Allied Telesis™

IS230 Series

Industrial Managed Layer 2 Switches

Our ruggedized IS230 Industrial managed switches provide enduring performance in harsh environments, such as those found in outdoor IoT, transportation and industrial applications.

Overview

The Allied Telesis IS230 Series is a multipurpose product line of managed Layer 2 switches ideal for industrial applications, including manufacturing, rail transportation (telecommunication and signaling), road transportation (traffic control), and Smart Cities.

With fanless operation and a wide operating temperature range of -40° to 75°C, the robust IS230 Series easily tolerates harsh and demanding environments, such as those found in industrial and outdoor deployments.

An integrated voltage regulator ensures the PoE output voltage always stays at the rated value, regardless of any fluctuations in the input voltage of powered devices. An extended input voltage range makes the IS230 Series ideal for deployment in traffic control cabinets.

Network resiliency

The IS230 Series supports highly stable and reliable ICT network switching, with recovery times down to 50ms. The IS230 can be customized with the most appropriate mechanism and protocol to prevent network connection failure. Choices include Allied Telesis Ethernet Protection Switched Ring (EPSRing™), and the standards-based ITU-T G.8032.

Securing the Network Edge

Ensuring data protection means controlling network access. Protocols such as IEEE 802.1X port-based authentication guarantee that only known users are connected to the network. Unknown users who physically connect can be segregated into a pre-determined part of the network. This offers network guests Internet access, while ensuring the integrity of private network data.

Quality of Service

Comprehensive wire-speed QoS provides flow-based traffic management with Port/Tag Base and Type of Service prioritization. Bandwidth control limits ingress/egress traffic and broadcast/multicast/flooded unicast packets.

Gigabit and Fast Ethernet support

The IS230 Series offers combo ports supporting both Gigabit and Fast Ethernet Small Form-Factor Pluggables (SFPs). Support for both SFP types allows organizations to stay within budget even as they migrate to faster technologies.

Configurable power budget

On PoE-sourcing IS230 switches, all LAN ports source POE+ up to 30W. You can configure both the overall power budget and the power feeding limit on a per-port basis, to establish a close relationship between the power sourcing feature and the real capabilities of the external Power Supply Unit (PSU)[1].

Dual power inputs

The IS230 Series provides redundant power inputs for higher system reliability; the power inputs are protected against reverse polarity and over-current.

ECO friendly

The IS230 Series are Energy Efficient Ethernet (EEE) devices. They facilitate power saving by switching off parts of the LAN that are not transmitting or recieving data. This sophisticated feature can significantly reduce operating costs, by reducing the power requirements of the switch and any associated cooling equipment.

PoE plus

eco friendly

Key Features

- Full Gigabit, wire speed ports
- Uplink combo ports
- 100/1000Mbps SFP support
- Flexible management interface (GUI, SNMP, CLI, TELNET and SSH)
- Ethernet Protection Switched Ring (EPSRing™)
- Ethernet Ring Protection Switching (ITU-T G.8032)
- VLAN stacking (Q-in-Q)
- Multicast support (IGMP and MLD snooping)
- Loopback detection and storm control
- Port mirroring
- Port trunking/link aggregation (LACP)
- Link Layer Discovery (LLDP)
- IEEE 802.3at PoE+ sourcing (30W)
- -40 to +75°C wide-range operating temperature
- Dual power inputs with voltage boost converter
- Alarm output
- Fanless design

[1] PSU must be compliant with local/national safety and electrical code requirements. Select the supply with the most appropriate output power derating curve.

Key Features

ICT networks resiliency

▶ EPSRing™ and ITU-T G.8032 enable a protected ring capable of recovery within as little as 50ms; these features are perfect for high performance and high availability. For EPSRing™, the IS230 works as Transit node and will alert the Master about the link status (links go down or come up), then it waits for Master's consequent actions.

▶ Spanning Tree Protocol compatible, RSTP; MSTP; static Link Aggregation Group (LAG), and dynamic Link Aggregation Control Protocol (LACP) support.

▶ X-Ring protocol is a non-standard protocol preventing failure in ring network topology. X-Ring protocol recovers network faults within 20ms.

Quality of Service (QoS)

▶ Low-latency wire-speed QoS provides flow-based traffic management with full classification, prioritization and bandwidth control limit.

