

Reliable, Cost Effective Transport For ITS Networks Using Copper or Fiber

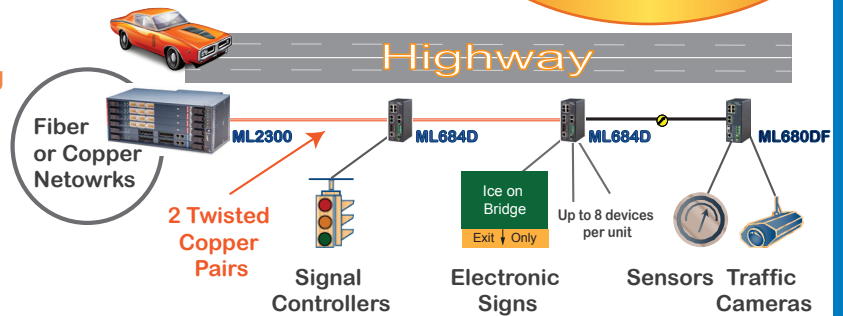
Applications

- Legacy and IP-based Traffic Controllers
- Dynamic Message Signs
- HD Video Cameras & Streaming
- Vehicle Detection
- Emergency Response
- Smart Parking
- Complements Wi-Fi Access

Actelis offers a reliable flexible, and cost effective high speed Ethernet transport solution that is designed to get all the bandwidth you need wherever you need it, while seamlessly integrating into the ITS networks of State, Federal, and Municipal DOTs.

Leveraging fiber where you have it or a mere two copper pairs where you do not, the Actelis solution provides compact, hardened and fanless Layer-2 switch with low power draw, provides up to 30 mbps over 2 pairs or 60 mbps over 4 pairs, and supports multiple Ethernet and legacy interfaces at each node in a ring or daisy chain architecture.

Quickly and cost effectively accommodate the bandwidth requirements of new HD cameras, advanced sensors, electronic signs, legacy and new controllers, surveillance devices and WiFi as well as enabling higher speed communication and information streaming across the network.



The Main Challenges	The Actelis Solution
<ul style="list-style-type: none"> Leverage the existing fiber or copper network Cost optimize the network 	<ul style="list-style-type: none"> Hybrid fiber and copper Ethernet switch Cost optimizes with copper <ul style="list-style-type: none"> Leverages fiber when and where you have it
<ul style="list-style-type: none"> Get more bandwidth to more locations Support HD cameras, controllers, sensors Support network specific devices - kiosks, electronic signs Future proof the network 	<ul style="list-style-type: none"> Uses ubiquitous copper using G.SHDSL EFM - high bandwidth transport Extended reach for remote locations Offers 30 Mbps over 2 pairs, 60 Mbps over 4 pairs and up to 100 Mbps over 8 pairs
<ul style="list-style-type: none"> Implement ultra-reliable low maintenance solutions Survive environmentally challenging installations 	<ul style="list-style-type: none"> Hardened solution: -40°C to +75°C or -40°F to +165°F Highest link and equipment reliability Best in class transmission over copper
<ul style="list-style-type: none"> Minimize field maintenance costs 	<ul style="list-style-type: none"> Fanless, field proven performance Full Remote management Advanced trouble shooting Easy and quick to install Automated provisioning and management
<ul style="list-style-type: none"> Fit into space constrained cabinets or vaults 	<ul style="list-style-type: none"> Extremely compact, fanless Full front access (ML680D) Easy DIN⁽¹⁾ rail mounting that can easily fit within existing locations
<ul style="list-style-type: none"> Support various network topologies and interfaces Integrate existing and legacy devices Support Ethernet or serial interfaces 	<ul style="list-style-type: none"> Ring, Daisy Chain architecture with Drop and Continue Repeaters for extra distance where needed Fiber, Copper or hybrid solutions Multiple Ethernet interfaces Serial Interface⁽²⁾ to support legacy equipment

(1) DIN connector is supported by ML684D/ML680DF

(2) Serial Interface - Future support

ITS Portfolio Reference Guide



Type	Platform	Description	High Level Details
Ethernet Aggregation Switch	ML2300	Point-to-Multipoint scenarios over using bonded copper (G.SHDSL) as well as fiber.	Large aggregation platform, Modular, plug in cards Up to 256 pairs and 128 links Equipment Redundancy for high availability
	ML230		Medium aggregation platform, Modular, plug in cards Up to 128 pairs and 128 links Equipment Redundancy for high availability
Ethernet Switches with Drop and Continue	ML680D ML680DF (fiber only)	Drop-and-continue over bonded copper (G.SHDSL) or fiber. Rings over copper	ML684D: drop and continue over copper (2+2) or fiber ML680DF: fiber only Very compact, Fanless DIN railing unit. 24/48V or AC 6x Ethernet 10/100BaseT; 2x Fiber SFPs 100/1000BaseFX 1x Serial interface RS232/485 ⁽¹⁾
	ML680	ERPSv2 ring over fiber (ML680D/ML680DF)	½ 19", 1U high unit. 48 VDC or AC ML688: 4+4 drop and continue ML684: 2+2 drop and continue 5x Ethernet 10/100BaseT; 1x Fiber SFPs 100/1000BaseFX
	ML690	Small Aggregation. PTMP or drop-and-continue over copper (G.SHDSL) or fiber	½ 19", 1U high unit. 48 VDC or AC ML698: 8 pairs, up to 4 links 5x Ethernet 10/100BaseT; 1x Fiber SFPs 100/1000BaseFX
Ethernet Switch - Termination Unit	ML620	Copper (G.SHDSL) and fiber switch	½ 19", 1U high unit. 48 VDC or AC ML628/ML624/ML622: 2-4-8 pair variants, Single Link 5x Ethernet 10/100BaseT; 1x Fiber SFPs 100/1000BaseFX (some models)
	ML620i	Copper (G.SHDSL) switch	½ 19", 1U high unit. 12/24 VDC or AC ML624i/ML622i: 2-4 pair variants , Single Link 5x Ethernet 10/100BaseT
Extended Reach	XR-239	Repeater (G.SHDSL)	Up to 9 hops; 2 pair in-2 pair out Remotely powered
Management	MetaASSIST EMS	Full set of management and OAM capabilities allowing full remote access and easy integration into other management systems.	Scalable EMS. Core management capabilities, including fault, configuration, performance, and security Management
	MetaASSIST View (MAV)		An intuitive Graphical User Interface (GUI) for complete Operation, Administration, Maintenance and Provisioning (OAM&P) of Actelis systems

(1) Serial Interface - supported by future product versions

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