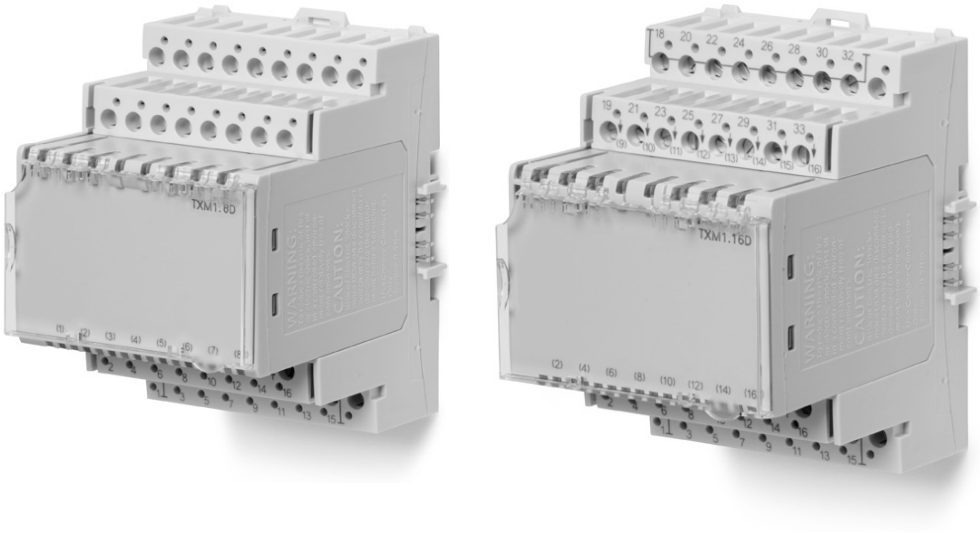
SIEMENS

8172



TX-I/O™

Digital input modules

TXM1.8D
TXM1.16D

- **Two fully compatible versions:**
  - **TXM1.8D: 8 inputs, each with a three-color LED (green, yellow or red)**
  - **TXM1.16D: As TXM1.8X, but 16 inputs, each with a green LED**
- **8 or 16 digital inputs; individually configurable for status signals, status pulses (with a memory function) or counter pulses (up to 10 Hz)**
- **Compact DIN format, small footprint**
- **Separate terminal base and plug-in I/O module for convenient handling**
  - **Self-establishing bus connection for maximum ease of installation**
  - **Terminal isolation function for fast commissioning**
  - **I/O module replaceable in seconds, without rewiring and without affecting the full functioning of the remaining I/O modules**
- **All terminals are directly on the I/O modules, allowing direct connection of field devices without additional terminal strips.**
- **Simple strategy for operation and display**
  - **I/O status LED for each I/O point; mode of operation (N/C or N/O) depends on I/O function**
  - **LEDs for fast diagnostics**
- **Double-sided labels for identification of all I/O points**

Functions

The modules support the following I/O functions:

Function	Signal type (TRA)	Signal type	Description
Status indication	**BI NO** **BI NC**	**D20** **D20R**	Volt-free, interrogation (maintained contact), N/O contact Volt-free, interrogation (maintained contact), N/C contact
Status pulses	**BI Pulse NO** **BI Pulse NC**	**D20S**	Volt-free, interrogation (pulse) N/O / N/C contact
Button input	**BI Push NO** **BI Push NC**	**--**	Button input single / dual , volt-free N/O / N/C contact
Status multistate	**MI Switch**	**--**	Multistate input, 2...8-stage, volt-free, interrogation
Counter pulses	**CI Mech (10/25Hz)**	**C**	Volt-free, N/O contact, interrogation (pulse, max. 10 Hz) *(TXM1.16D: I/O points1 ... 8 only)*

For a detailed description of these functions, please refer to document CM1105761, "TX-I/O™ Functions and operation".

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

Digital input module **TXM1.8D**
Digital input module **TXM1.16D**

Delivery

The terminal base and the plug-in I/O module are interconnected and delivered in the same box.