Link Layer Discovery Protocol (LLDP)

▶ LLDP performs the network endpoint discovery. That is useful for the automation of network management and network troubleshooting.

Access Control Lists (ACLs)

▶ ACLs filter network traffic at MAC and IP protocol level, to control whether routed packets are forwarded or blocked at the port interface. This provides a powerful network security mechanism to select the types of traffic to be analyzed, forwarded, or influenced in some way.

Dynamic Host Configuration Protocol (DHCP) Snooping

▶ DHCP servers allocate IP addresses to clients, and the switch keeps a record of addresses issued on each port. IP source guard checks against this DHCP snooping database to ensure only clients with specific IP and/or MAC address can access the network. DHCP Snooping can be combined with other features, like dynamic ARP inspection, to increase security in Layer 2 switched environments. It also provides a traceable history which meets the growing legal requirements placed on service providers.

Power over Ethernet Plus (PoE+)

▶ With PoE, a separate power connection to media endpoints such as IP phones and wireless access points is not necessary. PoE+ reduces costs and provides even greater flexibility, providing the capability to connect devices requiring more power (up to 30 Watts) such as pan, tilt and zoom security cameras.

▶ The IS230 series allows the configuration of the overall PoE power budget to match the real capabilities of the external Power Supply Unit (PSU). The PoE power budget is allocated to PDs statically, based on the requirement of each PD attached to the switch's ports.

Alarm Input/Output

▶ Alarm Output support the ability to connect external devices such as audio sirens and alarm strobe lights to the switch, and control them upon a event.

