



Serial port server 2x RS-232/422/485 on Ethernet

- Transmission of two interfaces **RS-232/485/422** via Ethernet using electrical or fiber optic connections
- Baud rate: **115.2 kbps** for RS-485/422 / RS-232
- Screw interface RS232 / 422/485
- Alarm contact **NO / NC**
- **2x RJ45, Ethernet** 10/100/1000 Mbps
- **2x SFP, Ethernet** 100 / 1000Mbps or one module **SC / PC** 100Mb / s
- **Ring <50ms** according to **ERPS ITU-T G.8032**
- Rail mounting **DIN TH35**
- DC power supply in the range of 36÷260V DC and AC power supply in the range of 30÷240V AC

Description of the device

Functionality

The ORION device is a server of two RS-232/485/422 serial ports which converts serial interfaces into Ethernet transmission via fibre optic or electrical RJ45 ports. The fiber optic part is made in two variants, one of which has a built-in fiber optic module with a connector **SC/PC** with a speed of 100Mbps and the other one or two slots for modules **SFP** at 100/1000 Mbps.

An additional functionality of the solution is output **Alarm-relay** providing the service with necessary information about a network failure or damage to the device itself.

The functionality of the ORION device gives a wide range of application not only in typical communication applications but also in the widely developed branch of industrial automation in which direct power supply dominates **230V AC** or **110 / 220V DC**.

Converter ORION is powered by a wide DC voltage range **36-260V DC** and alternating in the range **30-240V AC**.

The device housing allows easy mounting to a standard DIN TH35 rail.

VLAN / QoS

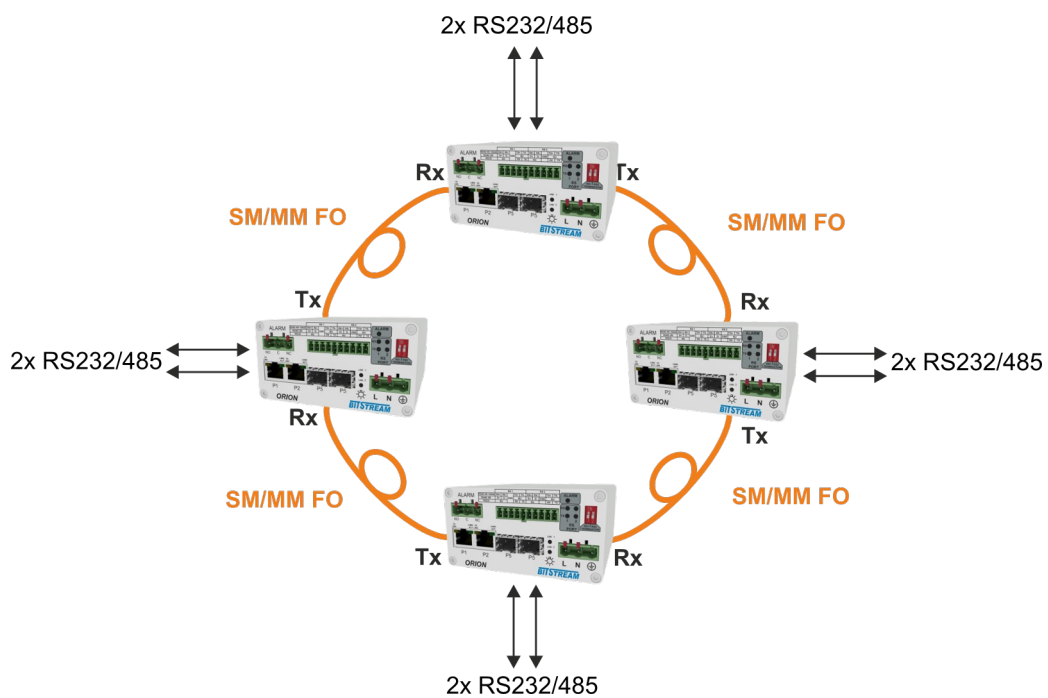
On each port of the switch, whether electrical or fiber optic, it is possible to allocate the available transmission band and set priorities to each user based on the priority of the Ethernet port, tag priority **VLAN**, MAC address or IP header. The available Ethernet data stream transmission channel can be divided into 64 independent transmission channels using virtual VLAN mechanisms (compatible with 802.1Q and **QinQ**) or remain transparent to the device.

