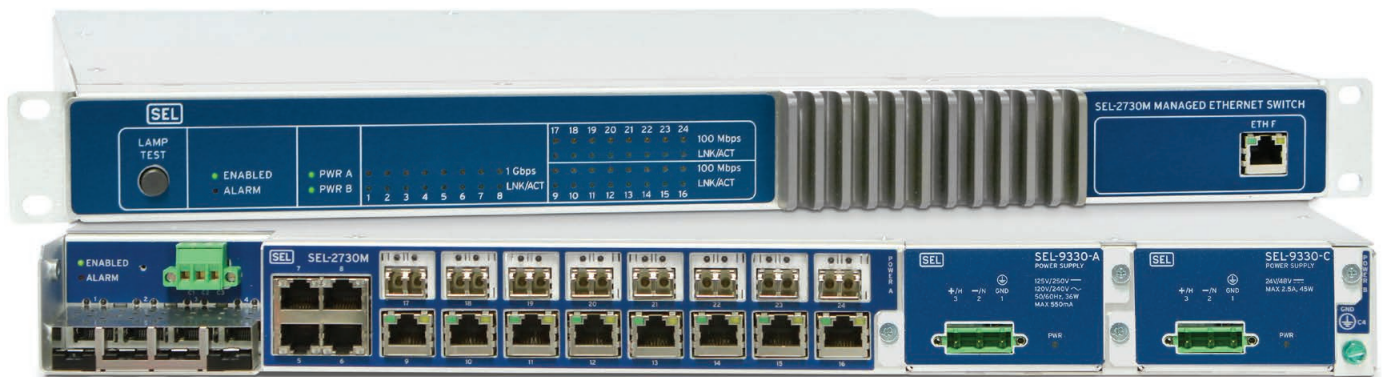


SEL-2730M



Managed 24-Port Ethernet Switch

Reliably Control and Monitor Your Substation and Plant Networks



Features and Benefits

Tough

Designed, built, and tested for trouble-free operation in extreme conditions, the SEL-2730M Managed 24-Port Ethernet Switch meets or exceeds IEEE 1613 (Class 2) and IEC 61850-3 standards for communications devices in electric power substations.

Reliable

SEL is committed to providing superior reliability and quality in all its products. The SEL-2730M is equipped with hot-swappable dual power supplies, allowing simultaneous connection to primary and backup power sources. This ensures no loss of service due to a single power source failure.

Easy to Use

The SEL-2730M is easy to install and configure. Setting up priority messaging via virtual local-area networks (VLANs) is simplified. Settings may be updated either through a secure web interface or offline for later upload to the switch.

Secure

Comprehensive security features ensure that only authorized users and traffic have access to the network.

Flexible, Modular Design

The base-model SEL-2730M has 4 Gigabit Ethernet copper ports and 16 10/100 Mbps copper Ethernet ports, built as 4-port modules. Each of these 10/100 Mbps copper port modules can be ordered as single- or multimode fiber-optic ports to meet your network's unique requirements. In addition, up to 4 fiber-optic Gigabit Ethernet ports may be added via small form-factor pluggable (SFP) transceivers, for a total of 24 ports.

Dependable

At SEL, we build all of our switches in U.S.-based manufacturing facilities using the same processes that we use to build our relays. And, we offer the same ten-year, worldwide, no-questions-asked warranty for our networking equipment that we do for protection and automation equipment.

Making Electric Power Safer, More Reliable, and More Economical[®]

Tough, Reliable, and Secure

The SEL-2730M is specifically designed to handle extreme conditions found in harsh substation environments. It withstands vibration, electrical surges, fast transients, electrostatic discharge, and extreme temperatures and humidity.

The SEL-2730M has the highest mean time between failures (MTBF) in the industry and reliably supports communications under high EMI and temperature stress with easy-to-provision settings geared specifically for IED messaging.



-40° to +85°C
(-40° to +185°F)



SEL Ethernet switches are designed and tested to withstand extreme temperatures and harsh conditions.

Keep the Network Running With Dual Hot-Swappable Power Supplies

Connect a separate power source to each power supply. If one source fails, the other source continues to keep the switch operational. Each power supply is highly reliable. However, should you ever need to replace one, you can remove one power supply module while the switch continues to function, powered by the other module.