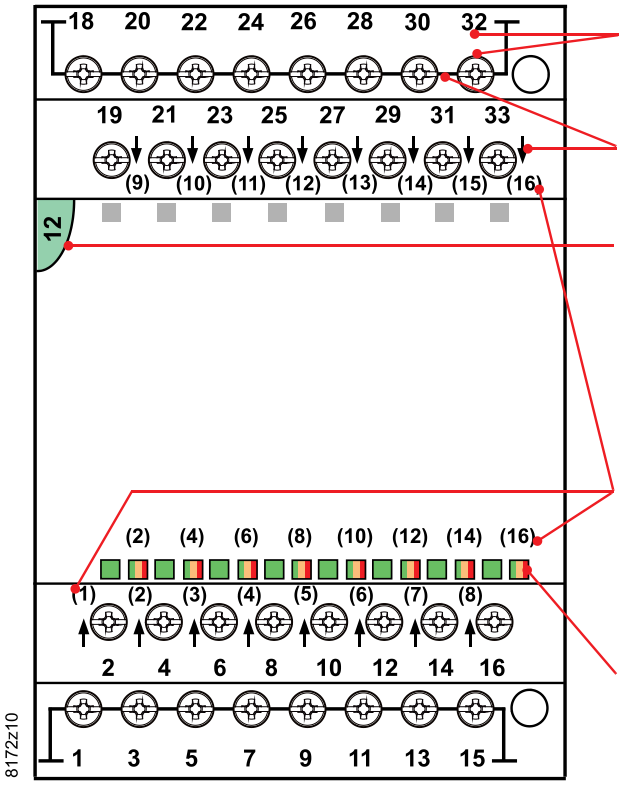
Accessories

The available accessories include address keys, label sheets, and spare transparent label holders. Refer to data sheet CM2N8170.

Technical and mechanical design

For a description of the features common to all TX-I/O™ modules, please refer to the TX-I/O™ Engineering and installation manual, document CM110562.

Indicators and operator controls



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

Signal designation

Address key and
module status LED

I/O point numbers
(I/O points 9 ... 16: TXM1.16D only)

I/O status LEDs
(TXM1.8D: Configurable - green/yellow/red
TXM1.16D: Green)

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

I/O status LEDs

- The I/O status LEDs indicate the status of the inputs and outputs (peripheral devices)
- The LEDs on the TXM1.16D are green
- In the case of the TXM1.8D the LEDs are three-colored. If the I/O function supports it, the module can display Alarm = red and Service = yellow, besides Normal = green
- The LEDs are also used for diagnostic purposes

Module status LED

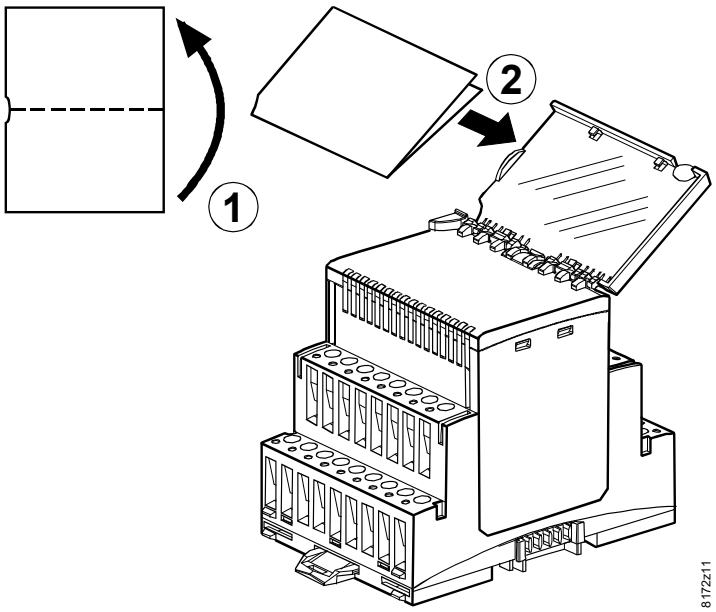
- The module status LED illuminates the transparent address key
- The (green) LED shows the status of the module as a whole (as opposed to the status of the I/O points)
- It is also used for diagnostics

Address key

- The module operates only with the address key inserted
- The module address is mechanically encoded in the address key
- When replacing the plug-in I/O module, the address key must be swiveled outward. It remains plugged into in the terminal base.

