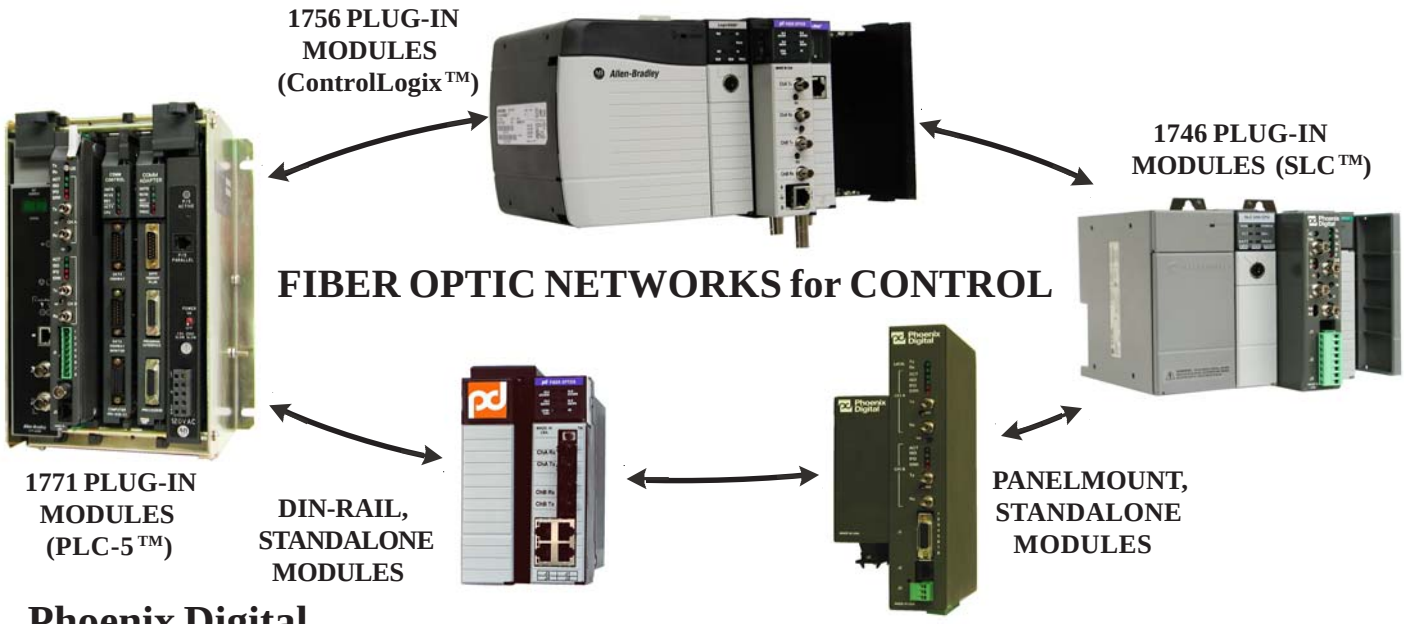
OPTICAL COMMUNICATION

For ROCKWELL/ALLEN-BRADLEY ControlNet™, Ethernet, Data Highway Plus™, Remote I/O, DH-485, DF1, Modbus, and RS-232/RS-485 Communication Networks

Phoenix Digital

Rockwell Automation Encompass™ Product Partner Global



Phoenix Digital

now provides Fault Tolerant, Redundant, Self-Healing, Fiber Optic Modules for Allen-Bradley **ControlNet, Ethernet (ALL Protocols), Data Highway Plus, Remote I/O, DH-485, DF1, Modbus, and RS-232/RS-485** Communications. Optical Communication Modules are available for 1771, 1746, and 1756 Chassis Installation (direct plug-in), or in modular Standalone, Industrial Enclosures for Panelmount or DIN-Rail Installation... with integral 120/220 VAC, 24 VDC, and 125 VDC single or dual power supply options.

FEATURES

- Fiber Optic Communications. . .
  Noise Immunity, Intrinsically Safe.
- Plugs Directly into A-B System Chassis. . .
  1771, 1746, 1756 Plug-In Modules.
- User Program Accessible Diagnostics.
- Enhanced, PC Resident Diagnostics.
- Selectable Wavelengths. . . 850, 1300, 1550 nm.
- Fault Tolerant, Redundant Fiber Media.
- **UL Class I, Division 2 Rating** on all 1756 Plug-In and DIN-Rail, Standalone Modules.
- Extended Capacity, ControlNet and Ethernet. . .
  Multidrop 99+ ControlNet or Ethernet Fiber Modules on a Bus, Ring, or Star Network.
- Supports 10/100 Mbps for Ethernet. . .
  High Speed, Self-Healing Switch-Over for Fast Recovery of Ethernet Control Networks.
  Prioritized Bandwidth to Insure High Thruput for Communication to Critical Control Nodes.
- Supports Simultaneous Ethernet and Modbus Communication on the same Fiber Network.
- Short or Long Distance. . .
  6 Feet (2 Meters) to 6 Miles (10 Kilometers) Apart - Multimode Fiber Operation.
  Over 16 Miles (25 Kilometers) Apart - Single Mode Fiber Operation.
  Over 60 Miles (96 Kilometers) Apart - Single Mode Fiber on Ethernet and Modbus.
- Supports Extended DH+ and RIO Data Rates. . .
  57.6K, 115.2K, and 230.4K.
- On-the-Fly Modbus Multi-Master Multiplexing.

