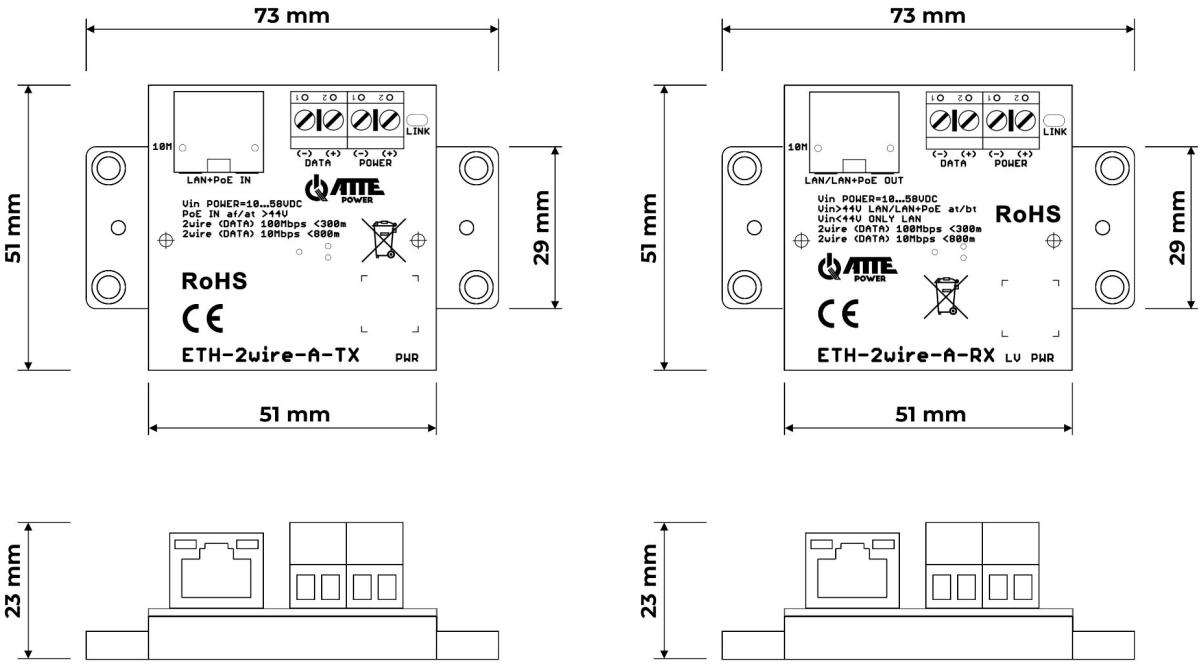
ETH-2wire-A-SET
Set of active converters for Ethernet and PoE transmission over 2-wires 10/100Mbps range up to 800m

INSTRUCTION MANUAL

ETH-2wire-A-SET is a set of active converters for the transmission of Ethernet data and PoE power using 2 wires, e.g. one pair of twisted-pair UTP cable. The devices allow the installation of cameras or other IP PoE devices in places where the replacement of the existing cabling is impossible or uneconomical. The ETH-2wire-A-TX module is powered from any PoE switch (RJ45 port) and then, via 2 wires, enables bidirectional network communication and power supply to the ETH-2wire-A-RX module. The maximum cable length in the 2wire path is 800m. A camera or other PoE receiver can be connected to the RJ45 port of the ETH-2wire-A-RX module at the end of the line. Devices can optionally be powered from POWER screw connectors.

The unit has a very small size, which allows it to be easily integrated into small spaces.



General view of the device

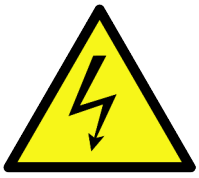
Technical Specification

LAN Ports	1 RJ45 100Mbps port
Connectors	RJ-45 Screw terminals 0.32-3.3 mm2 (22-12 AWG)
Ports Functions	ETH-2wire-A-TX: PoE IN (power supply from PoE line): PASSIVE (up to 30W), 802.3at (up to 30W), 802.3af (up to 15W) PoE PINS: 1,2 (V+/-) 3,6 (V+/-) and/or 4,5 (V+/-) 7,8 (V+/-) POWER: alternative power supply when there is no PoE DATA (2wire line): data and power transmission over 2 wires ETH-2wire-A-RX: PoE OUT (to PoE powered devices) 802.3 af/at/bt PoE pins: 1,2 (V-) 3,6 (V+) 4,5 (V+) 7,8 (V-) POWER: alternative power supply DATA (2wire line): transmission of data and power over 2 wires Screw connectors - alternative power supply for the set when there is no PoE 10-58VDC power supply (for powering PoE receivers Vin>44V DC) possible from both the transmitter and receiver sides
Indication	LED PWR – power presence LED RJ45 port (yellow) - presence of PoE LED RJ45 port (green) - link and data transmission in LAN LED LINK (green) - link and data transmission in 2WIRE channel LED 10Mb - LAN transmission in 2WIRE track at 10Mbps LED LV LowVoltage signaling LED (<44V)
Power Supply Voltage	ETH-2wire-A-TX Vin PoE = 24 ... 56 VDC Vin POWER = 12 ... 56 VDC ETH-2wire-A-RX Vin = 12 ... 56 VDC
Output Voltage	ETH-2wire-A-TX VoutDATA = Vin ETH-2wire-A-RX (for PoE devices) Vout = Vin (44 ... 56 VDC)
Power consumption	1,35 W (full channel)
Maximum distance 2-WIRE	Maximum distance ETH-2wire-A-TX to ETH-2wire-A-RX (only DATA connectors): < 800m - 2 single twisted wires e.g. 1 twisted pair UTP
Length of the network cable	< 100m – distance from SWITCH PoE to ETH-2wire-A-TX < 100m - distance from ETH-2wire-A-RX to PoE Receiver/Camera
Ports Protection	LAN and DATA ports: Overvoltage protection POWER ports: Reverse polarity protection PoE IN ETH-2wire-A-TX port: 0.6A overload protection
Housing Construction	Universal mounting base, mounting studs, TH35 rail with additional bracket, can be screwed to a flat surface
Ingress Protection Rating	IP20
Operating Temperature	-25°C...+65°C
Dimensions	ETH-2wire-A-TX - 51 x 51(73) x 23mm ETH-2wire-A-RX - 51 x 51(73) x 23mm
Weight	ETH-2wire-A-TX - 0,028 kg ETH-2wire-A-RX - 0,028kg

