

## RS-485 Interface Repeater

# ELO E123 for Profibus



### Characteristics

- Protocol independent**
- Minimum data delay**
- Minimum delay of transmitter control**
- Signal regeneration**
- Interfaces and supply isolated**
- Supply 9-24 V DC**

### Introduction

The RS-485 interface is a standard in automation. Its main advantage is its immunity to the electromagnetic interference and more devices' connection via the bus.

### Use of the repeater

The RS-485 interface enables up to 32 partners' communication connected via the twisted pair up to 1200m long. The data rates are adapted to PROFIBUS systems. For example to the electronic fire alarm system FS20. The repeater enables to prolong the communication line and to increase the partners' number. The repeater is mainly suitable:

- 1) if the line is necessary to be prolonged – each repeater allows the extension by 1200m,
- 2) if the partners' number is necessary to increase – each repeater allows 30 more partners' connection
- 3) if the rate is necessary to increase via the existing line division into several shorter sections
- 4) if a part of the line is necessary to be isolated.

The repeater ELO E123 solves these problems.

ELO E123 is protocol independent. Due to very small data delay and a signal correction it is able to use up to five repeaters in one bus.

### Operation principles

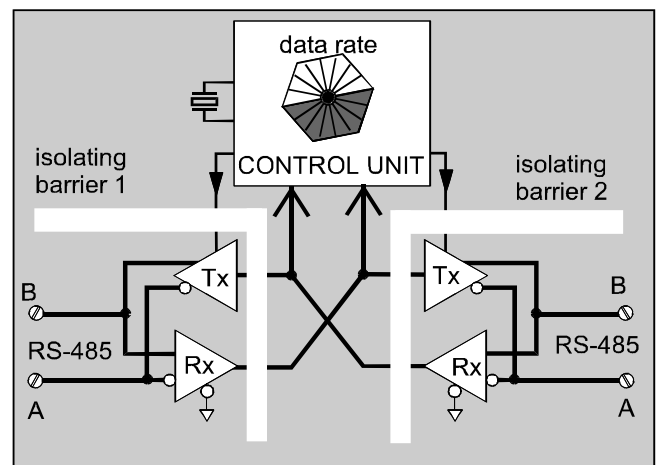
ELO E123 converts the signal received from one RS-485 link section to the other RS-485 link section and the same contrariwise.

Except the signals conversion, the repeater also solves the half-duplex operation problem on the RS-485 link, which means the RS-485 transmitter has to be switched on only during its own transmitting and at the rest of time switched off to enable other partners to communicate.

The transmitter is switched on at the moment of the data detection in the other arm.

**The E123 model delays the received data by the interval that equals to 0.5 bit transmission.** The switching speed is sufficient to use the converter in the data transmission network organized as MASTER-SLAVE and MULTI MASTER. The repeater also corrects bits width distortion which could occur during transmission.

### Block diagram



### Specification

#### Parameters

Transmitted signals	differential signal AB
Type and connection of RS-485 connectors	clamps
Isolation	RS-485 galvanic isolation from GND 3 kV/1 sec supply
Transmission mode	asynchronous, half-duplex
Transmission delay	0.5 bit
Signal regeneration	bits width and edge correction
Supported data rates	31.25, 62.5, 93.75, 125.0, 187.5, 312.5, 625.0 a 937.5 kbps

Supply

external ss supply 9-24V/200mA

#### Other

Dimension: Length x Width x Height	100 x 56 x 19 mm
Mounting	DIN clip
Stocking temperature	- 10° to +55° C
Working temperature	+ 0° to +50° C
Humidity	0 – 85% (non-condensing)