Connection redundancy

It is possible to work in ring topology. In the device, each of the Ethernet ports can participate in the creation configuration **ring**. Applications can be created from the simplest to the most complex, built on **Multi-rings**. By connecting the last device with the first, we get the opportunity to communicate with each point by two ways. Failure of one of the network segments does not block access to other devices. Using a ring-handling protocol based on **ERPS ITU-T G.8032** we have a very short connection reconfiguration time below **50 ms**.



Rys. 1. Typical application for devices



Rys. 2. Sample application of work in ring topology

Management

Server embedding **HTTP** and agent **SNMP** allows free configuration of the device parameters via a standard browser **website** and continuous failure monitoring from any management platform equipped with a SNMP protocol. Implemented protocol support **SMTP** is an ideal solution for an

operator who is notified by e-mail in case of a system failure.

For the full functionality of the solution we have the ability to replace software directly by the user, which allows us to improve the usability after installing the device at the customer's.

Technical specifications

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 802.1Q VLAN
- IEEE 802.1ad QinQ
- ITU-T G.8032 Ethernet Ring (ERPS) <50ms

Supported protocols

- SNMP v1, DHCP Client,
- SMTP,
- HTTP, Telnet, Syslog,
- EtherNet/IP, SNMP Inform,
- MIB

Supported EMC standards, recommendations and directives*

- EN 55022: 2010 / AC: 2011 - Electromagnetic Compatibility (EMC) - IT equipment. Characteristics of radioelectric disturbances. Measurement methods and acceptable levels
- PN-EN 55024: 2011 - Electromagnetic Compatibility (EMC) - IT equipment. Resistance characteristics. Acceptable levels and measurement methods
- PN-EN 60950-1: 2007 / A2: 2014-05 - Information technology equipment - Security - Part 1: Basic requirements
- 2014/30 / EU - Electromagnetic Compatibility Directive
- 2014/35 / EU - Low voltage directive
- PN-EN 60825-1: 2014-11 - Safety of laser devices. 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 dc input power port immunity tests

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

RS interfaces

- 2x RS-232C interface compliant with V.28
- 2x RS-422/485 interface compliant with EIA-485 (2W / 4W)
- Speed RS-232 / RS-422/485 to 115.2 kbps
- Screw connection for conductor cross section up to 1.5 mm²

Ethernet optical port

- 2x 100/1000 Mbps SFP or 1 x built-in SC / PC 100Mbps
- Fiber type: 9 / 125um, 50 / 125um, 62.5 / 125um
- Connector: SC / PC or slot for SFP LC / PC modules
- Ranges depending on the type of optical port: 5km MM, 15km SM, 50km SM, 120km SM, 2km MM WDM, 20km WDM, 40km WDM, 60km WDM

Ethernet electrical port

- Transmission rate 2x RJ45 10/100/1000Mbps
- Flow control function
- MDI, MDI-X autocrossover function
- VLAN support, IEEE 802.1QinQ, QoS support
- Signaling of correct connection

Alarm relay

- NO / NC alarm contact with screw connection in the device, with the possibility of switching 250V AC or DC voltage

- Contact current 6A/250V AC, 6A/24V DC, 0.15A/250V DC
- Screw connection for a cable cross section up to 2.5 mm²

Management

- HTTP, SNMPv1, Telnet

Power

- Alternating voltage ranges:
 - 30 ÷ 113V AC
 - 100 ÷ 240V AC
- DC voltage ranges:
 - 36 ÷ 60 DC
 - 40 ÷ 160V DC
 - 120 ÷ 260V DC
- Power consumption: 5 W
- Screw connection for a cable cross section up to 2.5 mm²

