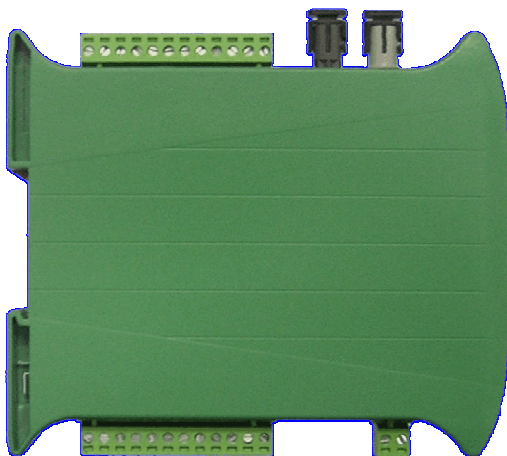


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**Binary signal transmission adapter
over the multimode fiber optic**



**ELO E203, E204,
E205, E206, E207
User manual**

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1.0 Introduction

Data transmission over the fiber optic is suitable in such applications, where noise induction in metal conductors can interfere with transferred data or even destroy devices. It may be also appropriate to connect devices with high voltage potential over the fiber optic link.

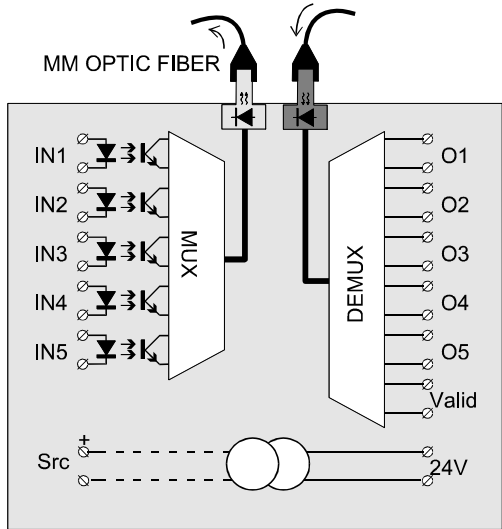
1.1 Application

Following text describes adapter family for binary states transmission over a fiber optics. Binary data signalling is still concern of the fire protection and security field. It is usable in automation application too. Adapter can be used for fault signalization, fiber optic line breakdown detection, to blackout or brownout of the remote station indication.

Inputs are galvanically decoupled. They are fitted with input current limitation to 6 mA. Outputs can be optionally fitted with classic relay (60V AC/DC, 5A) or with SSR (Solid State Relay, MOSFET technology, 0.5A, 48V DC / 24V AC).

2.0 How does it works?

Picture 2 shows logical schema of the bidirectional adapter. State of every input IN1 .. IN5 is periodically sampled, coded and transmitted from input unit over the optical link. Receiver unit decodes received packets and sets outputs O1 .. O5. Furthermore it indicate validity of the received data by „ON“ state on the „Valid“ output as an unit is checking transferred data. If there is any packet error detected, the „Valid“ output switches off, whereas data outputs stay in last good known conditions. If the error lasts for a few seconds, all outputs are subsequently switched off. Input & output states are indicated on the front panel altogether with processor status and eventually transmission error.



Picture 2. Logical schema

3.0 Installation

Adapter is intended for DIN rail installation. During that process, an optical link, inputs and/or outputs connector and power supply sitting must be considered.

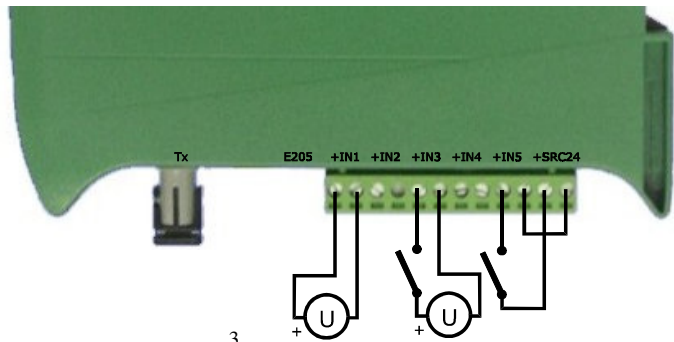
3.1 Optical link connection

For optical link can be used one or two fibres 50/125µm, eventually 62,5/125µm with ST connector. The link length can be up to 2 km, attenuation may not exceed 7,5 dB (for 50/125µm fibre) and 11 dB (for 62,5/125µm optics) respective.

