



Features 21-223 Fiber optic IEEE C37.94 - G.703 E1 Booster

- Protocol independent up to 2Mbit/s 1310nm (IEEE C37.94).
- Powerbudget 30dB, 46dB up to 50dB in singlemode 1550nm.
- Standards compliant for power substation installation.
- 19" mounting with only 200mm depth.
- Single supply range from 48VDC to 250VDC or 110VAC to 230VAC.

Optical Interfaces IEEE C37.94

The optical interfaces uses standard LC connectors. The singlemode 1310 interfaces uses 1310nm light and the singlemode 1550 interface uses 1550nm.

Function

The 21-223 is a protocol independent optical-electrical-optical long haul converter link with data integrity control for high reliability. The incoming singlemode 1310 signal is sampled and packaged in 4B/5B code before transmission on the singlemode 1550 interface. The incoming singlemode 1550 signal is decoded and error detected before reassembled and transmitted out the singlemode 1310 interface. This conversion method offers a better (lower) error rate for low speed signals compared to transparent converters suitable only for high speed signals.

Usage

The 21-223 SM/SM converter is intended to extend optical reach for any low speed optical data signal into the long haul distances.

Using a 21-223 the optical short reach signals can be sent without the need for additional and expensive communication systems normally found in long haul communications. When combined with the other products in Fibersystems teleprotection communication product line this converter allows a very cost effective solution.

The 21-223 is particularly useful in differential line protection setups where dedicated fiber is available thus eliminating the need for multiplexers for the teleprotection traffic.

The 21-223 is compatible with the standards based IEEE C37.94 1310nm optical interface for teleprotection equipment and its protocol independence makes ideal for interoperation with any teleprotection equipment suppliers products.

*The 21-223 products are part of a wide **product family** of signaling, controlling and communication over fiber.*

*Fibersystem also offer **many related products** like interface, speed, and protocol converters, Teleprotection modems and multiplexers, Asynchronous Modems, 19" Rack Based Interface Conversion and Operator Station KVM extensions.*

*The 21-223 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 fibreoptic technology in the delivery of solutions fulfilling the Customers' multitude of needs.*

Fiber optic link - Singlemode 1310 Interface

Wavelength	1310nm
Fiber optical connector	LC
Optical system budget	15dB in singlemode fiber 9/125um
Typical distance	20km

Fiber optic link - Singlemode 1550 Interface

Wavelength	1550nm
Fiber optical connector	LC
Optical system budget 21-223	30dB in singlemode fiber 9/125um
Optical system budget 21-223M/R	46dB in singlemode fiber 9/125um
Optical system budget 21-223L/R	50dB in singlemode fiber 9/125um
Typical distance	Up to 250 km with typical 0,20 dB/km
Fiber optic protocol	Singlemode 1330 data is sampled at 25MSamples/s and coded with 4B/5B coding Singlemode 1550 data 125Mbit/s

Power Supply

DC	48V DC to 250V DC, ±20%
AC	110VAC to 230VAC ±20%, 50–60 Hz
AC/DC-connector	IEC 320, 3 pin
Power consumption	<15W

Environmental

Temperature range	Operating, -20 to +55 oC. Storage, -40 to +85 oC
Relative humidity	Operating, 5 to 95 % . Storage, 5 to 95 % non condensing

Designed to meet CE compliance

Immunity	EN 61000-6-2, EN 61000-6-4, EN 50178
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Designed to meet Mechanical

Vibration	IEC 60255-21-1, IEC 60255-21-2, IEC 60255-21-3
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Designed to meet EMC compliance IEC 60255-22-1, IEC 60255-22-2, IEC 60255-22-3, IEC 60255-22-4

Designed to meet Insulation

IEC 60255 / EN 50178 , IEC 60255-5, IEC 60255-5

Dimensions and Weight

Physical size	Height 45 mm, Width 483 mm, Depth 173 mm
Weight	3 kg

Ordering information

Product number	Model	Description
60-00-7251	21-223	Fo SM/SM 4B/5B booster LC-LC 30 dB typical 80km up to 120km
60-00-6682	21-223M/R	Fo SM/SM 4B/5B medium range booster LC-LC 46 dB typical up to 200km
60-00-7252	21-223L/R	Fo SM/SM 4B/5B long range booster LC-LC 50 dB up to 250km