



# BITSTREAM®

Leader in time synchronization and data transmission solutions



## Fiber optic multiplexer GFOX-4E1

*An indispensable device for users with the demand for high-speed packet traffic and classic voice calls.*



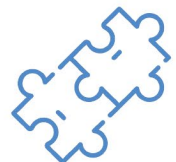
Reliable



Robust



Easy  
to configure



Tailored to  
your needs

# GFOX-4E1

## Fibre optic multiplexer 4x E1 + 1000 Mbit/s Ethernet

- ✓ Combination of 10/100/1000 Mbit/s Ethernet and four 2,048 Mbit/s E1 channels over a fiber optic link
- ✓ Four RJ45 electrical ports, 10/100/1000Mbit/s Ethernet
- ✓ 1.25 Gbit/s SFP optical port
- ✓ Built-in four-port Ethernet switch with MAC address table
- ✓ Ability to define VLANs to create independent transmission channels (802.1q, 802.1QinQ)
- ✓ Support for QoS mechanisms
- ✓ Management SNMP, WWW, Telnet, SMTP, SNTP, Syslog support
- ✓ Optional redundant power supply (additional 230V AC power connector)
- ✓ Supply range 20-60V DC

## Features GFOX-4E1



### Reliable

The **GFOX-4xE1** has four 2048kbit/s E1 interfaces at the physical layer in accordance with ITU-T Recommendation G.703. The E1 signals are carried over the optical port using TDM over IP technology. Ethernet bandwidth is reduced by the amount needed to carry active E1 channels.



### Safe

GFOX-4E1 fiber optic multiplexer can be optionally equipped with two independent power supplies. This guarantees continuous operation of the device and reduces the likelihood of transmission interruptions by connecting two power sources.



### Easy to configure

Built-in HTTP server, TELNET server and SNMP agent allows for free configuration of device parameters via standard WWW browser and continuous fault monitoring from the level of any management platforms supporting SNMP protocol. In addition, built-in support for SMTP protocol allows to notify the operator via e-mail in case of failure in the system.



### Tailored to your needs

When creating the GFOX-4E1 fiber optic multiplexer, we met our customers' expectations and created a device in two size versions. It is possible to buy the multiplexer in a standalone casing and in a casing adapted for installation in a 19" rack.

## Supported transmission standards

- ✓ IEEE 802.3 10Base-T Ethernet
- ✓ IEEE 802.3u 100Base-TX Fast Ethernet
- ✓ IEEE 802.3u 100Base-FX Fast Ethernet Fiber
- ✓ IEEE 802.3ab 1000Base-T
- ✓ IEEE 802.3z Gigabit Fiber
- ✓ IEEE 802.3x Flow Control and Back-pressure
- ✓ IEEE 802.1p Class of Service (CoS)
- ✓ IEEE 802.1Q VLAN

## Supported protocols

- ✓ SNMP, SNTP, SMTP, Syslog
- ✓ WWW, TELNET, RS232 console
- ✓ MDI/MDIX "autocrossover" function
- ✓ Full/half duplex
- ✓ Support for QoS mechanism

## Supported standards, recommendations and directives EMC, safety\*

<b>PN-EN 55011:2016</b>	Industrial, scientific and medical equipment	Radio frequency disturbance characteristics - Limits and methods of measurement.
<b>PN-EN 55035:2017-09</b>	Electromagnetic compatibility of multimedia equipment.	Resistance requirements
<b>PN-EN IEC 62368-1:2020-11</b>	Audio/visual, information technology and telecommunications equipment	Part 1: Safety requirements.
<b>PN-EN 60825-1:2014-11</b>	Laser equipment safety Part 1: Equipment classification and requirements.	
<b>EMC 2014/30/EU</b>	EMC Electromagnetic Compatibility Directive.	
<b>LVD 2014/35/EU</b>	LVD Low Voltage Directive.	
<b>IEC 61000-4-2</b>	Electromagnetic Compatibility (EMC)	Part 4-2: Test and measurement methods - Electrostatic discharge immunity test.
<b>IEC 61000-4-3</b>	Electromagnetic Compatibility (EMC)	<i>Part 4-3: Test and measurement methods - RF radiated electromagnetic field immunity test.</i>
<b>IEC 61000-4-4</b>	Electromagnetic Compatibility (EMC)	Part 4-4: Test of resistance to a series of fast electrical transients.
<b>IEC 61000-4-5</b>	Electromagnetic Compatibility (EMC)	Part 4-5: Test and measurement methods -- Impact resistance testing.
<b>IEC 61000-4-6</b>	Electromagnetic Compatibility (EMC)	Part 4-6: Test and measurement methods -- Testing for immunity to conducted disturbances induced by radio frequency fields.
<b>IEC 61000-4-8</b>	Electromagnetic Compatibility (EMC)	Part 4-8: Testing for immunity to mains frequency magnetic fields.
<b>IEC 61000-4-11</b>	Electromagnetic Compatibility (EMC)	Part 4-11: Tests for resistance to voltage drops, short interruptions and voltage changes.

