Fiber optic media converter Ethernet 1000Mb/s or 100Mb/s

ERIS-1000

- Supports RJ45 10/100 Mbps to 100 Mbps SFP 100BaseFX or RJ45 10/100/1000 Mbps to 1000 Mbps SFP 1000Base-SX / LX depending on version.
- Standard built-in overvoltage protection on RJ45 ports, ITU-T K.44 4kV 10 / 700us in version ERIS-100
- Optical interface built on removable SFP modules
- Transparent transfer of VLAN frames
- LED signaling for port and device status
- Optional additional alarm-relay output
- Mounted on DIN TH35 bus
- Optional enhanced temperature range: -40° to 75°C
- PoE technology support, can be powered through RJ45 port
- PoE+ lub PoE++ (option) support up to 60W/port in version ERIS-100
- 12-60V DC power supply
- Optionally power 5V DC via USB

Description of the device

Functionality

ERIS is a fiber optic 10/100/1000 Mbps Ethernet converter, which allows connecting Ethernet networks in point-to-point topology using two converters, or connecting networks using on one side a single converter with 1000BASE-SX/LX interface based on a SFP module, and an electric RJ45 operating at 1000Mbps.

The converter transparently transfers VLAN frames, including double tagging (QinQ). For each unrestricted port, the convener is compatible with network devices of other manufacturers.

The device's SFP slot is compatible with a wide range of optic or electric RJ45 modules provided by the manufacturer, it is also possible to use other SFP transceivers already owned by the user, if compatible with **"SFP Multi Source Agreement"**.

The device may be additionally equipped with an alarm relay output, as well as support for PoE (Power over Ethernet) technology at the electric port RJ45 to allow 25W external power supply in force mode and in the version of the ERIS-100 device up to 60 W. The implemented LFPT (Link Fault Pass-Through) function facilitates line administration by signaling link disruption locally to the other device.

The ERIS-100 model is equipped with built-in overvoltage protection on RJ-45 - ITU K.44, 4kV, 10 / 700us in accordance with the requirements: Resistibility tests for telecommunication equipment exposed to overvoltages and overcurrents - Basic Recommendation

Compatibility with a broad spectrum of supply voltages from 12 to 60 V DC allows the device to be powered directly from the mains. In the case of mains power supply, an external plug-in power unit is available and for the PoE compatible version, voltage above 45V DC must be supplied. The device is also available in a version with 5V DC power supply via USB. The USB slot is used solely for power supply and does not allow data transfer.

Transmission at 10/100/1000Mbps is possible only if two converters are connected in a point-to-point topology (ie Device A - ERIS-1000 - optical fiber - ERIS-1000 - Device B).

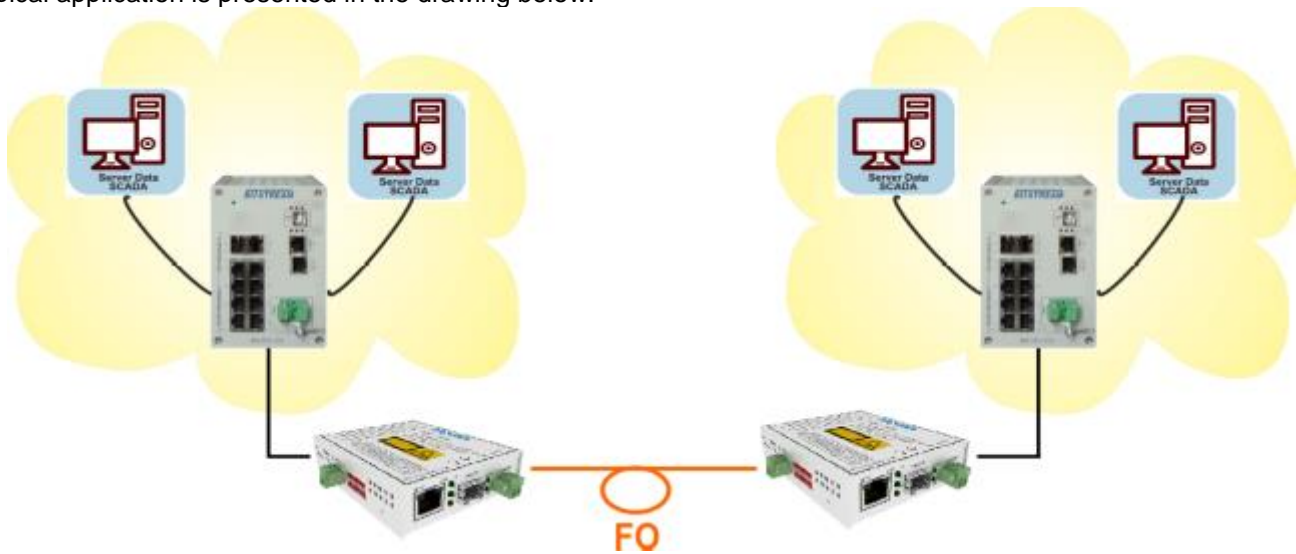A typical application is presented in the drawing below.

