MultiLink™
HARDED ETHERNET SWITCHES
Ethernet Communications for Industrial Automation, Power Utility, and Traffic Control Markets

KEY BENEFITS

• Physically hardened and environmentally ruggedized for reliability in harsh environments
• Harsh chemical environment option available for circumstances that are corrosive or otherwise damaging to electronic equipment
• Enables cyber protection and network integrity with advanced security features
• Forensic auditing of activities and changes using event logging
• Flexible options for Ethernet port and media types allow integration into any project requirement
• Supports intelligent traffic planning and integration with network management systems using a complete set of Ethernet switch management functions
• Support for high speed recovery of redundant LANs for mission-critical applications
• Simple, powerful, and easy configuration using web management software
• Fully supported and viewable using EnerVista™ Viewpoint Monitoring

APPLICATIONS

• Safely and reliably extends Ethernet networks to harsh production environments for utility and industrial applications
• Allows critical devices to be managed, analyzed, or controlled from a single location
• Enables high speed, redundant connections to GE Universal Relays

FEATURES

Managed Networks
• Supports SNMPv3, with full backwards compatibility for v1 and v2
• Traffic segregation and prioritization control via IEEE® 802.1p and IEEE 802.1Q
• Hardware and software alarm contacts for detection of critical network or switch events
• Fully integrates with Viewpoint Monitoring software

Ease-Of-Use
• Support for industrial protocols (e.g. Modbus®)
• IP out-of-the-box for easy installation and initial setup
• Simple but powerful web management interface for all configuration functions

Industrially Hardened
• UL® listed/CE agency approved
• IEC® 61850 and IEEE 1613 approval for operation in electric substation environments
• Redundant and mixed power supply options for increased reliability
• Harsh chemical environment options ensures product function and viability
• RoHS (Reduction of Hazardous Substances) compliant

Secure
• Secure management via SSL
• Port security prevents unauthorized devices from gaining access to the network
• Multi-level passwords with levels of privilege and command for different users or groups
• Complete event logging for forensic and regulatory auditing and reporting
Ethernet Switches Designed for the Unique Needs of Critical Infrastructures

Designed for the Needs of Protective Relaying

The MultiLink Ethernet Switches have been designed for the specific requirements of devices used in utility and industrial environments, such as protective relays. MultiLink Ethernet Switches support many unique features that allow for full redundancy under network fault conditions.

Link Loss Alert

The MultiLink Ethernet Switch family’s Link Loss Alert feature allows for protective relays to recover from situations where only one of the fiber cables connected to the relay is damaged. The Link Loss Alert feature works with both 10Mbit and 100Mbit fiber ports of GE’s Multilin™ Universal Relay, and allows for seamless switching to the relay’s secondary port under all network fault conditions.

Modbus Protocol Support

Identifying network communication problems and retrieving network statistics from the MultiLink Ethernet Switches can now be achieved in SCADA or DCS systems through the use of the supported Modbus TCP/IP protocol. Modbus is a protocol supported by most Human Machine Interfaces and PLC’s and can therefore be integrated into existing systems without having to invest in additional SNMP or other Network Management Software.

Enhanced High Speed Recovery of Redundant Ring Networks

The unique requirements of the Protection and Control Industry require Ethernet networks to be more reliable and to recover from network problems faster than is generally accepted in other commercially available equipment. The MultiLink Ethernet Switch’s SMART RSTP feature allows for recovery from faults in ring network architectures in less than 5 milliseconds per switch in the network – 10 times faster than generally available in standard Ethernet switches.

Network Fault Recovery Using MultiLink Ethernet Switches

<table>
<thead>
<tr>
<th>Fault Between Switches</th>
<th>Recovery Time Per Switch (Hop)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW1-SW2</td>
<td>1.90 ms</td>
</tr>
<tr>
<td>SW2-SW3</td>
<td>2.12 ms</td>
</tr>
<tr>
<td>SW3-SW4</td>
<td>2.11 ms</td>
</tr>
<tr>
<td>SW4-SW5</td>
<td>2.29 ms</td>
</tr>
<tr>
<td>SW5-SW6</td>
<td>1.95 ms</td>
</tr>
<tr>
<td>SW6-SW7</td>
<td>2.06 ms</td>
</tr>
<tr>
<td>SW7-SW8</td>
<td>2.18 ms</td>
</tr>
<tr>
<td>SW8-SW9</td>
<td>1.82 ms</td>
</tr>
<tr>
<td>SW9-SW10</td>
<td>2.27 ms</td>
</tr>
<tr>
<td>SW10-SW1</td>
<td>0.00 ms</td>
</tr>
</tbody>
</table>

Network recovery times.

