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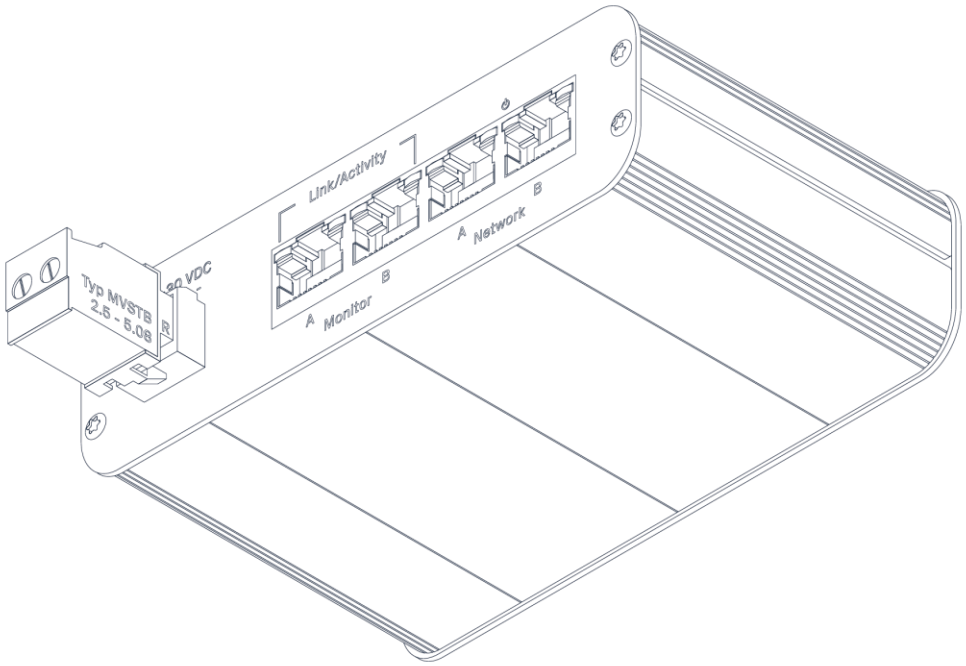

EtherMIRROR 10/100 & 1G

User manual V2.0.1

Important information

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Product Description

The EtherMIRROR avoids downtime in your 10/100/1000BaseT networks. Once in place it enables you to monitor full and half duplex communication and move test equipment without interrupting the Ethernet communication. It mirrors any packet size, bad CRC, VLAN traffic, and sees both ends of full-duplex links. So it does not filter, change or discard any message.

The “no packet loss” feature makes it ideal for industrial communication applications. The EtherMIRROR is transparent to the network. It is fault tolerant, bypasses data on power failure, and the monitor (TAP) ports are non-intrusive to the network.

Functional description

1.1 Interface connectors

The EtherMIRROR has four RJ45 ports, divided in ‘Network’ and ‘Monitor’ ports.

Network port A and B are hardwired together, and are used to connect to the network. One port must be directly connected to the device you wish to monitor (e.g. a controller or PLC), and the other must be connected to the first switch. When no power is applied to the EtherMIRROR, there is still a connection between the two network ports. For the 1G version however, applying or removing power will disrupt communication for about 1 second.

Monitor port A and B are not hardwired together, and cannot be used as switch ports. They only re-transmit the incoming data of their respective ‘Network’ port. These two ‘Monitor’ ports must be connected to the two EtherTAP ports. Figure 1 shows the internal connections, and Figure 2 displays how the EtherMIRROR connects to the EtherTAP.

