optimize!
softing

OCM

Redundant Fiber Optic Networking Modules for PLC Networks

Built-for-purpose Ethernet networking modules

For connecting PLC to PLC and for connecting PLC to remote I/O

Copper Fiber

fiber optic redundant Ethernet networking

Industrial Automation

OCM

This is not an IT switch. This is a networking module that control engineers can support, built for PLC networks, built for connecting Ethernet remote I/O, with fiber and redundancy by design.

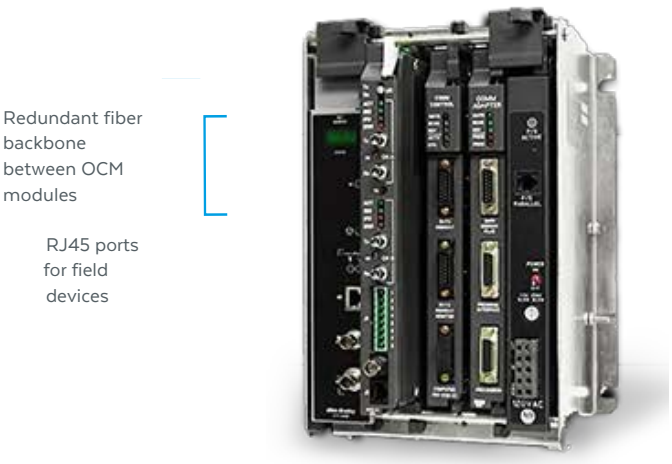
- Connect OCM networking modules together in a ring via redundant fiber backbone over long distances
- Connect your Ethernet PLCs, Ethernet remote I/O to the copper ports on each OCM networking module
- Unique ring architecture reduces cabling to end devices
- Redundant Ring architecture adds an additional network path to increase reliability
- Relay out for fault indication (ETF module)
- Network status and diagnostics software
- Scalable platform
- This is a ControlLogix redundant fiber networking module that inserts into the ControlLogix chassis

Reduce Installation Costs, Increase Reliability, Built-for-purpose

Ethernet IT switches connect office computers and servers, and they direct data to destinations. IT switches offer flexibility for the office environment like configuration, firmware patches, quality of service for voice, and VLANs to segregate finance, sales, marketing, and the engineering department, for example. And, IT switches have the luxury of being supported by IT staff.

The Phoenix Digital OCM is not a complex IT managed switch. It's not for your servers and PC's. It's for your PLC network, only. And it's built for this industrial purpose. It's plug and play, high performance, redundant fiber, self-healing networking module for your PLC networks and remote I/O networks.

OCM Connections



Redundant Fiber Self-healing Backbone

OCM modules are connected together in a redundant fiber ring architecture. It's redundant to increase reliability. It's a closed ring so one module can fail, and there's still a network path to the other modules. It's fiber, so you can cover long distances with EMI immunity. The network is self healing, so if you lose a fiber cable, or a module, there's zero network convergence time.

Unique, High Performance

The OCM supports up to 1Gbit/sec network speeds, and uniquely, can support those speeds up to 100% bandwidth utilization. This is only possible because of the patented technique of packetization between modules that always runs at 100% carrying network data.

