Smart Repeater
RPTS-TP/FT10x2
RPTS-TP/FT10x3

Data Sheet

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GmbH Dresden

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We are grateful to you for criticism and suggestions. Further information (device description, available software) can be found on our homepage www.sysmik.de. Please ask for latest information.

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Overview

The Smart Repeater is a physical 2-way (RPTS-TP/FT10x2) or 3-way repeater (RPTS-TP/FT10x3).

It is used to connect two or three segments of a LonWorks TP/FT-10 network. The Smart Repeater can split channels containing too many nodes or exceeding the maximum node limit into smaller network segments, which then conform to the standards.

The Smart Repeater is compatible with LPT-10 link power transceiver technology, and may be used in LPT-10 networks, too.

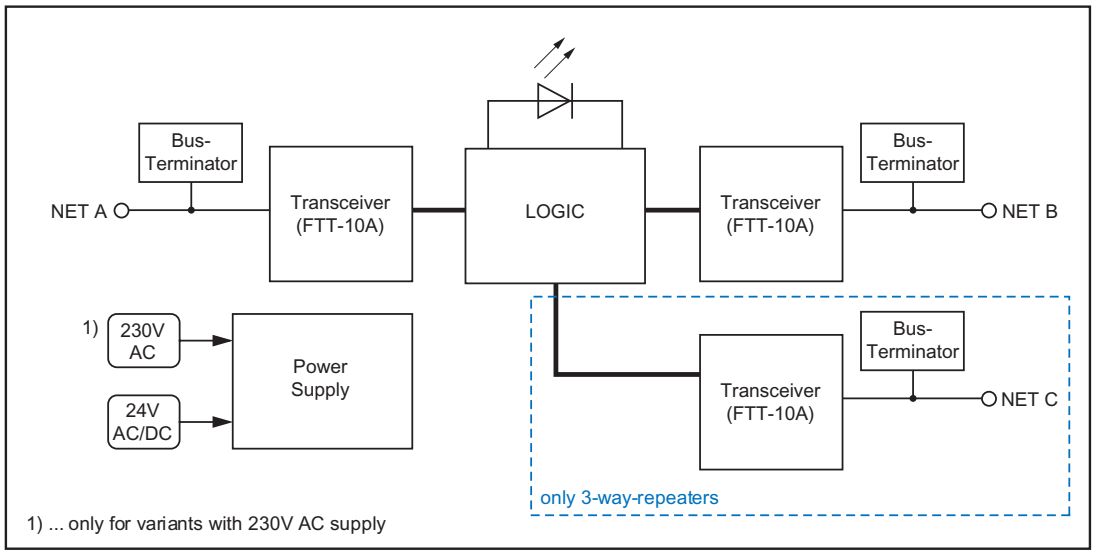


Fig. 1: Block diagram

The repeater is available for 230V AC and 24V AC/DC power supply (115V version upon request). A special feature is its wide supply voltage range. The 230V variant can alternatively be supplied with 24V AC/DC.

A dual colored LED signals power on and data transmission. The Smart Repeater has a configurable internal network termination for each network segment.