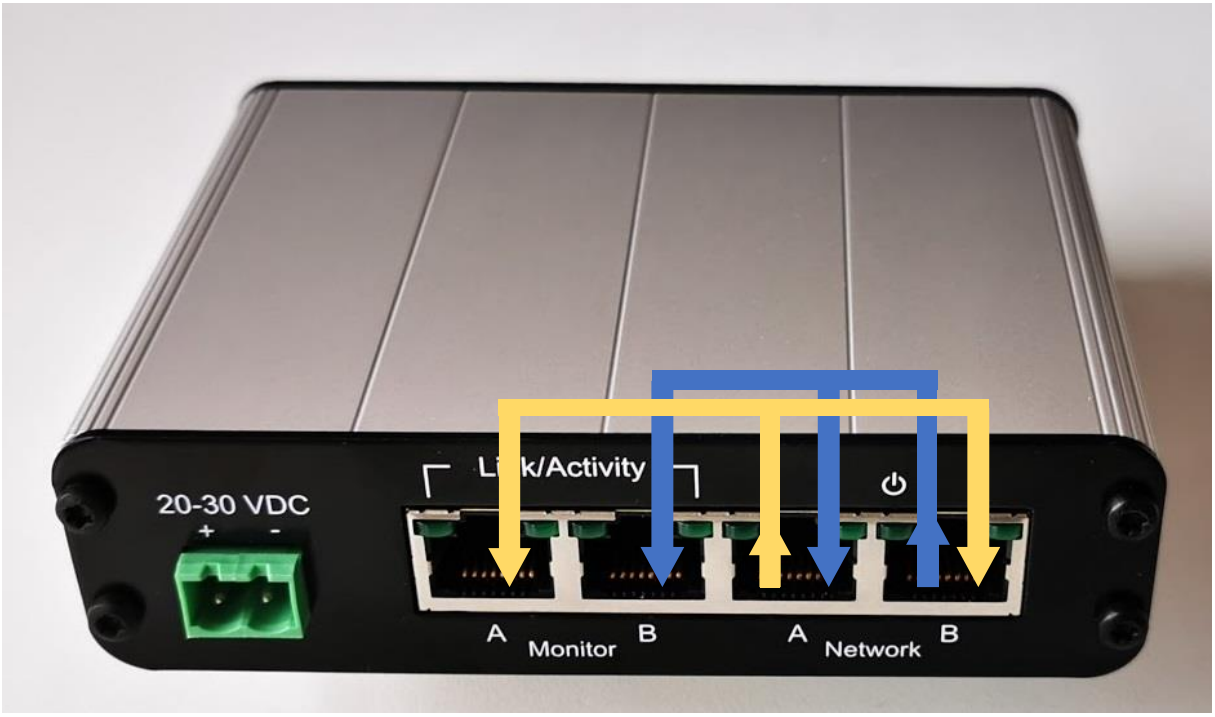

Figure 1 - Internal connections

Note that the ‘Monitor’ ports only have an outgoing direction, meaning that you cannot send anything on these ports, they are only used for receiving.

1.2 Power

1.2.1 EtherMIRROR 10-100

The EtherMIRROR 10-100 is powered from the front, using the 2-pin green screw terminal block.
The uninterrupted link in the Network connections guarantees permanent network connectivity, also when power fails. However, no data is passed to the Monitor ports when the EtherMIRROR is not powered .

1.2.2 EtherMIRROR 1G

The EtherMIRROR 1G has two power inputs on the front. Only one is required, the other input serves as a redundant input and is optional.

The Network connection is permanent until the point when both power inputs fail. In that case there will be a short communication interruption of about 1 second. After that, communication is restored automatically. When only one power input fails and the other input is still active, the communication stays intact.

No data is passed to the Monitor ports when the EtherMIRROR is not powered.

1.3 LEDs

1.3.1 Power LED

10-100 version: If power is correctly applied, a green LED will illuminate above Network port B (the Power icon is indicated above it on the housing).
1G version: If power is correctly applied, a green LED will illuminate above Monitor port A and B (the Power icon is indicated above it on the housing). Both power inputs have their own numbered Power LED.

1.3.2 Network speed LEDs

Both versions have a network speed indicator. If a connection is active, the LEDs above the Network ports A and B indicate if it is a 10 Mbit (right LED of Network port B), a 100 Mbit (left LED of Network port A) or 1G-connection (both LEDs). If only one of the two Network ports is connected, the LEDS blink at 0.5 Hz to indicate that there is no connection.

1.3.3 Link and Activity LEDs

The Monitor ports have one LED each (marked on the housing) to indicate Activity and Link. Activity LED A lights up when a signal is received at port A, LED B for a signal received at port B. When there is no connection on both ports, the Activity LEDs stay off.

1.4 Installation

Install the EtherMIRROR between the PLC and the first switch in the network using Cat5 or better cable. Use the two right connections, marked as ‘Network A and B’.

Connect an EtherTAP on the two left connections marked ‘Monitor A and B’. See Figure 2.