Both the SEL-9330-A and SEL-9330-C Power Supplies have an estimated MTBF of 3,000 years. This means in a population of 3,000 power supply modules, you can expect one or fewer failures in a year.



Both ac and station battery voltage sources may be used. If one supply fails, the network will not be affected.

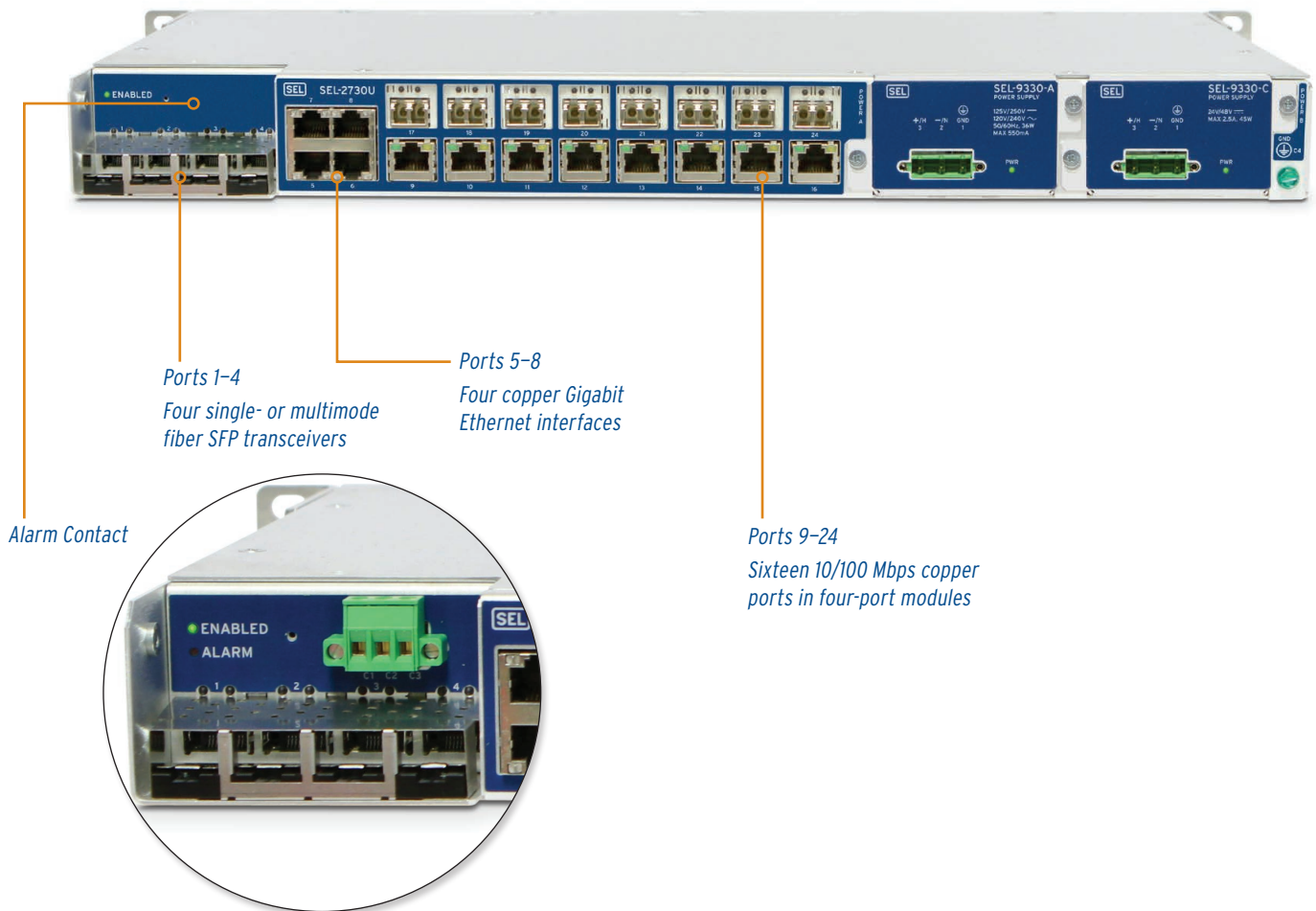
Flexible, Modular Design

SCADA, IED-to-IED communications, and engineering access messages are sent and received via Ethernet-based communications. These messages may include protocols, such as DNP3, proprietary IED protocols, and web- and Telnet-based device management access.