Example of network fault recovery testing using MultiLink SMART RSTP in a ring network architecture.
Robust Ethernet Switches for Providing Secure and Reliable Networks

Ideal for Harsh Environments

GE’s MultiLink Ethernet Switches have been tested and certified to meet the same rigorous environmental standards as all of our protection relays and meters.

- Operating temperature -40°C to +85°C without fans
- Type tested to IEC 61850-3, IEEE 1613 Class 2, NEBS level 3 substation requirements
- IP40 Rated
- Dual power supply option with the ability to mix the input sources used (i.e. 48 VDC and 125 VDC)

Enhanced Security

The MultiLink family of Ethernet Switches have implemented the most advanced techniques available for providing security in network communications including:

- SNMP v1/v2/v3 supplying secure access to network devices through authentication, and encryption
- Imbedded RADIUS and TACACS+ security for remote access and password verification
- SSL web encryption preventing eavesdropping, tampering or message forgery
- Port security through the disabling of packets from unauthorized MAC addresses
- Logging of events and sending email notification of unauthorized access attempts

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The MultiLink Ethernet Switches support most 802.1 network management features and are configurable using the Command Line Interface (CLI) and through our web management interface. Management functionality includes:

- SNMPv3 for secure configuration of network switches
- Full support of the CLI commands
- Web management interface for user-friendly configuration and monitoring
- RSTP (802.1w) industry standard method for providing recovery of redundant networks
- SMART RSTP (ring only mode) for enhanced fast recovery (<5ms/hop) of ring architecture networks
- RMON for monitoring of network status and statistics
- VLAN (802.1Q) providing the ability of segregating the network into smaller virtual networks (up to 256)
- QoS—(802.1Q) for prioritization of network traffic
- Port mirroring, assisting network troubleshooting
- IGMP snooping, enabling reductions in multicast traffic
- SNTP for synchronizing the switch’s internal clock
- SMTP providing email notification when problems in the network have occurred
- Event logs creating a historical record of events occurring on the network
- IPv6 support, allowing for more addressable devices in a network

EnerVista Viewpoint Monitoring and Integrator Supported

The MultiLink Ethernet Switches are fully supported by the EnerVista Viewpoint Monitoring and Integrator software packages, allowing integration of LAN status, network alarm problems, and security alerts into your monitoring and control system.

EnerVista Viewpoint Monitoring provides monitoring of the status of all network ports, indication of network problems and alarming of unauthorized network access attempts.
EnerVista Web Interface Provides User-Friendly Configuration and Network Monitoring

Easy-to-Use Web Configuration and Reporting Software

The EnerVista Web configuration software allows programming of all settings in the MultiLink Ethernet Switches using a simple web browser. Accessible by typing the pre-configured IP address of your switch into the address bar of a web browser, the user-friendly graphical interface allows for easy navigation, monitoring and configuration through simple point and click operations.

Communication Status & Port Navigation

- Instant graphical indication of the status of all communication ports
- Identify the configuration of all communication parameters
- The ability to click on any of the shown Ethernet terminals to jump immediately to the settings screen for that port

Intuitive Menu-Driven Configuration

- Navigate through configuration screens using an easy to understand categorized menu tree
- Configure all settings using menu-driven pull-down fields
- Program alarm triggers by selecting from a list of all possible conditions
- Eliminate the need to memorize any CLI commands

Powerful Troubleshooting Statistics

- Monitor traffic statistics using intuitive bar graph representations
- Identify the amount and type of traffic sent and received through each port of the switch
- Simplify troubleshooting by identifying the number of CRC errors, collisions, and dropped packets occurring on each port
- Clear and restart the capturing of port statistics to allow for the troubleshooting of specific network problems
Managed Switches

The MultiLink ML3000 Series, ML2400, ML1600, ML1200, ML810 and ML800 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 provides the configurability and monitoring capability needed for most applications, while the high level of security features available ensures your network is protected from tampering or illegal access.