\* - The scope and list of supported standards may change as the device evolves

## Linear optical port

- ✓ SFP exchangeable module, parameters depending on type of specified insert
- ✓ Transmission rate 1.25 Gbit/s
- ✓ Monitoring Device Interface (DDMI) support

## Multiplexing

- ✓ Number of channels E1 - 4
- ✓ Maximum Ethernet data rate - 1Gbit/s

## Ethernet Electrical Ports

- ✓ Transmission speed 10/100/1000 Mbit/s
- ✓ MDI, MDI-X "autocrossover" function
- ✓ Support for VLAN, IEEE 802.1q, 802.1 QinQ, QoS support
- ✓ Connectors 4x RJ-45

## E1 ports

- ✓ ITU-T G.703 compliant, 2048kbit/s
- ✓ 120  $\Omega$  - symmetrical pair
- ✓ Line code HDB-3
- ✓ Test loops: towards the E1 line and towards the remote device
- ✓ Connector 4x RJ-45

## Management

- ✓ SNMP
- ✓ HTTP protocol and web browser as a management application
- ✓ SMTP - sending e-mail in case of failure
- ✓ In-band via any Ethernet port
- ✓ Via RS232 console

## Environmental requirements

- ✓ Operating temperature: -10° to +60°C
- ✓ Relative humidity  $\leq$  80% at +20 °C

## Physical characteristics

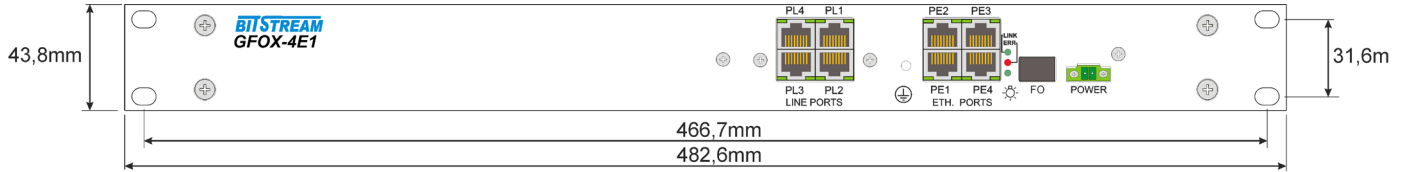
- ✓ 483 x 170 x 44 mm enclosure (for 19" rack)
- ✓ Housing 103 x 230 x 53 mm (free-standing)
- ✓ Weight up to 2kg

## Power supply

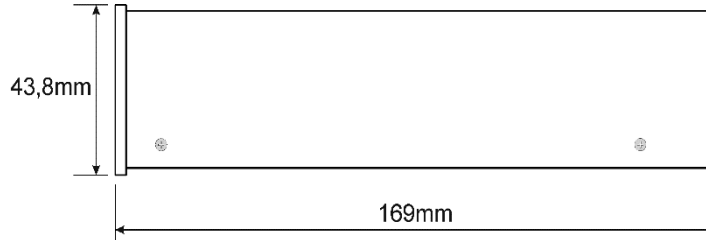
- ✓ Supply voltage range 20 to 60V DC
- ✓ Power consumption up to 15W
- ✓ Connector type: screw
- ✓ Optional redundant power supply (additional 230V AC power connector)