For bidirectional data transfer are designed E203 and E207 models and requires one pair of fibres - one fibre per one direction. Other models requires one fibre only. Just keep in mind, fibre from transmitter must be connected to the receiver’s input.

3.2 Binary input wiring

Picture 3. Input wiring



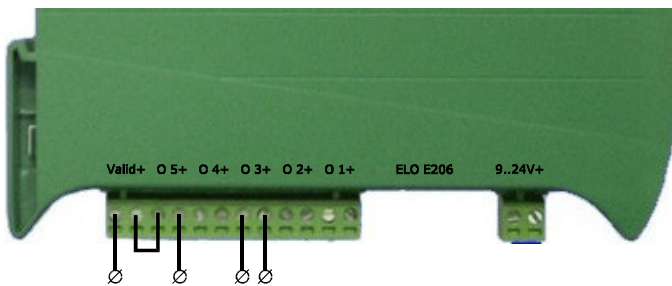
The IN1 to IN5 inputs are isolated to the each other. Their states are given by DC voltage levels (see **Pic.3**, IN1): if voltage is less then 3V, input is read as log.0, if it is greater than 4.5V, it is read as log.1. The voltage range 3V to 4.5V has no determined interpretation and gives a noise immunity to the system.

A contact connection (e.g. relay contact) with external voltage supply can be seen on the input IN3. Input current will not exceed 6 mA.

The ELO E205 a ELO E207 models are equipped with galvanically isolated Power supply 24 V/ 40 mA, located on SRC24 terminals, so there can be connected contact without potential. This case is shown at IN5 port Pic.3.

Sampled states are periodically sent to the optics link. There is also an indication on the front panel.

3.3 Binary outputs wiring



Picture 4. Output wiring

The receiver unit receives the data stream from optics, decode and presents states on outputs O1 .. O5. Moreover, output states are validated - correctness of the data are indicated by „ON“ state on the output „Valid“ (see **Pic. 4**).

If an input data error is detected, outputs are latched, signalling last error-free states. If the transmission error lasts several seconds, all of the outputs are set to „OFF“ state (straight connection, see O3 on the Pic. 4). If it is necessary to respond immediately, the „Valid“ output can be used as it is shown on O5 output.

Actual state is indicated on the front panel – lamps Rx OK a Rx Err).

Outputs are commonly equipped with SSR - Solid State Relay, based on MOSFET technology; switched current is up to 0.5A, voltages are 48V DC / 24V AC.

Optionally, they can be fitted with classic relay with maximal switched voltage 60V AC/DC, current 5A.

Third configuration (on the special request only) is outputs with open collector, for load max. 100mA @ 24 V, DC.

3.4 Power supply

Nominal supply voltage should be in range 9 – 24 V DC, limiting values are 7 – 30 V DC. Current drawn from supply unit depends on voltage and output loads, it is typically 150mA@24V, max. 400mA. If the supply is properly installed, there should be RUN indicator blinking after a power-up.

4.0 Technical specification

4.1 Parameters

	Min	Typ	Max
Power supply [V]	7	9 .. 24	30
Supply current @ 24V [mA]		150	
Number of chanel	5		
Optical link	Multimode, 820 nm		
Optical range		2 km	
Optical cable	ST connector, 50/125 nebo 62,5/125 um		
Metalic connector	screwing terminal		
Inputs:	Isolated		
Vstupní úrovně - log.0 [V]	0		3
log.1 [V]	4,5		24
Leakage current [mA]		6	
Refresh rate [msec.]		2,5	
Outputs:	Semiconductor relay		
Current [A]		0,5	0,6
Voltage AC/DC [V]		24/48	
Storage temperature [°C]:	-10		+50
Operating temperature [°C]:	+5	0	+50
Weight [g]		140	
Dimensions (WxLxH) [mm]	22,5 x 108 x 120		

5.0 Ordering information

Order code:

ELO E203 – Bidirectional (5 binary inputs and 5 binary outputs)

ELO E207 – Bidirectional + internal isolated source 24V / 40 mA

ELO E204 – Transmitter 5 binary inputs

ELO E205 – (5 binary inputs + internal isolated source zdroj 24V / 40 mA

ELO E206 – Receiver 5 binary outputs

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