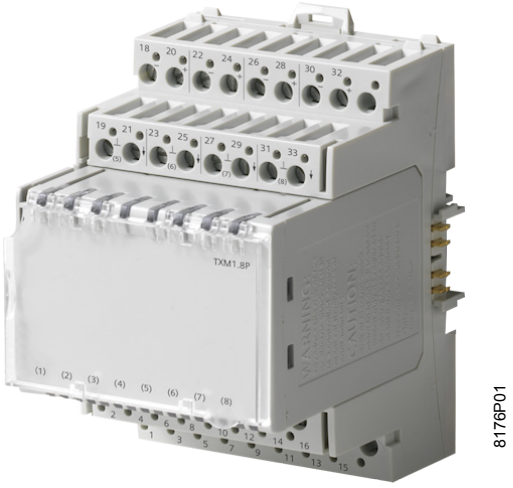
SIEMENS

8176



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 tempe-ratures	**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**

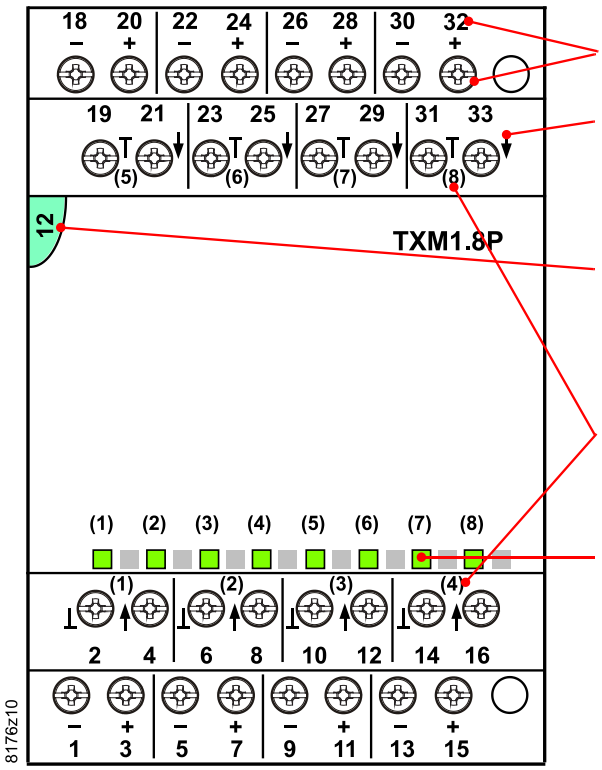
Delivery Terminal base and electronics unit are inserted and delivered in a box.

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

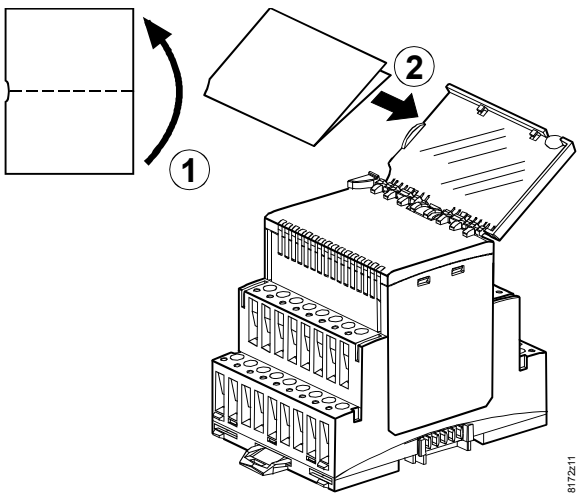
- The module status LED illuminates the transparent address key.
- The LED (green) indicates the status for the entire module (contrary to the I/O point status).
- It can also be used for diagnostic purposes.

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.



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 considered an electronics device for disposal in terms of European Directive 2012/19/EU and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Technical data

Power (side bus connector)	Operating voltage	DC 21.5...26 V (SELV / PELV) or DC 24 V class 2 (US)
	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		
Insulating strength	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, unscreened
	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*

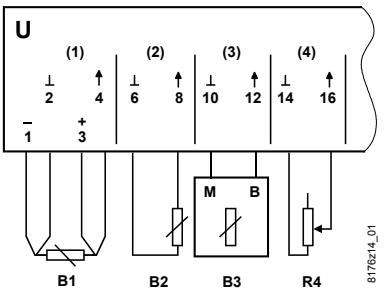
Connection terminals	Mechanical design	Screw-type terminal
	Wire	1 x 0.5 mm^2 to 4mm^2 or 2 x 0.6 mm∅ to 1.5 mm^2
	Copper stranded wire without ferrules	1 x 0.5 mm^2 to 2.5 mm^2 or 2 x 0.6 mm∅ to 1.5 mm^2
	Stranded wire with ferrule (DIN 46228/1)	1 x 0.25 mm^2 to 2.5 mm^2 or 2 x 0.6 mm∅ to 1.5 mm^2
	Screwdriver	No. 1 Screwdriver for slotted or recessed-head * screws *with shaft diameter ≤ 4.5 mm* * 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
Ambient 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 / storage	As per IEC 60721-3-2
	Climatic conditions	Class 2K3
	Temperature	-25...70 °C
	Humidity	5...95 % r.h.
	Mechanical conditions	Class 2M2