ML3000 Series supports (model dependent):
- Up to 32 ports 10/100 Mbit copper RJ45
- Up to 16 ports 10 or 100 Mbit fiber
- Up to 8 ports GigE fiber or copper
- Up to 18 fiber ports depending on configuration
- 1588v2 timing
- Redundant power supplies
- Field replaceable power supply models available

ML2400 supports:
- Up to 32 ports 10/100 Mbit copper RJ45
- Up to 16 ports 10/100 Mbit ST or SC fiber
- Up to 12 ports 100 Mbit LC or MTRJ fiber
- Up to 8 ports Gbit fiber or copper RJ45
- Optional redundant power supply

ML1600 supports:
- 16 ports 10/100 Mbit copper RJ45
- 8 ports 10 or 100 Mbit ST or SC fiber
- 12 ports 100 Mbit LC or MTRJ fiber
- 4 ports 1 Gbit fiber or copper RJ45
- High voltage AC/DC power supplies

ML1200 supports:
- 12 ports 10/100 Mbit copper RJ45
- 4 ports 10 or 100 Mbit ST or SC fiber
- 8 ports 100 Mbit LC or MTRJ fiber
- 2 ports 1 Gbit fiber or copper RJ45
- Low, medium, and high voltage DC power supply

ML810 supports:
- 8 ports 10/100 Mbit copper RJ45
- 4 ports LC, ST, SC or MTRJ fiber
- 2 ports 1 Gbit fiber or copper RJ45

ML800 supports:
- Up to 8 ports 10/100 Mbit copper RJ45
- Up to 2 Gbit ports fiber or copper RJ45
- Up to 3 ports LC, or MTRJ fiber

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 configured with several different port configurations allowing for use with many different device types and can be connected to other Ethernet switches, forming a ring architecture that provides redundancy throughout your critical networks.

ML600 supports:
- 6 ports 10/100 Mbit copper RJ45
- 2 ports 100 Mbit ST, or SC fiber
- High voltage AC power supply

Port Selector Guide

<table>
<thead>
<tr>
<th>Port Type</th>
<th>Typical Distance</th>
<th>Power Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/100 Mbit RJ45 Copper</td>
<td>100 m</td>
<td>N/A</td>
</tr>
<tr>
<td>10 Mbit Multimode ST Fiber Optic</td>
<td>2 km</td>
<td>17 dB</td>
</tr>
<tr>
<td>100 Mbit Multimode ST Fiber Optic</td>
<td>2 km</td>
<td>14 dB</td>
</tr>
<tr>
<td>100 Mbit Multimode SC Fiber Optic</td>
<td>2 km</td>
<td>14 dB</td>
</tr>
<tr>
<td>100 Mbit Singlemode SC Fiber Optic</td>
<td>20 km</td>
<td>17.5 dB</td>
</tr>
<tr>
<td>100 Mbit Singlemode SC Fiber Optic</td>
<td>40 km</td>
<td>17.5 dB</td>
</tr>
<tr>
<td>100 Mbit Multimode LC Fiber Optic</td>
<td>2 km</td>
<td>14 dB</td>
</tr>
<tr>
<td>100 Mbit Singlemode LC Fiber Optic</td>
<td>15 km</td>
<td>17.5 dB</td>
</tr>
<tr>
<td>100 Mbit Multimode MTRJ Fiber Optic</td>
<td>2 km</td>
<td>14 dB</td>
</tr>
<tr>
<td>1 Gbit RJ45 Copper</td>
<td>100 m</td>
<td>N/A</td>
</tr>
<tr>
<td>1 Gbit Multimode SC Fiber Optic</td>
<td>2 km</td>
<td>12.5 dB</td>
</tr>
<tr>
<td>1 Gbit Singlemode 1310nm SC Fiber Optic</td>
<td>10 km</td>
<td>10.5 dB</td>
</tr>
<tr>
<td>1 Gbit Singlemode 1310nm SC Fiber Optic</td>
<td>25 km</td>
<td>17.5 dB</td>
</tr>
<tr>
<td>1 Gbit Singlemode 1550nm SC Fiber Optic</td>
<td>40 km</td>
<td>17.5 dB</td>
</tr>
<tr>
<td>1 Gbit Singlemode 1550nm SC Fiber Optic</td>
<td>70 km</td>
<td>20.5 dB</td>
</tr>
<tr>
<td>100 Mbit Multimode MTRJ Fiber Optic</td>
<td>2 km</td>
<td>15.8 dB</td>
</tr>
</tbody>
</table>
ML3000 Series

