

# NEW!

## MultiLink

Industrial Hardened Ethernet Switches



### Features

- Industrial Hardened Design:
  - IEC 61850-3 (harsh substation environments)
  - IEEE 1613 Class 2 (transient immunity)
  - IP 40 rated for environmental protection
  - Suitable for Utility Substations and harsh Industrial Environments
  - -40°C to +85°C Operating temperature without fans
- Security Focused Implementation:
  - RADIUS & TACACS+ for secure password authentication
  - Secure Web Management
  - Remote Access Security
  - SNMPv3 Encryption
- Enhanced Availability:
  - Network Ring Recovery of less than 5ms
  - Link-Loss-Alert for detecting broken 10Mbit & 100Mbit fiber connections
  - Redundant power supplies with mixed inputs voltages available
- Complete Connectivity:
  - Modbus TCP/IP support for Monitoring and System Integration
  - 10Mbit, 100Mbit, 1000Mbit Ports
  - ST, SC, LC, and MTRJ Multimode and Singlemode Fiber Optics
  - 10/100Mbit Auto-negotiating RJ45 Copper Ports
  - Copper and Fiber Optic Gigabit Ports
- Simple Set-Up and Operation
  - Easy to use EnerVista configuration software
  - Powerful web interface for entire switch configuration with enhanced web statistics simplifying troubleshooting

### GE MultiLink Family

The GE MultiLink family is a line of industrial and substation hardened Ethernet switches that provide you with secure, reliable communications with all your critical infrastructure devices. Designed to meet the unique requirements of the protection and control industry the MultiLink Ethernet switches ensure your communications network is always available, even under the worst environmental and transient conditions. GE MultiLink Ethernet switches can easily be integrated into new or existing installations where critical transfer of data is needed with high levels of reliability.

### ML2400 & ML1600 Managed Switches

The MultiLink ML2400 and the ML1600 Managed Ethernet switches provide extremely reliable networks with very fast reconfiguration times for recovering from faults occurring in the network. The complete set of network management functions available provide the configurability and monitoring capability needed for most applications, while the high level of security features available will ensure your network is always protected from tampering or illegal access.

### ML600 Unmanaged Compact Switch

The ML600 Unmanaged Ethernet switch provides the ability to connect remote sites or stations that contain few Ethernet devices to your local network in a cost effective manner. The ML600 can be set-up with several different port configurations allowing for use with many different device types. It can also be connected to other Ethernet switches forming a ring architecture providing redundancy throughout your critical networks.

### Why use the MultiLink Family of Ethernet Communication Switching Solutions?

**Ability to Withstand Harsh Environments** – IEC 61850-3 and IEEE 1613 Class 2 compliant, IP 40 rated.

**High Degree of Network and Management Security** – SNMPv3 Encryption, secure web management, remote access security, Radius & TACACS+ secure password authentication.

**Enhanced Availability with Fast Fault Recovery** – Network ring recovery less than 5ms per switch, Link-Loss-Alert detection for broken 10Mbit & 100Mbit fiber connections, Redundant power supplies with mixed inputs voltages available.

**Simple Switch Configuration and System Integration** – Web interface for entire switch configuration, enhanced web statistics, Modbus TCP/IP support for monitoring and system integration.

**Support of all Common Network Communication Ports** – 10Mbit, 100Mbit, and 1000Mbit ports. ST, SC, LC, and MTRJ Multimode and Singlemode fiber optics. 10/100Mbit auto-negotiating RJ45 copper ports, copper and fiber optic gigabit ports.

# MultiLink



**ML2400**  
19" Rack-mounted  
Managed Switch



**ML1600**  
9" Panel-mounted  
Managed Switch



**ML600**  
Unmanaged  
Compact Switch

## ML2400 & ML1600 Managed Switches

### ML2400 max port configuration:

- 32 - 10/100 Mbit Copper RJ45 Ports
- 16 - 10 or 100 Mbit ST or SC Fiber Ports
- 12 - 100 Mbit LC or MTRJ Fiber Ports
- 8 - 1 Gbit Fiber or Copper RJ45 Ports

### ML1600 max port configuration:

- 16 - 10/100 Mbit Copper RJ45 Ports
- 8 - 10 or 100 Mbit ST or SC Fiber Ports
- 12 - 100 Mbit LC or MTRJ Fiber Ports
- 4 - 1 Gbit Fiber or Copper RJ45 Ports

## ML2400 & ML1600 Power Supply Options

- AC 100-240 VAC
- HI 110-250 VDC/100-240 VAC
- LO 48 VDC
- Redundant HI or LO PS option - available for the 2400 only

## ML2400 & ML1600 Interface Module Options

(ML 2400/ML 1600 handle 4/2 Modules respectively)