IT applications, such as video for facility security, and voice, are also easily managed through this switch.

Base Model SEL-2730M Configuration

The base model SEL-2730M comes populated with 4 Gigabit Ethernet interfaces, 4 fiber-optic SFP cages, and 16 additional copper ports. These 16 copper ports may be upgraded to fiber-optic interfaces (single- or multimode) in groups of four.



Key Network Features

VLANs allow you to isolate network traffic between groups of IEDs or by message type, while Ethernet Class of Service (CoS) minimizes latency for mission-critical applications.

Priority VLAN assignments ensure critical data, including protection messages, take precedence over less important network traffic.

SEL employs a simple approach that allows the user to create a set of VLANs independent of whether the switch port is acting as an edge or trunk. The end result is a less complex provisioning activity that can be easily deployed by utility engineers to separate substation traffic into VLANs.

Network security is a critical component of any managed switch application. The SEL-2730M is designed with the following features:

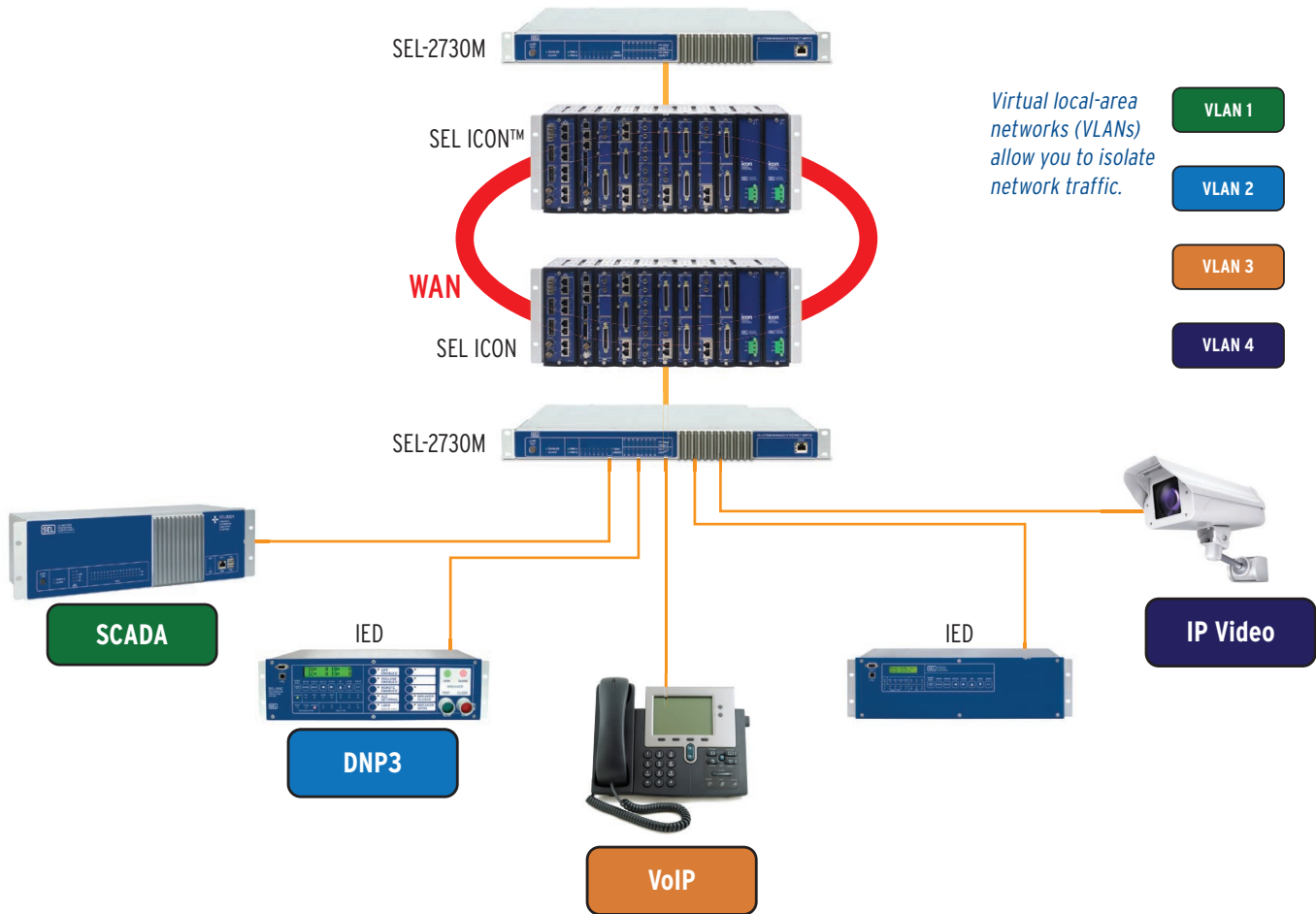
- User-based account access
- Port disabling
- Secure SNMPv3 network monitoring
- MAC-based port filtering

