Fiber optic converter IEEE C37.94 - G.703 E1 (21-219v2)

- Two independent IEEE C37.94 fiber optical connections over a single E1
- Standards compliant for power substation installation
- 19” mounting with only 200mm depth
- Single supply range from 48VDC to 230VA
- Added features: RJ48 (120 Ohm balanced)
- Added feature: Alarm function
- Added feature: Separate DC-/ AC-power connector

Description

The 21-219, Fiber optic converter IEEE C37.94 - G.703 E1 is intended to extend distance and galvanic isolate the teleprotection equipment for substations connection to telecom network.

IEEE C37.94

The standard “IEEE C37.94-2002, IEEE Standard for N times 64 Kilobit per Second Optical Fiber Interfaces between Teleprotection and Multiplexer Equipment” describes a fiberoptic intra-substation communication links between teleprotection equipment and multiplexers.

G.703 E1 2048kbit/s

The G.703, E1, 2048kbit/s unbalanced, (75 Ohm BNC) or balanced (120 Ohm RJ48), ports are intended to connect to, for example, a leased telecom line.

Function

The 21-219 is an electro optical multiplexer between one G.703 E1 and two IEEE C37.94 optical ports. The two IEEE ports are fully mapped into the G.703 standard frame structure of the E1 port, allowing for further SDH/PDH multiplexing and de-multiplexing.

21-219 derives it synchronization from the network port (E1) or from an internal 2048Kbps PDH compliant clock enabling it to be used in leased line applications using electrical E1 modems such as SHDSL and alike.

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Usage

The 21-219, Fiberoptic IEEE C37.94 - G.703 E1 converter is intended to extend distance and galvanic isolate the teleprotection equipment for substations connection to telecom network.

The two independent IEEE C37.94 ports can be used for redundancy in the network or as a cross redundancy in dual installations.

The 21-219 Fiber optic IEEE C37.94 – G.703 multiplexer can also be used in combination with the 21-216 Fiber optic IEEE C37.94 – G.703 64Kbps Codirectional Converter, for instance when the Teleprotection equipment lack IEEE C37.94 ports or when the intermediate SDH/PDH network offers a mixture of E1 G.703 ports and 64Kbps G.703 ports on different sites.

Technical Data

Data speed:	2.048Mbit/s, IEEE C37.94 protocol
Wavelength:	820nm
Fiber optical connector:	ST
Optical System budget:	13dB with multimode fiber, (62.5/125 um) 9dB with multimode fiber, (50/125 um)
Typical distance:	2km (6dB system margin for 62.5/125 and 3dB margin for 50/125)

G.703 – E1

Interface:	2 BNCs, unbalanced 75 Ohm or RJ48 balanced 120ohm.
Protocol:	G.703, G.704, 2048 kbit/s. PCM31 or PCM31C, (CRC-check is not used by 21-219)

Alarm output data

Output:	Galvanic isolated, with three connectors, normally open or normally closed.
Electrical performance:	Max 60V DC or max 40V AC. Maximum load, 1 A
Connector:	Terminal Block, 3-pin

Power Supply

Mains power input

AC supply range:	40V AC to 265V AC, 50Hz/60Hz
DC supply range:	40V DC to 300V DC
Recommended mating connector:	Phoenix 1939413 or similar
Power consumption:	<10W

Environmental conditions

Operating temperature range:	-25 to +70 °C
Storage temperature range:	-40 to +85 °C
Relative humidity operating:	5 to 95%.
Relative humidity storage:	5 to 95% noncondensing

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CE compliance

LVD	EN 50178, RIV = 250V OVC = III
EMC	IEC 60255-26

Mechanical compliance

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

EMC compliance

Radiated Emission	CISPR 11, CISPR 32
Conducted Emission	CISPR 32
Immunity	IEC 61000-4-3
ESD	IEC 61000-4-2, contact 6kV, air 8kV
Burst Power	IEC 61000-4-4
Burst Communication	IEC 61000-4-4
Fast transient Power	IEC 61000-4-4
Fast transient Communication	IEC 61000-4-4
Conducted disturbance:	IEC 61000-4-6
Electrical fast transients/burst:	IEC 61000-4-4
Damped oscillatory waves:	IEC 61000-4-18
Surge:	IEC 61000-4-5
AC and DC dips:	IEC 61000-4-11 and IEC 61000-4-29
AC and DC voltage interrupts:	IEC 61000-4-11 and IEC 61000-4-29
Ripple DC input power immunity:	IEC 61000-4-17
Power frequency magnetic field:	IEC 61000-4-8

Insulation

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

Physical size and Weight

The unit can be to be mounted in a 19” rack.
By adjusting the rack mount brackets, the unit can also be mounted on a wall or similar.

Height	45 mm
Width	483 mm (380 mm without rack mount brackets).
Depth	173 mm (from front to back, connectors excluded).
Weight	3 kg

Ordering information

Product	Product number
Fiber optic converter IEEE C37.94 - G.703 E1 (21-219v2)	60-00-9166

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