- A1 4 x 10 Mbit - ST mm Fiber
- A2 4 x 100 Mbit - ST mm Fiber
- A3 4 x 100 Mbit - SC mm Fiber
- A4 8 x 10/100 Mbit - RJ45 Copper
- A5 2 x 10 Mbit - ST mm Fiber + 4 x 10/100 Mbit RJ45 Copper
- A6 2 x 100 Mbit - ST mm Fiber + 4 x 10/100 Mbit RJ45 Copper
- A7 2 x 100 Mbit - SC mm Fiber + 4 x 10/100 Mbit RJ45 Copper
- A8 2 x 100 Mbit - SC sm Fiber 20km + 4 x 10/100 Mbit RJ45 Copper
- AA 4 x 100 Mbit - LC mm Fiber + 4 x 10/100 Mbit RJ45 Copper
- AB 8 x 100 Mbit - LC mm Fiber
- AC 4 x 100 Mbit - LC sm Fiber + 4 x 10/100 Mbit RJ45 Copper
- AD 8 x 100 Mbit - LC sm Fiber
- AE 2 x 100 Mbit - LC sm Fiber + 6 x 10/100 Mbit RJ45 Copper
- AF 2 x 10 Mbit - ST mm Fiber + 2 x 100 Mbit - ST mm Fiber
- AH 8 x 100 Mbit - MTRJ mm Fiber
- AJ 4 x 100 Mbit - MTRJ mm Fiber + 4 x 10/100 Mbit RJ45 Copper
- AK 2 x 100 Mbit - MTRJ mm Fiber + 6 x 10/100 Mbit RJ45 Copper
- G3 1 x 1000 Mbit - SC mm Fiber 2km + 2 x 100 Mbit - SC mm Fiber
- G4 1 x 1000 Mbit - SC mm Fiber 2km + 4 x 10/100 Mbit - RJ45 Copper
- G5 2 x 1000 Mbit - SC mm Fiber 2km
- G6 1 x 1000 Mbit - RJ45 Copper
- G7 1 x 1000 Mbit - SC mm Fiber 2km
- G8 1 x 1000 Mbit - SC sm Fiber 10 km
- GC 1 x 1000 Mbit - RJ45 Copper + 2 x 100 Mbit - SC mm Fiber
- GD 1 x 1000 Mbit - RJ45 Copper + 4 x 10/100 Mbit - RJ45 Copper
- GE 2 x 1000 Mbit - RJ45 Copper
- GF 1 x 1000 Mbit - SC sm Fiber 10km + 2 x 100 Mbit - SC mm Fiber
- GH 1 x 1000 Mbit - SC sm Fiber 10km + 4 x 10/100 Mbit - RJ45 Copper
- GJ 2 x 1000 Mbit - SC sm Fiber 10km

## Harsh Environment Options

Available in Standard Environment or Harsh Chemical Environment

## ML600 Unmanaged Compact Switch

### ML600 max port configuration:

- 6 - 10/100 Mbit Copper RJ45 Ports
- 2 - 100 Mbit ST, or SC Fiber Ports
- High Voltage AC Power Supply

### ML600 Power Supply Options

- AC External 100 - 240 VAC Adaptor
- HI 30 - 60 VDC Power Supply
- LO 10 - 36 VDC Power Supply

### ML600 Interface Options

- B1 6 x 10/100 Mbit - RJ45 Copper
- B2 2 x 100 Mbit - ST mm Fiber + 4 x 10/100 Mbit - RJ45 Copper
- B3 2 x 100 Mbit - SC mm Fiber + 4 x 10/100 Mbit - RJ45 Copper
- B4 2 x 100 Mbit - SC sm Fiber + 4 x 10/100 Mbit - RJ45 Copper

## Environmental Specifications

### ML2400/ML1600

- Ambient temperature: -40 to 85°C (-40 to 185°F)
- Storage temperature: -50 to 100°C (-60 to 210°F)
- Ambient relative humidity: 5% to 95% (non-condensing)
- Altitude: 2000 m

### ML600

- Ambient temperature: (UL): -25 to 60°C (-13 to 140°F)  
(IEC): -40 to 85°C (-40 to 149°F)
- Storage temperature: -40 to 85°C (-40 to 160°F)
- Ambient relative humidity: 5% to 95% (non-condensing)
- Altitude: 1520 m

## Physical Specifications

### ML2400/ML 1600

- Mounting: Vertical - stand-alone or 19" rack mount
- Enclosure: Rugged high-strength sheet metal
- ML 2400 Dimensions: 1.70 in. H - 17.0 in. W - 9.2 in. D  
4.32 cm H - 43.2 cm W - 22.9 cm D
- ML 1600 Dimensions: 1.94 in. H - 9.25 in. W - 10.24 in. D  
4.92 cm H - 23.5 cm W - 26.0 cm D

### ML600

- Mounting: stand-alone or DIN-rail mount
- Enclosure: Rugged high-strength sheet metal
- ML 600 Dimensions: 3.7 in. H - 3.0 in. W - 1.7 in. D  
9.4 cm H - 7.6 cm W - 4.3 cm D

## Approvals

- FCC: FCC part 15 class A
- UL: UL listed (see manual for specific listing)
- NEBS: level 3
- ETSI: certified for carrier central offices
- IEEE: IEEE P1613 environmental standard for electric power substations
- IEC: IEC61850 EMC and operating conditions class C for power substations



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