The SEL-2730M supports SNMPv3/v2c and is compatible with existing NMS systems as well as the SEL-5051 Network Management System Software.

Switch configuration settings may be updated, either through a secure web interface or offline at your desk or laptop for later upload to the switch.



Manage the SEL-2730M via an HTTPS web management interface with user-based authentication. Syslog security information may be forwarded to up to three central servers making monitoring system activity simple and convenient.

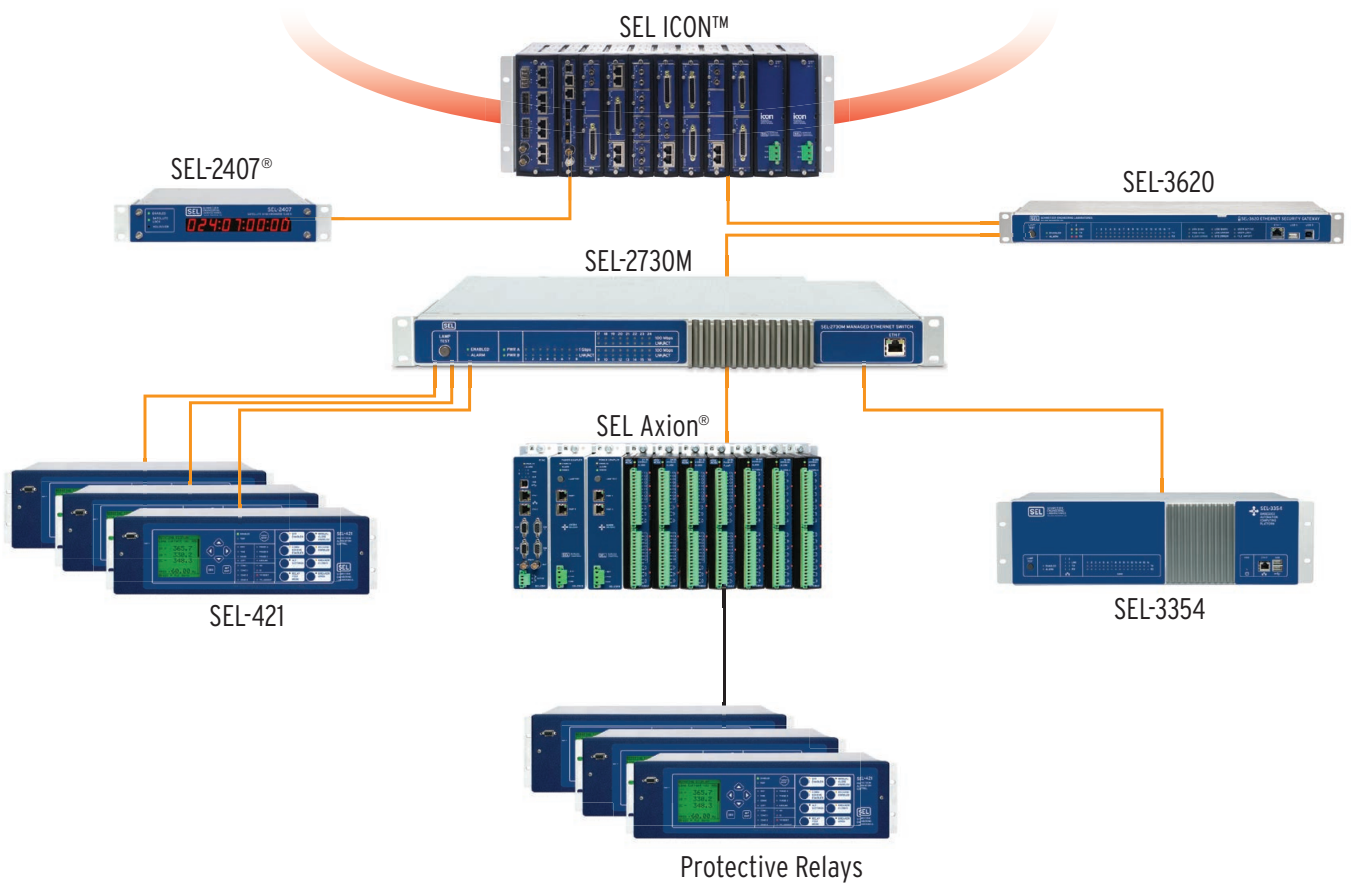


Integrated Communications

The SEL-2730M is designed for optimal performance with the SEL ICON™ Integrated Communications Optical Network, other SEL networking components, and substation IEDs.

The SEL-2730M is part of an SEL complete communications system for the substation LAN.

SEL's Ethernet switch complements the ICON by aggregating Ethernet LAN traffic for station-to-station Ethernet over SONET traffic. The ICON and SEL-2730M combination gives SEL an integrated communications solution for aggregation and transport—a huge benefit over point Ethernet switching solutions that rely purely on Ethernet switches for both WAN transmission and LAN connectivity.



