

TX-I/O™

Resistance measuring module

TXM1.8P

- 8 inputs with LED signal / fault display.
- 8 resistance measuring inputs with individual configuration of resistance or temperature measurement.
- Made especially for temperature sensors Pt100 4-wire-
- Compact design per DIN, requires little space.
- Separation into terminal base and electronics unit for optimal handling.
 - Self-connecting bus for the easiest possible installation.
 - Disconnection terminal function for fast commissioning.
 - Exchange of electronics unit within seconds without a need of rewiring, at full functionality of the remaining I/O modules.
- All terminals are connected directly to the modules, no additional terminal strips for direct connection of field devices.
- Simple display concept
 - One I/O status LED per I/O point, brightness as per input level.
 - Module status LED for quick fault diagnosis.
- Double-sided labeling of all I/O points with label.

Functions

The modules support the following I/O functions:

Function	Signal type (TRA)	Signal type	Description	Connection
Resistance and temperatures	AI PT100 4-Wire	PT100_4	Temperature sensor Pt 100 Ohm	4-wire
	AI Pt100	P100	Resistance Pt 100 Ohm and resistance transmitter	4-wire
	AI 250Ohm	R250	Resistance 250 Ohm	2-wire
	AI PT1K375	Pt1K 375	Temperature sensor Pt1000 Ohm (USA,)	2-wire
	AI PT1K385	Pt1K 385	Temperature sensor Pt1000 Ohm (Europe)	2-wire
	AI Ni1000	R1K	Temperature sensor LG-Ni 1000 Ohm	2-wire
	AI Pt1000	P1K	Resistance Pt 1000 Ohm and resistance transmitter	2-wire
	AI Ni1000 extended	Ni1K	Temperature sensor LG-Ni 1000 Ohm	2-wire
	AI 2500Ohm	R2K5	Resistance 2500 Ohm	2-wire

See document "TX-I/O™ Functions and operation", CA110561, for a detailed description of all functions.

Compatibility

Support of signal types and functions in different building automation and control systems: see TX-I/O Engineering and installation manual, CM110562

Type summary

ASN Resistance measuring module **TXM1.8P**

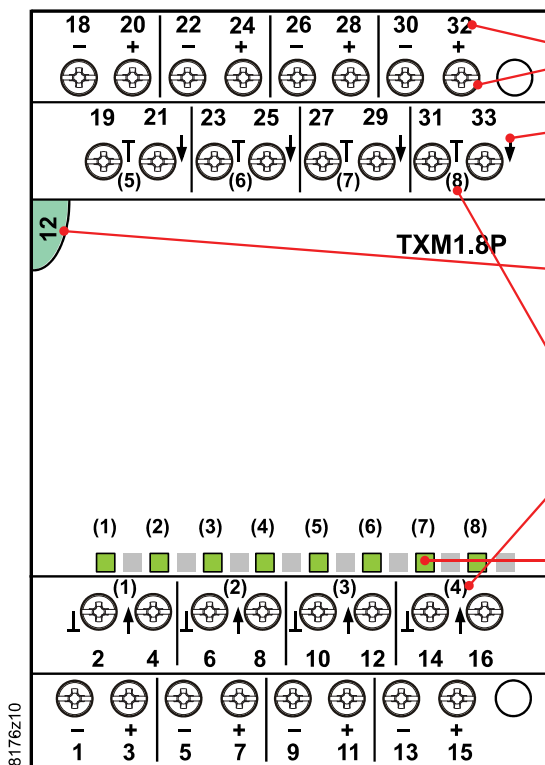
Delivery Terminal base and electronics unit are inserted and delivered in a box.

Accessories Address keys, printable label sheets and replacement label holders are available as accessories. See data sheet CM2N8170.

Design and technology

See the TX-I/O™ Engineering and installation manual, CM110562, for a description of the properties for all TX-I/O™ modules.

Display elements



Connection terminals (No. 1 screwdriver for slotted or recessed-head * screws) with test plug socket (pins 1.8...2 mm) and terminal number.

Signal designation

Address key and module status LED

I/O point numbers

I/O status LEDs (green)

* Combined slotted / recessed-head screws from mid-2012

I/O status LEDs

- The I/O status LEDs (green) indicate the status of inputs/outputs (periphery).
- They can also be used for diagnostic purposes.