Fig. 1. Example application. Ensuring communication between computers for considerable distance. Work in industrial conditions allows you to install equipment on objects subject to difficult working conditions.
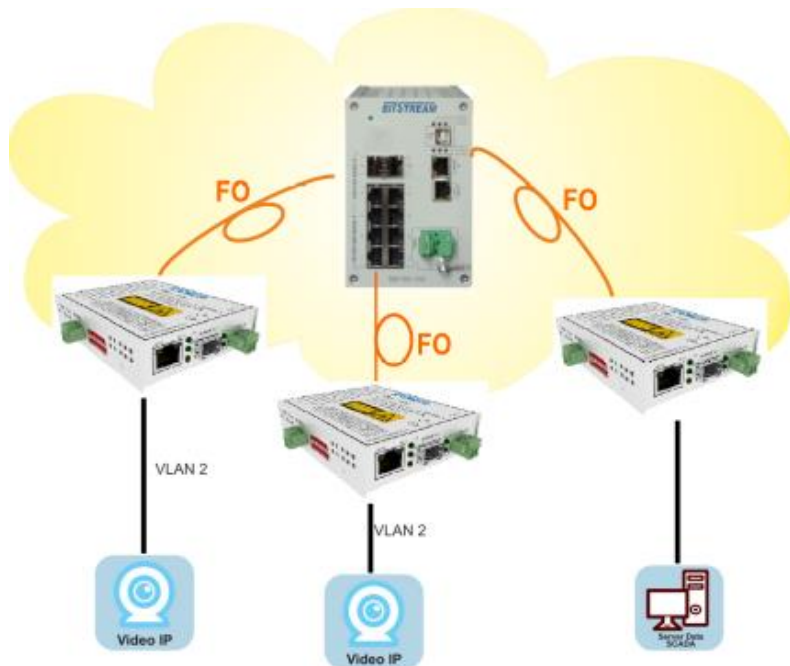

Fig. 2. An example application of the connection between the cameras and the monitoring system. Work in industrial conditions allows you to install equipment on objects subject to difficult working conditions

Technical specifications

Supported transmission standards

- IEEE 802.3 10Base-T Ethernet
- IEEE 802.3u 100Base-TX Fast Ethernet
- IEEE 802.3ab 1000Base-T for versions ERIS-1000
- IEEE 802.3z Gigabit Fiber
- IEEE 802.3af/at typ 1/2 i PoE++ **60W** for versions with PoE++

Supported protocols:

- MDI/MDIX
- Full/half duplex
- LFPT (Link Fault Pass-Through

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Supported standards, recommendations and directives EMC Security*:

- 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
- *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

Optical ports

- 1x 1000Base-SX/LX or 1x 100BaseFX, SFP
- Bit rate 1.25Gbps
- Range depending on the SFP module used
- Signaling of connection correctness
- Error rate $\leq 10^{-11}$

Ethernet ports

- 1x 10/100/1000BaseT or 1x 10/100BaseT(X)*,* RJ-45
- Full/half duplex
- Auto-sense MDI/MDI-X
- MTU up to 16kB
- ESD protection
- In the version of the ERIS-100 device, surge protection on the RJ-45 port was used as standard, ITU-T K.44 4kV 10 / 700us

Power supply PoE-PSE

- Voltage range: 45-57V DC

- Maximum power offered on the RJ45 port - 25W in FORCE mode for ERIS-1000
- Maximum power offered on the RJ45 port - 30W or 60W depending on the options for ERIS-1000

Power supply

- Supply voltage range 6 ÷ 60VDC
- Optionally power 5V DC via USB
- Power Consumption up to 3W
- Connector Type: Screw

Physical features:

- Dimensions 103x26x69mm
- Weight 200g
- Mounting bracket for DIN rail TH 35

Environmental parameters:

- Working temperature: +5° ÷ +40°C
- Working temperature in industrial version: **-40° ÷ +75°C**
- Humidity: $\leq$ 95% at +20°C

Code

ERIS-X-(R)-(T)-(U)-(PoE)

Device version:

100 – media converter 10/100BaseT(X)/100BaseFX

1000* – media converter 10/100/1000BaseT/1000BaseSX/LX

* – Connection over optical fiber with another device enables cooperation with only bit rate 1Gbps RJ45 / 1Gbps SFP

Relay output:

Without symbol - option without relay output

R - with relay output

Working temperature:

Without symbol – range 0° to +50°C

T – range -40° to +75°C

Power supply:

Without symbol – 6 ÷ 60V DC for PoE÷PoE++ power required 45-57V DC

       PoE+ (do 30W) 52-57V

       PoE++ (do 60W) 55-57V

USB – 5V DC, USB connector

PoE:

Without symbol - version without PoE

PoE[1] - version with 1x RJ45 PoE PSE up to 25W in force mode

PoEP[1,2] – version with 1x RJ45 PoE+ up to 30W

PoE2P[1,2] – version with 1x RJ45 PoE++ up to 60W

[1] – Not available for **USB** power

[2] – Not available for **ERIS-1000** device

Examples of code:

ERIS-100-R-T — ERIS media converter with 1x (100M) FO (SFP); 1x RJ45 (10/100M); standard built-in overvoltage protection on RJ45 ports, ITU-T K.44 4kV 10 / 700us, relay output, working temperature -40° to +75°C; power supply 6-60V DC

ERIS-100-R-T- PoE2P — ERIS media converter with 1x (100M) FO (SFP); 1x RJ45 (10/100M); standard built-in overvoltage protection on RJ45 ports, ITU-T K.44 4kV 10 / 700us, relay output, working temperature -40° to +75°C; power supply 6-60V DC (for PoE 55-57V DC), 1x PoE++ max. 60W per port

ERIS-1000-R-PoE — ERIS media converter with 1x (1000M) FO (SFP); 1x RJ45 (10/100/1000M); relay output, working temperature 0 to +50°C, power supply 6-60VDC (for PoE 55-57V DC), 1x RJ45 with PoE max. 15W per port

Additional accessories for version ERIS-1000:

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

- **BTPB-3524L-L2TD** 1.25G, 1310/1550nm, SM, 20km, SFP, WDM, LC, -40~85°C
- **BTPB-5324L-L2TD** 1.25G, 1550/1310nm, SM, 20km, SFP, WDM, LC, -40~85°C
- **BTPB-3524S-L2TD** 1.25G, 1310/1550nm, SM, 20km, SFP, WDM, SC, -40~85°C
- **BTPB-5324S-L2TD** 1.25G, 1550/1310nm, SM, 20km, SFP, WDM, SC, -40~85°C
- **BTPB-3524L-L4TD** 1.25G, 1310/1550nm, SM, 40km, SFP, WDM, LC, -40~85°C
- **BTPB-5324L-L4TD** 1.25G, 1550/1310nm, SM, 40km, SFP, WDM, LC, -40~85°C
- **BTPB-3524S-L4TD** 1.25G, 1310/1550nm, SM, 40km, SFP, WDM, SC, -40~85°C
- **BTPB-5324S-L4TD** 1.25G, 1550/1310nm, SM, 40km, SFP, WDM, SC, -40~85°C

- **BTP-8524-S5CD** 1.25G, 850nm, MM, 550m, SFP, LC, 0~70°C
- **BTP-3124-L2CD** 1.25G, 1310nm, MM/SM, 2/20km, SFP, LC, 0~70°C
- **BTP-3124-L4CD** 1.25G, 1310nm, SM, 40km, SFP, LC, 0~70°C
- **BTP-5524-L4CD** 1.25G, 1550nm, SM, 40km, SFP, LC, 0~70°C
- **BTP-5524-L8CD** 1.25G, 1550nm, SM, 80km, SFP, LC, 0~70°C
- **BTP-5524-12CD** 1.25G, 1550nm, SM, 120km, SFP, LC, 0~70°C

- **BTPB-3524L-L2CD** 1.25G, 1310/1550nm, SM, 20km, SFP, WDM, LC, 0~70°C
- **BTPB-5324L-L2CD** 1.25G, 1550/1310nm, SM, 20km, SFP, WDM, LC, 0~70°C
- **BTPB-3524S-L2CD** 1.25G, 1310/1550nm, SM, 20km, SFP, WDM, SC, 0~70°C
- **BTPB-5324S-L2CD** 1.25G, 1550/1310nm, SM, 20km, SFP, WDM, SC, 0~70°C
- **BTPB-3524L-L4CD** 1.25G, 1310/1550nm, SM, 40km, SFP, WDM, LC, 0~70°C
- **BTPB-5324L-L4CD** 1.25G, 1550/1310nm, SM, 40km, SFP, WDM, LC, 0~70°C
- **BTPB-3524S-L4CD** 1.25G, 1310/1550nm, SM, 40km, SFP, WDM, SC, 0~70°C,
- **BTPB-5324S-L4CD** 1.25G, 1550/1310nm, SM, 40km, SFP, WDM, SC, 0~70°C