Key Solution
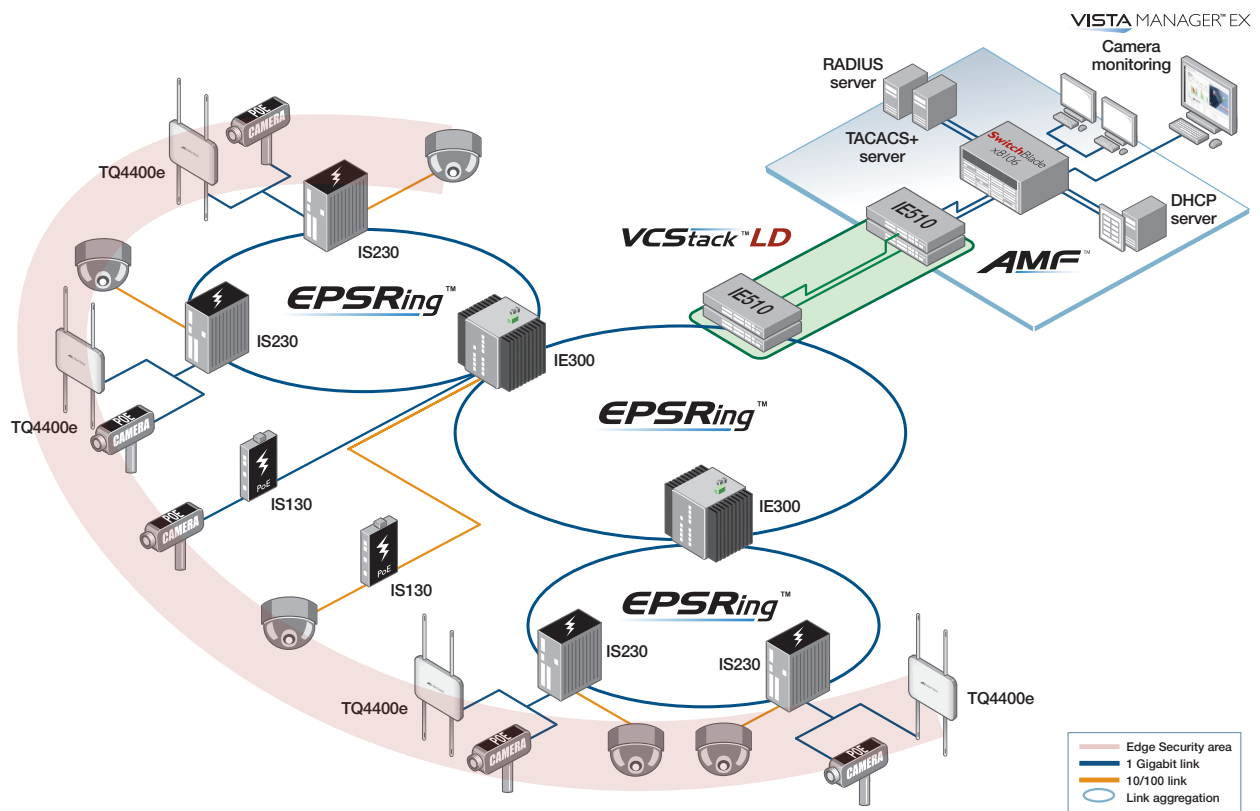
Specifications

PRODUCT	10/100/1000T (RJ45) COPPER PORTS	100/1000X SFP PORTS	POE+ ENABLED PORTS	SWITCHING FABRIC	FORWARDING RATE
IS230-10GP	8 + 2 (Combo)	2 (Combo)	8	20Gbps	14.88Mpps

ELECTRICAL/MECHANICAL APPROVALS		
Compliance Mark	CE, FCC, RCM, TUV, VCCI	
Safety	CAN/CSA C22.2 No.60950-1 CAN/CSA C22.2 No.61010-2-201 CAN/CSA C22.2 No.62368-1 EN/IEC/UL 60950-1 EN/IEC/UL 61010-2-201 EN/IEC/UL 62368-1	
EMC	AS/NZS CISPR 32, class A EN55024; EN55032, class A EN61000-6-2; EN61000-6-4, class A FCC part 15B, class A ICES-003, issue 6, class A VCCI, class A	
Electrostatic Discharge (ESD)	EN61000-4-2, level 3	
Radiated Susceptibility (RS)	EN61000-4-3, level 3	
Electrical Fast Transient (EFT)	EN61000-4-4, level 3	
Lighting/Surge immunity (Surge)	EN61000-4-5, level 3	
Conducted immunity (CS)	EN61000-4-6, level 3	
Magnetic field immunity	EN61000-4-8, level 4	
Railway	EN50121-4	
Traffic Control	NEMA-TS2	
Freefall	IEC60068-2-31	Class T2.3 (1m drop)
Shock	IEC60068-2-27 MIL-STD-810G 516.6	operational: 15g 11ms, half sine operational: 15g 11ms, half sine
Vibration	IEC60068-2-6 MIL-STD-810G 516.6	operational: 1g @10~150Hz operational: Procedure 1, Category 4, per Figure 514.6C-1

Physical Specifications

PRODUCT	WIDTH X DEPTH X HEIGHT	WEIGHT	ENCLOSURE	MOUNTING	PROTECTION RATE
IS230-10GP	74 x 105 x 152 mm (2.91 x 4.13 x 5.98 in)	1.2 Kg (2.6 4 lb)	Metal shell	DIN rail, wall mount	IP30

Performance

▶ Up to 8K MAC addresses
▶ Packet buffer memory: 512KB (4Mb)
▶ 8 priority QoS queues
▶ 4094 configurable VLANs
▶ 256 simultaneous VLANs
▶ Supports 9KB jumbo frames
▶ Up to 255 Layer 2 multicast entries

Other Interfaces

▶ Type   Serial console (UART)
   Port no.   1
   Connector   RJ-45 female

▶ Type   Alarm Output (1A @24Vdc)
   Port no.   1
   Connector   2-pin Terminal Block*

▶ Type   Power Input
   Port no.   2
   Connector   2-pin Terminal Block*

* A single 6-pin screw Terminal Block includes both power input and alarm output

Environmental Specifications

▶ Operating temperature range:
-40°C to 75°C (-40°F to 167°F)
▶ Storage temperature range:
-40°C to 85°C (-40°F to 185°F)
▶ Operating humidity range:
10% to 95%RH non-condensing
▶ Storage humidity range:
10% to 95%RH non-condensing
▶ Operating altitude
3,000m maximum (9,843ft)

Mechanical

▶ EN 50022, EN 60715 Standardized mounting on rails

Environmental Compliance

▶ RoHS
▶ China RoHS
▶ WEEE

Power Characteristics

PRODUCT	INPUT VOLTAGE	COOLING	NO POE LOAD			FULL POE LOAD*			POE POWER BUDGET	POE SOURCING PORTS	
			MAX POWER CONSUMPTION	MAX HEAT DISSIPATION	NOISE	MAX POWER CONSUMPTION	MAX HEAT DISSIPATION	NOISE		POE (15W)	POE+ (30W)
IS230-10GP	24~48Vdc	Fanless	13.2W	45.1 BTU/h	-	153.9W	115.7 BTU/h	-	120W	8	4

* The Max Power consumption at full PoE load includes PD's consumption and margin. The cooling requirements of the switch are smaller than the power draw, because most of the load is dissipated at the PoE powered device (PD) and along the cabling. Use these wattage and BTU ratings for facility capacity planning.

