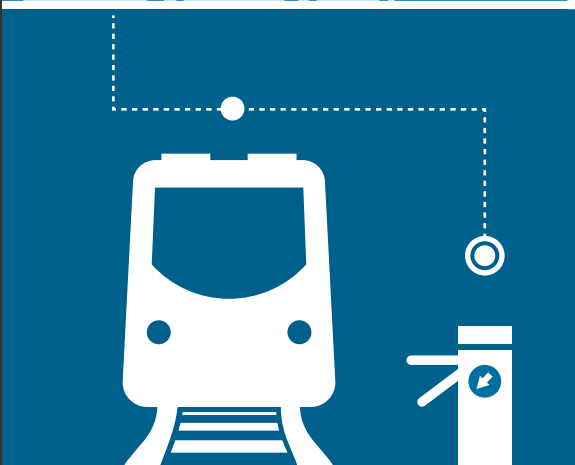


Ethernet Connectivity

for Transportation



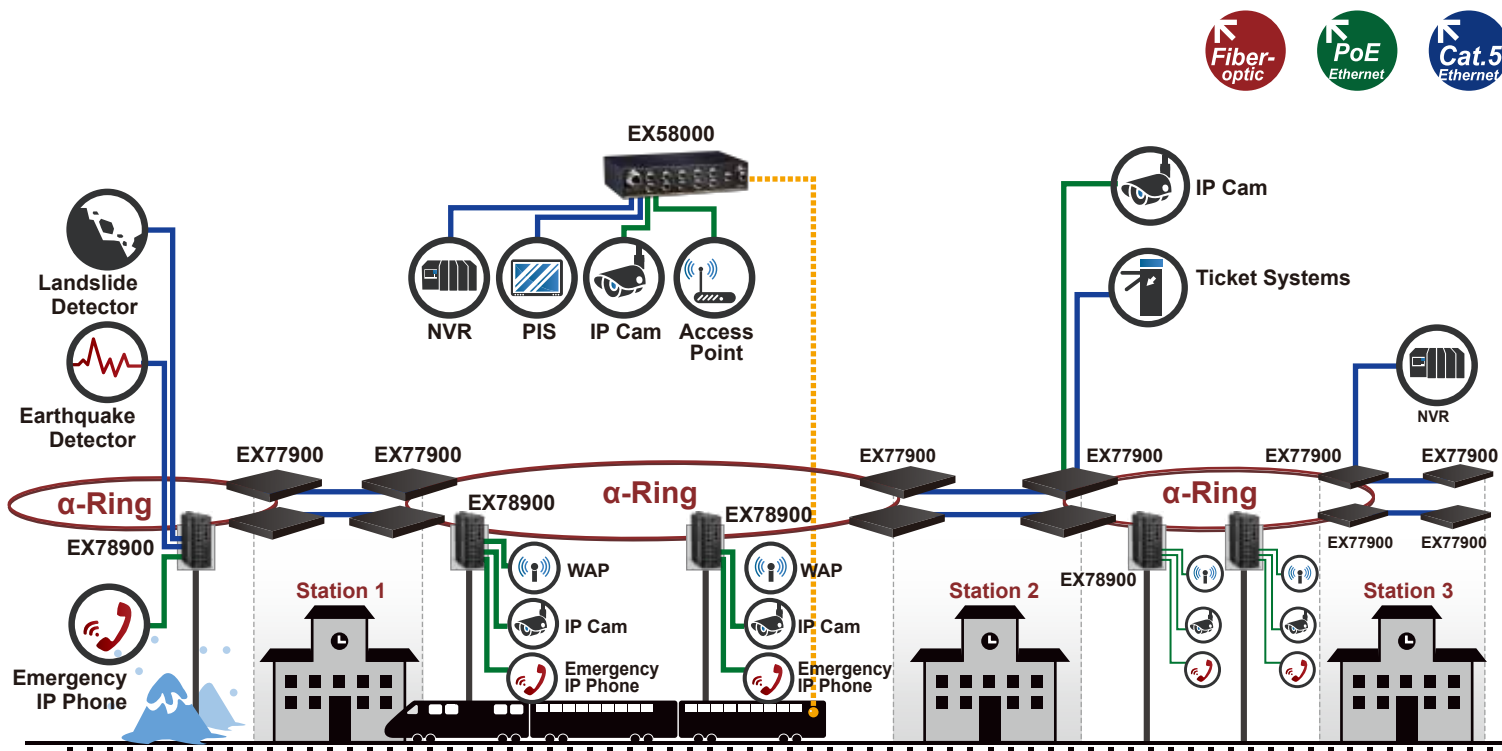
- ◆ Ethernet Switches
- ◆ Media Converters
- ◆ Ethernet Extenders
- ◆ Surge Protectors



