Fibre optic teleprotection

SmartMUX-IO

Fiber optic multiplexor for hirewired teleprotection, the ultimate anti-overvoltage system

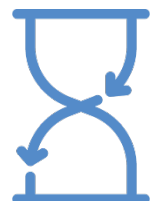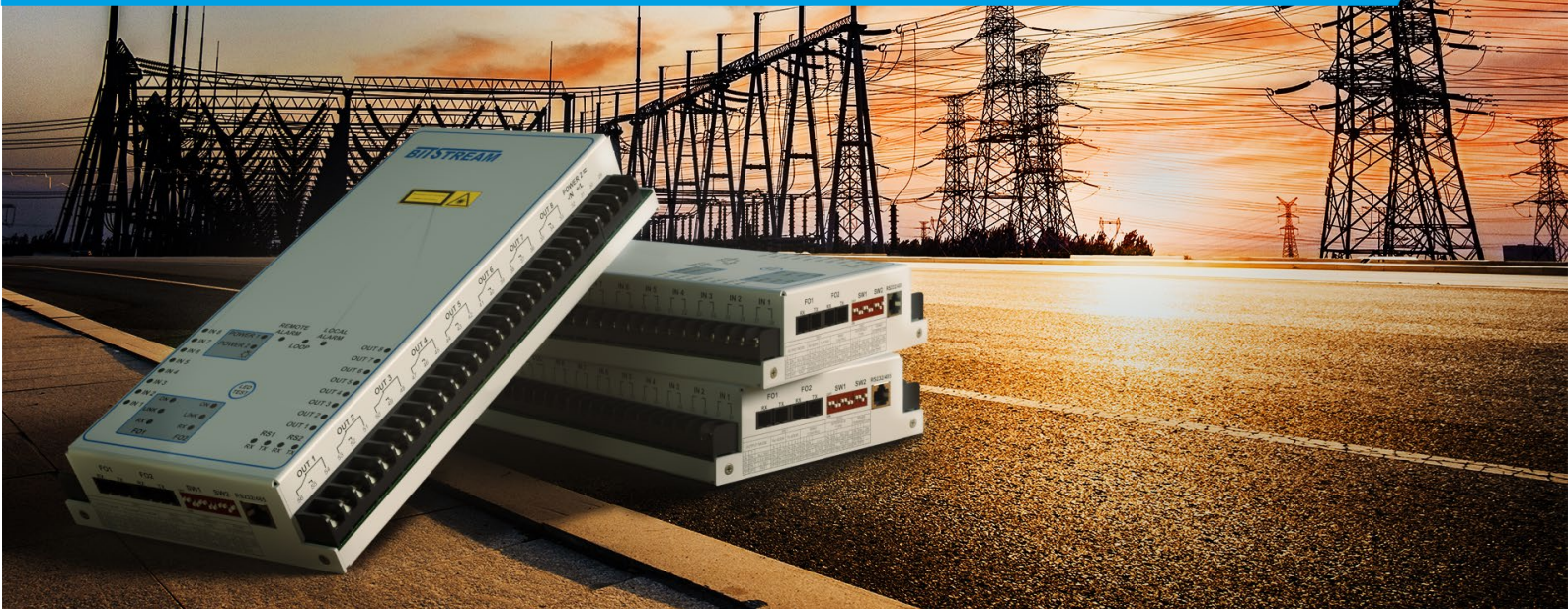**Safe**   **Elastic**   **Reliable**   **Protection**

Fibre optic multiplexer 8x I/O and 1/2x RS232/422/485

- ✓ Status transmissions from eight inputs to eight outputs over fibre optic

- ✓ Parametrisation of input trigger between 12V and 250V on 4 inputs.