# Mechanical drawing

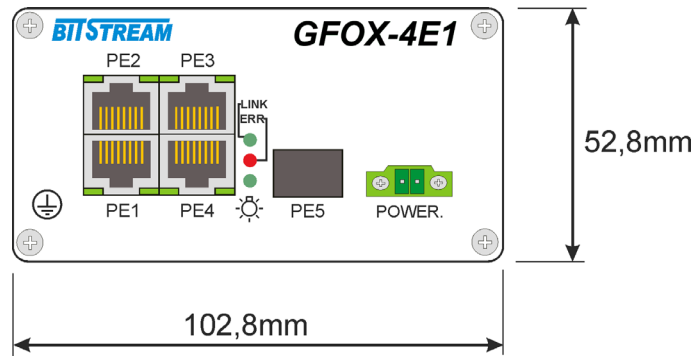
View 19" - front



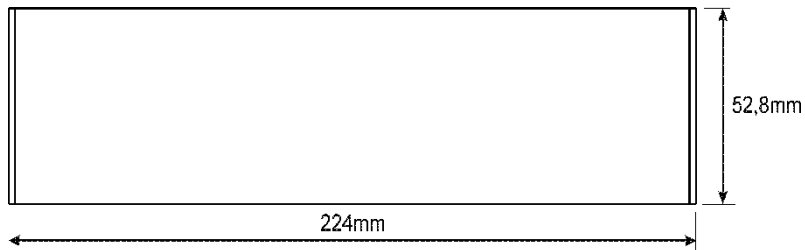
View 19" - flank



Front view



View - Side



## Labels

### GFOX-4E1-SFP-(X)

GFOX-4E1-SFP

Available housing versions:

- free-standing device
- 1U high 19" rack unit

(X)

-  
19"

M-ZAS module - additional 230V AC redundant power supply module for devices in 1U 19" enclosure ordered separately

## Additional accessories

Designation	Transmission speed	Wavelength	Fiber optic cable type	Distance	Insert type	WDM	Connector type	Operating temperature
BTP-8524-S5TD	1.25 Gbps	850 nm	MM	550 m	SFP	---	LC	-40~85°C
BTP-3124-L2TD	1.25 Gbps	1310 nm	MM/SM	2/20 km	SFP	---	LC	-40~85°C
BTP-3124-L4TD	1.25 Gbps	1310 nm	SM	40 km	SFP	---	LC	-40~85°C
BTP-5524-L4TD	1.25 Gbps	1550 nm	SM	40 km	SFP	---	LC	-40~85°C
BTP-5524-L8TD	1.25 Gbps	1550 nm	SM	80 km	SFP	---	LC	-40~85°C
BTPB-3524L-L2TD	1.25 Gbps	1310/1550 nm	SM	20 km	SFP	YES	LC	-40~85°C
BTPB-5324L-L2TD	1.25 Gbps	1550/1310 nm	SM	20 km	SFP	YES	LC	-40~85°C
BTPB-3524S-L2TD	1.25 Gbps	1310/1550 nm	SM	20 km	SFP	YES	SC	-40~85°C
BTPB-5324S-L2TD	1.25 Gbps	1550/1310 nm	SM	20 km	SFP	YES	SC	-40~85°C
BTPB-3524L-L4TD	1.25 Gbps	1310/1550 nm	SM	40 km	SFP	YES	LC	-40~85°C
BTPB-5324L-L4TD	1.25 Gbps	1550/1310 nm	SM	40 km	SFP	YES	LC	-40~85°C

## List of proposed power supplies for BITSTREAM devices

Power Supply Designation	Output voltage range(DC)	Nominal output power	Operating temperatureC-standardT-industrial
ZAS-24-25-W-T	24 V	25 W	-30°C ~ +70°C
ZAS-48-25-W-T	48 V	25 W	-30°C ~ +70°C
ZAS-24-20-R-T	24 V	20 W	-20°C ~ +70°C
ZAS-48V56-40-R-T	48 - 56 V	40 W	-20°C ~ +70°C

Legend of symbols: W - plug-in; S - standalone; R - for DIN rail



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