Supports up to 16, 10 or 100Mbit, ST, SC, LC or MTRJ Fiber Ports

Supports up to 8 Ports

Gigabit Copper or Fiber and 1588v2 Timing

Ordering

### ML3000

<table>
<thead>
<tr>
<th>GigE</th>
<th>10 or 100Mpbs</th>
<th>ML3000 Chassis with Fixed Power Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Power Supply</td>
<td>HA</td>
<td>HA</td>
</tr>
<tr>
<td>Gigabit</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>100Mbp</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>1000Mbp</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>4x 10/100 Mbit - RJ45 Copper</td>
<td>4x 10/100 Mbit - RJ45 Copper with PoE*</td>
<td>4x 10/100 Mbit - RJ45 Copper with PoE**</td>
</tr>
</tbody>
</table>

### ML1000

<table>
<thead>
<tr>
<th>GigE</th>
<th>100Mbp</th>
<th>ML1000 Chassis with Integrated Power Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Power Supply</td>
<td>HA</td>
<td>HA</td>
</tr>
<tr>
<td>Gigabit</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>100Mbp</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>4x 10/100 Mbit - RJ45 Copper</td>
<td>4x 10/100 Mbit - RJ45 Copper with PoE*</td>
<td>4x 10/100 Mbit - ST Multimode Fiber</td>
</tr>
</tbody>
</table>

Coating

- None
- H Harsh Chemical Environment Conformal Coating

Environment

- None
- H Harsh Chemical Environment Conformal Coating

Notes

- The power source of the ML3000 must be in the range of 45-57 VDC for PoE+.
- The power source of the ML3000 must be in the range of 52-56 VDC for PoE+ and PoE+ modules are only supported on units ordered with P3 or P2 power supply options.

Optional field replaceable power supplies are available with models ML3000 and ML3100. Please see online store for the latest module availability.
ML2400

| Module       | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |

Additional modules and configurations available. Please see the Online Store for the latest module availability.
## ML1600

- **Dimensions:**
  - Width: 9.0" (22.86 cm)
  - Height: 9.2" (22.9 cm)
  - Depth: 1.7" (4.3 cm)

- **Supports:**
  - Up to 12 100 Mbit LC or MTRJ Fiber Ports
  - Up to 8 10 or 100 Mbit ST, or SC Fiber Ports
  - Up to 16 10/100 Mbit Copper RJ45 Ports
  - Up to 4 Gbit Fiber or Copper RJ45 Ports