In this example of a substation network, the SEL-2730M supports engineering access from the SEL-3354 Embedded Automation Computing Platform and aggregates IEC 61850 traffic from the SEL-2240 Axion® and SEL-421 Protection, Automation, and Control Systems.

Easy to Install, Configure, Manage, and Maintain

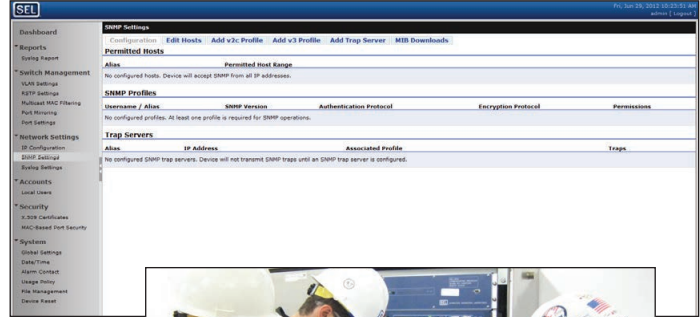
Plug-and-Play Networking Product

Simple, user-friendly provisioning options allow the switch to be configured in any one of the following ways:

- Secure web interface, which provides real-time setup and management.
- Offline desktop application, enabling file delivery to field devices.
- SNMPv3/v2c with network monitoring.

The SEL-2730M is compatible with SNMP managers, including SEL-5051 Network Management System Software, which may also be used to monitor the SEL ICON.

The SEL-2730M has an easy-to-navigate web-user interface and intuitive configuration settings that enable fast set-up times for non-IT users.