- EN50121-4 / EN50155 compliant
- NEMA TS2 compliant

Signaling Management for Wayside Surveillance

Rolling stock, traffic control, and security surveillance require mobile networks to collect vital information. Real-time data from Passenger Information Systems (PIS) and on board cameras are transmitted by wireless APs (WAP) from the train to wayside station WAPs upon arrival. High-power demanding PTZ speed domes cameras and WAPs along the wayside require greater power demand than non PTZ cameras and indoor WAPs. EtherWAN's EX78900 and EX78602 Series of Hardened Managed 60W PoE Switches provide 240W PoE power budget ideal for these power hungry outdoor devices eliminating the need for a separate power source. Preventing data loss is critical, EtherWAN's proprietary Alpha Ring redundancy protocol provides extremely fast network recovery in less than 15 milliseconds ensuring network communications.



Selected Products

EX78900

Hardened Managed L3 Lite 16-port (8 x PoE) Gigabit Ethernet Switch

Ultra High-Power PoE Switch

- » Up to 12 ports with 8 Ports PoE, support 60W /IEEE802.3af/at, and 4 Gigabit SFP ports for high-bandwidth communication

Intelligent Management

- » Optimize network performance with QoS, VLAN, and PoE scheduling, etc.

Remote Secure Access

- » IEEE802.1x, ACL and RADIUS support

EX77900

IEC61850-3/IEEE1613 Hardened Managed L3 Lite 24-port Gigabit and 4-port 1G/10G SFP+ Ethernet Switch

Hardened Grade

- » Wide operating temperature range for extreme environments
- » Fanless and ruggedized housing
- » High shock and electric noise immunity

Intelligent Management & Remote Secure Access

- » Optimize network performance with QoS, VLAN, ACL and RADIUS support

IEC61850-3 & IEEE1613 Compliant

- » Meets the standards for operating in power substation zones or requirements with high EMS sustainability

Related Products



EX78602

60w

Hardened Managed 6-port 10/100BASE (4 x PoE + 2 x 60W PoE) and 2-port Gigabit Ethernet Switch



NEW

ER52000

Hardened Unmanaged 8-port 10/100BASE M12 (8 x PoE) and 2-port Gigabit M12 Ethernet Switch