## Ordering

<table>
<thead>
<tr>
<th>ML1600</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module</strong></td>
<td><strong>Power Supply</strong></td>
<td><strong>Base Unit</strong></td>
</tr>
<tr>
<td><strong>A</strong></td>
<td>AC</td>
<td>100-240 VAC Power Supply</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>HI</td>
<td>110-250 VDC/100-240 VAC Power Supply</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>LO</td>
<td>48 VDC Power Supply</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td><strong>Modules</strong></td>
<td><strong>A1</strong></td>
</tr>
<tr>
<td><strong>E</strong></td>
<td><strong>A2</strong></td>
<td>4 x 10Mb ST mm Fiber</td>
</tr>
<tr>
<td><strong>F</strong></td>
<td><strong>A3</strong></td>
<td>4 x 100Mb ST mm Fiber</td>
</tr>
<tr>
<td><strong>G</strong></td>
<td><strong>A4</strong></td>
<td>4 x 100Mb SC mm Fiber</td>
</tr>
<tr>
<td><strong>H</strong></td>
<td><strong>A5</strong></td>
<td>8 x 10Mb/100Mb RA4S Copper</td>
</tr>
<tr>
<td><strong>I</strong></td>
<td><strong>A6</strong></td>
<td>2 x 10Mb ST mm Fiber + 4 x 10/100Mb RA4S Copper</td>
</tr>
<tr>
<td><strong>J</strong></td>
<td><strong>A7</strong></td>
<td>2 x 10Mb SC mm Fiber + 4 x 10/100Mb RA4S Copper</td>
</tr>
<tr>
<td><strong>K</strong></td>
<td><strong>A8</strong></td>
<td>2 x 100Mb SC sm Fiber + 4 x 10/100Mb RA4S Copper</td>
</tr>
<tr>
<td><strong>L</strong></td>
<td><strong>A9</strong></td>
<td>2 x 100Mb SC sm Fiber + 4 x 10/100Mb RA4S Copper</td>
</tr>
<tr>
<td><strong>M</strong></td>
<td><strong>AA</strong></td>
<td>8 x 100Mb SC mm Fiber + 4 x 10/100Mb RA4S Copper</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td><strong>AB</strong></td>
<td>8 x 100Mb LC mm Fiber 2km</td>
</tr>
<tr>
<td><strong>O</strong></td>
<td><strong>AC</strong></td>
<td>4 x 100Mb LC mm Fiber 15km</td>
</tr>
<tr>
<td><strong>P</strong></td>
<td><strong>AD</strong></td>
<td>8 x 100Mb LC mm Fiber 15km</td>
</tr>
<tr>
<td><strong>Q</strong></td>
<td><strong>AE</strong></td>
<td>8 x 100Mb MTRJ mm 2km</td>
</tr>
<tr>
<td><strong>R</strong></td>
<td><strong>AF</strong></td>
<td>4 x 10/100Mb RA4S Copper + 4 x 100Mb MTRJ mm 2km</td>
</tr>
<tr>
<td><strong>S</strong></td>
<td><strong>AG</strong></td>
<td>6 x 10/100Mb RA4S Copper + 2 x 1000Mb SC mm Fiber 70km</td>
</tr>
<tr>
<td><strong>T</strong></td>
<td><strong>AH</strong></td>
<td>2 x 100Mb SC mm Fiber 70km</td>
</tr>
<tr>
<td><strong>U</strong></td>
<td><strong>AJ</strong></td>
<td>2 x 100Mb SC sm Fiber 2km</td>
</tr>
<tr>
<td><strong>V</strong></td>
<td><strong>AK</strong></td>
<td>8 x 100Mb SC sm Fiber 2km</td>
</tr>
<tr>
<td><strong>W</strong></td>
<td><strong>AL</strong></td>
<td>2 x 100Mb SC sm Fiber 4km</td>
</tr>
<tr>
<td><strong>X</strong></td>
<td><strong>AM</strong></td>
<td>2 x 100Mb SC sm Fiber 6km</td>
</tr>
<tr>
<td><strong>Y</strong></td>
<td><strong>AN</strong></td>
<td>2 x 100Mb SC sm Fiber 7km</td>
</tr>
<tr>
<td><strong>Z</strong></td>
<td><strong>AO</strong></td>
<td>2 x 100Mb SC sm Fiber 10km</td>
</tr>
<tr>
<td><strong>AA</strong></td>
<td><strong>AP</strong></td>
<td>2 x 100Mb SC sm Fiber 15km</td>
</tr>
<tr>
<td><strong>AB</strong></td>
<td><strong>AQ</strong></td>
<td>2 x 100Mb SC sm Fiber 20km</td>
</tr>
<tr>
<td><strong>AC</strong></td>
<td><strong>AR</strong></td>
<td>2 x 100Mb SC sm Fiber 40km</td>
</tr>
<tr>
<td><strong>AD</strong></td>
<td><strong>AS</strong></td>
<td>2 x 100Mb SC sm Fiber 60km</td>
</tr>
<tr>
<td><strong>AE</strong></td>
<td><strong>AT</strong></td>
<td>2 x 100Mb SC sm Fiber 80km</td>
</tr>
<tr>
<td><strong>AF</strong></td>
<td><strong>AU</strong></td>
<td>2 x 100Mb SC sm Fiber 100km</td>
</tr>
<tr>
<td><strong>AG</strong></td>
<td><strong>AV</strong></td>
<td>2 x 100Mb SC sm Fiber 120km</td>
</tr>
<tr>
<td><strong>AH</strong></td>
<td><strong>AW</strong></td>
<td>2 x 100Mb SC sm Fiber 150km</td>
</tr>
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<td><strong>AI</strong></td>
<td><strong>AX</strong></td>
<td>2 x 100Mb SC sm Fiber 180km</td>
</tr>
<tr>
<td><strong>AJ</strong></td>
<td><strong>AY</strong></td>
<td>2 x 100Mb SC sm Fiber 200km</td>
</tr>
<tr>
<td><strong>AK</strong></td>
<td><strong>AZ</strong></td>
<td>2 x 100Mb SC sm Fiber 250km</td>
</tr>
<tr>
<td><strong>AL</strong></td>
<td><strong>BA</strong></td>
<td>2 x 100Mb SC sm Fiber 300km</td>
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<td><strong>AM</strong></td>
<td><strong>BB</strong></td>
<td>2 x 100Mb SC sm Fiber 350km</td>
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<td><strong>BC</strong></td>
<td>2 x 100Mb SC sm Fiber 400km</td>
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<tr>
<td><strong>AO</strong></td>
<td><strong>BD</strong></td>
<td>2 x 100Mb SC sm Fiber 450km</td>
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<td><strong>AP</strong></td>
<td><strong>BE</strong></td>
<td>2 x 100Mb SC sm Fiber 500km</td>
</tr>
<tr>
<td><strong>AQ</strong></td>
<td><strong>BF</strong></td>
<td>2 x 100Mb SC sm Fiber 550km</td>
</tr>
<tr>
<td><strong>AR</strong></td>
<td><strong>BG</strong></td>
<td>2 x 100Mb SC sm Fiber 600km</td>
</tr>
<tr>
<td><strong>AS</strong></td>
<td><strong>BH</strong></td>
<td>2 x 100Mb SC sm Fiber 650km</td>
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<td><strong>AT</strong></td>
<td><strong>BI</strong></td>
<td>2 x 100Mb SC sm Fiber 700km</td>
</tr>
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<td><strong>AU</strong></td>
<td><strong>BJ</strong></td>
<td>2 x 100Mb SC sm Fiber 750km</td>
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<td><strong>BL</strong></td>
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<tr>
<td><strong>AX</strong></td>
<td><strong>BM</strong></td>
<td>2 x 100Mb SC sm Fiber 900km</td>
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<tr>
<td><strong>AY</strong></td>
<td><strong>BN</strong></td>
<td>2 x 100Mb SC sm Fiber 950km</td>
</tr>
<tr>
<td><strong>AZ</strong></td>
<td><strong>BO</strong></td>
<td>2 x 100Mb SC sm Fiber 1000km</td>
</tr>
</tbody>
</table>

