



Features 21-216 Fiber optic G.703 Codir - IEEE C37.94 820-870 nm MM Converter

- Fiber optic transmission, immune to EMI and RFI
- Standards compliant for power substation installation
- 19" mounting with only 200 mm depth
- Single supply range from 48 VDC to 230 VAC

IEEE C37.94

Fiber optic interface according to standard "IEEE C37.94-2002, IEEE Standard for N times 64 Kilobit per Second Optical Fiber Interfaces between Teleprotection and Multiplexer Equipment" describes a fiber optic intra-substation communication link between teleprotection equipment and multiplexers.

G.703 Codir 64 kbps

The standard "G.703 64 kbit/s codirectional interface" describes a galvanic interface commonly used by teleprotection equipment for connection to multiplexers.

Function

The 21-216 is an electro-optical interface converter between electrical G.703 Codir. 64 kbps (balanced) interface and IEEE C37.94, N times 64 kbps optical interface.

The 21-216 can be used to extend the reach of balanced G.703 interfaces up to 2 km allowing for a cost effective transmission without electromagnetic interference and signal degradation.

The 21-216 works with any channel selection in the IEEE C37.94 data format and can be easily configured.

Usage

The 21-216 Fiber optic G.703 Codir. - IEEE C37.94 converter from Fibersystem is intended for connecting teleprotection equipment to telecom multiplexers at substations.

The 21-216 converter can also be used to directly interconnect protection equipment where one or both equipments lack optical interfaces.

The 21-216 generally allows protection equipment and multiplexers to use the IEEE C37.94 standard to interconnect with equipment that only supports G.703 interfaces.

*The 21-216 product is part of a wide **product family** of interface, speed and protocol converters.*

*Fibersystem also offers **many related products** like relay trip links, asynchronous modems, 19" rack based interface conversion and operator station KVM extensions.*

*The 21-216 product has been **tested and approved** to be used with the REL and RED product lines from ABB Power Technologies.*

***Fibersystem AB** is an inventive Swedish company who since 1982 has been working with the application of fiber optic technology in the delivery of solutions fulfilling the customers' multitude of needs.*

Fiber optic link

Data speed	2048 kbps
Protocol	IEEE C37.94
Fiber	Multimode 50/125 µm or 62.5/125 µm, ST-connector
Optical system budget	13 dB in 62.5/125 µm. 9 dB in 50/125 µm fiber
Typical distance	0-2 km (3 dB system margin for 50/125 µm and 6 dB for 62.5/125 µm)

Galvanic

Data speed	64 kbps
Protocol	G.703, Codir
Connector	RJ45, S/FTP cable

Power Supply

DC	48 VDC to 250 VDC, ±20%
AC	230 VAC ±20%, 50-60 Hz
AC connector	IEC 320, 3 pin

Environmental

Operating temperature range	-25 to +55 °C
Storage teperature range	-40 to +85 °C
Relative humidity operating	5 to 95 %RH
Relative humidity storage	5 to 95 %RH non condensing

CE compliance

Immunity	EN 61000-6-2
Emission	EN 61000-6-4
LVD	EN 50178; RIV = 250 V OVC = III

Mechanical compliance

Vibration	IEC 60255-21-1 Class 2
Shock	IEC 60255-21-2 Class 2
Seismic	IEC 60255-21-3 Class 2

EMC compliance

ESD	IEC 60255-22-2 Class 3, contact 6 kV, air 8 kV
Radiated	IEC 60255-22-3 / IEEE/ANSI C37.90.2; 35 V/m
Burst Power	IEC 60255-22-1 Class III
Burst Communication	IEC 60255-22-1 Class II; 0,5 kV diff; 1 kV common mode
Fast transient Power	IEC 60255-22-4 Class IV
Fast transient Communication	IEC 60255-22-4 Class II; 1 kV

Insulation

Dielectric test	IEC 60255-5, 2,0 kV 1 min
Impulse voltage test	IEC 60255 / EN 50178 5 kV / 6 kV
Insulation resistance	IEC 60255-5; >100 Mohm at 500 VDC

Dimensions and Weight

Physical size	The unit is intendend to be mounted in a 19" rack. By adjusting the mounting brackets the unit can also be mounted on a wall or similar Heigth 45 mm, width 483 mm (without brackets 380 mm), depth 173 mm
Weight	3 kg

Ordering information

Product number	Model	Description
60-00-7164	21-216	Fiber optic G.703 Codir to C37.94 820-870 nm MM