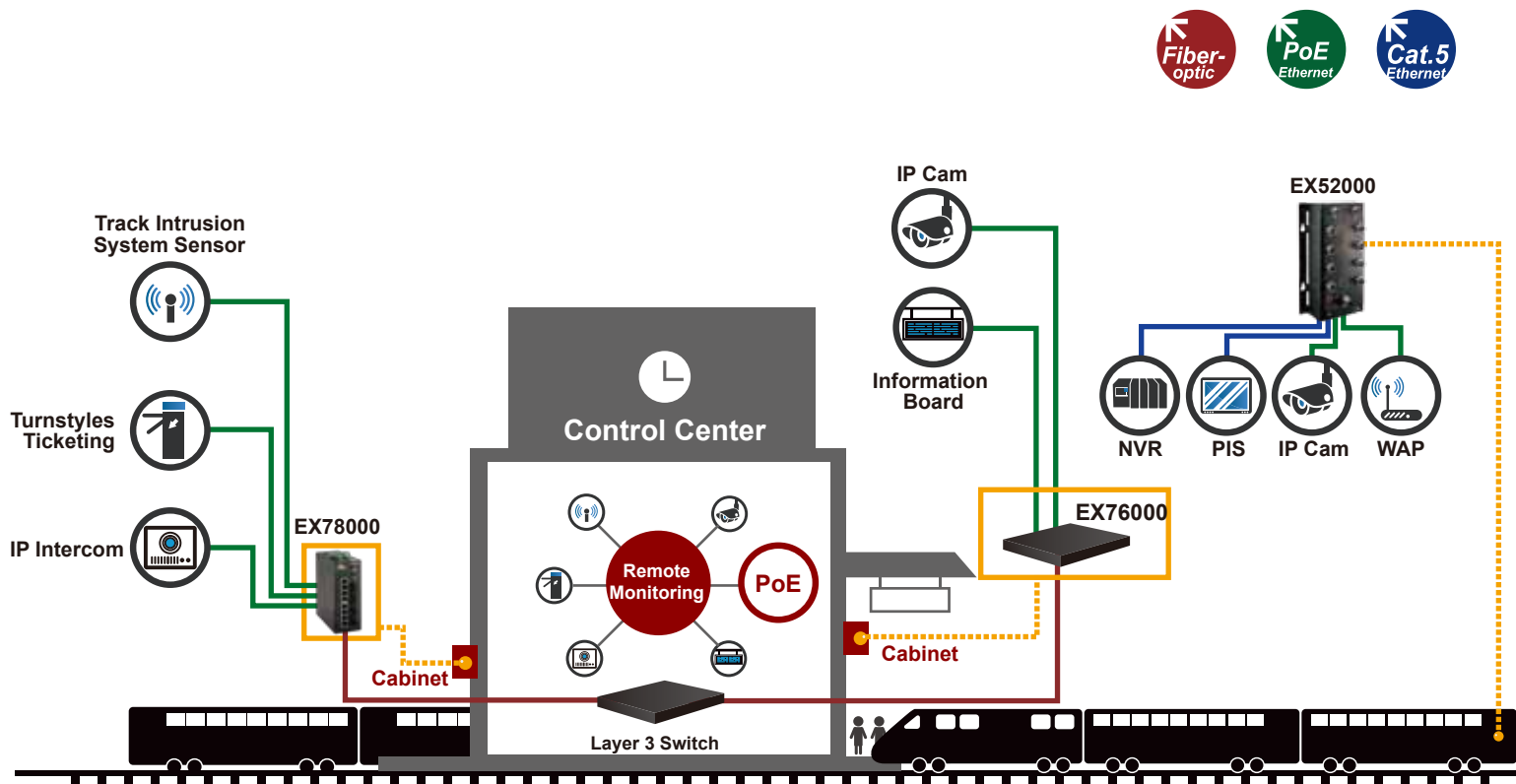


ER58000

Hardened Managed 8-port 10/100BASE M12 PoE and 2-port Gigabit M12 Ethernet Switch

Passenger Help Points at Subway Transit

To enhance passenger safety and security, a major Metropolitan Subway Transit Bureau in the US decided to replace older Customer Assistance Intercoms (CAI) with new Help Point Terminals using the latest VoIP and Network technology. These new Help Point Terminals are positioned throughout the subway station for easy access and high visibility. Created specifically for the subway environment, the Help Points are designed to be easily recognizable for customers who need to report an emergency or ask for assistance. Travelers on the platform level of subway stations are provided immediate access to the station personnel.



Selected Products

EX78000

Hardened Managed 10-port 10/100BASE (8 x PoE) and 2-port Gigabit Ethernet Switch

Versatile PoE Connectivity

- » 10-port 10/100BASE-TX/FX/BX/SFP plus 2-port Gigabit-TX/SX/LX/SFP
- » Port 1 to 8 support IEEE802.3at Power over Ethernet

Hardened Grade

- » Wide operating temperature range From -40°C to 75°C (-40°F to 167°F) for extreme environments
- » Fanless and ruggedized housing
- » High shock and electric noise immunity

EX76000

Hardened Managed 16-port 10/100BASE PoE and 2-port Gigabit combo Ethernet Switch

PoE Connectivity

- » Sixteen 10/100BASE IEEE802.3af/at Power over Ethernet ports
- » Two Gigabit-SX/LX/BX combo ports

Hardened Grade

- » Wide operating temperature range from -40°C to 75°C (-40°F to 167°F) for extreme environments
- » Fanless and ruggedized housing
- » High shock and electric noise immunity
- » Complies with UL508 safety requirements for industrial control device

Related Products



EX75000

Hardened Managed 24-port 10/100BASE-TX and 4-port Gigabit Ethernet PoE Switch



EX25611

Managed 24-port 10/100/1000BASE-T (4-port SFP Combo) and 4-port 1G/10G SFP+ Ethernet Switch

