

TX-I/O™

PROFINET BIM

TXB1.PROFINET

-
- Interface between the automation station and the bus of the TX-I/O modules
 - Compact format (to DIN43 880), small footprint
 - Simple installation and easy access
 - Self-establishing bus connection for maximum ease of installation
 - Plug-in screw terminals
 - Easy, fast diagnostics

Function

The Profinet BIM (Profinet **b**us interface **m**odule) is used to connect the TX-I/O module system to a S7 automation station. The I/O modules are configured with the SIMATIC Manager hardware configuration tool. This configuration is downloaded into the bus interface module via the USB port and transferred from there to the TX-I/O modules.

The bus interface module includes diagnostic functions for help with commissioning and service.

Types

ASN	Profinet BIM TXB1.PROFINET
Items supplied	Bus interface module with 2 bus connector covers (1 for right end of I/O bar and 1 spare)
Accessories	SIMATIC Manager, GSDML file (to order, please contact your local office)

Ordering

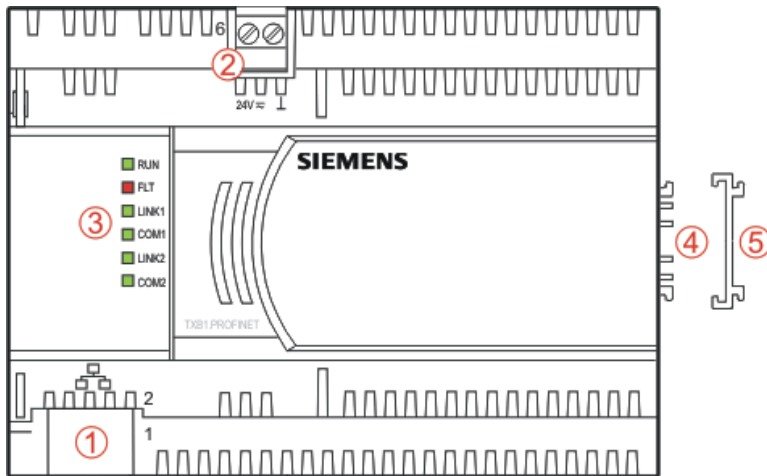
When ordering, please specify the quantity, product name and type code.

Example	Number	Name	Type (ASN)	SSN
	10	Profinet BIM	TXB1.PROFINET	S55661-J104

Compatibility

The Profinet BIM module is suitable for use with all equipment in the TX-I/O range (*no TX-OPEN, though*).

Overview



Legend

- ① RJ45 connectors Profinet (Ethernet)
- ② Plug-in screw terminal
AC/DC 24 V
- ③ Diagnosis LEDs
- ④ Bus connector
- ⑤ Bus connector
(for right end of an I/O bar)

Mechanical characteristics

Housing

- The housing complies with DIN 43880 and is 90 mm wide.
- The plastic housing is provided with a large number of vents for cooling.
- Maximum ambient temperature is 50 °C.

Electrical characteristics

Power supply

- The bus interface module can be supplied with either AC or DC 24 V.

Interfaces

- Plug-in screw terminals for supply voltage (AC/DC 24 V, \perp).
- On-board Profinet (RJ45, 2 connectors).

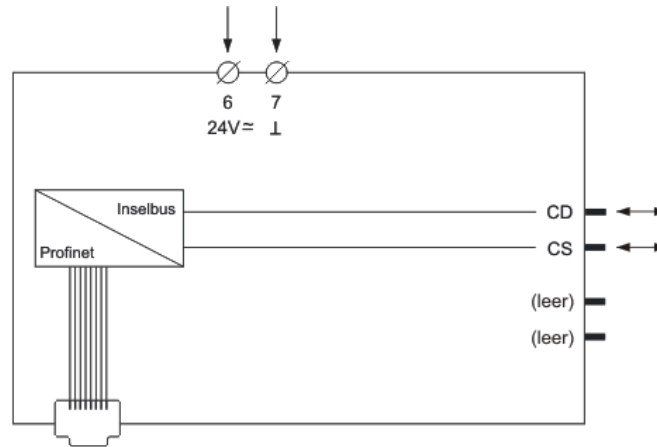
Island bus

- The I/O modules are mounted to the **right** of the bus interface module on the standard mounting rail. The electrical connection is established via the four island-bus contacts on the side of the modules.
- The bus is established automatically when the TX-I/O devices are connected one next to the other on the rail.
- There is no bus connector on the left side of the device.

