



Features 21-170 Fiber optic G.703 E1 Converter

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

Fiberoptic G.703 Codirectional

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

The 21-170 converts the codirectional interface signals to a proprietary fiber optic protocol used by teleprotection equipment from ABB.

G.703/704 E1 Unbalanced

The ITU-standard G.703 describes the physical and electrical characteristics of hierarchical digital interfaces at rates up to 140Mbps. G.704 describes frame structures on G.703 interfaces up to 45Mbit/s. E1 describes a galvanic G.703 interface with G.704 frames at 2048kbps commonly used in telecommunication.

Function

The 21-170 is a G.703 format converter between G.703/704 2Mbps interface and proprietary 64kbps fiberoptical interface. The optical interface can be connected to other fiberoptical converters from Fibersystem as the 21-16xx (for X.21, RS.530, etc) or the 21-180 for balanced G.703. The 64kbps data is inserted and extracted from time slot 31 in the G.704 frame structure leaving the other time slots available for other usage. The converter adapts the data rate to the incoming E1 signal by a digital PLL or in a back to back configuration it can be set to use its internal reference.

Usage

The 21-170, Fiberoptic G.703 E1 converter is intended to extend distance and to provide galvanic isolation for disturbance free insertion of 64kbit/s data directly into a SDH/PDH 2Mbps G.703 connections by the use of the standard G.704 framing structure. The converter is compatible with the FOT module in ABB's teleprotection terminals 550/560 for connecting the terminals to higher order networks. The 21-170 converter running of its internal clock can also be used to directly interconnect protection equipment over leased lines using electrical E1 modems such as SHDSL and alike.

*The 21-170 product is part of a wide **product family** of interface, speed and protocol converters.*

*Fibersystem also offer **many related products** like Relay Trip Links, Asynchronous Modems, 19" Rack Based Interface Conversion and Operator Station KVM extensions.*

*The 21-170 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 fiberoptic technology in the delivery of solutions fulfilling the Customers' multitude of needs.*

Fiber optic link

Protocol	Fibersystem propriety 64kbps.
Fiber	Multi mode 50/125um or 62.5/125um, ST-connector.
Optical system budget	13dB in 62.5/um. 9dB in 50/125um fiber.
Typical distance	0 - 2km (3dB system margin for 50/125um and 6dB for 62.5/125um)

Galvanic

Data speed	2048kbps.
Protocol	G.703, E1
Connector	2 x BNC , Coaxial cable.

Power Supply

DC	48V DC to 250V DC, ±20%
AC	230VAC ±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 % .
Relative humidity storage	5 to 95 % non condensing.

CE compliance

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

Mechanical

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

EMC compliance

ESD	IEC 60255-22-2 Class 3, contact 6kV, air 8kV
Radiated	IEC 60255-22-3 / IEEE/ANSI C37.90.2; 35V/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; 1kV

Insulation

Dielectric test	IEC 60255-5, 2,0kV 1min
Impuls voltage test	IEC 60255 / EN 50178 5kV / 6kV
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 mount brackets the unit can also be mounted on a wall or similar Heigth 45 mm, Width 483 mm (Witkout brackets 380mm), Depth 173 mm
Weight	3 kg

Ordering information

Product number	Model	Description
	21-170	Fo modem G.703 E1 2Mb/s