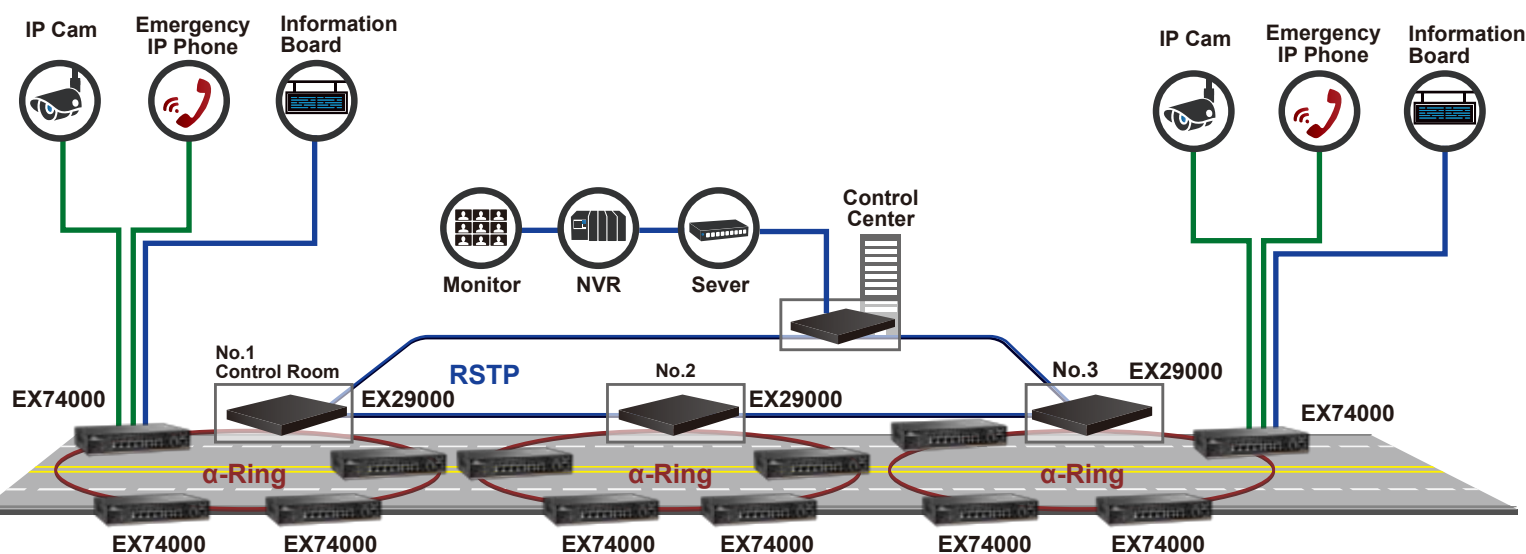


EX49000

Hardened Web-smart 16-port 10/100BASE PoE and 2-port Gigabit Ethernet Switch

Advanced Transportation Management Systems

A cross-county expressway in Japan is 60 kilometers in length, deployed with 80 cameras and 60 VoIP emergency phones. 4 Gigabit fiber optic redundant "Alpha Rings" loops are formed using 12 EX78000 Series Hardened PoE switches and 4 EX29000 Series Commercial Managed Ethernet Switches. The Rings interconnect the frontend CCTVs, VoIPs and the backend DVRs. The Alpha Ring redundancy protocol minimizes packet loss and ensures quick network recovery time in just milliseconds, resulting in stable operation of the expressway surveillance system.



Selected Products

EX74000

Hardened Managed 6-port 10/100BASE (4 x PoE) and 2-port SFP Gigabit combo Ethernet Switch

Hardened Grade

- » Wide operating temperature range from -40°C to 75°C (-40°F to 167°F) for extreme environments
- » Fanless and ruggedized housing
- » High shock and electric noise immunity

Power over Ethernet

- » Port 1 to 4 supports IEEE802.3af+ with 30W max.

SFP Connectivity

- » Provides two Gigabit-SFP combo ports



EX29000

EN50121-4 Modulized Managed 24-port 10/100BASE and 4-port Gigabit Ethernet Switch with SFP options

Versatile Connectivity

- » Modularized Ethernet Switch of 24-port 10/100BASE-TX/FX/BX and 4-port Gigabit-TX/SX/LX/BX/SFP

Hardened Grade

- » Wide operating temperature range for harsh environments
- » Fanless and ruggedized housing
- » High shock and electric noise immunity



Related Products



EX45900

Hardened Unmanaged 5-port 10/100/1000BASE (4 x PoE) + 1-port 1000BASE-X Gigabit Ethernet Switch



EX89000

EN50121-4 Modulized Hardened Managed 24-port 10/100BASE and 4-port Gigabit Ethernet Switch with SFP