DESCRIPTION

Phoenix Digital's family of Optical Communication Modules (OCMs), Optical Link Couplers (OLCs), and Optical ControlLogix Modules (OCXs) for Allen-Bradley ControlNet, Ethernet (ALL Protocols), Data Highway Plus, Remote I/O, DH-485, DF1, Modbus, and RS-232/RS-485 networks provide the most advanced, comprehensive, fiber optic communication capabilities on the market today. Phoenix Digital's fiber optic modules provide optical communication media, transparent to the communication protocol and configurable for distribution by the user in ring, bus, star, tree, or point-to-point network installations. Fiber optic cable is now the media of preference for harsh industrial network environments due to the inherent benefits of high reliability, electrical noise immunity, and intrinsic safety. Phoenix Digital's fiber optic modules provide **continuous on-line error checking for jitter, pulsewidth distortion, carrier symmetry, and optical signal strength**. All of this, together with comprehensive network-wide diagnostics (user program accessible), optimizes the overall integrity of Allen-Bradley communication networks at-large, providing Dependable Data Communications. Optical communication network options include features not found in even the most expensive network installations:

- On-line Diagnostic Monitoring.
- Self-Healing Communication Recovery.
- Synchronous Fault Tracking for Multipoint Fault Management.
- In-Line Signal Monitoring.
- Locates Fault and Impending Fault Conditions.
- Annunciation of Low Optical Power.
- User Program Access to Network-Wide Interactive Diagnostics.
- Multidrop 99+ ControlNet or Ethernet Fiber Modules on a Single Bus, Ring, or Star Network.
- UL Class I, Division 2 Rating on all 1756 Plug-In and DIN-Rail, Standalone Modules.
- Faster Ethernet Communication Designed Specifically for Control Applications, only from Phoenix Digital :
  - Overcome PLC Scan Time Limitations with Ultra-High Speed, Self-Healing Switch-Over in Ring Configurations.
  - Fastest Self-Healing Communication Recovery available on the market today.
  - Manage Overall Communication Bandwidth and Network Latency with Phoenix Digital's proprietary Priority Queuing System (PQS), to Insure Priority Access and Even Faster Thruput for Critical Control Nodes on the Network.
  - Auto-Negotiation and Auto-Crossover on all Ethernet Modules.
- Modbus & Ethernet Fiber Modules (OLC/OCX-EMOD) Simultaneously Support one Modbus Port (RS-232 or RS-485) and Six RJ-45, 10/100 Base-T Transparently Switched Ethernet Ports on each module, compatible with ALL ETHERNET PROTOCOLS.
- On-the-Fly, Modbus Multi-Master Multiplexing Allows an Unlimited Number of Modbus Master devices anywhere on the network, Transparent to Network Operation.
- PC Resident Diagnostics for Ethernet networks provide detailed Interactive Diagnostic information for network troubleshooting, monitor Network Performance, and verify Link Status for ALL connections on the network (Fiber and Copper).

Phoenix Digital's fiber optic modules may be used to interconnect Allen-Bradley Controllers, I/O Racks, Flex I/O, Operator Interface Terminals, Computers, etc. Phoenix Digital makes all of this possible, in the price range of a conventional communication module, through application of its patented self-healing communication switch and advanced optical technologies.

OPERATION

FAULT PREDICTIVE... Phoenix Digital's fiber optic modules provide fault prediction thru diagnostic monitoring and detection of impending communication failures resulting from gradual degradation of the communication link itself. The fiber optic modules monitor for impending fault conditions by continuously measuring the actual in-line signal strength (optical power) of the data communications at the receive data inputs on the module. The fiber modules continuously compare these actual in-line measurements to preset optical power reference thresholds. If the actual in-line data communication signal strength degrades below these power thresholds the fiber modules will detect and annunciate the impending failure condition via indicators on the front of the module. Phoenix Digital's fiber optic modules also provide user program accessible interactive diagnostics (1771 Plug-In OCM, 1746 Plug-In OLC, 1756 Plug-In OCX) and diagnostic outputs (Panelmount and DIN-Rail OCM/OLC/OCX) for detecting and locating impending fault conditions, and analog outputs for on-line optical power measurement. Thus, communication network status is continuously monitored, and impending failure conditions are located and annunciated before the communication failure actually occurs. These fiber optic network diagnostics insure on-line network integrity, and enable maintenance personnel to perform Predictive Maintenance on fiber optic ControlNet, Ethernet, Data Highway Plus, Remote I/O, DH-485, DF1, Modbus, and RS-232/RS-485 communication networks at-large!

FAULT MANAGEMENT... Phoenix Digital's fiber optic modules provide fault tolerant, redundant, self-healing communications through diagnostic monitoring of the communication signal waveforms at each node on the network, and ultra-high speed detection and isolation of points of communication failure anywhere on the network. The fiber optic modules self-heal around communication failures in ring, bus, star, tree, or point-to-point network configurations. They automatically redirect network traffic around points of failure until the failure conditions are corrected, and then automatically restore the communication network to its original traffic patterns. Thus, communication continuity is unconditionally maintained by the fiber modules in the event of either node or media failure, enabling maintenance personnel to splice/terminate/replace fiber media, add/delete nodes, etc. on-line, without disrupting network communications! In addition, Phoenix Digital's fiber optic modules provide user program accessible diagnostics (1771 Plug-In OCM, 1746 Plug-In OLC, 1756 Plug-In OCX) and diagnostic outputs (Panelmount and DIN-Rail OCM/OLC/OCX) to locate network fault conditions, providing on-line diagnostic monitoring of the communication network at-large. All of this is transparent to the operation of ControlNet, Ethernet (ALL Protocols), Data Highway Plus, Remote I/O, DH-485, DF1, Modbus, and RS-232/RS-485 networks.

ON-LINE, REAL TIME, USER PROGRAM ACCESSIBLE DIAGNOSTICS... Phoenix Digital's fiber optic modules provide system-level interactive diagnostics. These diagnostics may be accessed via the PLC User Program to to assist in troubleshooting network problems:

- Detect and Locate Fault Conditions Throughout the Network.
- Trap-and-Hold, and Locate Intermittent Communication Failures.
- Detect and Locate Impending Fault Conditions Throughout the Network.
- Simulate Network Fault Conditions.
- Verify Fault Management and Overall Network Integrity.

These advanced interactive diagnostics provide the user with a powerful set of tools, greatly simplifying network start-up and on-line maintenance of ControlNet, Ethernet (ALL Protocols), Data Highway Plus, Remote I/O, DH-485, DF1, Modbus, and RS-232/RS-485 communication networks.