Terminals

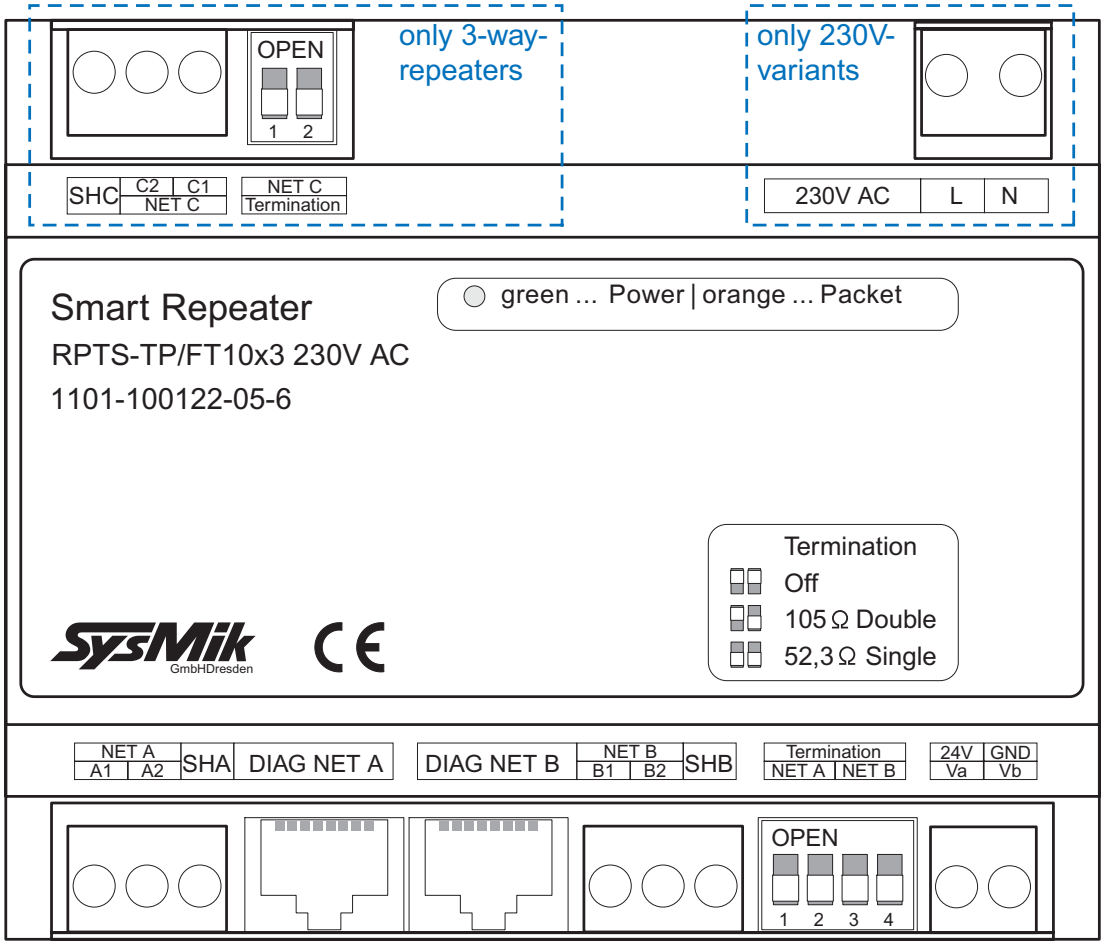


Fig. 2: Connection diagram

Terminal	Function
A1, A2	LON bus NET A, polarity independent
B1, B2	LON bus NET B, polarity independent
C1, C2	LON bus NET C, polarity independent
SHA, SHB, SHC	shield connection for LON bus NET A / NET B /NET C
Va	power supply 24V, terminal A (+24V for DC)
Vb	power supply 24V, terminal B (ground for DC)
L, N	power supply 230V AC

Table 1: Terminal assignment

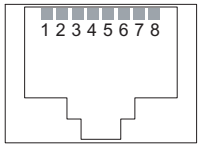
Terminal	Function	
1	LON-Bus NET A2 (NET B2)	
2	LON-Bus NET A1 (NET B1)	
3..8	not connected	

Table 2: Terminal assignment of RJ45 diagnostics plug DIAG NET A (B)

Caution: Installation by qualified personnal only. Observe established engineering procedures and SysMik published data. Be careful when connecting power!

Signalling LED

LED state	Description
off	RPTS is switched off
green	RPTS is switched on, no data packets
green/orange blinking	RPTS is switched on, packets are transmitted; the more packets, the longer the orange phase

Table 3: Signalling LED

Termination

For correct bus termination built-in terminators are used, which can be configured by easily accessible DIP switches. Termination for each network segment depends on the used network topology.

Especially when using several modules with internal termination, make sure that the network is not inadvertently terminated multiple times.

DIP switch	Termination	Topology
	OFF	no termination / external termination
	105Ω	doubly terminated bus topology
	52,3Ω	singly terminated free topology

Table 4: Termination setting

Please observe the guidelines concerning the cable length and recommended cable types, published by Echelon Corporation and the LonMark Interoperability Association.

Precautions for reliable operation

A physical layer repeater (PLR) transfers data between two network segments without verification of data. Therefore the repeater can transmit damaged packages or interferences. In a sense, the repeater works like an amplifier. Crosstalk between two segments (e.g. between NET A and NET B) can result in a feedback. The generated oscillation on the transmitting side will be detected by most protocol analyzers as invalid packets. On the receiving side, the level of the interference is usually too low to be detected by a protocol analyzer.