- ✓ Inputs triggered by DC and AC

- ✓ Four inputs with interference filtering compliant with ESI 48-4 EB2 and dynamic current load

- ✓ FAST and SECURE modes of input management

- ✓ 8 analogue NO/NC outputs

- ✓ Galvanic insulation on inputs and outputs

- ✓ Emergency NO/NC contact

- ✓ RS232/485/422 serial interface

- ✓ Supports ring and bus topology,

- ✓ Possibility of addressing the device's receiver and transmitter

- ✓ Configuration by means of a DIP-SWITCH or console via RS232

- ✓ Fibre optic line interface: 1 or 2x SC/PC 1310, 1550nm, SM/MM, WDM,

- ✓ Broad spectrum of supply voltages

Features of the SmartMUX-IO

Reliable
The SmartMUX-IO device has been designed to withstand extreme environmental conditions. We have made the device to meet the PN-EN 60255-27: 2014 standards for data transmission devices, additionally we guarantee the reliability of operation at temperatures from -40 ° to + 70 ° C.

Elastic
At the production stage, you can choose the exact voltage values for the inputs in the range of 12V to 250VDC. Only SmartMUX-IO gives you such freedom and possibilities.

Easy to use
Management is done by configuring DIPSWITCH, while the advanced functions related addressing more devices in the ring and setting the filter parameters is done with CLI / RS232 console level.

The one you need
You choose from among many versions of the device that we have created in response to the needs of our customers. There are 3 types of built-in optical interface in order to make a connection at a range of up to 100km, additionally, for protection or construction of a bus, a version with two optical ports can be used. This flexibility allows you to calmly think about building large networks as well as their free expansion in the future.

Safe
Filtration is an additional functionality of the inputs disturbances, which is of great importance during applications in network supervision applications energy. Additionally, insulation in between the inputs is greater than 50 MΩ / 500V.

Providing protection
Thanks to the innovative solution, the SmartMUX-IO device can be joined to form topoplasts of the ring and control various I / O in the ring. This solution allows you to place up to 7 devices in the ring thanks to the double optical ports.

Output

- Screw connection for wire with cross-section: up to 3mm
- 8 outputs with NO / NC contacts
- Maximum rated voltage contacts: 400V AC / 250V DC
- Continuous current: 8A / 250V AC, 8A / 24VDC, 0.4A / 250V DC
- Maximum continuous current: 10A / 20ms
- Maximum switching power: 2000 W
- Category of use: AC1, AC15, AC3, DC1, DC13
- Switching capacity: 1000W (VA) at L / R = 40 ms
- Breaking current: for 220V DC and L / R = 40 ms - 0.45A for 230V AC and cos = 0.4-5.5A
- Two modes of operation - FAST (instant response to change signal)
- SECURE (response with confirmation)
- NO / NC alarm connector

Delay

- Input to Output delay ≤ 17
- Input to Output delay ≤ 24 ms (ESI 48-2), Vin <250V 10µF CDT

RS232 / RS485/RS422 interface

- 1x RJ45 connection
- RS-232, bit rate up to 230kbps
- RS-422/485, bit rate up to 2Mbps
- Lag for RS-232 <400ns
- Lag for RS-485 <400ns
- DIP-SWITCH configuration

Optical port

- SM, MM, WDM, 1310nm, 1550nm
- Fibre optical type 9/125µm, 50/125µm, 62,5/125µm
- SC/PC connection
- Range depending on the optical port type 15km, 50km, 120km (1550nm), 20km WDM, 40km WDM, 60km WDM
- single and double optical port versions are available
- ring and bus compatible

Physical design

- Casing 166x285x50mm
- Can be mounted on a DIN bus
- Can be mounted on a wall
- Weight 1.3 kg

Environmental requirements

- Normal working temperatures: -40 to +70°C
- Ambient Relative Humidity: 0 to 95% (non-condensing)
- Location Type: Class C according to standard PN-EN 60870-2-2 – sheltered locations
- IP Rating: IP-30