ON-LINE, REAL TIME, PC RESIDENT, FAST ETHERNET DIAGNOSTIC SOFTWARE PACKAGE... Phoenix Digital now offers a PC Resident, Diagnostic Software Package, which provides the user with a powerful set of enhanced diagnostic tools for monitoring Ethernet fiber optic networks. These diagnostics may be accessed via a standard personal computer with a Windows 2000 or later Operating System, to verify on-line network status, monitor network performance, validate network integrity, and assist in troubleshooting network problems:

- Verify Link Status, Speed, Mode, etc., for ALL 10/100 Base-T Ports on ALL Fiber Modules Throughout the Network.
- Monitor Network Performance to Identify Communication "Bottlenecks", for Bandwidth Management via PQS.
- Monitor Transmit/Receive Packet Diagnostics for ALL 10/100 Base-T Ports and Fiber Ports, on ALL Fiber Modules Throughout the Network.
- Detect and Locate Fault Conditions Throughout the Network.
- Trap-and-Hold, and Locate Intermittent Communication Failures.
- Simulate Network Fault Conditions.
- Verify Fault Management and Overall Network Integrity.
- Report Generation Capability allows User to Create Tags and Labels.

These additional diagnostic tools provide the user with the ability to monitor the integrity of each individual Link connection, as well as the Fiber Network itself, all from a Central PC and/or Portable Laptop located anywhere on the network. These tools provide Maximum Visibility of Real Time Network Performance, providing complete confidence in the Integrity and Reliability of Ethernet (ALL Protocols) communication networks.

EXTENDED DISTANCES... Phoenix Digital's fiber optic modules provide optional wavelength selection for extended distance applications. The economical 850 nanometer wavelength may be selected for data communication networks with less than 12,000 feet (3,650 meters) between nodes. The higher performance 1300 and 1550 nanometer multimode wavelengths may be selected for longer distance applications, extending communication distances between nodes to over 6 miles (10 kilometers). The 1300 and 1550 nanometer single mode wavelengths may be selected for extended distance applications, extending communication distances between ControlNet, Data Highway Plus, Remote I/O, DH-485, DF1, and RS-232/RS-485 nodes to over 16 miles (25 kilometers), and between Ethernet and Modbus nodes to over 60 miles (96 kilometers).

INSTALLATION

Phoenix Digital's fiber optic modules may be interconnected on the fiber optic network in an active bus, fault tolerant ring, or any other standard fieldbus cable configuration, using either multimode or single mode fiber optic cable. Fiber optic Channel A and B inputs and outputs may be interconnected sequentially from fiber module to fiber module to create a bi-directional, active bus. (Connection details are given in the product users manuals.) This configuration may be made fault tolerant by cross-connecting the fiber optic modules on either end of the active bus. (See Figures on pages 8 thru 12.) This automatically transforms the network into a fault tolerant, redundant, self-healing, counter-rotating ring configuration for ControlNet, Ethernet (ALL Protocols), Data Highway Plus, Remote I/O, DH-485, DF1, Modbus, or RS-232/RS-485 networks, without requiring any further action by the user.

Data Highway Plus, SLC 500, and PLC-5, and ControlLogix are trademarks of Allen-Bradley Company, Inc.
ControlNet ia a trandemark of ControlNet International.

SPECIFICATIONS

Fiber Optic Cable Type	: Multimode or Single Mode
Mating Connector	: ST, SC, MTRJ, LC, or SMA
(SC, MTRJ, and LC available on OCX-ETF Ethernet and OCX-MOD Modbus Modules Only)	
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 (Typical)	: 120/220 VAC, 24 VDC, or 125 VDC.... 8 to 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	
1771 Plug-In Modules	: Single Slot, 1771 Chassis Installation
1746 Plug-In Modules	: Single Slot, 1746 Chassis Installation
1756 Plug-In Modules	: Single Slot, 1756 Chassis Installation
Panelmount, Standalone Modules	: 10.38" H x 3.50" W x 6.14" D (26.36cm H x 8.90cm W x 15.60cm D)
DIN-Rail, Standalone Modules	: 6.10" H x 3.10" W x 5.50" D (15.49cm H x 7.87cm W x 13.97cm D)
Hazardous Location Approval	: UL and UL/C Class I, Div. 2 Groups A, B, C, D
(All OCX and OCX-R modules have the US and Canadian UL Mark for use in Class I, Div. 2 Groups A, B, C, and D Hazardous Locations.)	
European Union Directives	: CE

INDUSTRIAL FIBER OPTIC CABLE and ACCESSORIES

Phoenix Digital provides fiber optic cable specifically designed for rugged industrial applications.

- INDUSTRIAL PACKAGING OPTIONS. . .
  Rugged Industrial Construction - Life Expectancy Exceeds 20 Years
  Double Jacketing, High Tensile Strength; Extended Temperature and Humidity Range
  Oil, Chemical, Moisture, Abrasion, and UV Sunlight Resistant
  Riser Rated (OFNR) and CSA FT-4, Passes Stringent UL 1666 Flame Test
  Plenum Rated (OFNP) and CSA FT-6, Passes Stringent UL 910 Flame Test

- WIDE VARIETY OF INSTALLATION OPTIONS. . .
  Gel Filled Loose Tube Construction for both Indoor and Outdoor Installation
  Self-Supporting, All Dielectric Cable for Aerial Installation
  Direct Burial, Armored Cable for Underground Installation
  Low Smoke, Zero Halogen Cable for Premise Installation
  Ultra Strong, Non-Armored Cable for Deep Mine Applications

- SUPERIOR OPTICAL PERFORMANCE. . .
  Multiple Fibers per Cable (2 to 36 Fibers); 9/125, 50/125, 62.5/125, and 200/230 Micron Sizes

Consult the Factory or Visit our Website at "www.phoenixdigitalcorp.com" for more detailed specifications and model numbers on all Phoenix Digital Fiber Cable Products and Services.