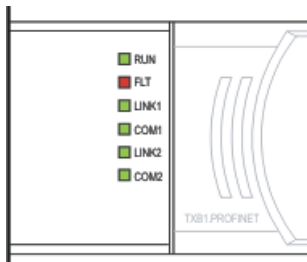
System ground

- The I/O modules and all connected field devices are connected to the same system ground (\perp).
- The I/O island and the Profinet are electrically isolated.

Basic circuit



LED indication



When the bus interface module is switched on, all LEDs light up for approx. 2 seconds (LED test).

The following table shows an overview of the indications and the corresponding descriptions.

The indications and the descriptions are integrated in the workflow **diagnosis**.

LED display						Description
Run (gn)	FLT (rd)	Link1 (gn)	Comm 1	Link2	Comm 2	Ursache
on	off					Firmware running; no errors
on	flashing					Alarm present
on	on					Firmware running, no Profinet communication
flashing	flashing					Hardware problem
flashing	off					Firmware update in progress, firmware running
flashing	on					Firmware update in progress; firmware not running
off	on					Firmware not running
		on				Connection present on ethernet port 1
				on		Connection present on ethernet port 2
			irregular flashing			Ethernet communication on port 1
					irregular flashing	Ethernet communication on port 2

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.

Engineering, mounting, installation and commissioning

Please refer to the following documents:

Dokument	Nummer
[1] TX-I/O™ module data sheets	CM1N817...
[2] TX-I/O™ functions and operation	CM110561
[3] TX-I/O™ design and installation manual	CM110562
[4] TX-I/O PROFINET BIM V1.0 – User's manual	CM110564

Engineering

The following information is required when sizing the power supply for an I/O island (see [3]):

- Number and type of modules to be supplied
(basic consumption of module electronics)
- Type and number of data points
(Consumption per configured data point)

Type and number of field devices to be supplied via the field power supply

Mounting

Mounting

The module is mounted on a standard 35 x 7.5 mm mounting rail (top-hat rail type TH35-7.5 to EN60715)

Sequence

The first item on an I/O bar is always the Profinet BIM, followed by the power supply device and the TX-I/O modules.

Replacement

A Profinet BIM can be removed from the row of modules.

Permitted orientation

The TX-IO™ devices can be mounted in any orientation.

