



Features

- Up to 240 km range!
- Wide temperature operating range: -25 to +55 °C
- Wide PSU input range: 48-250 VDC or 110-250 VAC
- Fiber optical transmission, protected against external EMI and RFI
- Standards compliant for power substation installation

Usage

The 23-450 link is intended to be used for remote trip and or sensing to minimize the need for local controllers. The link is bidirectional for dual side control or sense back confirmation of command. For example, a make or break can be fed to the controller to verify the command action.

Function

The 23-450 link extends binary functions bidirectionally over medium and long distances. For example transfer trip.

The link is self monitored and has a local and a remote alarm signal available both as optical indications and an electrical relay output. The local alarm is latched and remote alarm is extended to ensure proper detection. The alarms have to be reset manually.

By using the bidirectional signals, two units can form a permissive, blocking, or direct transfer trip. The fiber optic media allows for error free transmission and the self-correcting protocol ensures there is no false tripping.

Binary Inputs

The 4 binary inputs are galvanically isolated by optical couplers and connected using a pluggable Phoenix-connector for easy installation. The input voltages can be 85-150 VDC or 176-300 VDC depending on product version.

Binary Outputs

The 4 binary outputs are galvanically isolated by relays and connected using a pluggable Phoenix-connector for easy installation. The output contacts can make up to 30 A peak and break any voltage level up to 250 VDC at 0.15 A.

Fiber Optical Link

The fiber optical link transfers the binary signals using a fault tolerant protocol to filter out disturbance at the inputs and on the link. The protocol works both on multimode and single mode fiber with a maximum distance of 2 km and 240 km respectively.

*The 23-450 products are part of a wide **product family** of signaling, controlling and communication over fiber.*

*Fibersystem also offers **many related products** like interface, speed, and protocol converters, teleprotection modems, multiplexers and more.*

*The 23-450 product has been **tested and approved** to be used with the product lines from ABB Power Technologies.*

Fiber Optical Link

Wavelength	60-00-5433, 60-00-7318 1300 nm MM
Fiber optical connector	LC
Optical system budget	10 dB in multimode fiber 62.5/125 µm
Typical distance	2 km

Fiber Optical Link

Wavelength	60-00-5556, 60-00-5740 1550 nm SM	60-00-7253, 60-00-5977 1550 nm SM
Fiber optical connector	LC	LC
Optical system budget	39 dB in single mode fiber 9/125 µm	50 dB in single mode fiber 9/125 µm
Typical distance	120 km	240 km

Binary Inputs x 4

60-00-5433, -5740, -5977	Rated voltage 110/125 VDC ±20% (88-150 VDC). Power consumption max 0.2 W/input
60-00-7318, -5556, -7253	Rated voltage 220/250 VDC ±20% (176-300 VDC). Power consumption max 0.4 W/input

Binary Outputs - Relays x 4

Making capacity	30 A 0.2 s, 10 A 1.0 s
Continuous current	8 A
Breaking capacity AC	250 V/8 A
Breaking capacity DC	48 V/1 A, 110 V/0.4 A, 220 V/0.2 A, 250 V/0.15 A

Transfer Trip Time

The propagation delay for signal on fiber is 5 ns/m
 2 km fiber gives delay of 0.01 ms
 120 km fiber gives delay of 0.6 ms
 240 km fiber gives delay of 1.2 ms
 The delay of the binary input is 1 ms
 The delay of the binary output is ≤10 ms

Power Supply

DC	48 VDC to 250 VDC ±20 %
AC	110 VAC to 230 VAC ±20 %, 50–60 Hz
AC connector	IEC 320, 3 pin

Environmental

Temperature range	Operating: -25 to +55 °C. Storage: -40 to +85 °C
Relative humidity	Operating: 5 to 95 %RH. Storage: 5 to 95 %RH non condensing

Designed to meet CE compliance (Immunity) EN 61000-6-2, EN 61000-6-4, EN 50178

Designed to meet mechanical (Vibration) IEC 60255-21-1, IEC 60255-21-2, IEC 60255-21-3

Designed to meet EMC compliance IEC60255-22-1, 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 (without brackets 380 mm), depth 173 mm
Weight	3 kg

Ordering information

Product number	Description	Wavelength	Distance (up to)
60-00-5433	Fiber Optical Trip Link BI:110 V. 10 dB up to 2 km	1300 nm MM	2 km
60-00-7318	Fiber Optical Trip Link BI:220 V. 10 dB up to 2 km	1300 nm MM	2 km
60-00-5556	Fiber Optical Trip Link BI:220 V. 39 dB up to 120 km	1550 nm SM	120 km
60-00-5740	Fiber Optical Trip Link BI:110 V. 39 dB up to 120 km	1550 nm SM	120 km
60-00-7253	Fiber Optical Trip Link SFP BI: 220 V 50 dB up to 240 km	1550 nm SM	240 km
60-00-5977	Fiber Optical Trip Link SFP BI: 110 V 50 dB up to 240 km	1550 nm SM	240 km