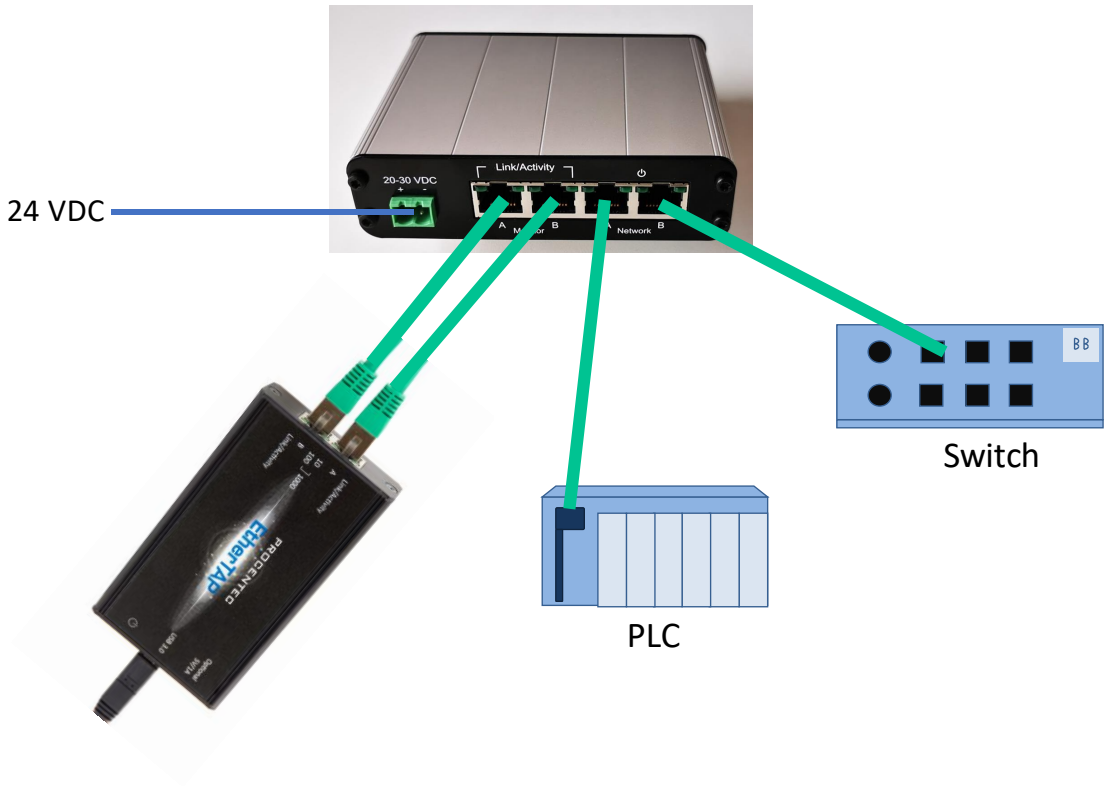

Figure 2 - Connecting the EtherTAP to the EtherMIRROR

1.5 Additional notes for EtherMIRROR 1G

If you want to monitor 1 Gbit networks, it is required to use 8-wire Cat5E Ethernet cable. 4-wire cable will not build a 1 Gbit connection. Also, an EtherTAP 1G is required.

10 or 100 Mbit connections can be monitored with 4-wire cables by the 1G version without any problem.

Technical Data EtherMIRROR 10/100 and 1G

Technical Data	EtherMIRROR 10-100	EtherMIRROR 1G
Dimensions and weight		
Dimensions L x H x D (mm)	113 x 30 x 88 mm, excluding connectors	113 x 30 x 133 mm, excluding connectors
Weight	210 gr	326 gr
Mounting	35mm DIN rail	35mm DIN rail
Ambient conditions		
Operating temperature	0°C to +70°C	0°C to +70°C
Storage temperature	-40°C to +120°C	-40°C to +120°C
Humidity	10% to 95%, non-condensing	10% to 95%, non-condensing
Isolation class	IP20	IP20
Protocol specifications		
Supported Protocols	All Ethernet protocols, all 7 OSI layers. Data is mirrored 1-on-1.	All Ethernet protocols, all 7 OSI layers. Data is mirrored 1-on-1.
Transmission speeds	10 and 100 Mbit/s	10, 100 and 1000 Mbit/s
Data delay time	< 1 ns	< 1 ns
Connections	4x RJ45, 8-pin (4 pins required: 1, 2, 3 and 6)	4x RJ45, 8-pin (all pins required for 1Gbit)
Power supply specifications	20 – 30 VDC, stabilized	2x 20 – 30 VDC, stabilized
Power supply voltage	50 mA @ 24 VDC	90 mA @ 24 VDC
Current consumption	< 2.5 mm^2	< 2.5 mm^2
Wire diameter		