### Harsh Environment Options
- **X**: Standard Environment
- **Y**: Harsh Environment Option
- **Z**: RoHS-compliant
- **H**: RoHS-compliant with Harsh Chemical Environment Coating

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Additional modules and configurations available. Please see the Online Store for the latest module availability.
**ML1200**

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>ML1200 250VDC Chassis</th>
<th>ML1200 125VDC Chassis</th>
<th>ML1200 48VDC Chassis</th>
<th>ML1200 24VDC Chassis</th>
<th>ML1200 125VDC Chassis - Dual Input PSU</th>
<th>ML1200 48VDC Chassis - Dual Input PSU</th>
<th>ML1200 24VDC Chassis - Dual Input PSU</th>
<th>ML1200 48VDC Chassis - PoE enabled</th>
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**Modules**

- C1: 4 x 10/100 RJ-45
- C2: 4 x 10/100 RJ-45 PoE-enabled ports (only with ML1200-48 model)
- C3: 2 x 10/100 RJ-45 + 2 x 100Mbit MTRJ mm Fiber
- C4: 2 x 10/100 RJ-45 + 2 x 100Mbit LC mm Fiber
- C5: 2 x 10/100 RJ-45 + 2 x 100Mbit LC sm Fiber 15km
- C6: 2 x 10/100 RJ-45 + 2 x 100Mbit SC mm Fiber 15km
- C7: 2 x 10Mbit ST mm Fiber
- C8: 2 x 100Mbit ST mm Fiber
- C9: 2 x 100Mbit SC mm Fiber
- CA: 2 x 100Mbit SC mm Fiber 20km
- CB: 2 x 100Mbit SC mm Fiber 40km
- C8: 4 x 100Mbit MTRJ mm Fiber
- CC: 4 x 100Mbit LC mm Fiber
- CD: 4 x 100Mbit LC mm Fiber 15km
- CE: 1 x 100Mbit ST mm Fiber
- CF: 1 x 100Mbit SC mm Fiber
- CH: 1 x 100Mbit SC mm Fiber 20km
- CI: 1 x 100Mbit SC mm Fiber 40km
- CJ: 2 x 100Mbit MTRJ mm Fiber
- CK: 2 x 100Mbit LC mm Fiber 15km
- CL: 2 x 100Mbit LC mm Fiber 40km
- H1: 2 x 1000Mbit LC mm Fiber
- H2: 2 x 1000Mbit LC mm Fiber 2km
- H3: 2 x 1000Mbit LC mm Fiber 10km
- H4: 2 x 1000Mbit LC mm Fiber 25km
- H5: 2 x 1000Mbit LC mm Fiber 40km
- H6: 2 x 1000Mbit LC mm Fiber 70km
- H7: 2 x 1000Mbit RJ-45 Copper
- HA: 1 x 1000Mbit RJ-45 Copper + 1 x 1000Mbit LC mm Fiber 10km
- HB: 1 x 1000Mbit RJ-45 Copper + 1 x 1000Mbit LC mm Fiber 25km
- HC: 1 x 1000Mbit RJ-45 Copper + 1 x 1000Mbit LC mm Fiber 40km
- HD: 1 x 1000Mbit RJ-45 Copper + 1 x 1000Mbit LC mm Fiber 70km
- HG: 1 x 1000Mbit LC mm Fiber 10km
- HH: 1 x 1000Mbit LC mm Fiber 25km
- HI: 1 x 1000Mbit LC mm Fiber 40km
- HJ: 1 x 1000Mbit LC mm Fiber 70km
- HK: 1 x 1000Mbit RJ-45 Copper