Module status LED

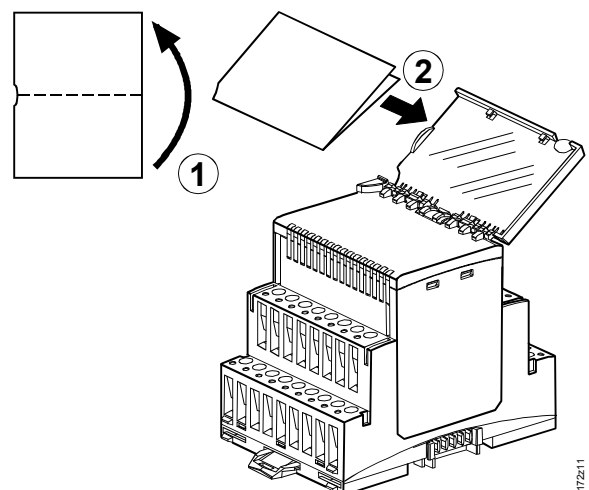
- The module status LED illuminates the transparent address key.
- The LED (green) indicates the status for the entire module (contrary to the I/O point status).
- It can also be used for diagnostic purposes.

Address key

- The module only works with the address key.
- The module address is mechanically encoded in the address key.
- Swing out the address key when exchanging the electronics unit. The key remains in the terminal base.

Module labeling

The electronics unit has a removable, transparent lid (label holder) allowing for insertion of the label.



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Engineering, mounting, installation

Please consult the following document:

Document	Number
TX-I/O™ Functions and operation	CM110561
TX-I/O™ Engineering and installation manual	CM110562
Replacement of legacy modules	CM110563

Mounting

Permissible mounting positions

TX-I/O™ devices can be mounted in any position:

You must ensure, however, that sufficient ventilation is available to maintain the permissible ambient temperature (max. 50°C).

Disposal



The device is classified as waste electronic equipment in terms of the European Directive 2002/96/EC (WEEE) and should not be disposed of as unsorted municipal waste.

The relevant national legal rules are to be adhered to.

Regarding disposal, use the systems setup for collecting electronic waste.

Observe all local and applicable laws.

Technical data

Power (side bus connector)	Operating voltage	DC 21.5...26 V
	Safety extra-low voltage SELV or protection by extra-low voltage PELV per HD384	
	Max. power consumption	1.2 W
Protection	All module terminals	Against short circuit and incorrect wiring using AC/DC 24 V.
	Side bus connector	No protection!
Field devices	The insulating strength of the connected field devices toward mains voltage must comply with the requirements for safety extra-low voltage (SELV) or protection by extra-low voltage (PELV) as per HD 384.	
Measuring lines	Line materials	Copper wire or copper stranded wire, unshielded
	Line diameter	See manual CM110562
	Permissible line length	Max. 300 m

Analog inputs

Correction of line resistance

1 Ohm (calibrated in module)
(0 Ohm for Pt100_4 and P100)

Signal type (see page 2)	Range	Under / over range	Resolution	Sensor current
Temperature AI Pt100 4 wire	-50 ... 400 (600) °C 1)	-52.5...610°C	20 mK	2.1 mA
Resistance AI Pt100	0 ... 250 Ohm	0...265 Ohm	10 mOhm	2.1 mA
Resistance AI 250 Ohm (2-wire)	0 ... 250 Ohm	0...265 Ohm	10 mOhm	2.1 mA
Temperature AI PT1K375	-50 ... 150 (180) °C 1)	-52.5...185.0 °C	10 mK	1.54 mA
Temperature AI PT1K385	-50 ... 400 (600) °C 1)	-52.5...610°C	20 mK	1.96 mA
Temperature AI Ni1000 extended	-50 ... 150 (180) °C 1)	-52.5...185.0 °C	10 mK	1.54 mA
Temperature AI Ni1000	-50 ... 150 °C	-52.5...155.0 °C	10 mK	1.54 mA
Resistance AI 2500 Ohm	0 ... 2500 Ohm	0...2650 Ohm	100 mOhm	1.96 mA
Resistance AI Pt1000	0 ... 2500 Ohm	0...2650 Ohm	100 mOhm	1.96 mA