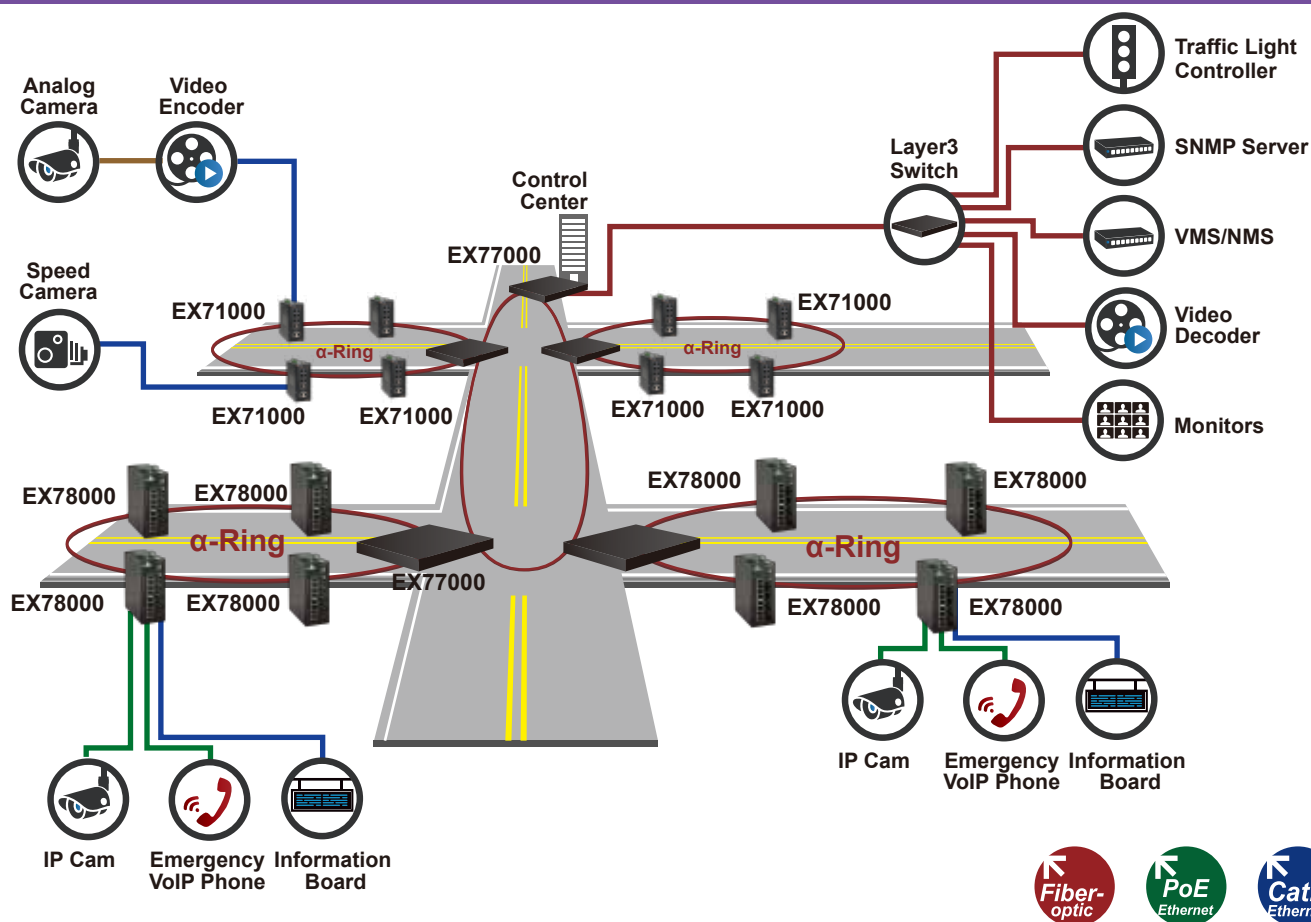


EX72000

Hardened Managed 8 to 14 ports 10/100BASE and 2-port Gigabit Ethernet Switch with SFP option

City Traffic Control

A major Texas city needed to upgrade their traffic intersection surveillance system while retaining many existing analog cameras. This new integrated system combines existing analog cameras, with new digital PoE IP cameras, and VoIP emergency phones, transmitting data via fiber optic infrastructure back to the Traffic Control Center (TCC). The TCC is now able to view, record, and respond to traffic situations and emergencies very quickly resulting in improved traffic flow, less congestion and quicker emergency team response.