Standards and Protocols

Authentication
RFC 1321   MD5 Message-Digest algorithm
RFC 1828   IP authentication using keyed MD5

Encryption (management traffic only)
FIPS 180-1   Secure Hash standard (SHA-1)
FIPS 186   Digital signature standard (RSA)
FIPS 46-3   Data Encryption Standard (DES and 3DES)

Ethernet Standards
IEEE 802.2   Logical Link Control (LLC)
IEEE 802.3   Ethernet
IEEE 802.3ab   1000BASE-T
IEEE 802.3af   Power over Ethernet (PoE)
IEEE 802.3at   Power over Ethernet plus (PoE+)
IEEE 802.3az   Energy Efficient Ethernet (EEE)
IEEE 802.3u   100BASE-X
IEEE 802.3x   Flow control - full-duplex operation
IEEE 802.3z   1000BASE-X

IPv4 Features
RFC 768   User Datagram Protocol (UDP)
RFC 791   Internet Protocol (IP)
RFC 792   Internet Control Message Protocol (ICMP)
RFC 793   Transmission Control Protocol (TCP)
RFC 826   Address Resolution Protocol (ARP)
RFC 894   Standard for the transmission of IP datagrams over Ethernet network
RFC 919   Broadcasting Internet datagrams
RFC 922   Broadcasting Internet datagrams in the presence of subnets
RFC 932   Subnetwork addressing scheme
RFC 950   Internet standard subnetting procedure
RFC 1027   Proxy ARP
RFC 1042   Standard for the transmission of IP datagrams over IEEE 802 networks
RFC 1071   Computing the Internet checksum
RFC 1122   Internet host requirements
RFC 1191   Path MTU discovery
RFC 1918   IP addressing
RFC 2581   TCP congestion control over Ethernet networks

IPv6 Features
RFC 1981   Path MTU discovery for IPv6
RFC 2460   IPv6 specification
RFC 2464   Transmission of IPv6 packets over Ethernet networks
RFC 3484   Default address selection for IPv6
RFC 3587   IPv6 global unicast address format
RFC 4193   Unique local IPv6 unicast addresses
RFC 4291   IPv6 addressing architecture
RFC 4443   Internet Control Message Protocol (ICMPv6)
RFC 4861   Neighbor discovery for IPv6
RFC 4862   IPv6 Stateless Address Auto-Configuration (SLAAC)
RFC 5014   IPv6 socket API for source address selection
IPv4 and IPv6 dual stack

Management
SNMPv1, v2c and v3
IEEE 802.1AB   Link Layer Discovery Protocol (LLDP)
RFC 1155   Structure and identification of management information for TCP/IP-based Internets
RFC 1157   Simple Network Management Protocol (SNMP)
RFC 1212   Concise MIB definitions
RFC 1213   MIB for network management of TCP/IP-based Internets: MIB-II
RFC 1239   Standard MIB
RFC 2674   Definitions of managed objects for bridges with traffic classes, multicast filtering and VLAN extensions
RFC 2819   RMON MIB (groups 1,2,3 and 9)
RFC 2863   Interfaces group MIB
RFC 3164   The BSD Syslog protocol
RFC 3418   MIB for SNMP
RFC 3635   Definitions of managed objects for the Ethernet-like interface types
RFC 4022   MIB for the Transmission Control Protocol (TCP)
RFC 4113   MIB for the User Datagram Protocol (UDP)
RFC 4188   Definitions of managed objects for bridges

Multicast Support
IGMP snooping (IGMPv1, v2 and v3)
IGMP snooping fast-leave
IGMP/MLD multicast forwarding (IGMP/MLD proxy)
MLD snooping (MLDv1 and v2)
RFC 2236   Internet Group Management Protocol v2 (IGMPv2)
RFC 2710   Multicast Listener Discovery (MLD) for IPv6
RFC 2715   Interoperability rules for multicast routing protocols
RFC 3376   IGMPv3
RFC 3810   Multicast Listener Discovery v2 (MLDv2) for IPv6
RFC 4541   IGMP and MLD snooping switches