ORDERING INFORMATION

MODEL NUMBER[1]	DESCRIPTION
OCX-CTN	1756 Plug-In OCX for ControlNet Networks
OCX-ETF	1756 Plug-In OCX for 10/100 Mbps Ethernet Networks (ALL Protocols)
OCX-ETH	1756 Plug-In OCX for 10 Mbps Ethernet Networks
OCX-DPR	1756 Plug-In OCX for Data Highway Plus and Remote I/O Networks
OCX-MOD	1756 Plug-In OCX for Modbus Networks
OCX-EMOD	1756 Plug-In OCX for 10/100 Mbps Ethernet & Modbus Networks
OCM-CTN	1771 Plug-In OCM for ControlNet Networks
OCM-ETH	1771 Plug-In OCM for 10 Mbps Ethernet Networks
OCM-DPR	1771 Plug-In OCM for Data Highway Plus and Remote I/O Networks
OCM-DSL	1771 Plug-In OCM for DH-485 Networks
OCM-DF1	1771 Plug-In OCM for DF1 Networks
OCM-MOD	1771 Plug-In OCM for Modbus Networks
OCM-232	1771 Plug-In OCM for RS-232 Networks
OCM-485	1771 Plug-In OCM for RS-485 Network
OLC-CTN	1746 Plug-In OLC for ControlNet Networks
OLC-ETF	1746 Plug-In OLC for 10/100 Mbps Ethernet Networks (ALL Protocols)
OLC-ETH	1746 Plug-In OLC for 10 Mbps Ethernet Networks
OLC-DPR	1746 Plug-In OLC for Data Highway Plus and Remote I/O Networks
OLC-DSL	1746 Plug-In OLC for DH-485 Networks
OLC-DF1	1746 Plug-In OLC for DF1 Networks
OLC-MOD	1746 Plug-In OLC for Modbus Networks
OLC-EMOD	1746 Plug-In OCX for 10/100 Mbps Ethernet & Modbus Networks
OLC-232	1746 Plug-In OLC for RS-232 Networks
OLC-485	1746 Plug-In OLC for RS-485 Networks
OCM-CBL-TF	OCM/OLC/OCX ControlNet Fault Tracking Interconnect Cable (3 ft./.9 meter length).
OLC-CBL-SC	SLC 500 to OLC Interconnect Cable for DH-485 (1 ft./.3 meter length).
OCM-CBL-DF	PLC-5 to OCM Interconnect Cable for DF1 (1 ft./.3 meter length).
OLC-CBL-DF	SLC 500 to OLC Interconnect Cable for DF1 (1 ft./.3 meter length).
OCM-CBL-A1	10 Base-T or 10/100 Base-T OCM/OLC/OCX Interconnect Cable for Ethernet (1 ft/.3 meter length).
OCX-CBL-A1	10 Base-T OLC/OCX-ETH (Port 2) Interconnect Cable for Ethernet (1 ft/.3 meter length).
OCM-AUI-A1	10 Base-T Ethernet Transceiver.
OCX-CBL-MOD	Modbus OLC/OCX-MOD and OLC/OCX-EMOD Interconnect Cable Adapter. (One end 9 pin Micro D Subminiature connector (female pins), one end 9 pin Standard D Subminiature connector (female pins); 18 inches/.5 meter length)
OCX-DIAG-ETF	On-Line, Real Time Ethernet Diagnostic Software Package (PC Resident).

Add the Following Options to the Product Model Numbers given on page 6 :

(1) Add suffix "-85" for 12,000 feet/3,650 meters between nodes (850 nm Multimode Wavelength).
Add suffix "-13" for 32,000 feet/10 kilometers between nodes (1300 nm Multimode Wavelength).
Add suffix "-15" for 43,000 feet/13 kilometers between nodes (1550 nm Multimode Wavelength).
(The 1550 nm Multimode wavelength is not available on OLC/OCX-ETF, MOD, and EMOD modules.)

Add suffix "-P" for Panelmount, Standalone Module Enclosure.
Add suffix "-R" for DIN-Rail, Standalone Module Enclosure. (Available with OCX modules only.)

Add suffix "-D" for Real Time Diagnostic Option. (Required on OCX Modules for UL and UL/C Class I, Division 2 Rating.)

Add suffix "-ST" for ST Fiber Optic Connector Style. (Available on all fiber module types, for all optical wavelengths.)
Add suffix "-SC" for SC Fiber Optic Connector Style. (Available on OLC/OCX-ETF, MOD, and EMOD modules only, for all optical wavelengths.)
Add suffix "-LC" for LC Fiber Optic Connector Style. (Available on OLC/OCX-ETF, MOD, and EMOD modules only, for the 1300 nm and 1550 nm optical wavelengths.)
Add suffix "-MT" for MTRJ Fiber Optic Connector Style. (Available on OLC/OCX-ETF, MOD, and EMOD modules only, for the 1300 nm wavelength.)
Add suffix "-SMA" for SMA Fiber Optic Connector Style. (Available on all fiber module types except OLC/OCX-ETF, MOD, and EMOD modules, for the 850 nm wavelength.)

Add suffix "-24V" for 24 VDC Operation, or "R24V" for Redundant, 24 VDC Operation.
Add suffix "-125V" for 125 VDC Operation, or "R125V" for Redundant, 125 VDC Operation.
Add suffix "-ACV" for 120/220 VAC Operation, or "RACV" for Redundant, 120/220 VAC Operation.

Add suffix "-xA1" to OCM/OLC/OCX-ETH Modules for 10 Base-T Operation and to OLC/OCX-ETF and OLC/OCX-EMOD Modules for 10/100 Base-T Operation, where "x" specifies the number of 10 Base-T or 10/100 Base-T ports available on the module. (1 or 2 for OCM/OLC/OCX-ETH modules; 1, 2, or 4 for OLC/OCX-ETF and EMOD 1746/1756 Plug-In Modules, and 1, 2, 3, 4, 5, or 6 for OCX-ETF-R and OCX-EMOD-R DIN-Rail, Standalone Modules.)
Add suffix "-A2" to OCM/OLC/OCX-ETH Modules for 10 Base-2 Operation.

Add suffix "-EXT" for Networks with 28 or More OCM/OLC/OCX-CTN Modules; 10 or More OCM/OLC/OCX-ETH, OLC/OCX-ETF, or OLC/OCX-EMOD modules; and 13 or more OCM/OLC/OCX-DPR Modules.

Add suffix "-485" to OLC/OCX-MOD, EMOD, and OCM-MOD Modules for RS-485 Modbus Communication.