Selected Products



EX71000

Hardened Managed 8-port 10/100BASE and 2-port Gigabit Ethernet Switch with SFP options

Versatile Connectivity

» Provides 8-port 10/100BASE-TX/FX/BX/SFP plus 2-port Gigabit-SX/LX/BX/SFP

Intelligent Management

» Wide operating temperature range from -40°C to 75°C (-40°F to 167°F) for extreme environments
» Fanless and ruggedized housing

Secure Remote Access

» IEEE802.1x, RADIUS support

EX77000

Hardened Managed 24-port 10/100BASE and 4-port Gigabit Ethernet Switch with SFP options

Versatile Connectivity

» Provides flexibility of 24-port 10/100BASE-TX/FX/BX/SFP plus 4-port Gigabit-TX/SX/LX/BX/SFP

Intelligent Management

» Wide operating temperature range for extreme environments
» Fanless and ruggedized housing
» High shock and electric noise immunity

Secure Remote Access

» IEEE802.1x, ACL (Access Control List), and RADIUS support

Related Products



ED3538

Hardened 10/100BASE-TX PoL/PoE Ethernet Extender over Copper Wires



NEW

EX73900

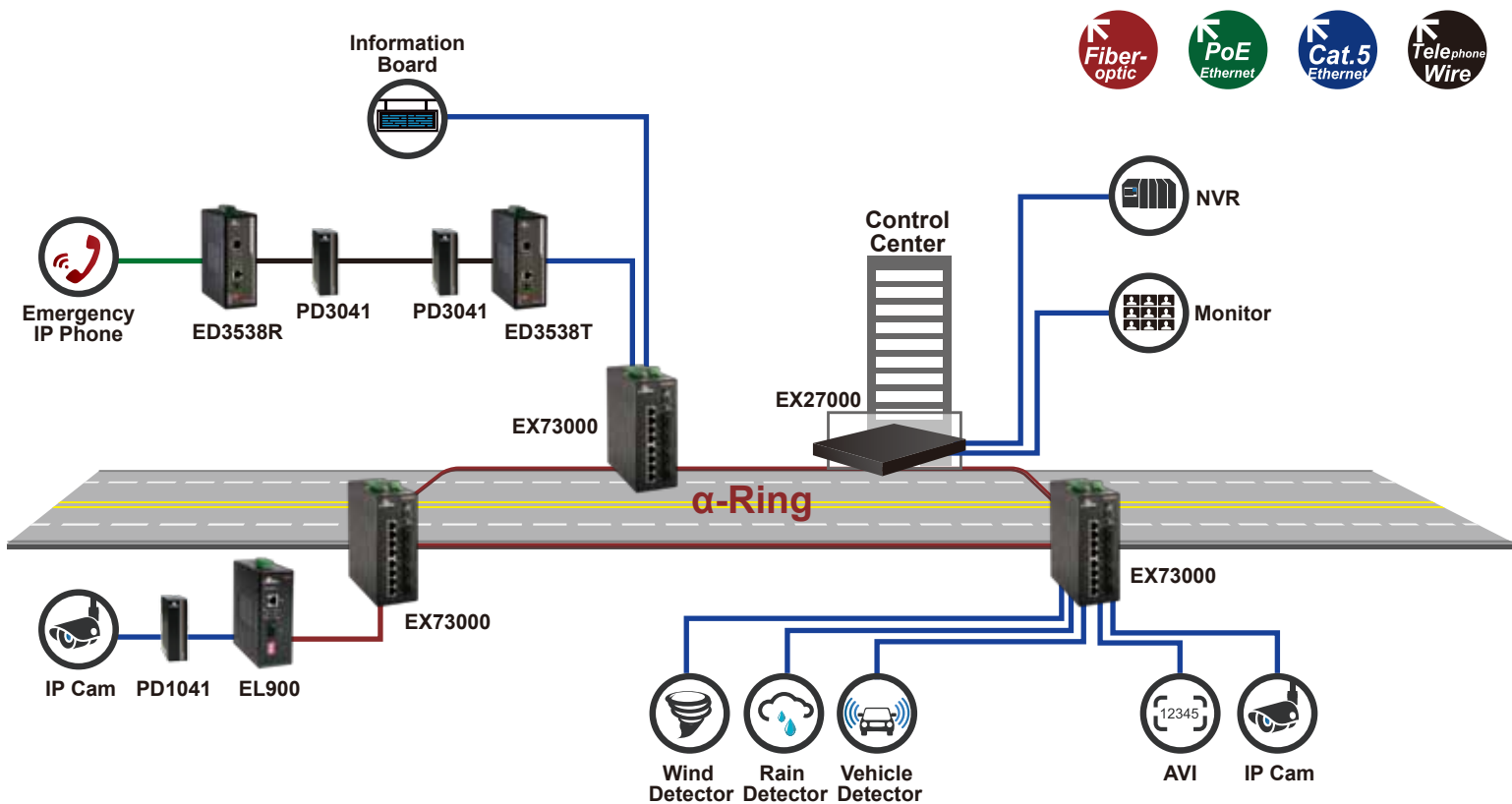
Hardened Managed L3 Lite 16-port Gigabit Ethernet Switch