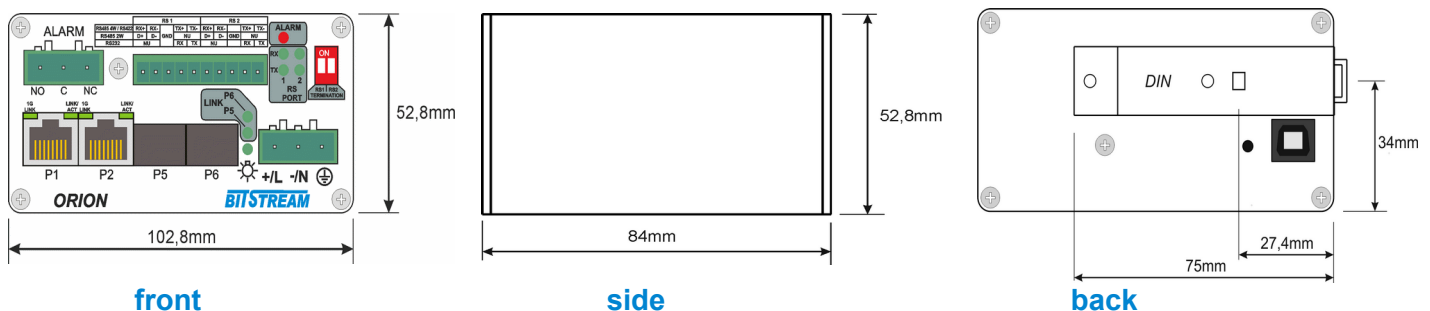
Physical features

- Housing 110x53x104mm
- Can be mounted on a DIN rail
- Weight 0.5 kg

Environmental requirements of work

- Degree of protection in accordance with IP-30
- Standard working temperature: -40 to + 70 ° C
- Standard ambient humidity during operation: 0 to 95% (without condensation),
- Location type: class C according to the standard PN-EN 60870-2-2- sheltered locations

Mechanical drawing



Code

ORION - (S) - (X) - T - (C)

Power

4 - 36-60V DC power supply
 A- 30-113VADC / 40-160V DC
 C - 100-240V AC / 120-260V DC

T - extended temperature range -40 + 70°C
 - standard

Optional box, valid only if selected WDM interface in the preceding box:

1 - port - 1310/1550 nm for version WS/WM/WL
 or 1550/1570 nm for the WLL version
 2 - port - 1550/1310 nm for version WS/WM/WL
 or 1570/1570 nm for the WLL version

Optical interface type:

only a single 100 Mb / s interface built-in with SC / PC connector:

S - 1310 nm SM / MM - range 15/5 km

M - 1310 nm SM - range 50 km

L - 1550 nm SM - 100 km range

WDM interfaces (additional box required for transceiver)

WS - 1310/1550 and 1550/1310 nm SM / MM - range 20/2 km

WM - 1310/1550 and 1550 / 1310nm SM - 40 km range

WL - 1310/1550 and 1550/1310 nm SM - 60 km range

WLL - 1550/1570 and 1570 / 1550nm SM - 100 km range

replaceable:

SFP - version with one SFP connector

SFPx2 - version with two SFP connectors

ATTENTION - the given ranges are approximate depending on the actual fiber parameters

Additional accessories:

- **BTP-8524-S5TD** 1.25G, 850nm, MM, 550m, SFP, LC, -40 ~ 85°C, (100M support)
- **BTP-3124-L2TD** 1.25G, 1310nm, MM / SM, 2 / 20km, SFP, LC, -40 ~ 85°C, (100M support)
- **BTP-3124-L4TD** 1.25G, 1310nm, SM, 40km, SFP, LC, -40 ~ 85°C, (100M support)
- **BTP-5524-L4TD** 1.25G, 1550nm, SM, 40km, SFP, LC, -40 ~ 85°C, (100M support)
- **BTP-5524-L8TD** 1.25G, 1550nm, SM, 80km, SFP, LC, -40 ~ 85°C, (100M support)
- **BTP-5524-12TD** 1.25G, 1550nm, SM, 120km, SFP, LC, -40 ~ 85°C, (100M support)

- **BTP-8503-02TD** 155M, 850nm, MM, 2km, SFP, LC, -40 ~ 85°C
- **BTP-3103-L2TD** 155M, 1310nm, MM / SM, 2 / 20km, SFP, LC, -40 ~ 85°C
- **BTP-3103-L4TD** 155M, 1310nm, SM, 40km, SFP, LC, -40 ~ 85°C
- **BTP-5503-L8TD** 155M, 1310nm, SM, 80km, SFP, LC, -40 ~ 85°C
- **BTP-5503-12TD** 155M, 1310nm, SM, 120km, SFP, LC, -40 ~ 85°C

- **BTE-GB-P1RT** 10/100 / 1000M, 100m (UTP-5), Copper SFP, RJ-45, -40 ~ 85°C
- **BTE-GB-P3RT** 1000M, 100m (UTP-5), Copper SFP, RJ-45, -40 ~ 85°C

- **LT-19-04** 19 "rack mounting bracket for 7x Orion devices (vertical mounting)

List of proposed power supplies for BITSTREAM devices

PSU marking	Output voltage range	nominal output power	Working temperature Standard C-T-Industrial
	DC	IN	
ZAS-WC-48-25	48 V.	25	0 ° C ~ + 50 ° C
ZAS-48V56-40-RT	48 - 56 V.	40	-20 ° C ~ + 70 ° C

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