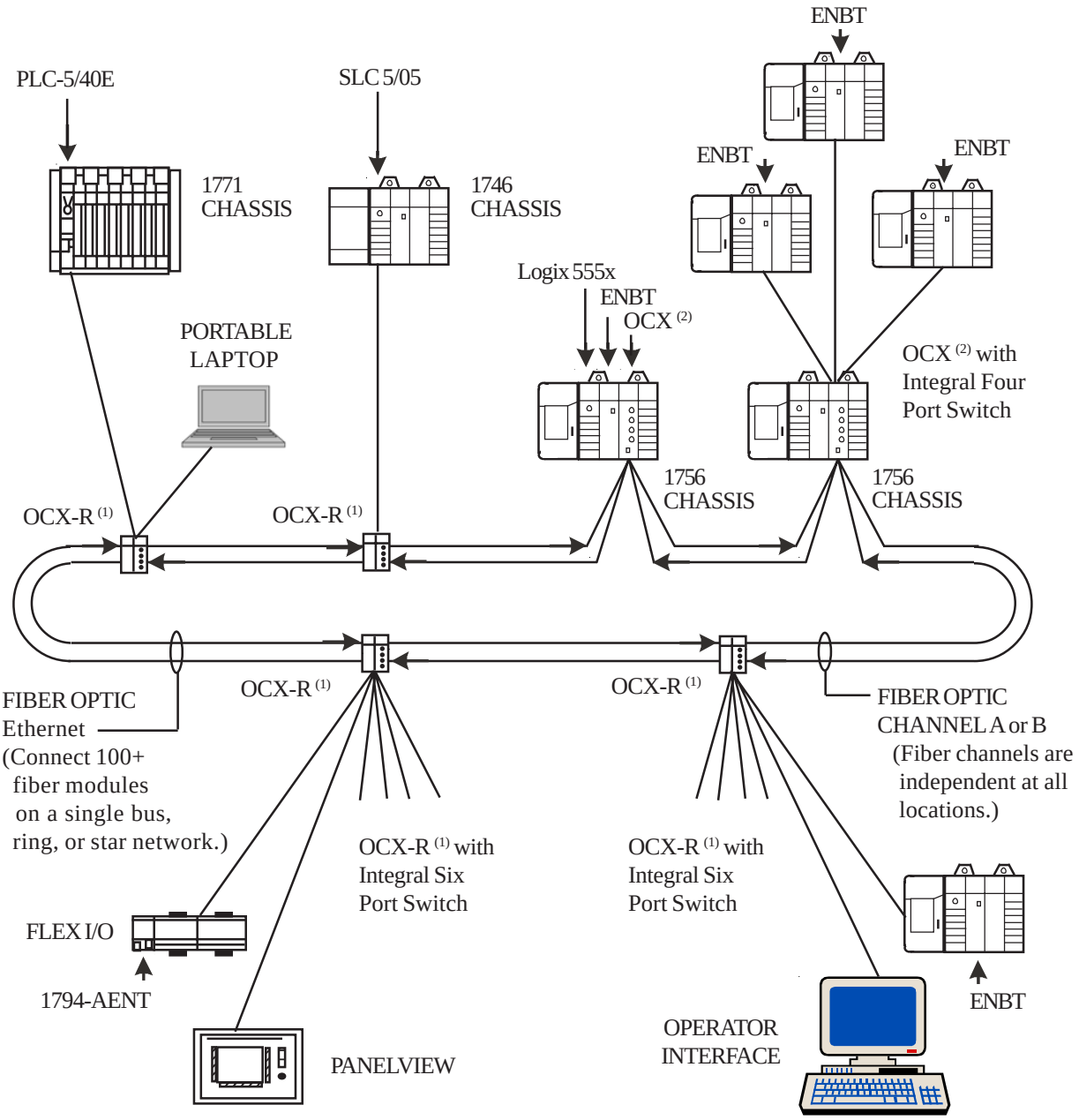
Add suffix "-FD" to OLC/OCX-MOD, EMOD, and OCM-MOD Modules for Full Duplex, Point-to-Point Communication.

Add suffix "-MAS" to OLC/OCX-MOD and EMOD Modules for On-the-Fly, Modbus Multi-Master Multiplexing.

Add suffix "-SM" for Single Mode Operation. (Available with the 1300 Nanometer Wavelength and ST, SC, LC, or MTRJ Fiber Optic Connectors; or with the 1550 Nanometer Wavelength and ST, SC, or LC Fiber Optic Connectors.)

Add suffix "-10F" to all OCM/OLC/OCX-CBL Cable Model Numbers for 10 ft./3 m. length.
Add suffix "-HUB" to OCM/OCX-CBL-A1 Cable Model Numbers for Direct Connection to HUBs.
Add suffix "-09P", "-15P", "-25P" to OCM-CBL-DF1 and OLC-CBL-DF1 Cable Model Numbers for 9, 15, 25 pin A-B connectors, respectively.

UL CLASS I, DIVISION 2 (HAZARDOUS LOCATIONS)
10/100 Mbps ETHERNET DUAL MEDIA RING CONFIGURATION
(FAULT TOLERANT)

