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 links between teleprotection equipment and multiplexers.

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 45Mbps. E1 describes a galvanic G.703 interface with G.704 frames at 2048kbps commonly used in telecommunication.

Function
The 21-219 is an electro optical multiplexer between one G.703/704 E1 and two IEEE C37.94 optical ports. The two IEEE ports are fully mapped into the G.704 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.

Usage
The 21-219 Fiber optic IEEE C37.94 – G.703 multiplexer from Fibersystem is intended for interfacing substation teleprotection equipment with IEEE C37.94 interfaces to telecom multiplexers using G.703 E1 interfaces. 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.703/704 ports and 64Kbps G.703 ports on different sites.

- Two independent IEEE C37.94 fiberoptical connections over a single E1.
- Standards compliant for power substation installation.
- 19” mounting with only 200mm depth.
- Single supply range from 48VDC to 230VAC.
Technical data

Fiber optic link
Data speed: 2048kbps.
Protocol: IEEE C37.94.
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 temperature 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
Heighth: 45 mm, Width: 483 mm (Without brackets 380mm), Depth: 173 mm
Weight: 3 kg

Ordering information:

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<th>Partnummer</th>
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<td>21-219</td>
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Are You missing any functions, interfaces or protocols in the product above? Don’t hesitate to contact us at sales@fibersystem.se or visit us at www.fibersystem.se to find the right product and solution for Your specific needs.