**Conformal Coating Option**

- X: Standard Environment
- H: Harsh Chemical Environment Conformal Coating
- Z: RoHS-compliant
- Y: RoHS-compliant with Harsh Chemical Environment Coating

Additional modules and configurations available. Please see the Online Store for the latest module availability.
### ML810

**Power Supply**
- 250S
- 125S
- 48VS
- 48PS
- 24VS
- 12VS
- 125D
- 48VD
- 48PD
- 24VD
- 12VD
- HIAC

**Mount**
- Panel Mount Kit
- DIN Mount Kit

**Slot A**
- C1: 4x 10/100 RJ45
- C2: 4x 10/100 RJ45 PoE-enabled ports (only with ML810-48PD models)

**Slot B**
- H1: 2x 1000Mb LC mm Fiber, SFP connector type
- H2: 2x 1000Mb LC sm Fiber 2km, SFP connector type
- H3: 2x 1000Mb LC sm Fiber 10km, SFP connector type
- H4: 2x 1000Mb LC sm Fiber 25km, SFP connector type
- H5: 2x 1000Mb LC sm Fiber 40km, SFP connector type
- H6: 2x 1000Mb LC sm Fiber 70km, SFP connector type
- H7: 2x 10/100/1000TX RJ45, fixed copper
- H8: None

**Slot C**
- C1: 4x 10/100 RJ45
- C2: 4x 10/100 RJ45 PoE-enabled ports (only with ML810-48PD models)
- C3: 2x 10/100 RJ45 + 2x 1000Mb MTRJ mm Fiber
- C4: 2x 10/100 RJ45 + 2x 1000Mb LC mm Fiber
- C5: 2x 10/100 RJ45 + 2x 1000Mb LC sm Fiber 20km
- C6: 2x 10/100 RJ45 + 2x 1000Mb SC mm Fiber
- C7: 2x 10/100 RJ45 + 2x 1000Mb SC sm 20km Fiber
- C8: 2x 10/100 RJ45 + 2x 1000Mb ST mm Fiber
- C9: 3x 10/100 RJ45 + 1x 1000Mb LC mm Fiber
- C10: 3x 10/100 RJ45 + 1x 1000Mb LC sm 20km Fiber
- C11: 2x 10/100 RJ45 + 2x 1000Mb LC sm Fiber 40km
- C12: 2x 10/100 RJ45 + 2x 1000Mb SC sm Fiber 40km
- C13: 4x 1000Mb ST mm Fiber
- C14: 4x 1000Mb MTRJ mm Fiber
- C15: 4x 1000Mb LC mm Fiber
- C16: 4x 1000Mb LC sm 20km Fiber
- C17: 4x 1000Mb SC mm Fiber
- C18: 4x 1000Mb SC sm 40km Fiber
- C19: 4x 1000Mb MTRJ mm Fiber
- C20: 4x 1000Mb LC mm Fiber
- C21: 4x 1000Mb LC sm 20km Fiber
- C22: 4x 1000Mb LC sm 40km Fiber
- C23: 4x 1000Mb ST mm Fiber
- C24: 4x 1000Mb SC mm Fiber
- C25: 4x 1000Mb SC sm 40km Fiber
- C26: 1x 1000Mb MTRJ mm Fiber
- C27: 1x 1000Mb LC mm Fiber
- C28: 1x 1000Mb LC sm 20km Fiber
- C29: 1x 1000Mb LC sm 40km Fiber
- C30: 1x 1000Mb ST mm Fiber
- C31: 1x 1000Mb SC mm Fiber
- C32: 1x 1000Mb SC sm 40km Fiber
- C33: 1x 10/100/1000TX RJ45, fixed copper
- C34: None

