

# Expansion Modules

## HIGH SPEED EXPANSION MODULES (XEMs)



Allied Telesis XEM high speed expansion modules offer a high degree of flexibility, which future-proofs network investment against changes in network infrastructure, topologies, and physical link requirements.



XEM expansion modules can be used in a variety of configurations to provide tailored solutions that meet wide-ranging physical networking requirements. Whatever the network requirements, Allied Telesis has a XEM that is ideal for the job.

### Expandability

Achieve expandability with the selection of copper Gigabit XEMs to easily add maximum Gigabit Ethernet port density to the network.

### Flexibility

Enjoy flexibility with fiber Gigabit XEMs that aggregate both copper and fiber links.

### Scalable

Network scalability is simple with the AT-XEM-STK. Use this high speed stacking XEM to create a single "virtual chassis" from two x900 switches, increasing resiliency and port density without increasing management complexity.

### High Performance

Achieve high performance with the extensive range of 10 Gigabit Ethernet XEMs. With true ten Gigabits-per-second throughput, these XEMs provide high speed, high-capacity copper or fiber uplinks at up to 20Gbps of non-blocking throughput per XEM.

## XEM-Compatible Products

### SwitchBlade® x908

Advanced Layer 3+ Modular Switch  
» 8 x 60Gbps expansion bays

### x900-24XT-P

Advanced Gigabit Layer 3+ Expandable Switch  
» 2 x 60Gbps expansion bays and 24 x 10/100/1000T (RJ-45) copper ports

### x900-24XT-N

Advanced Gigabit Layer 3+ Expandable Switch  
» 2 x 60Gbps expansion bays and 24 x 10/100/1000T (RJ-45) copper ports. NEBS compliant

### x900-24XS-P

Advanced Gigabit Layer 3+ Expandable Switch  
» 2 x 60Gbps expansion bays and 24 x 100/1000X SFP ports

### x900-12XT/S

Advanced Gigabit Layer 3+ Expandable Switch  
» 1 x 60Gbps expansion bay and 12 x combo ports (10/100/1000T copper or SFP)

## Key Features

- » Maximum flexibility
- » Interoperable with the SwitchBlade x908 and the x900 Series switches
- » Extended mode on SwitchBlade x908



## Specifications

### Environmental Specifications

- » Operating temperature range: 0°C to 40°C (32°F to 104°F) with x900-24 Series and SwitchBlade x908  
Derated by 1°C per 305 meters (1,000 ft)
- » Operating temperature range: 0°C to 50°C (32°F to 122°F) with the AT-x900-12XT/S  
Derated by 1°C per 305 meters (1,000 ft)
- » Storage temperature range: -25°C to 70°C (-13°F to 158°F)
- » Operating relative humidity range: 5% to 80% non-condensing
- » Storage relative humidity range: 5% to 95% non-condensing
- » Operating altitude: 3,050 meters maximum (10,000 ft)

### Safety

- » Standards: UL60950-1, CAN/CSA-C22.2 No. 60950-1-03, EN60950-1, EN60825-1, AS/NZS 60950.1
- » Certification: UL, cUL, TUV

### Restrictions on Hazardous Substances (RoHS) Compliance

- » EU RoHS compliant
- » China RoHS compliant

### Country of Origin

- » Singapore

# XEM Series | High Speed Expansion Modules

## Physical Specifications

PRODUCT	WIDTH	DEPTH	HEIGHT	WEIGHT	
				UNPACKAGED	PACKAGED
AT-XEM-12T	109mm (4.29 in)	253 mm (9.96 in)	45 mm (1.77 in)	0.82 kg (1.80 lb)	1.4 kg (3.08 lb)
AT-XEM-12S	109mm (4.29 in)	253 mm (9.96 in)	45 mm (1.77 in)	0.82 kg (1.80 lb)	1.4 kg (3.08 lb)
AT-XEM-12Tv2*	109mm (4.29 in)	253 mm (9.96 in)	45 mm (1.77 in)	0.82 kg (1.80 lb)	1.4 kg (3.08 lb)
AT-XEM-12Sv2*	109mm (4.29 in)	253 mm (9.96 in)	45 mm (1.77 in)	0.82 kg (1.80 lb)	1.4 kg (3.08 lb)
AT-XEM-24T**	109mm (4.29 in)	253 mm (9.96 in)	45 mm (1.77 in)	0.82 kg (1.80 lb)	1.4 kg (3.08 lb)
AT-XEM-STK	109mm (4.29 in)	253 mm (9.96 in)	45 mm (1.77 in)	0.82 kg (1.80 lb)	1.4 kg (3.08 lb)
AT-XEM-1XP	109mm (4.29 in)	253 mm (9.96 in)	45 mm (1.77 in)	0.82 kg (1.80 lb)	1.4 kg (3.08 lb)
AT-XEM-2XP	109mm (4.29 in)	253 mm (9.96 in)	45 mm (1.77 in)	0.82 kg (1.80 lb)	1.4 kg (3.08 lb)
AT-XEM-2XS	109mm (4.29 in)	253 mm (9.96 in)	45 mm (1.77 in)	0.82 kg (1.80 lb)	1.4 kg (3.08 lb)
AT-XEM-2XT	109mm (4.29 in)	253 mm (9.96 in)	45 mm (1.77 in)	0.82 kg (1.80 lb)	1.4 kg (3.08 lb)

\* Requires AlliedWare Plus software release 5.4.2 - 2.5 or later

\*\* Requires AlliedWare Plus software release 5.4.3 - 2.5 or later



### XEM-2XT

The XEM-2XT provides two 10G RJ-45 ports that can be used to deliver high speed traffic across existing copper cables, thereby lowering infrastructure costs. The XEM-2XT complies with the 10G standards for cable lengths:

CABLE TYPE	MAXIMUM DISTANCE
Cat-6 unshielded	55 meters
Cat-6 shielded	100 meters
Cat-6a	100 meters
Cat-7	100 meters
Cat-7a	100 meters



### XEM-24T

The XEM-24T provides 24 10/100/1000T copper ports, utilizing the latest RJ Point 5 connectors to double the port density previously available.