Standards, directives and approvals	Product standard EN 60730-1	Automatic electrical controls for household and similar use
	Electromagnetic compatibility (Applications)	For use in residential, commercial, light-industrial and industrial environments
	EU conformity (CE)	CM1T10870xx *)
	UL certification (US)	UL 916, http://ul.com/database
	RCM-conformity (EMC)	CM1T10870en_C1 *)
	EAC conformity	Eurasia conformity
Environmental compatibility	Product environmental declaration (contains data on RoHS compliance, materials composition, packaging, environmental benefit, disposal)	CM2E8176 *)
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

*) The documents can be downloaded from http://siemens.com/bt/download.

Connection diagrams (example)

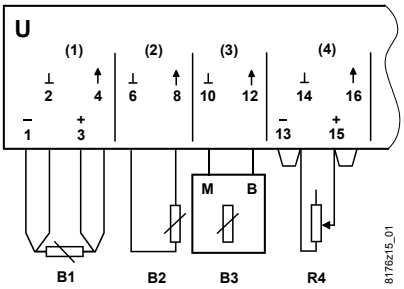
Island bus integration and PRODINET BIM



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

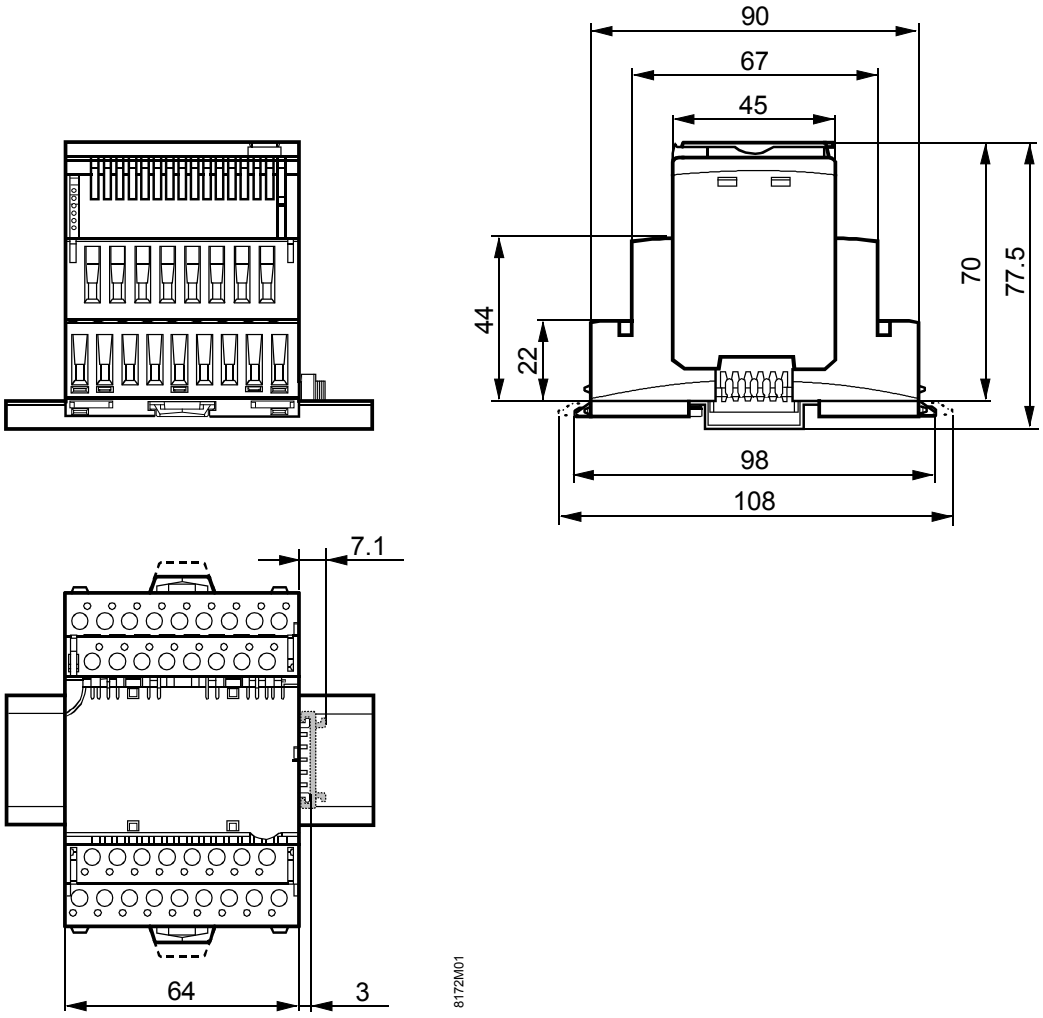
Terminal assignment

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



Published by:
Siemens Switzerland Ltd.
Building Technologies Division
International Headquarters
Gubelstrasse 22
6301 Zug
Switzerland
Tel. +41 41-724 24 24
www.siemens.com/buildingtechnologies