EX42300

Hardened Unmanaged 4-port 10/100BASE (4 x PoE) + 1-port 10/100/1000BASE-T + 1-port 1000BASE-X Gigabit Ethernet Switch

Highway Surveillance System



Selected Products



EX73000

Hardened Managed 16-port 10/100BASE with 2-port Gigabit combo Ethernet Switch

Versatile PoE Connectivity

- » Provides 16-port 10/100BASE-TX plus 2-port Gigabit-SX/LX/BX.
- » Provides 8-port 10/100BASE-TX+4-port 100BASE FX Plus 2-port Gigabit-SX/LX/BX.

Hardened Grade

- » Wide operating temperature range from -40°C to 75°C (-40°F to 167°F) for extreme environments

Secure Remote Access

- » IEEE802.1x, and RADIUS support for extreme environments



EX27000

EN50121-4 Managed 24-port 10/100BASE and 4-port Gigabit Ethernet Switch with SFP options

Versatile Connectivity

- » Provides flexibility of 24-port 10/100BASE-TX/FX/BX/SFP plus 4-port Gigabit-TX/SX/LX/BX/SFP

Intelligent Management

- » Wide operating temperature range for harsh environments
- » Fanless and ruggedized housing
- » High shock and electric noise immunity

Secure Remote Access

- » IEEE802.1x, ACL (Access Control List), and RADIUS support

▶ Related Products



EL900

Hardened 10/100BASE-TX to 100BASE-FX Media Converter



PD1041

Hardened Surge Protection Device – RJ45



PD3041

Hardened Surge Protection Device – RJ11 & Two Wire Terminal Block Type



ED3575

Hardened Managed 6-port 10/100BASE-TX + 2-port Gigabit combo SFP Switch with 2-port Copper Pair Ethernet Extender



ED3541

Hardened 10/100BASE-TX
Ethernet Extender

ED3501

Industrial 10/100BASE-TX
Ethernet Extender



Model Name	EX71000 / EX73000	NEW EX73900 / EX78900	NEW EX78000	EX78602	ER58000	EX76000	EX75000	EX77000	NEW EX77900
Interface									
Max. 10/100BASE	8 / 16	-	8	6	8 (M12)	16	24	24	-
Max. 10/100/1000BASE	2	12 / 12	2	2	2 (M12)	2	2	4	24
Max. PoE	-	- / 8 (60W)	4 (30W)+ 4 (15.4W)	4 (30W)+2 (60W)	8 (30W)	16 (30W)	max. 12 (30W) + 2G (30W) max. 24 (15.4W) + 2G (30W)	-	-
Max. 100BASE SFP	4 / -	- / -	2	-	-	-	-	24	-
Max. 1000BASE SFP	2	4 / 4	2	2	-	-	4	4	8
Max. 10G SFP+	-	-	-	-	-	-	-	-	4
Mechanical									
Installation*	D, P, R / D, P	D, P	D, P	D, P	P	R	R	R	R
Power Input									
No. of Power Input	3	2 / 2	3	3	2	2	1	1 or 2	1 or 2
110 - 240VAC	-	-	-	-	-	-	-	✓	✓
Terminal Block	12 ~ 48VDC	12 ~ 48VDC / 52 ~ 57VDC	47 ~ 57VDC	47 ~ 57VDC	M23: 24 ~ 48VDC	52 ~ 57VDC	52 ~ 57VDC	+ 48VDC, 88 ~ 370VDC	+ 48VDC, 88 ~ 370VDC
DC Jack	12VDC	-	47 ~ 57VDC	47 ~ 57VDC	-	-	-	-	-
Operating Temperature	-40°C ~ 75°C	-40°C ~ 75°C	-40°C ~ 75°C	-40°C ~ 75°C	-40°C ~ 75°C	-40°C ~ 75°C	-40°C ~ 75°C	-40°C ~ 75°C	-40°C ~ 75°C
Network Redundancy									
α-Ring / α-Chain	✓	✓	✓	✓	✓	✓	✓	✓	✓
STP / RSTP / MSTP	✓	✓	✓	✓	✓	✓	✓	✓	✓
Network Mgmt & Ctrl									
	VLAN, QoS, IGMP, GMRP, Bandwidth Rate Control, LACP, Port Trunking, Port Mirroring, Packet Filtering, IEEE802.1x Security, DHCP Server, DHCP Client, SNMP (v1, v2c, v3), RMON, Web Management, Telnet Management, RS-232 Console Management, SSH / SSL								
Static Routing, RIP V1/V2	-	✓	-	-	-	-	-	-	✓
Regulatory Approvals									
CE / FCC / VCCI	✓	✓	✓	✓	✓	✓	✓	✓	✓
UL508 / UL62368	UL508	UL62368	UL508	-	-	UL508	-	-	UL62368
ISA12.12.01 / UL1604	- / ✓	-	-	-	-	-	-	-	-
IEC61850-3 / IEEE1613	-	✓ / -	-	-	-	-	-	-	✓
EN50155	-	-	-	-	✓	-	-	-	-
EN50121-4	✓ / -	-	-	-	✓	-	-	-	✓