Quality of Service (QoS)
IEEE 802.1p   Priority tagging
RFC 2211   Specification of the controlled-load network element service
RFC 2474   DiffServ precedence for eight queues/port
RFC 2475   DiffServ architecture
RFC 2597   DiffServ Assured Forwarding (AF)
RFC 3246   DiffServ Expedited Forwarding (EF)

Resiliency Features
ITU-T G.8023 / Y.1344 Ethernet Ring Protection Switching (ERPS)
IEEE 802.1ag   CFM Continuity Check Protocol (CCP)
IEEE 802.1AX   Link aggregation (static and LACP)
IEEE 802.1D   MAC bridges
IEEE 802.1s   Multiple Spanning Tree Protocol (MSTP)
IEEE 802.1w   Rapid Spanning Tree Protocol (RSTP)
IEEE 802.3ad   Static and dynamic link aggregation

Security Features
SSH remote login
SSLv2
TACACS+ Accounting, Authentication, Authorization (AAA)
IEEE 802.1X   authentication protocols (TLS, TTLS, PEAP and MD5)
IEEE 802.1X   multi-supplicant authentication
IEEE 802.1X   port-based network access control
RFC 2818   HTTP over TLS ("HTTPS")
RFC 2865   RADIUS authentication
RFC 2866   RADIUS accounting
RFC 2986   PKCS #10: certification request syntax specification v1.7
RFC 3579   RADIUS support for Extensible Authentication Protocol (EAP)
RFC 3580   IEEE 802.1x RADIUS usage guidelines
RFC 3748   Extensible Authentication Protocol (EAP)
RFC 4251   Secure Shell (SSHv2) protocol architecture
RFC 4252   Secure Shell (SSHv2) authentication protocol
RFC 4253   Secure Shell (SSHv2) transport layer protocol
RFC 4254   Secure Shell (SSHv2) connection protocol
RFC 5246   Transport Layer Security (TLS) v1.2
RFC 5656   Elliptic curve algorithm integration for SSH
RFC 6668   SHA-2 data integrity verification for SSH
RFC 6818   Updates to the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 6960   X.509 Internet Public Key Infrastructure Online Certificate Status Protocol - OCSP

Services
RFC 854   Telnet protocol specification
RFC 855   Telnet option specifications
RFC 857   Telnet echo option
RFC 858   Telnet suppress go ahead option
RFC 1091   Telnet terminal-type option
RFC 1350   The TFTP protocol (revision 2)
RFC 1985   SMTP service extension
RFC 2030   Simple Network Time Protocol (SNTP) version 4
RFC 2131   Dynamic Host Configuration Protocol
RFC 2616   Hypertext Transfer Protocol - HTTP/1.1
RFC 2821   Simple Mail Transfer Protocol (SMTP)
RFC 3046   DHCP relay agent information option (DHCP option 82)
RFC 3315   Dynamic Host Configuration Protocol for IPv6 (DHCPv6)
RFC 3396   Encoding Long Options in the Dynamic Host Configuration Protocol (DHCPv4)
RFC 5905   Network Time Protocol (NTP) version 4

VLAN Support
Generic VLAN Registration Protocol (GVRP)
IEEE 802.1ad   Provider bridges (VLAN stacking, Q-in-Q)
IEEE 802.1Q   Virtual LAN (VLAN) bridges
IEEE 802.3ac   VLAN tagging

Ordering Information

Switches

The DIN rail and wall mount kits are included.

AT-IS230-10GP-80
8x 10/100/1000T, 2x 100/1000X SFP combo,
Industrial Layer 2 Switch, POE+ support (120W)

Supported SFP Modules

Refer to the installation guide for the recommended Max.
Operating Temperature according to the selected SFP
module.

