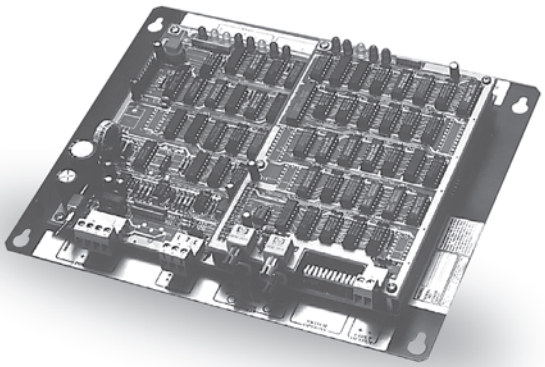
TAC I/NET™ FOI

Fiber Optics Interface

TAC's Fiber Optics Interface Unit (FOI) provides the capability of utilizing fiber optic cable as the transmission media for all TAC RS-485 Controller networks (LANs).



Schneider Electric

TAC I/NET FOI Fiber Optics Interface Features

Fiber optics, an alternative to copper wire, is a superior choice in multiple building facilities because of the isolation characteristics. Common system problems associated with transient electrical interference (lightning strikes, ground fluctuations, etc.) are greatly reduced or eliminated with fiber optics. In a fiber optic system, information is transmitted as light over thin glass fibers. A simple fiber optic system consists of a transmitter, fiber optic cable and a receiver. The transmitter converts an electronic signal into light and injects it into the fiber. The fiber carries the light to the receiver, which then converts the light into an electronic signal.

PRODUCT AT A GLANCE

FOI Features

- Uses standard 62.5/125 micron, multi-mode fiber
- Counter rotating ring option
  - Operation with single fault
  - Fault locator
- Signal regeneration
  - Re-establishes RS-485 channels
- RFI & EMI immunity
  - Excellent lightning protection
- High security communications
- Multiple rings

Applications

Potential uses include applications requiring high data rates over long distances, maximum EMI protection in noisy environments and other areas where the benefits of fiber optics give it a decided advantage over copper cable. Fiber optic transmission media keeps your network from going out-of-date and maximizes your future communication options.

Operation

Data coming into the RS-485 port is analyzed and the signal quality is reconstructed. Data is “re-timed” prior to placing it on the fiber. This “regeneration” feature allows the full RS-485 cable distance at each FOI. The FOI monitors incoming RS-485 signal quality and illuminates an LED whenever distortion of incoming data is 25% or greater.

Data coming into the RS-485 port is also monitored by a watch-dog circuitry. Continuous uninterrupted reception of data (valid or invalid) for a period of eight seconds will cause transmission of RS-485 data onto the fiber to be terminated. When a halt in this continuous data is detected, communication is permitted to resume. This watch-dog circuitry provides “jabber” protection, to prevent the disruption of the entire system upon the failure of any single LAN node.

Regeneration is also provided on fiber data as it is received prior to retransmitting onto the fiber ring. This reduces accumulated data distortion from fiber transmissions. Due to this regeneration feature, the FOI can be used as a signal repeater when distances between FOIs would otherwise exceed that permitted (depends on fiber, splice and termination losses).

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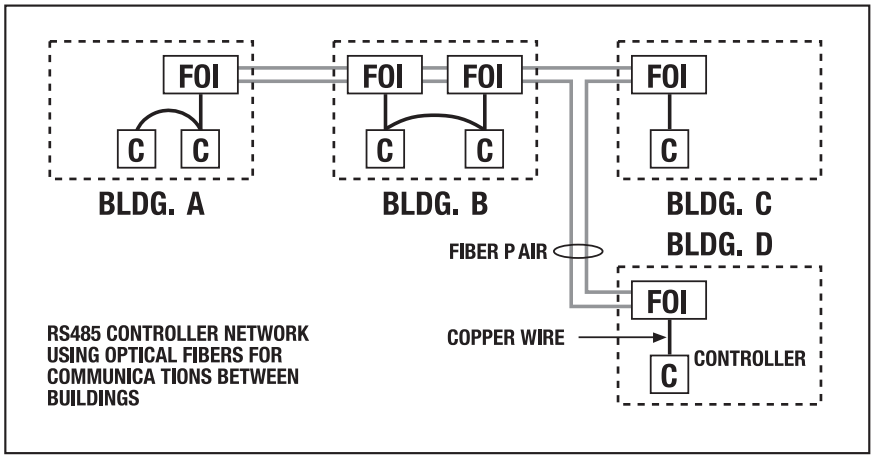
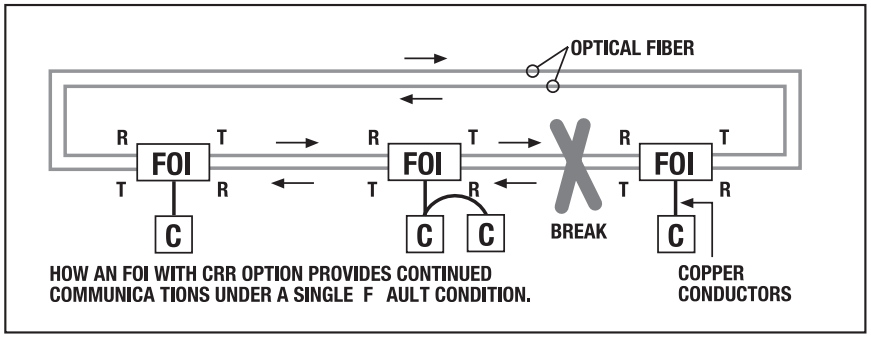
TAC I/NET FOI Fiber Optics Interface Specifications

TAC I/NET FOI Fiber Optics Interface

Dimensions:
9" X 8.4" X 2" (36.7 Mm X 34.7 Mm X 8.2 Mm)
Temperature:
32°f – 122°f (0°c – 50°c)
Relative Humidity:
0 – 95% Rh (Non-condensing)
Power Requirements:
15 To 24vdc, Or 12 To 20vac, 12 Watts Max
Electrical Interface:
Rs-485
Fiber Interface:
– St Type Optical Fiber Connectors
– 2 On Base Unit, 2 On Crr Module
Fiber Signal Wavelength:
820 – 850 Nm
Fiber Loss:
(Attenuation Between Any Two Fois): 8 Db Maximum
Recommended Fiber:
62.5/125 Micron, Multi-mode, Graded Index
Transmission:
Half Duplex
Data Rates:
– 9600 BPS
– 19,200 BPS
– 20,800 BPS
– 38,400 BPS
DC to 38,400 BPS (without regeneration or quality indication)
FOI Per Ring:
8 With Crr Option, 16 Without Crr Option
Maximum Fiber Cable Segment:
3300 Ft (1km)
Transition – Copper To Fiber:
3 Max Per Channel

Protocols:
Sdlc And Asynchronous
Led Indicators:
FOI PCB
– RS-485 Transmit Active
– RS-485 Data
– RS-485 Receive Active
– RS-485 Bad Quality
– RS-485 Jabber
– Primary Fiber Light
– Lost Synchronization
– Fiber Jabber
CCR Expansion Board
– Primary HI
– Alternate HI
– Alternate FDAT
– Primary Lost
– Alternate Lost





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