Plug and Play

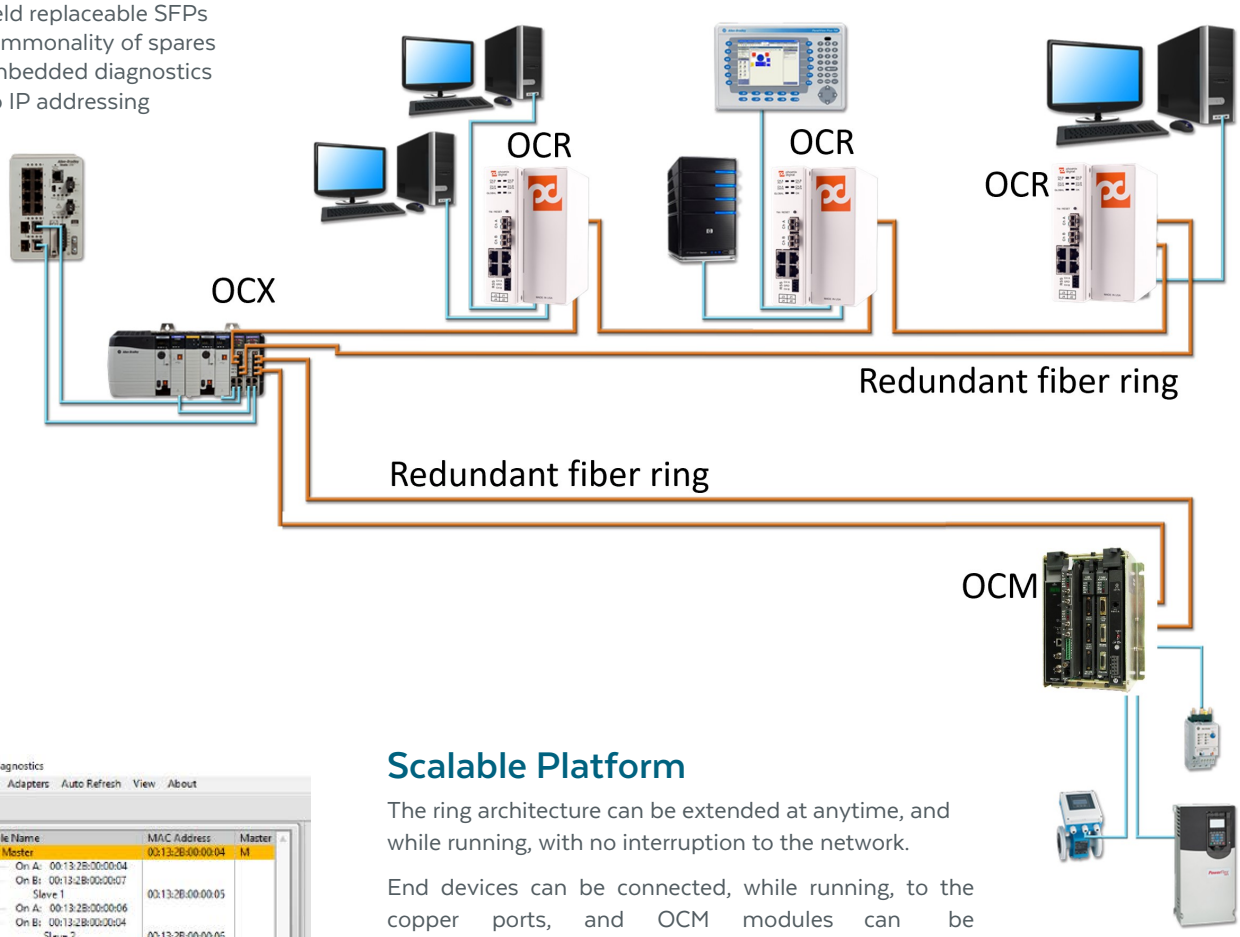
Full disclosure... it's almost plug and play. Truth is, you have to set one DIP switch on one OCM module on your network to designate a network master on the ring architecture. So, if any module fails, it's plug and play, unless you have to throw that one DIP switch -- but hey -- no command line interface programming, so that's pretty much plug and play for a network switch!

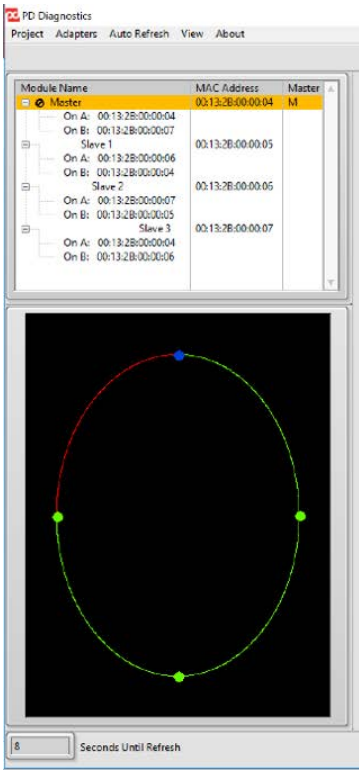
Cost Saving Architecture

IT switches are hub and spoke -- switch at the hub, components at the spokes. The OCM network is a ring, and hub, and spoke architecture. OCM switches are arranged in a ring and your devices connected to each OCM (a hub) which reduces network components, cabling, and connections by as much as 40%.