Safety Precautions

- The installation and wiring must be performed by a competent engineer. For permanently connected equipment, a readily accessible disconnect device must be incorporated in the fixed wiring. The device must be connected to the mains supply 230 VAC 50 Hz via a specified fused connection outlet.
- Despite the fact that the enclosure of the device has a high degree of protection, it is recommended that the device should be mounted in places protected from direct influence of atmospheric factors, in particular against rain and direct sunlight.
- Since the power supply does not have a switch to isolate the mains supply, the installer is responsible for notifying the user of the means of isolating the mains supply from the device.
- When replacing fuses, use original or compatible types. The exact parameters of the fuses can be found on the inside of the device cover.

WARNING



Before installation and during maintenance make sure that the mains voltage 230VAC is disconnected

Installation

1. The devices should be installed in a place or in an enclosure that provides a protection against moisture and dust, appropriate for the IP20 class.
2. To the DATA screw connectors connect the transmission wires of the 2wire track, keeping the appropriate polarity at the beginning and at the end of the line.
   - 2wire transmission range will depend on the type of cables used. The potentially best parameters and transmission range can be obtained by using 2 single, twisted cables, e.g. one pair of UTP twisted pair. An additional factor that may adversely affect the operating parameters of the devices will be electromagnetic disturbances affecting transmission cables.
3. Connect the power line from the PoE switch to the **LAN + PoE IN** port of the **ETH-2wire-A-TX** module
   - alternatively, the power supply can be realized via the **POWER** screw connector, e.g. in the case where the switch does not support PoE
   - the power supplied on the ETH-2wire-A-TX module is transmitted via the 2wire (DATA) to the ETH-2wire-A-RX module
   - optionally, the PoE voltage applied to the LAN + PoE IN port is also available on the POWER connector. We recommend using this voltage only when powering the ETH-2wire-A-TX module from the PoE PASSIVE switch

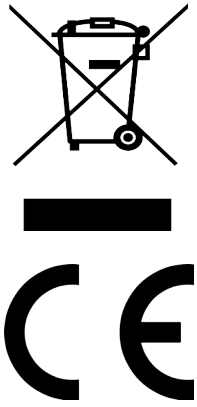
4. The presence of power to the modules at the beginning and end of the line is indicated by the **PWR LED.**
5. The status of the link in the 2wire (DATA) circuit is indicated by green LEDs at the screw connections (LED LINK)
   - Green LED ON - correct communication setup between TX / RX
   - Green LED fast blinking - data transmission (after connecting network devices)
6. Connect the selected network device to the **LAN + PoE OUT** port of the **ETH-2wire-A-RX** module.
7. The link status in the ETHERNET track is indicated by LEDs in the RJ45 connector:
   - LED RJ45 port (yellow) - presence of PoE
   - LED RJ45 port (green) - link and data transmission in LAN track
8. Status of the 2WIRE track link
   - LED LINK (green) - link and data transmission in 2wire track

Operation Indication

- LED PWR - voltage presence
- LED RJ45 port (yellow) - presence of PoE
- LED RJ45 port (green) - link and data transmission in LAN track
- LED LINK (green) - link and data transmission in 2wire track
- LED 10Mb - LAN transmission in 2WIRE track at 10Mbps
- LED LV LowVoltage signaling LED (<44V)

The LV LED latches and indicates that the voltage on the ETH-2WIRE-A-RX receiver has fallen below 44V DC. It can be reset by removing and re-applying power. Its lighting signals the need to verify that the power supply to the set is correct. A voltage drop below 44V DC may be a source of unstable operation or will prevent PoE receivers connected to the ETH-2WIRE-A-RX from starting up after restart.

WEEE MARKING



This symbol on the product or on its packaging indicates that the product must not be disposed of with normal household waste. Instead such equipment must be disposed of by arranging to return it to a designated collection point for the recycling of waste electrical and electronic equipment.