Module labeling

The plug-in I/O module has a removable transparent cover (the label holder) for insertion of a label.



Disposal

The devices are considered electronics devices for disposal in terms of European Directive and may not be disposed of as domestic garbage.

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

Engineering, mounting, installation

Please refer to the following documents

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

Mounting

Permitted orientation

The TX-I/O™ devices can be installed in any orientation:

It is important to provide adequate ventilation so that the admissible ambient temperature (max. 50°C) is not exceeded.

Technical data

Supply (bus connector on side)	Operating voltage		DC 21.5 ... 26 V (SELV / PELV) or DC 24 V class 2 (US)
	Max. power consumption	TXM1.8D	1.1 W
		TXM1.16D	1.4 W
	(for the sizing of power supplies, see CM110562)		
Protection	All terminals of the modules		Against shortcut and incorrect wiring with AC / DC 24 V
	Bus connector on side		No protection!
Field devices			
Insulation resistance	The of the connected field devices against 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 cables	Cable material		Solid or stranded copper wire
	Cable cross section		See manual CM110562
	Permitted cable length		max. 300 m

Digital inputs / counter inputs *)

Digital inputs are not electrically separated from the system electronics.
Mechanical contacts must be volt-free
Electronic switches must comply with SELV / PELV standards.

Contact sensing voltage	DC 21.5 ...25 V
Contact sensing current	1.6 mA (initial current 10 mA)
Contact resistance with contacts closed	Max. 200Ω
Insulation resistance with contacts open	Min. 50kΩ

	Min. closing / opening time [ms] including bouncing	Max. bounce time [ms]	Max. Counting frequency (symmetric)
Maintained contact	80	40	
Pulse contact	50	30	
Counter *)	40	30	10 Hz
Counter memory *)			0 ... 4.3 x 10^9 (32 bit counter)

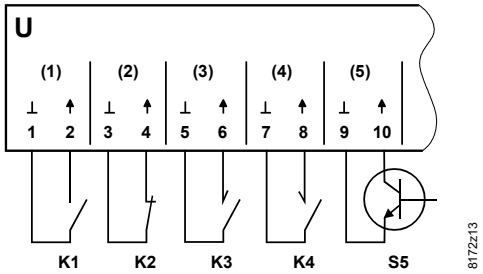
**) Counting function for TXM1.16D: I/O points 1 ... 8 only*

Connection terminals	Mechanical design	Rising cage terminals
	Solid conductors	1 x 0.5 mm^2 to 4mm^2 or 2 x 0,6 mm∅ to 1.5 mm^2
	Stranded conductors without connector sleeves	1 x 0.5 mm^2 to 2.5 mm^2 or 2 x 0,6 mm∅ to 1.5 mm^2
	Stranded conductors with connector sleeves (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
	Max. tightening torque	0.6 Nm
Test pickups (terminals)	For pin diameter	1 x 1.8 … 2.0 mm

Classification to EN 60730	Mode of operation of automatic electrical controls	Type 1
	Contamination level	2
	Mechanical design	Protection class III
Housing protection standard	Protection standard to EN 65029	
	Front-plate components in DIN cut-out	IP30
	Terminal base	IP20
Ambient conditions	Operation	To IEC 60721-3-3
	Climatic conditions	Class 3K5
	Temperature	–5 ... 50 °C
	Humidity	5 … 95 % rh
	Mechanical conditions	Class 3M2
	Transport / storage	To IEC 60721-3-2
	Climatic conditions	Class 2K3
	Temperature	–25…70 °C
	Humidity	5 … 95 % rh
	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, UL 864, http://ul.com/database
	CSA certification	Class 4812 https://www.csagroup.org/services-industries/product-listing/
	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)	CM2E8172 *)
Color	Terminal base and plug-in I/O module	RAL 7035 (light gray)
Dimensions	Housing to DIN 43 880, see "Dimensions"	
Weight	Without / with packaging	TXM1.8D 164 / 185 g
		TXM1.16D 199 / 220 g

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

Connection diagrams (examples)



U Digital input module

K1 Status contact (N/O)
K2 Status contact (N/C)
K3 Pulse contact (N/O)
K4 Pulse contact (N/C)
S5 Electronic switch