Supported standards, recommendations and directives EMC, safety *

PN-EN 55011:2012	Industrial, scientific and medical equipment	Radio-frequency disturbance characteristics - Limits and methods of measurement.
PN-EN 55022:2010/AC:2011	Information technology equipment	Radio disturbance characteristics – Limits and methods of measurement
PN-EN 55024:2011/A1:2015-08	Electromagnetic compatibility (EMC)	Information technology equipment immunity characteristics - Limits and methods of measurement
PN-EN 60950-1:2007/A2:2014-05	Information technology equipment–Safety	Part 1: General requirements
PN-EN 60255-26:2014-01	Measuring relays and protection equipment	
PN-EN 60255-27:2014-06	Measuring relays and protection equipment	
EMC 2004/108/WE	Electromagnetic Compatibility Directive	
LVD 2006/95/WE	Low Voltage Directive	
PN-EN 60825-1:2014-11	Safety of laser products Part 1	Equipment classification and requirements
IEC 61000-4-2	Electromagnetic compatibility (EMC)	Part 4-2: Testing and measurement techniques –Electrostatic discharge immunity test
IEC 61000-4-3	Electromagnetic compatibility (EMC)	Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test
IEC 61000-4-4	Electromagnetic compatibility (EMC)	Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test
IEC 61000-4-5	Electromagnetic compatibility (EMC)	Part 4-5: Testing and measurement techniques – Surge immunity test
IEC 61000-4-6	Electromagnetic compatibility (EMC)	Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio frequency fields
IEC 61000-4-8	Electromagnetic compatibility (EMC)	Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test
IEC 61000-4-11	Electromagnetic compatibility (EMC)	Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests
IEC 61000-4-12	Electromagnetic compatibility (EMC)	Part 4-12: Testing and measurement techniques – Ring wave immunity test
IEC 61000-4-29	Electromagnetic compatibility (EMC)	Part 4-29: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests

* - list of supported standards may vary with the development of the device

Model

SmartMUX-IO - Interface types:

Built only a single interface speeds of 100 Mbps with SC/PC:

Interface type	Code
1310 nm SM/MM – range 15/5 km	S
1310 nm SM – range 50 km	M
1550 nm SM – range 100 km	L

Interface WDM (necessary additional field (x) in an assay for the transceiver)

Interface type	Code
1310/1550 and 1550/1310 nm SM/MM – range 20/2 km	WS
1310/1550 and 1550/1310nm SM – range 40 km	WM
1310/1550 and 1550/1310 nm SM – range 60 km	WL
1550/1570 and 1570/1550nm SM – range 100 km	WLL

Optional field, only if WDM is chosen in the preceding field:

Description	Code
1310/1550 nm for version WS/WM/WL or 1550/1570 nm for version WLL	1
1550/1310 nm for version WS/WM/WL or 1570/1550 nm for version WLL	2
1310/1550 and 1550/1310 nm for version WS/WM/WL or 1550/1570 and 1570/1550 nm for version WLL	3

Protection function:

Description	Code
without protection	-
in the protection version (two optical ports)	P

Power Supply:

Description	Code
12-36V DC or 66p (dual)	6
30-113V AC/40-160V DC or AAp (dual)	A
85-264V AC/100-370V DC or BBp (dual)	B

Compatibility with ESI-48-4 EB2

Description	Code
None	-
4 parametric inputs with ESI-48-4 EB2	E

Alarm function

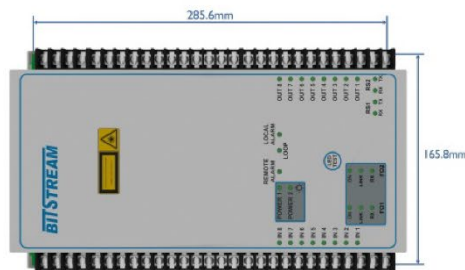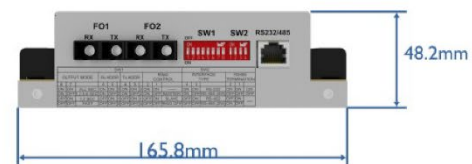| Description	Code
None	-
Comm Link Ready	A

Dimensions

View - front

View - side

View - back

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