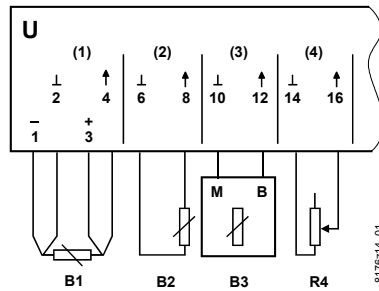
1) (Extended range) *only with reduced hum injection, see CM110562*

Connection terminals	Mechanical design	Screw-type terminal
	Wire	1 x 0.5 mm ² to 4mm ² or 2 x 0.6 mmØ to 1.5 mm ²
	Copper stranded wire without ferrules	1 x 0.5 mm ² to 2.5 mm ² or 2 x 0.6 mmØ to 1.5 mm ²
	Stranded wire with ferrule (DIN 46228/1)	1 x 0.25 mm ² to 2.5 mm ² or 2 x 0.6 mmØ to 1.5 mm ²
	Screwdriver	No. 1 Screwdriver for slotted or recessed-head * screws <i>with shaft diameter ≤ 4.5 mm</i> * Combined slotted / recessed-head screws from mid-2012
	Maximum stud torque	0.6 Nm
Test plug socket (test terminals)	Pin diameter	1.8...2.0 mm
	Classification per EN 60730	Function of automatic control devices: Type 1 Degree of pollution: 2 Mechanical design: Protection class III
Housing type	Degree of protection as per EN 60529	
	Front parts in DIN excerpt	IP30
	Terminal part	IP20
Environmental conditions	Operation	As per IEC 60721-3-3
	Climatic conditions	Class 3K5
	Temperature	-5...50 °C
	Humidity	5...95 % r.h.
	Mechanical conditions	Class 3M2
	Transport	As per IEC 60721-3-2
	Climatic conditions	Class 2K3
	Temperature	-25...70 °C
Humidity	5...95 % r.h.	
	Mechanical conditions	Class 2M2

Standards and directives	Product standard	
	Automatic electronic controls for household and similar use	EN 60730-1
	Electromagnetic compatibility	
	Immunity (domestic & industrial)	EN 60730-1
	Emissions (domestic & industrial)	EN 60730-1
	CE conformity	
	EMC Directive	2004/108/EC
	C-tick conformity (EMC)	AS / NZS 61000-6-3
	UL approbation	UL 916, UL 864
Environmental compatibility	The product environmental declaration	ISO 14001 (Environment)
	CM1E8176 contains data on environmentally compatible product design and assessments	ISO 9001 (Quality)
	(RoHS compliance, materials composition, packaging, environmental benefit, disposal)	SN 36350 (Environmentally compatible products)
		2002/95/EC (RoHS directive)
Color	Terminal base and electronics unit	Light gray, RAL 7035
Dimensions	Housing as per DIN 43880, see dimensions	
Weight	Without / with packaging	198 / 219 g

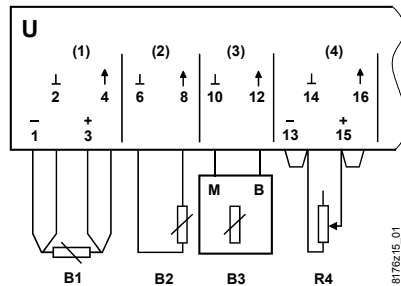
Connection diagrams (example)

Island bus integration and PRODINET BIM



- U** Resistance measuring module
- B1** Temperature sensor Pt100 (4-wire)
- B2** Temperature sensor, general
- B3** Temperature sensor LG-Ni 1000
- R4** Resistance transmitter

Integration via P-bus interface-module TXB1.PBUS



- U** Resistance measuring module
- B1** Temperature sensor Pt100 (4-wire)
- B2** Temperature sensor, general
- B3** Temperature sensor LG-Ni 1000
- R4** Resistance transmitter

Terminal assignment

I/O points	TXM1.8P							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
⊥ (-) Measuring neutral ¹⁾	2	6	10	14	19	23	27	31
↑ (+) Input / sensor current	4	8	12	16	21	25	29	33
- Measurement - (4-wire)	1	5	9	13	18	22	26	30
+ Measurement + (4-wire)	3	7	11	15	20	24	28	32

¹⁾ All measuring neutral / system neutral terminals are interconnected in the electronics unit, not the terminal base; as a result, there is no connection when the electronics unit is not in place.

With analog inputs, the measuring neutral/system neutral must always be connected to the terminal assigned to the I/O point.

Dimensions

Dimensions in mm