OCM Benefits

- ControlLogix, in-chassis, redundant, fiber, networking
- 30 sec MTTR mean time to repair
- 10 sec power up
- 0 sec network convergence time on channel failure
- Hot swappable modules
- No command line interface configuration
- No software updates, security patches, driver updates, or memory flash configurations
- Integrated returned signal strength (RSS) (ETG module)
- Transports Modbus TCP, PROFINET, Ethernet/IP, and Ethernet all at the same time
- Field replaceable SFPs
- Commonality of spares
- Embedded diagnostics
- No IP addressing





OCM Diagnostics Software

Scalable Platform

The ring architecture can be extended at anytime, and while running, with no interruption to the network.

End devices can be connected, while running, to the copper ports, and OCM modules can be inserted into the fiber ring with no interruption to the existing network.

Other networking modules from Softing, that can be added to the network, include DIN rail module (OCR), ControlLogix in-chassis module (OCX), and PLC-5 in-chassis module (OCM)

OCM Diagnostics

Diagnostic software is included with the network switch.

In the example below, the red line is an indication that one of the fiber cables between modules is down.

In this example, there is no outage because the network automatically adjusts and all modules remain connected via the ring.

The blue dot represents the master module on the network. This module was designated the master by setting a DIP switch in the module to Master.

OCM

Technical Data

Technical Data		
Specifications	Fiber Optic Type	Single Mode or Multimode
	Mating Connector	ST
	Transmit Launch Power	-15 dBm (Typical Multimode; -18 dBm (Single Mode)
	Receive Sensitivity	-32 dBm
Power Supply	Plug-In Modules (Typical)	+5 VDC, 1.5 to 1.8 Amps
	Standalone Modules (VAC)	120/220 VAC, 8-10 Watts
	Standalone Modules (VDC)	24 VDC, 8-10 Watts
Environmental	Operating Temperature	0° to 60° C (32° to 140° F)
	Storage Temperature	-40° to 85° C (-40° to 185° F)
	Relative Humidity	0 to 95% RH, noncondensing
Dimensions	OCM Module Panelmount, Standalone	Single Slot 1771 Chassis, Single Slot GE 90-30, Single Slot CTI Series 2500 10.38" H x 3.50" W x 6.14" D (154.9mm H x 78.7mm W x 139.7 mm D)

Order Information

Part Numbers	
OCM-CTN-(1)-(2)-(3)-(4)-(5)-(6)-(7)	ControlNet Communications (1771 Plug-In and Panelmount, Standalone modules)

Explanation			
(1)	"85"	=	850 nanometer wavelength selection
	"13"	=	1300 nanometer wavelength selection
	"15"	=	1550 nanometer wavelength selection
(2)	"P"	=	Panelmount, Standalone Enclosure (OCM modules only)
	"R"	=	DIN Rail, Standalone Enclosure (OCX modules only)
	blank	=	1771, 1746, or 1756 Plug-In Module
(3)	"D"	=	Interactive Diagnostics (Required for OCX CL I, DIV 2)
	blank	=	No Diagnostics
(4)	"ST"	=	ST Fiber Optic Connector Style
	"SMA"	=	SMA Fiber Optic Connector Style (Available with 850nm wavelength only.)
(5)	"24V"	=	24 VDC Operation
	"ACV"	=	120/220 VAC, 50/60 Hz Operation
	"125V"	=	125 VDC Operation
(6)	"SM"	=	Singlemode Fiber Compatibility (Available with 1300 nm or 1550 nm
	blank	=	Wavelengths, and ST connector options only.) Multimode Fiber Compatibility
(7)	"EXT"	=	Extended Capacity Operation (Required for networks with 28 or more OCM/OLC/OCX-CTN modules.)

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