- **ZAS-ANYMUX-01** External Power supply 230V AC(DC) / 48V DC 0,5A, 0+50°C
- **ZAS-ANYMUX-03** External Power supply 230VAC, 220VDC / 48VDC, 30W, -20+70°C, 1x PoE, DIN rail mounting

- **LT-19-TS-35-01** DIN 19" rails for rack mounting, dimensions: 19" x 1U x 110mm (depth), weight: 0.6kg. Possibility of installation: up to 12 ERIS devices.

Additional accessories for version ERIS-100:

- **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

- **BTPB-3503L-L2TD** 155M, 1310/1550nm, SM, 20km, SFP, WDM, LC, -40~85°C
- **BTPB-5303L-L2TD** 155M, 1550/1310nm, SM, 20km, SFP, WDM, LC, -40~85°C
- **BTPB-3503S-L2TD** 155M, 1310/1550nm, SM, 20km, SFP, WDM, SC, -40~85°C
- **BTPB-5303S-L2TD** 155M, 1550/1310nm, SM, 20km, SFP, WDM, SC, -40~85°C
- **BTPB-3503L-L4TD** 155M, 1310/1550nm, SM, 40km, SFP, WDM, LC, -40~85°C
- **BTPB-5303L-L4TD** 155M, 1550/1310nm, SM, 40km, SFP, WDM, LC, -40~85°C
- **BTPB-3503S-L4TD** 155M, 1310/1550nm, SM, 40km, SFP, WDM, SC, -40~85°C
- **BTPB-5303S-L4TD** 155M, 1550/1310nm, SM, 40km, SFP, WDM, SC, -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

- **BTP-8503-02CD** 155M, 850nm, MM, 2km, SFP, LC, 0~70°C
- **BTP-3103-L2CD** 155M, 1310nm, MM/SM, 2/20km, SFP, LC, 0~70°C
- **BTP-3103-L4CD** 155M, 1310nm, SM, 40km, SFP, LC, 0~70°C
- **BTP-5503-L8CD** 155M, 1310nm, SM, 80km, SFP, LC, 0~70°C
- **BTP-5503-12CD** 155M, 1310nm, SM, 120km, SFP, LC, 0~70°C

- **BTPB-3503L-L2CD** 155M, 1310/1550nm, SM, 20km, SFP, WDM, LC, 0~70°C
- **BTPB-5303L-L2CD** 155M, 1550/1310nm, SM, 20km, SFP, WDM, LC, 0~70°C
- **BTPB-3503S-L2CD** 155M, 1310/1550nm, SM, 20km, SFP, WDM, SC, -0~70°C
- **BTPB-5303S-L2CD** 155M, 1550/1310nm, SM, 20km, SFP, WDM, SC, 0~70°C
- **BTPB-3503L-L4CD** 155M, 1310/1550nm, SM, 40km, SFP, WDM, LC, 0~70°C
- **BTPB-5303L-L4CD** 155M, 1550/1310nm, SM, 40km, SFP, WDM, LC, 0~70°C
- **BTPB-3503S-L4CD** 155M, 1310/1550nm, SM, 40km, SFP, WDM, SC, 0~70°C
- **BTPB-5303S-L4CD** 155M, 1550/1310nm, SM, 40km, SFP, WDM, SC, 0~70°C

- **BTE-GB-P1RC** 10/100/1000M, 100m(UTP-5), Copper SFP, RJ-45, 0~70°C
- **BTE-GB-P3RC** 1000M, 100m(UTP-5), Copper SFP, RJ-45, 0~70°C

- **ZAS-ANYMUX-01** External Power supply 230V AC(DC) / 48V DC 0,5A, 0+50°C
- **ZAS-ANYMUX-03** External Power supply 230VAC, 220VDC / 48VDC, 30W, -20+70°C,1x PoE, DIN rail mounting
- **ZAS-ANYMUX-11** Power supply 90-264VAC, 120-370VDC / 47-56VDC, 240W for -40+60C, 180W for +60+70C, 11x PoE, 5xPoE+, 1x PoE++, DIN rail mounting, 1.5kg.; 83*142*111.3mm (WxSxG)

- **LT-19-TS-35-01** DIN 19" rails for rack mounting, dimensions: 19" x 1U x 110mm (depth), weight: 0.6kg. Possibility of installation: up to 12 ERIS devices.