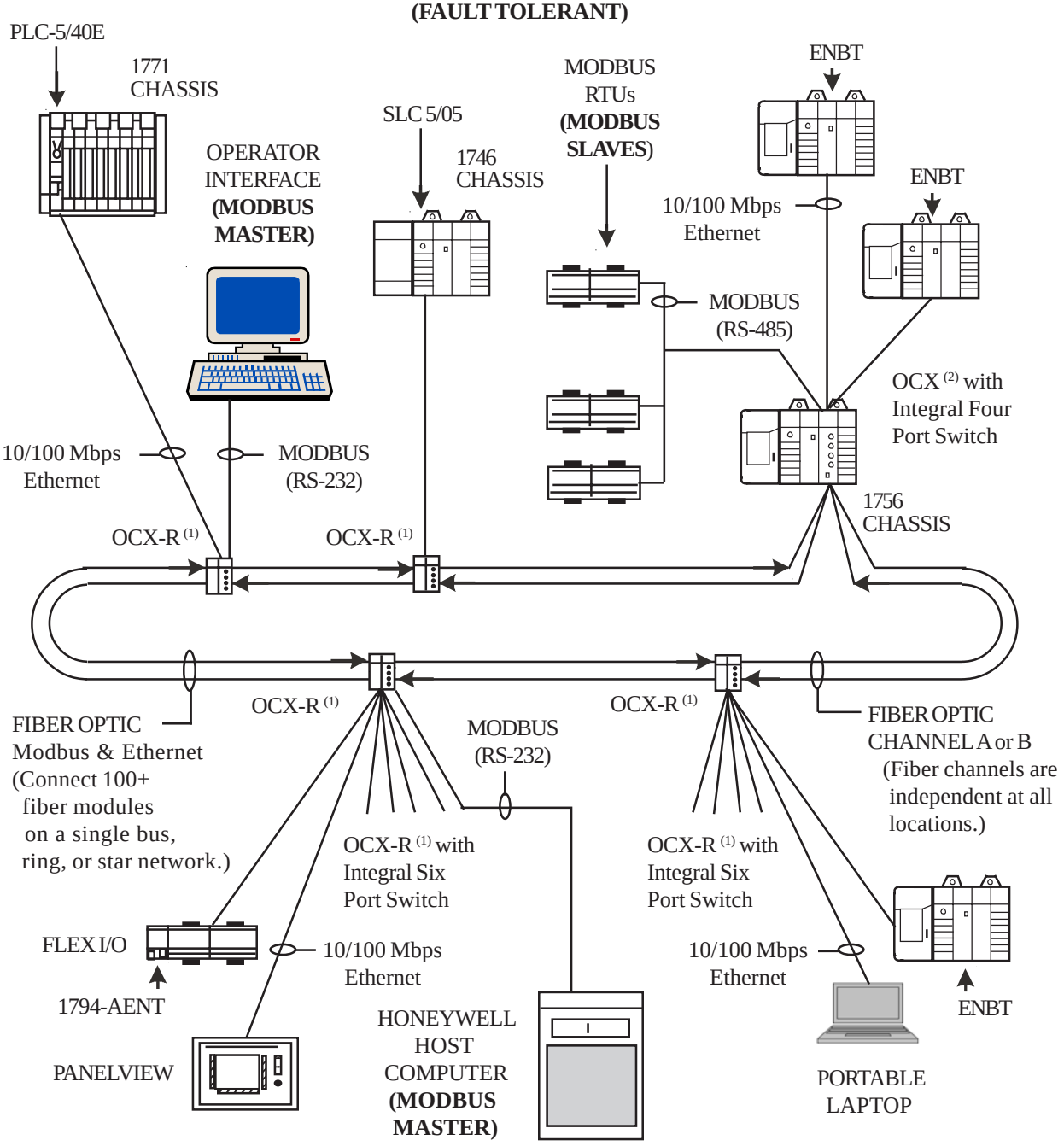


(1) OPTICAL COMMUNICATION MODULE
MODEL # OCX-ETF-13-R-D-ST-ACV-6A1
(UL CLASS I, DIV. 2)

(2) OPTICAL ControlLogix MODULE
MODEL # OCX-ETF-13-D-ST-4A1
(UL CLASS I, DIV. 2)

TYPICAL ETHERNET OCX-ETF INSTALLATION CONFIGURATION

UL CLASS I, DIVISION 2 (HAZARDOUS LOCATIONS)
MODBUS (RS-232/485) & ETHERNET (10/100 Mbps) DUAL MEDIA RING CONFIGURATION
(FAULT TOLERANT)

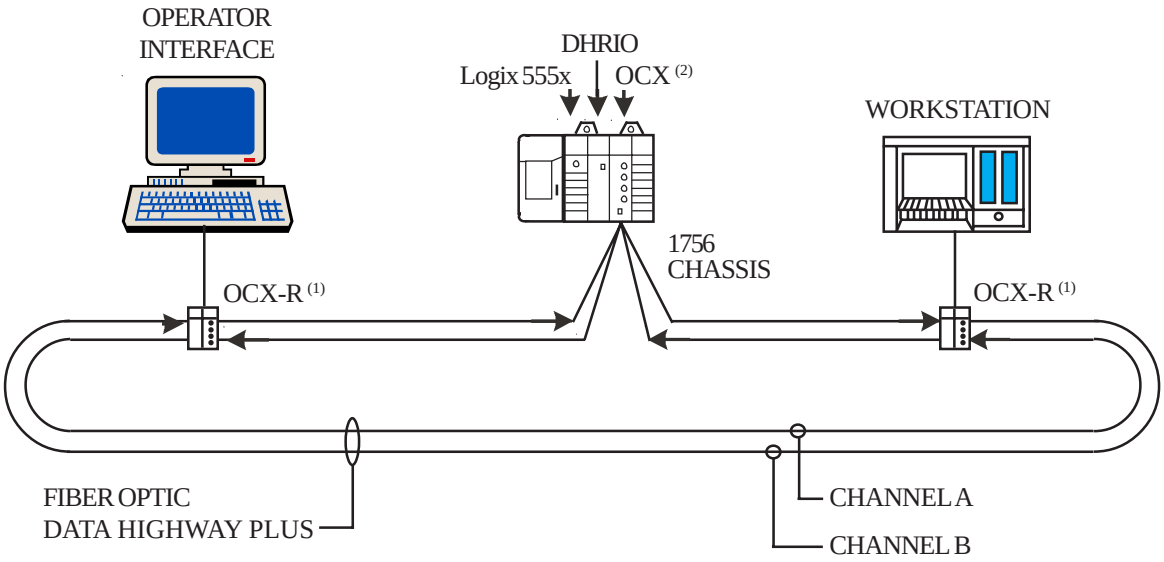


(1) OPTICAL COMMUNICATION MODULE
MODEL # OCX-EMOD-13-R-D-ST-ACV-6A1-MAS
(UL CLASS I, DIV. 2)

(2) OPTICAL ControlLogix MODULE
MODEL # OCX-EMOD-13-D-ST-4A1-485-MAS
(UL CLASS I, DIV. 2)