Model Name	NEW ER52000	NEW EX42300 EX45900	NEW EX46900A
Interface			
Max. 10/100BASE	8 (M12)	4 (EX42300)	-
Max. 10/100/1000BASE	2 (M12) Bypass	1 (EX42300) 5 (EX45900)	8
Max. PoE	8 (30W)	4 (30W)	8 (30W)
Max. 100BASE SFP	-	-	-
Max. 1000BASE SFP	-	1	2
Mechanical			
Installation*	W	D	D
Power Input			
No. of Power Input	2	2	2
110 - 240VAC	-	-	-
Terminal Block	M12: 72 ~ 110VDC	24/48VDC	18 ~ 57VDC
DC Jack	-	-	-
Operating Temperature	-40°C ~ 75°C	-40°C ~ 75°C	-40°C ~ 75°C
Network Redundancy			
α-Ring / α-Chain	-	-	-
STP / RSTP / MSTP	-	-	-
Network Mgmt & Ctrl			
	-	-	-
Regulatory Approvals			
CE / FCC / VCCI	✓	✓	✓
UL60950	-	✓	-
ISA12.12.01 / UL1604	-	-	-
IEC61850-3 / IEEE1613	-	-	-
EN50155	✓	-	-
EN50121-4	-	-	-
EN50121-3-2	✓	-	-
E Marks	-	-	✓



Power over Link	ED3538 / ED3638	ED3501	ED3541	NEW ED3575
Interface				
10/100 BASE-TX	1	1	1	6
Max. PoE Ports	1 (30W)	-	-	-
Extension Interface				
RJ-11	RJ11 (ED3538)	1	1	2
BNC	BNC (ED3638)	-	-	-
Mode of Operations				
Auto-negotiation, Auto-MDI/MDI-X	✓	✓	✓	✓
Store & Forward	✓	✓	✓	✓
Mechanical				
Installation*	D, P, R	C, D, W	D	D
Power Input				
No. of Power Inputs	3	1	2	2
Terminal Block	46 ~ 57VDC	-	12 ~ 48VDC	12 ~ 48VDC
DC Jack	48VDC	12VDC	-	-
AC to DC Adapter	-	✓	-	-
Operating Temperature	-40°C ~ 75°C	-10°C ~ 60°C	-40°C ~ 75°C	-40°C ~ 75°C
Regulatory Approvals				
CE / FCC / VCCI	✓	✓	✓	✓
UL/cUL 60950-1	✓	✓	✓	✓

Data Rate (min. Rate)	ED3538 (Pair of 24AWG copper wire)		ED3638 (RG6 coaxial cable)		ED3501	ED3541	ED3575
	Distance	PoE PWR Out	Distance	PoE PWR Out	Distance	Distance	Distance
100Mbps	300m(984ft.)	30.0W	400m(1312ft.)	30.0W	300m(984ft.)	300m(984ft.)	300m(984ft.)
80Mbps	400m(1312ft.)	15.4W	600m(1968ft.)	15.4W	400m(1312ft.)	400m(1312ft.)	400m(1312ft.)
40Mbps	1000m(3280ft.)	9.5W	1200m(3937ft.)	8W	800m(2624ft.)	800m(2624ft.)	800m(2624ft.)
20Mbps	1200m(3937ft.)	5W	1600m(5249ft.)	6W	1200m(3937ft.)	1200m(3937ft.)	1000m(3280ft.)
1Mbps	N/A	N/A	N/A	N/A	2600m(8530ft.)	2600m(8530ft.)	2600m(8530ft.)

* D: DIN-Rail Mounting, P: Panel Mounting, R: Rack Mounting, W: Wall Mounting

* All speed selections are Symmetrical on the DSL and Full duplex on the Ethernet
* The data rate may vary according to line quality

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