### Extended Mode

Extended Mode is a new feature on the SwitchBlade x908 (available from Allied Telesis AlliedWare Plus™ version 5.4.2) to increase the performance of the switch. These improvements make the product more suitable for large Layer 2 networks or core routing applications. The following table describes the increases in system limits when Extended Mode is enabled:

	SWITCHBLADE X908 STANDARD MODE	SWITCHBLADE X908 EXTENDED MODE
MAC ENTRIES	16K	64K
NEXT HOPS	2.5K	8K
QOS TRAFFIC CLASSES	713	4,096
LINK AGGREGATION GROUPS	31	128
ACCESS CONTROL LISTS	1,024	4,096

### XEM Compatibility

SwitchBlade x908 Extended Mode can be enabled via the CLI when compatible XEMs are installed. When Extended Mode is enabled, each of the XEMs that are installed in the SwitchBlade x908 is re-configured. Any XEM that does not support Extended Mode will be disabled when Extended Mode is enabled. The table below shows the XEMs that can be used in each switch:

	X900-12XT/S X900-24X	SWITCHBLADE X908 STANDARD MODE	SWITCHBLADE X908 EXTENDED MODE
AT-XEM-12T	■	■	
AT-XEM-12S	■	■	
AT-XEM-12Tv2	■	■	■
AT-XEM-12Sv2	■	■	■
AT-XEM-24T	■	■	■
AT-XEM-STK	■		
AT-XEM-1XP	■	■	
AT-XEM-2XP	■	■	■
AT-XEM-2XS	■	■	■
AT-XEM-2XT	■	■	■

# XEM Series | High Speed Expansion Modules

## Ordering Information

### AT-XEM-I2T

12 x 10/100/1000T (RJ-45) ports

### AT-XEM-I2S

12 x 100/1000X SFP ports

### AT-XEM-I2Tv2

12 x 10/100/1000T (RJ-45) ports

### AT-XEM-I2Sv2

12 x 1000X SFP ports

### AT-XEM-24T

24 x 10/100/1000T (RJ Point 5) ports

### AT-XEM-1XP

1 x 10GbE (XFP) port

### AT-XEM-2XP

2 x 10GbE (XFP) ports

### AT-XEM-2XS

2 x 10GbE (SFP+) ports

### AT-XEM-2XT

2 x 10GbE (RJ-45) ports

### AT-XEM-STK

2 x high speed stacking ports

## SFP Modules

### AT-SPFX/2

100FX multi-mode 1310 nm fiber up to 2 km

### AT-SPFX/15

100FX single-mode 1310 nm fiber up to 15 km

### AT-SPFXBD-LC-13

100BX Bi-Di (1310 nm Tx, 1550 nm Rx) fiber up to 15 km

### AT-SPFXBD-LC-15

100BX Bi-Di (1550 nm Tx, 1310 nm Rx) fiber up to 15 km

### AT-SPTX

1000T 100m copper

### AT-SPSX

1000SX GbE multi-mode 850nm fiber up to 550 m

### AT-SPSX/1

1000SX GbE multi-mode 850nm fiber up to 550 m industrial temperature

### AT-SPEX

1000X GbE multi-mode 1310nm fiber up to 2 km



### AT-SPLX10

1000LX GbE single-mode 1310nm fiber up to 10 km

### AT-SPLX10/1

1000LX GbE single-mode 1310nm fiber up to 10 km industrial temperature

### AT-SPBD10-13

1000LX GbE Bi-Di (1310nm Tx, 1490nm Rx) fiber up to 10 km

### AT-SPBD10-14

1000LX GbE Bi-Di (1490nm Tx, 1310nm Rx) fiber up to 10 km

### AT-SPLX40

1000LX GbE single-mode 1310nm fiber up to 40 km

### AT-SPZX80

1000ZX GbE single-mode 1550nm fiber up to 80 km

## 10GbE XFP Modules

For use with XEM-1XP and XEM-2XP

### AT-XPSR

10GbE-SR 850nm short-haul, 300 m with MMF

### AT-XPLR

10GbE-LR 1310nm medium-haul, 10 km with SMF

### AT-XPER40

10GbE-ER 1550nm long-haul, 40 km with SMF

## 10GbE SFP+ Modules

For use with XEM-2XS

### AT-SPIO5R

10GbE-SR 850 nm short-haul, 300 m with MMF

### AT-SPIO1R

10GbE-LR 1310 nm medium-haul, 10 km with SMF

## 10GbE SFP+ Cables for use with XEM-2XS

### AT-SPIO1TW1

1 meter SFP+ direct attach cable

### AT-SPIO1TW3

3 meter SFP+ direct attach cable

### AT-SPIO1TW7

7 meter SFP+ direct attach cable

## XEM Stacking Cables for use with XEM-STK

### AT-XEM-STK-CBL350

350 mm stacking cable

### AT-XEM-STK-CBL2.0

2.0 meter stacking cable

## RJ.5 to RJ45 Cables for use with XEM-24T

### AT-UTP/RJ.5-100-A-008

RJ.5 to RJ45 1 m Ethernet cables (pack of 8)

### AT-UTP/RJ.5-300-A-008

RJ.5 to RJ45 3 m Ethernet cables (pack of 8)