1000Mbps SFP Modules

AT-SPBD10-13
10 km, 1G BiDi SFP, LC, SMF (1310Tx/1490Rx)

AT-SPBD10-14
10 km, 1G BiDi SFP, LC, SMF (1490Tx/1310Rx)

AT-SPBD20-13/I
20 km, 1G BiDi SFP, SC, SMF, I-Temp
(1310Tx/1490Rx)

AT-SPBD20-14/I
20 km, 1G BiDi SFP, SC, SMF, I-Temp
(1490Tx/1310Rx)

AT-SPBD40-13/I
40 km, 1G BiDi SFP, LC, SMF, I-Temp
(1310Tx/1490Rx)

AT-SPBD40-14/I
40 km, 1G BiDi SFP, LC, SMF, I-Temp
(1490Tx/1310Rx)

AT-SPEX
2 km, 1000EX SFP, LC, MMF, 1310 nm

AT-SPLX10
10 km, 1000LX SFP, LC, SMF, 1310 nm

AT-SPLX10/I
10 km, 1000LX SFP, LC, SMF, 1310 nm, I-Temp

AT-SPLX40
40 km, 1000LX SFP, LC, SMF, 1310 nm

AT-SPSX
550 m, 1000SX SFP, LC, MMF, 850 nm

AT-SPSX/I
550 m, 1000SX SFP, LC, MMF, 850 nm, I-Temp

AT-SPZX80
80 km, 1000ZX SFP, LC, SMF, 1550 nm

100Mbps SFP Modules

AT-SPFX/2
2 km, 100FX SFP, LC, MMF, 1310 nm

AT-SPFX/15
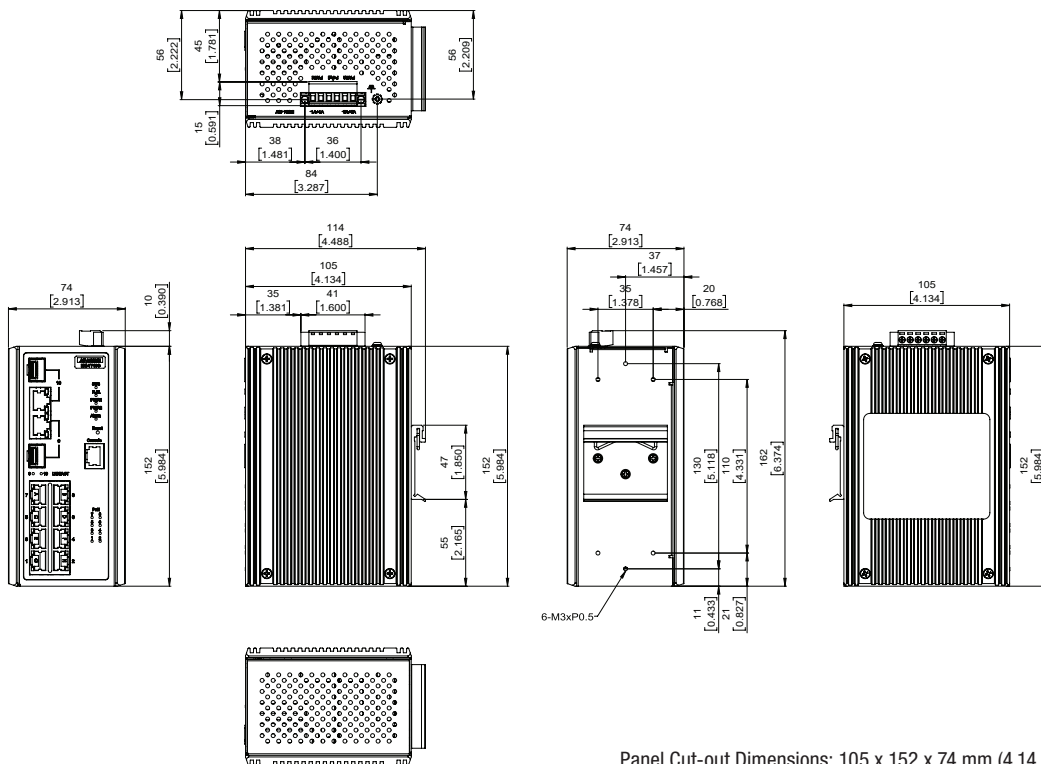15 km, 100FX SFP, LC, SMF, 1310 nm

AT-SPFXBD-LC-13
15 km, 100FX BiDi SFP, LC, SMF
(1310 Tx/1550 Rx)

AT-SPFXBD-LC-15
15 km, 100FX BiDi SFP, LC, SMF
(1550 Rx/1310 Tx)

Dimensions
(mm)

Panel Cut-out Dimensions: 105 x 152 x 74 mm (4.14 x 5.98 x 2.91 in)