Due to the high sensitivity of FTT10A transceivers, the following precautions should be observed:

1. Terminate all network segments correct! Use the built-in termination; for bus topology doubly sided termination is recommended.
2. Do not use the same cable for different network segments.
3. Avoid parallel cables for different network segments.
4. Use only data cable specified for TP/FT-10.
5. Never connect the shields of different network segments, when using shielded cable.

When all these measures fail, a router should be used instead, for example an RTRS-TP/FT/10-TP/FT10 230V AC (part no. 1102-100121-05-6).

Installation

Installation position: no restrictions

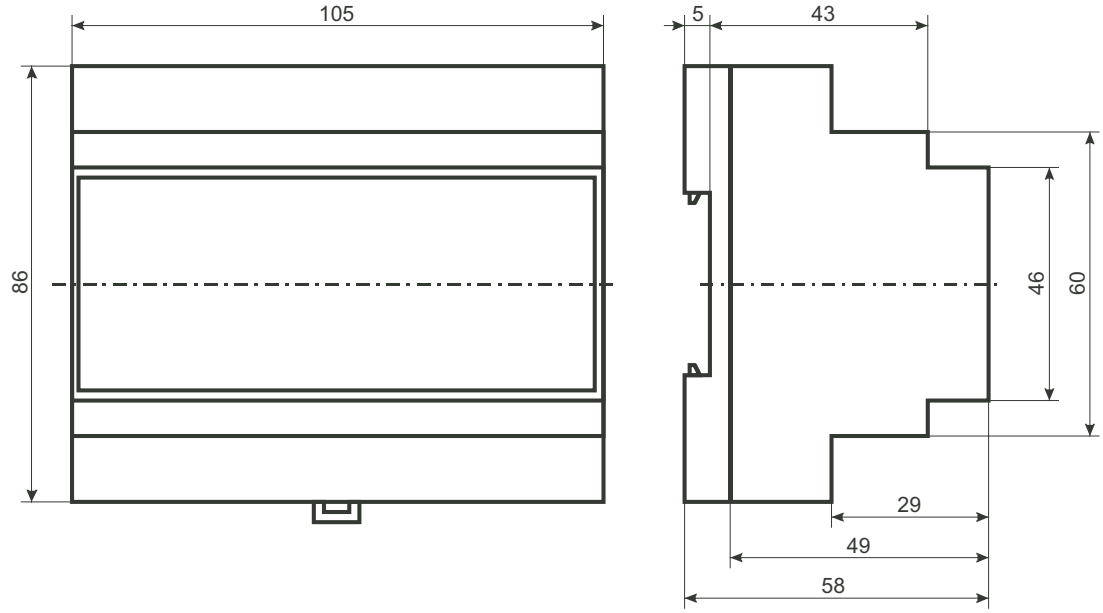


Fig 3: Dimensions

The device has a bracket for symmetrical rails (EN 50022) and can be mounted without usage of any tools.

Technical Data

General electrical data	RPTS 24V	RPTS 230V
Supply voltage	24V AC/DC	230V AC
Absolute maximum ratings	15 – 35V DC 18 – 28,8V AC	180 – 253V AC
Power consumption	< 1W / < 2 VA	< 3VA

Enclosure		
Type		6TE-DIN rail mounting, accord. to EN 50022
Length x width x height [mm]		105 x 86 x 58
Material		polycarbonate, polypropylene
Weight	24V	approx. 200g
	230V	approx. 300g

Environmental conditions	
Operating temperature	-20..70°C (-4 °F..+158°F)
Storing temperature	-20..70°C (-4 °F..+158°F)
Rel. humidity	0..75%, non condensing
Protection standard	IP20

Transceiver
TP/FT10, Link Power compatible

Options upon request	
Supply voltage	115V AC

Table 5: Technical data

Purchase Order Information

Devices	Part number
2-way repeaters	
RPTS-TP/FT10x2 230V AC	1101-100122-01-8
RPTS-TP/FT10x2 24V AC/DC	1101-100122-02-5
3-way repeaters	
RPTS-TP/FT10x3 230V AC	1101-100122-05-6
RPTS-TP/FT10x3 24V AC/DC	1101-100122-06-3

Table 6: Order information

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