TYPICAL MODBUS & ETHERNET OCX-EMOD INSTALLATION CONFIGURATION

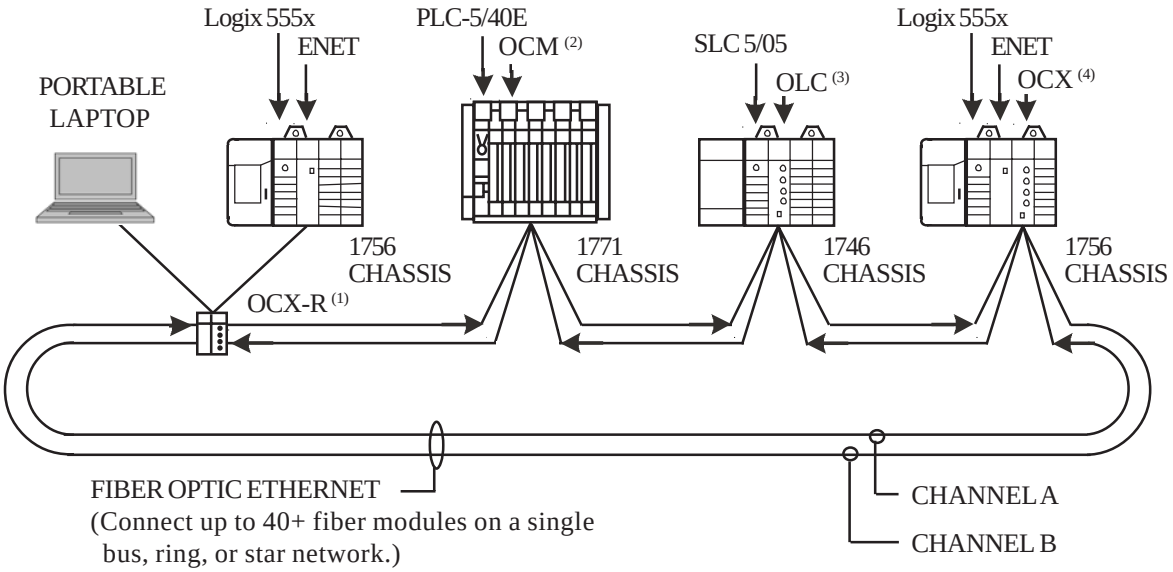
UL CLASS I, DIVISION 2 (HAZARDOUS LOCATIONS)
DATA HIGHWAY PLUS DUAL MEDIA RING CONFIGURATION
(FAULT TOLERANT)



(1) OPTICAL COMMUNICATION MODULE
MODEL # OCX-DPR-85-R-D-ST-ACV
(UL CLASS I, DIV. 2)

(2) OPTICAL ControlLogix MODULE
MODEL # OCX-DPR-85-D-ST
(UL CLASS I, DIV. 2)

ETHERNET DUAL MEDIA RING CONFIGURATION (FAULT TOLERANT)

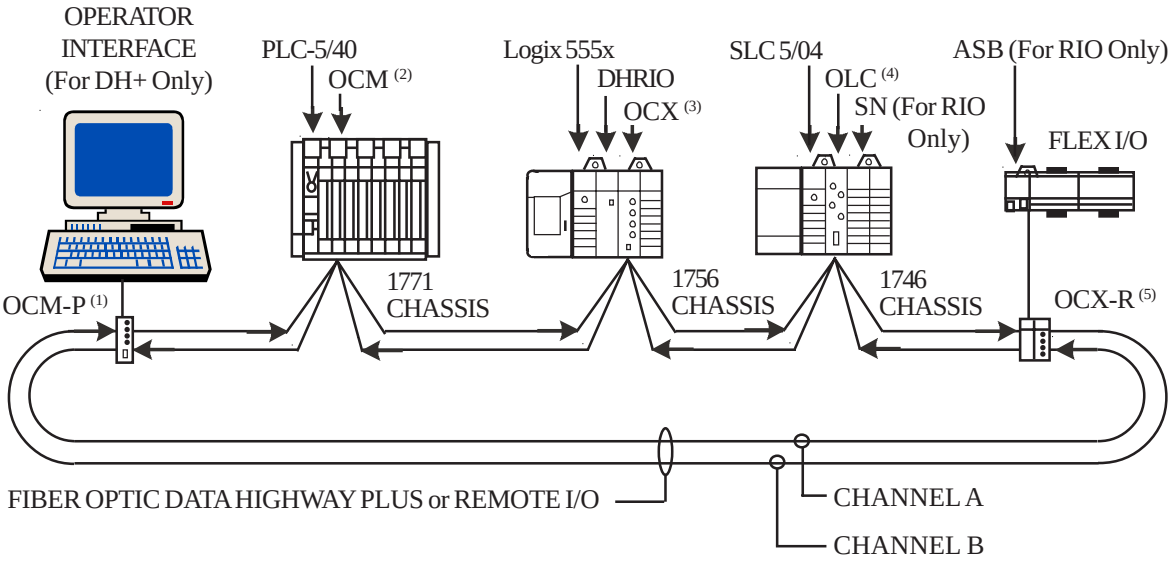


(1) OPTICAL COMMUNICATION MODULE
MODEL # OCX-ETH-85-R-D-ST-ACV-2A1
(UL CLASS I, DIV. 2)
(2) OPTICAL COMMUNICATION MODULE
MODEL # OCM-ETH-85-D-ST-2A1

(3) OPTICAL LINK COUPLER
MODEL # OLC-ETH-85-D-ST-2A1
(4) OPTICAL ControlLogix MODULE
MODEL # OCX-ETH-85-D-ST-2A1
(UL CLASS I, DIV. 2)

TYPICAL OCM/OLC/OCX INSTALLATION CONFIGURATIONS

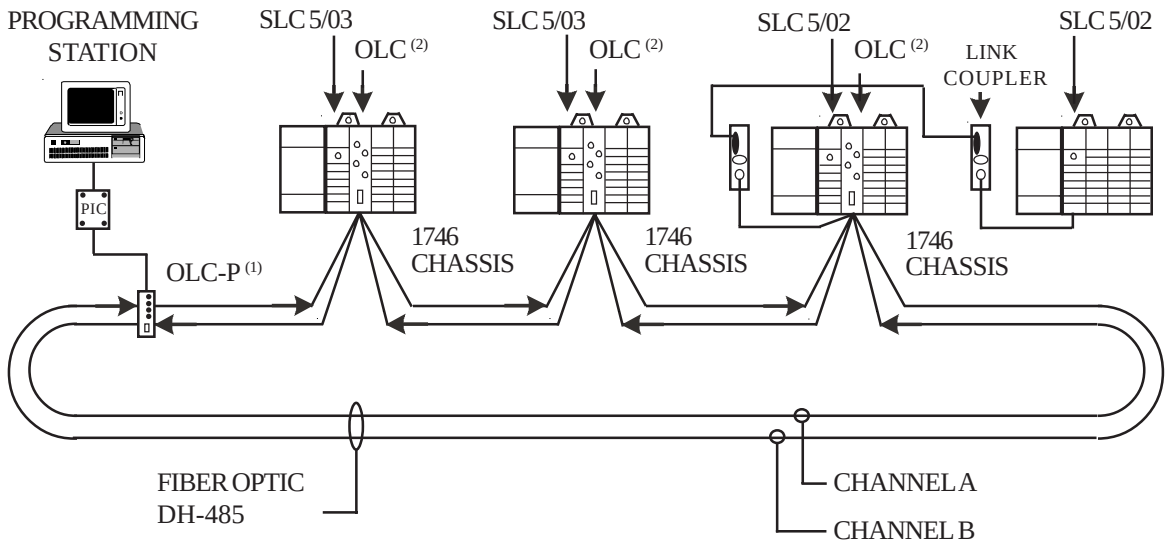
DATA HIGHWAY PLUS OR REMOTE I/O DUAL MEDIA RING CONFIGURATION (FAULT TOLERANT)



