

OCR

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

OCR

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 OCR 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 OCR 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
- DIN rail mountable

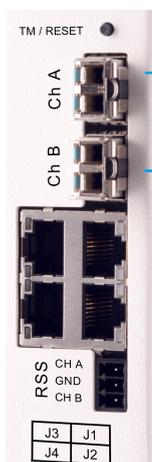


Reduce Installation Costs, Increase Reliability, Built-for-purpose

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 OCR 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.

OCR ETG Connections



Redundant fiber backbone between OCR modules

RJ45 ports for field devices

Returned signal strength voltage test points

OCR ETF Connections



Redundant Fiber Self-healing Backbone

OCR 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 OCR 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 OCR 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!

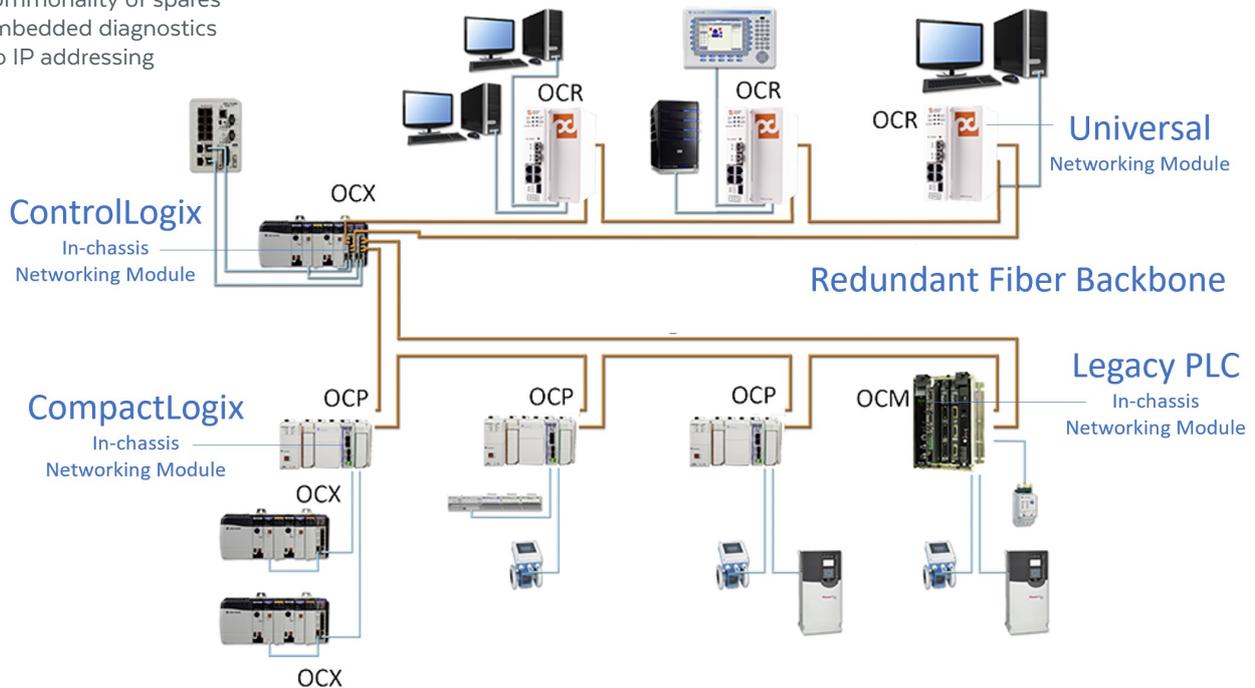
Cost Saving Architecture

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

OCR Benefits

- 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

optimize!
softing



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 OCR 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 ControlLogix in-chassis networking module (OCX), CompactLogix in-chassis module (OCP), PLC-5 in-chassis module (OCM), and SLC-500 in-chassis module (OLC)

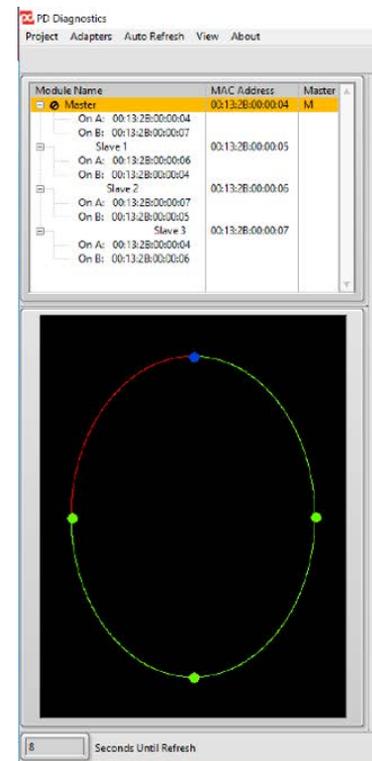
OCR Diagnostics

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.



OCR Diagnostics Software

OCR

Specifications

Ethernet speed	10/100 MB for model OCR-ETF 10/100/1000 MB for model OCR-ETG
Fiber	Single mode or multimode ST, SC, or LC connectors for model OCR-ETF LC connector for model OCR-ETG -15 dBm transmit power typical multimode -18 dBm transmit power typical single mode -32 dBm receive sensitivity
Power supply	0 to 60 degrees C (32 to 140 F) operating temperature 120/220 VAC input voltage or... 24 VDC dual feed 8 - 10 watts power consumption
Environmental	0 to 60 degrees C (32 to 140 F) operating temperature -40 to 85 degrees C (-40 to 185 F) storage temperature 0 - 95% relative humidity, non-condensing
Dimensions	162.3 mm H x 89.7 mm W x 174.2 mm D 6.39" H x 3.53" W x 6.86" D
Approvals	UL and CUL Class I Div 2 all groups CE
Diagnostics	ETG has RSS voltage out. ETF has relay out for fault indication.

<https://industrial.softing.com/us>

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Ordering Options

Part Numbers

OCR-ETF-(1)-(2)-(3)-(4)-(5) FAST Ethernet Communications 10/100BaseT
OCR-ETG-(1)-(2)-(3)-(4)-(5) Gigabit Ethernet Communications 1000BaseT

Explanation

(1)	"85"	=	850 nanometer wavelength selection (Multimode only)
	"13"	=	1300 nanometer wavelength selection (Multimode or Single Mode)
	"15"	=	1550 nanometer wavelength selection (Single mode only)
(2)	"D"	=	Interactive Diagnostics
(3)	"ST"	=	ST Fiber Optic Connector Style
	"LC"	=	LC Fiber Optic Connector Style (Not available for the 850 nm wavelength.)
(4)	"24V"	=	24 VDC Operation
	"ACV"	=	120/220 VAC, 50/60 Hz Operation
	"125V"	=	125 VDC Operation
(5)	"SM"	=	Single Mode Fiber Compatibility (Available with the 1300 nm or 1550 nm wavelengths only.)
	blank	=	Multimode Fiber Compatibility