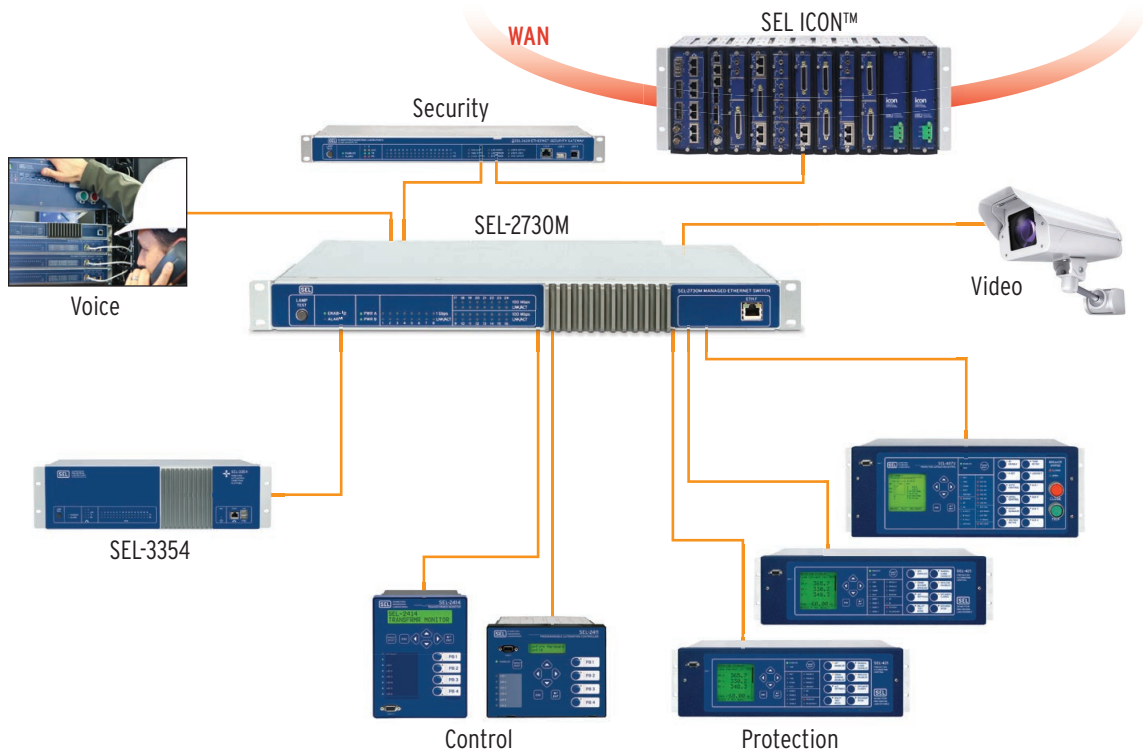


Count on SEL Communications Solutions for Critical Infrastructure

SEL networking solutions include communications products and support services specifically designed for utilities and multiple industries.



Substation Automation, Protection, and Management Applications



Accessories



Shielded, Twisted-Pair Category 5e Ethernet Cables

SEL-C627—Standard Ethernet STP cables

SEL-C627R—Enhanced Ethernet cables with protection against EMI/RFI for industrial applications



Fiber-Optic Cables

SEL provides high-quality fiber-optic cable solutions in customer-specified lengths. Various cable sizes, jacket types, and strand counts are available. Field termination kits are also available.

SEL-C808 Multimode 62.5/125 μm Core Fiber-Optic Cables

SEL-C809 Single-Mode Fiber-Optic Cables



Visit www.selcables.com for more information on SEL cable solutions.

SEL-2730M Managed 24-Port Ethernet Switch

Switch Functions

VLANs

Ethernet switch supports 802.1Q VLANs to separate line current differential and IEC 61850 GOOSE messages from other traffic.

Quality of Service

IEEE 802.1p traffic prioritization with four service levels supports critical substation messaging.

DHCP Server for Easy Setting

The default settings enable the front panel 10/100BASE-T Ethernet port to function as a DHCP server and easily connect a laptop computer during initial setup.

Security

SNMPv3 provides secure network management. An HTTPS secure web interface includes user-based accounts. The Ethernet switch can forward Syslog security logs to up to three central servers.

Failover and Redundancy

IEEE 802.1D-2004 Rapid Spanning Tree protocol (RSTP) enables fast network recovery after a topology change due to a link failure.

Port Monitoring and Statistics

Monitor ingress and egress traffic for each port, and view network statistics.

General Specifications

Ports 1–4

Ports 1 through 4 each accept an SFP transceiver, which adds a single- or multimode Gigabit Ethernet fiber-optic uplink port.

Distance and Fiber-Optic Mode

SFP options	0.5 km multimode
	10 km single-mode
	20 km single-mode
	30 km single-mode
	40 km single-mode
	50 km single-mode
	80 km single-mode

Ports 5–8

Data rate	10/100/1000 Mbps
Connector	RJ45 female
Autoconfiguration	Crossover, speed, and half- or full-duplex mode

Ports 9–24

Standard

Data rate	10/100 Mbps
Connector	RJ45 female
Autoconfiguration	Crossover, speed, and half- or full-duplex mode

Optional (in groups of four: 9–12, 13–16, 17–20, and 21–24)

Multimode and single-mode optical interface

Data rate	100 Mbps
Connector	LC

Power Supply Ratings

Base unit includes one power supply; second supply is optional.

Voltage options

100/120/220/230 Vac @ 45–65 Hz, or 100/125/220/250 Vdc
24/48 Vdc

Operating Temperature Range

–40° to +85°C (–40° to +185°F)

Relative Humidity

5–95%, noncondensing



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