Terminal layout

	TXM1.8D, TXM1.16D								*TXM1.16D only*							
I/O point	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**
System neutral ⊥ (–) [1]	1	3	5	7	9	11	13	15	18	20	22	24	26	28	30	32
Input (+)	2	4	6	8	10	12	14	16	19	21	23	25	27	29	31	33

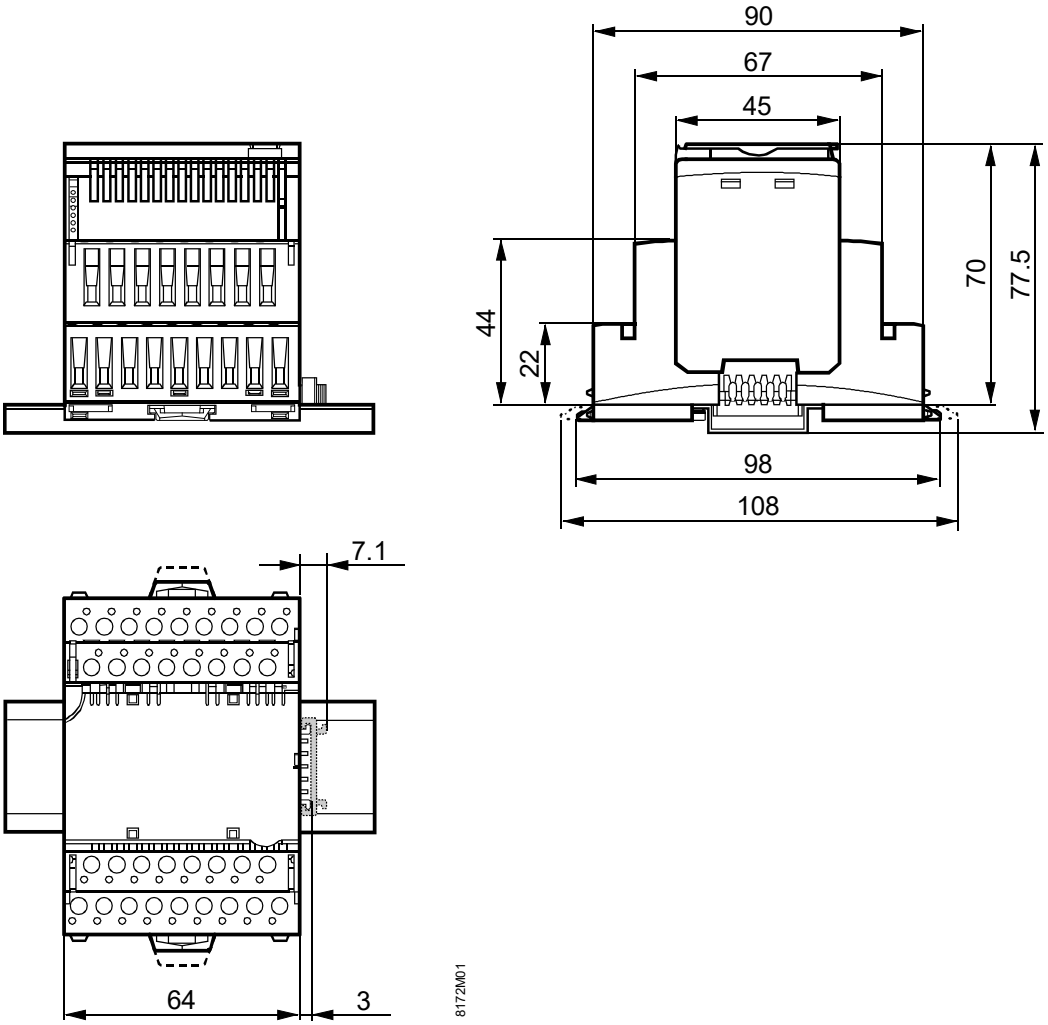
[1] Terminals 1, 3, 5 etc. are system neutral terminals

- They are interconnected, not in the terminal base but in the plug-in I/O module. This means that when the I/O module is removed, there is no connection.
- The system neutral of a digital input can be connected to any system neutral terminal

For wiring details refer to the TX-I/O™ Engineering and installation manual, CM110562.

Dimensions

Dimensions in mm



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