(1) OPTICAL COMMUNICATION MODULE
MODEL # OCM-DPR-85-P-D-ST-ACV
(2) OPTICAL COMMUNICATION MODULE
MODEL # OCM-DPR-85-D-ST
(3) OPTICAL ControlLogix MODULE
MODEL # OCX-DPR-85-D-ST

(4) OPTICAL LINK COUPLER
MODEL # OLC-DPR-85-D-ST
(5) OPTICAL COMMUNICATION MODULE
MODEL # OCX-DPR-85-R-D-ST-ACV

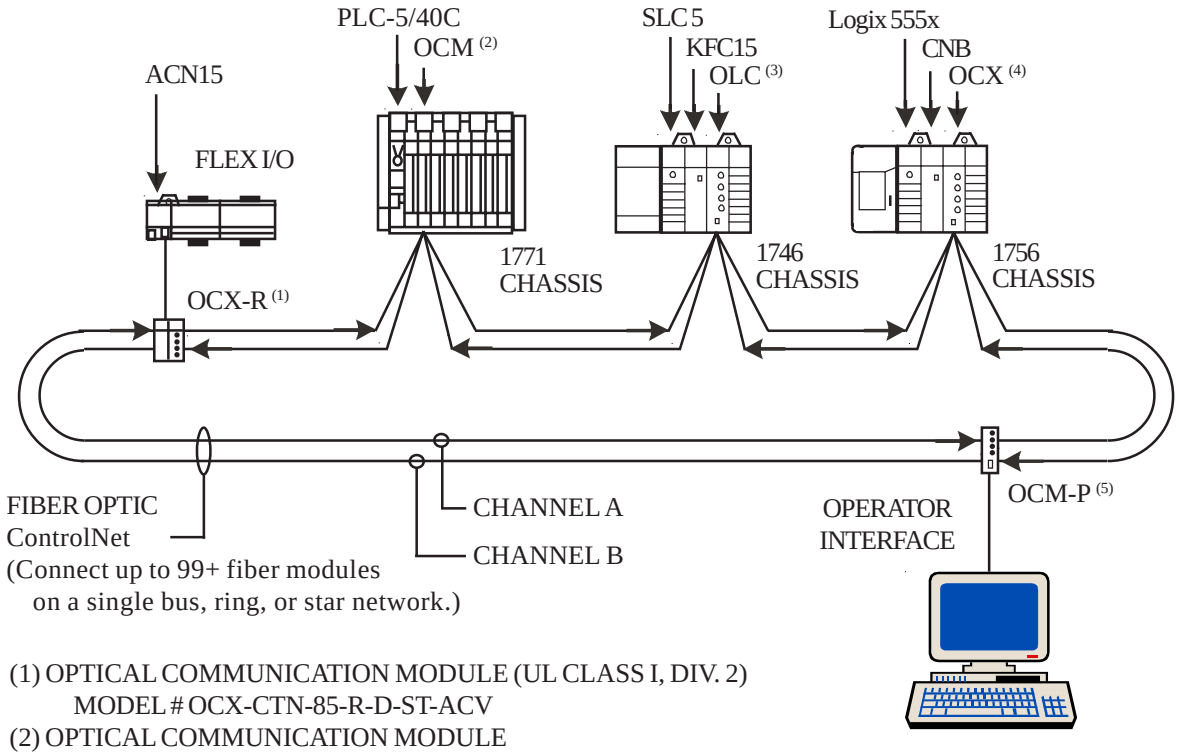
SLC 500 DH-485 DUAL MEDIA RING CONFIGURATION (FAULT TOLERANT)



(1) OPTICAL LINK COUPLER
MODEL # OLC-DSL-85-P-D-ST-ACV
(2) OPTICAL LINK COUPLER
MODEL # OLC-DSL-85-D-ST

TYPICAL OCM/OLC/OCX INSTALLATION CONFIGURATIONS

ControlNet DUAL MEDIA RING CONFIGURATION (FAULT TOLERANT)



(1) OPTICAL COMMUNICATION MODULE (UL CLASS I, DIV. 2)
MODEL # OCX-CTN-85-R-D-ST-ACV
(2) OPTICAL COMMUNICATION MODULE
MODEL # OCM-CTN-85-D-ST
(3) OPTICAL LINK COUPLER
MODEL # OLC-CTN-85-D-ST
(4) OPTICAL ControlLogix MODULE (UL CLASS I, DIV. 2)
MODEL # OCX-CTN-85-D-ST
(5) OPTICAL COMMUNICATION MODULE
MODEL # OCM-CTN-85-P-D-ST-ACV

TYPICAL ControlNet OCM/OLC/OCX-CTN INSTALLATION CONFIGURATION

Phoenix Digital

7650 East Evans Rd., Bldg. A
Scottsdale, AZ 85260
(480) 483-7393 Phone
(480) 483-7391 Fax
email: phxdigital@aol.com
internet: http://www.phoenixdigitalcorp.com

Rockwell Automation Encompass™ Product Partner Global

Consult factory for additional information on fiber optic modules for other Allen-Bradley networks; **multiplexers and network servers for MODBUS**; **Industrial Fiber Optic Cable** (indoor, outdoor, aerial, burial, etc.); Wavelength Division Multiplexers and Optical Couplers; and Optical Slip Rings.