**Coating**
- X: None
- H: Harsh Chemical Environmental Option

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**Ordering**

*ML810 supports up to 2 Gbit Fiber or Copper Ports.*

*ML810 supports up to 4 100Mb Fiber or Copper Ports.*

*ML810 supports up to 10 Copper Ports.*

*Additional modules and configurations available. Please see the Online Store for the latest module availability.*

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### ML800

**Power Supply**
- 250S
- 125S
- 48VS
- 24VS
- 12VS
- 125D
- 48VD
- 24VD
- 48PS
- 48PD
- 48PS
- 48PD

**Modules**
- C1: 4 x 10/100 RJ-45
- C2: 4 x 10/100 RJ-45 PoE-enabled ports (only with ML800-48P models)
- C3: 2 x 10/100 RJ-45 + 2 x 100Mbit MTRJ mm Fiber
- C4: 2 x 10/100 RJ-45 + 2 x 100Mbit LC mm Fiber
- C5: 2 x 10/100 RJ-45 + 2 x 100Mbit LC sm Fiber 15km
- C6: 3 x 10/100 RJ-45 Copper + 1 x mm MTRJ Fiber
- C7: 3 x 10/100 RJ-45 Copper + 1 x mm LC Fiber
- C8: 3 x 10/100 RJ-45 Copper + 3 x mm LC Fiber
- C9: 3 x 10/100 RJ-45 Copper + 1 x mm LC 15km Fiber
- C10: 3 x 10/100 RJ-45 Copper + 3 x mm LC 15km Fiber
- C11: 3 x 10/100 RJ-45 Copper + 1 x sm LC 40km Fiber
- C12: 3 x 10/100 RJ-45 Copper + 2 x sm LC 40km Fiber
- C13: 3 x 10/100 RJ-45 Copper + 1 x sm LC 40km Fiber
- C14: 2 x 1000Mbit LC mm Fiber
- C15: 2 x 1000Mbit LC mm Fiber 2km
- C16: 2 x 1000Mbit LC sm Fiber 10km
- C17: 2 x 1000Mbit LC sm Fiber 25km
- C18: 2 x 1000Mbit LC sm Fiber 40km
- C19: 2 x 1000Mbit LC sm Fiber 70km
- C20: 2 x 1000Mbit RJ-45 Copper
- C21: 1 x 1000Mbit LC sm Fiber 10km
- C22: 1 x 1000Mbit LC sm Fiber 25km
- C23: 1 x 1000Mbit LC sm Fiber 40km
- C24: 1 x 1000Mbit LC sm Fiber 70km
- H1: 1 x 1000Mbit RJ-45 Copper

**Conformal Coating Option**
- X: Standard Environment
- H: Harsh Chemical Environment Conformal Coating
- Z: RoHS-compliant
- Y: RoHS-compliant with Harsh Chemical Environment Coating

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Additional modules and configurations available. Please see the Online Store for the latest module availability.

GEDigitalEnergy.com
ML600

3.6" (9.2 cm)
3.0" (7.6 cm)
1.7" (4.3 cm)

Supports up to 6 - 10/100 Mbit Copper RJ45 Ports
Supports up to 2 - 100 Mbit ST, or SC Fiber Ports

6 - 10/100 Mbit Copper RJ45 Ports
4 - 10/100 Mbit Copper RJ45 Ports
2 - 100 Mbit ST, or SC Fiber Ports

Additional modules and configurations available. Please see the Online Store for the latest module availability.

Ordering

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Accessories for MultiLink Switches

- Industrial Power System Communications Learning CD TRCD-ICOM-C-S-1
- MultiNet Serial to Ethernet Converter MultiNet-FE
- EnerVista Integrator EVI-1000

Visit GEMultilin.com/multilink to:

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- Download the instruction manual
- Review applications notes and support documents
- Buy a MultiLink Switch online
- View the MultiLink Family brochure

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