original WL18X series
- Higher dynamic range with improved max SPL, self-noise, and general sound quality when compared to original WL18X series
- Available in either black or white colors to suit various situations
- Available in either TA4F or LEMO connector options
- Ships with lavalier, tie clip, snap-fit foam windscreen, and zippered storage bag

SPECIFICATIONS

(SUBJECT TO CHANGE)

	WL185m	WL184m	WL183m
Microphone Capsule	Condenser	Condenser	Condenser
Polar Pattern	Cardioid	Supercardioid	Omnidirectional
Frequency Response	70 Hz – 20 kHz	70 Hz – 20 kHz	70 Hz – 20 kHz
Sensitivity 1 Pa = 94 dB SPL	-43.0 dBV/Pa (TA4F) -37.0 dBV/Pa (LEMO)	-47.0 dBV/Pa (TA4F) -41.0 dBV/Pa (LEMO)	-44.0 dBV/Pa (TA4F) -39.0 dBV/Pa (LEMO)
Self-Noise A-Weighted, Equivalent Acoustical	20 dB SPL (TA4F) 19.5 dB SPL (LEMO)	23 dB SPL (TA4F) 24 dB SPL (LEMO)	20 dB SPL (TA4F) 22 dB SPL (LEMO)
Signal-to-Noise Ratio (Using RPM400 Preamp)	74.0 dB (TA4F) 74.5 dB (LEMO)	71.0 dB (TA4F) 70.0 dB (LEMO)	74.1 dB (TA4F) 72.0 dB (LEMO)
Maximum SPL (1% THD)	140.5 dB SPL (TA4F) 134 dB SPL (LEMO)	144 dB SPL (TA4F) 138 dB SPL (LEMO)	141 dB SPL (TA4F) 133.5 dB SPL (LEMO)
Dynamic Range	120.5 dB (TA4F) 114.5 dB (LEMO)	121 dB (TA4F) 114 dB (LEMO)	121 dB (TA4F) 111.5 dB (LEMO)
Microphone Current Draw	140-240 µA	140-240 µA	140-240 µA
Bias Voltage Recommended Operating Voltage	5 VDC Bias	5 VDC Bias	5 VDC Bias
Polarity	Positive pressure produces positive voltage on pin 3 with respect to pin 1	Positive pressure produces positive voltage on pin 3 with respect to pin 1	Positive pressure produces positive voltage on pin 3 with respect to pin 1
Housing	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy
Cable Diameter	2.2 mm	2.2 mm	2.2 mm
Cable Length	48.5" (1.23 m)	48.5" (1.23 m)	48.5" (1.23 m)
Net Weight w/Cable	20.0 g (.71 oz)	20.0 g (.71 oz)	20.0 g (.71 oz)
Capsule Dimensions (L x D)	13.55 mm x 12.74 mm	13.55 mm x 12.74 mm	13.55 mm x 12.74 mm



WL185M
Cardioid Low-Profile
Lavalier Microphone (Black)



WL184M
Supercardioid Low-Profile
Lavalier Microphone (White)



WL183M
Omnidirectional Low-Profile
Lavalier Microphone (Black)

WL18XM LOW-PROFILE LAVALIER MICROPHONES

FURNISHED ACCESSORIES

Single Tie Clip
Snap-fit Windscreen
Zippered Storage Bag

REPLACEMENT ACCESSORIES

RK187T1-B	Single Tie Clip, Black, Qty. 2
RK187T2-B	Dual Tie Clip, Black, Qty. 2
RK187T1-W	Single Tie Clip, White, Qty. 2
RK187T2-W	Dual Tie Clip, White, Qty. 2
RK187WS-B	Snap-Fit Windscreen, Black, Qty. 4
RK187WS-W	Snap Fit Windscreen, White Qty. 4



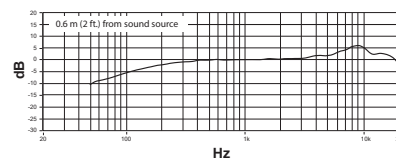
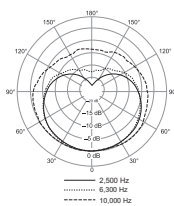
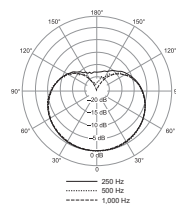
AVAILABLE MODELS

WL185MB/C-TQG	WL185m Cardioid Lavalier Mic, TA4F Connector (Black)	WL184MB/S-TQG	WL184m Cardioid Lavalier Mic, TA4F Connector (Black)	WL183MB/O-TQG	WL183m Cardioid Lavalier Mic, TA4F Connector (Black)
WL185MB/C-LM3	WL185m Cardioid Lavalier Mic, LEMO Connector (Black)	WL184MB/S-LM3	WL184m Cardioid Lavalier Mic, LEMO Connector (Black)	WL183MB/O-LM3	WL183m Cardioid Lavalier Mic, LEMO Connector (Black)
WL185MW/C-TQG	WL185m Cardioid Lavalier Mic, TA4F Connector (White)	WL184MW/S-TQG	WL184m Cardioid Lavalier Mic, TA4F Connector (White)	WL183MW/O-TQG	WL183m Cardioid Lavalier Mic, TA4F Connector (White)
WL185MW/C-LM3	WL185m Cardioid Lavalier Mic, LEMO Connector (White)	WL184MW/S-LM	WL184m Cardioid Lavalier Mic, LEMO Connector (White)	WL183MW/O-LM3	WL183m Cardioid Lavalier Mic, LEMO Connector (White)

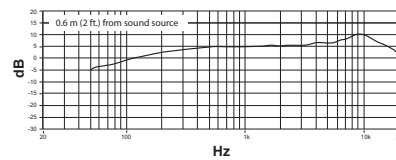
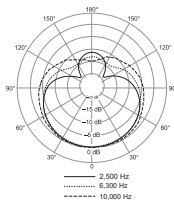
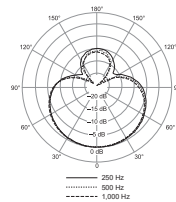
POLAR PATTERNS

FREQUENCY RESPONSE

WL185m



WL184m



WL183m