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

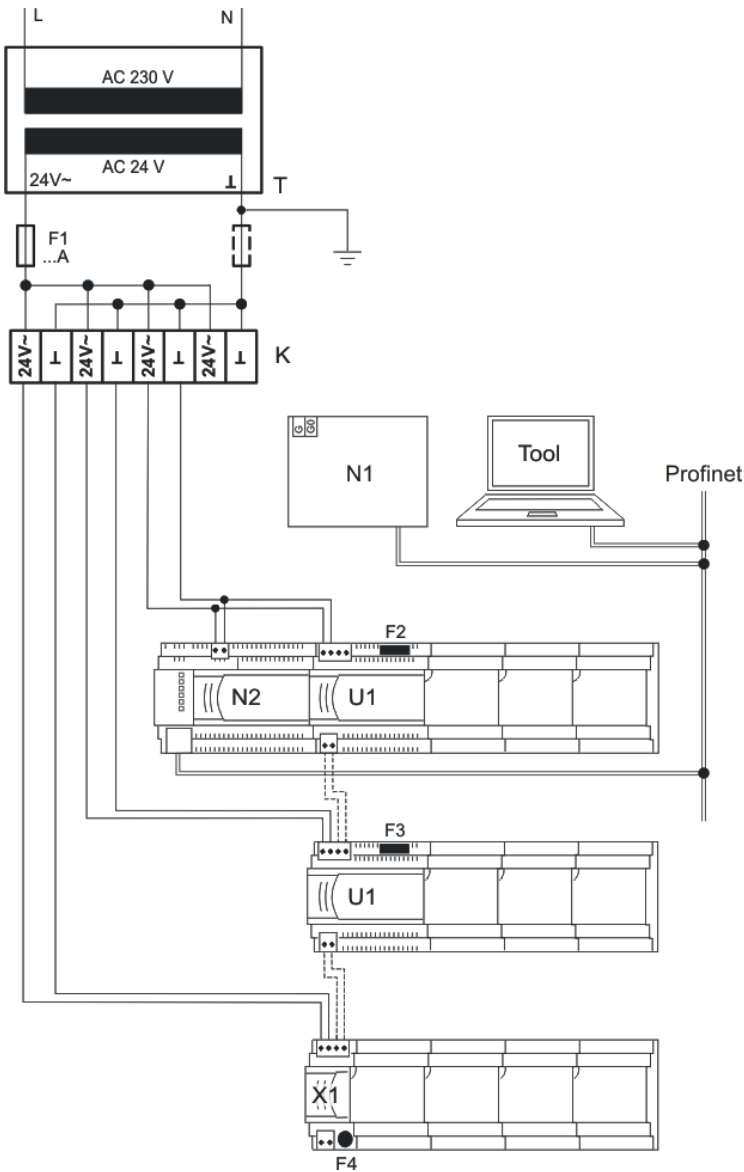
Technische Daten

Power supply	Operating voltage	AC 24 V \pm 20% (3 VA) (SELV) oder DC 24 V (20.8...28.8 V, 2 W) (SELV) or AC/DC 24 V class 2 (US)
	Frequency	50 / 60 Hz
Power consumption	Without module and field device load	3 VA, corresponding to 25 kWh/a
Fusing	External supply line protection (EU)	Fuse slow max. 10 A or Circuit breaker max. 13 A Characteristic B, C, D according to EN 60898 or Power source with current limitation of max. 10 A
Island bus	Island bus connector	TX-I/O compatible
Profinet	2 x RJ45 (switch)	10/100 Mbit/s
Connection terminals	Mechanical Design	Plug-in screw terminal
	Solid or stranded copper conductors with connector sleeves	1 x 0,6 mm \varnothing to 2.5mm ² or 2 x 0,6 mm \varnothing to 1,0 mm ²
	Stranded copper conductors without connector sleeves	1 x 0,6 mm \varnothing to 2.5 mm ² or 2 x 0,6 mm \varnothing to 1,5 mm ²
	Screwdriver	Slot-headed screws Screwdriver No. 1, with shaft diameter \leq 4.5 mm
	Max. tightening torque	0.6 Nm
Classification to EN 60730	Mode of operation of automatic electrical controls	Type 1
	Contamination level	2
	Mechanical design	Protection class III
Housing protection	Protection standard to EN 60529	
	Front-plate components in DIN cut-out	IP30
	Terminal section	IP20
Ambient conditions	Operation	To IEC 60721-3-3
	Climatic conditions	Class 3K5
	Temperature	-5 ... 50 °C
	Humidity	5 ... 95 % r.F.
	Mechanical conditions	Class 3M2
	Transport	To IEC 60721-3-2
	Climatic conditions	Class 2K3
	Temperature	-25 ... 70 °C
	Humidity	5 ... 95 % r.F.
	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, commerce, light-industrial and industrial environments
	EU conformity (CE)	CM1T10870xx *)
	UL certification (US)	UL916, http://ul.com/database
	CSA certification	Class 4812 http://directories.csa-international.org/
	RCM-conformity (EMC)	CM1T10870en_C1 *)
	Environmental compatibility	Product environmental declaration (contains data on RoHS compliance, materials composition, packaging, environmental benefit, disposal)

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

Color	Housing	RAL 7035 (light gray)
Dimensions	Housing to DIN 43 880	
	Width in DIN modular spacing units	7.5
Weight	With packaging	0.201 kg

Application examples



Legende

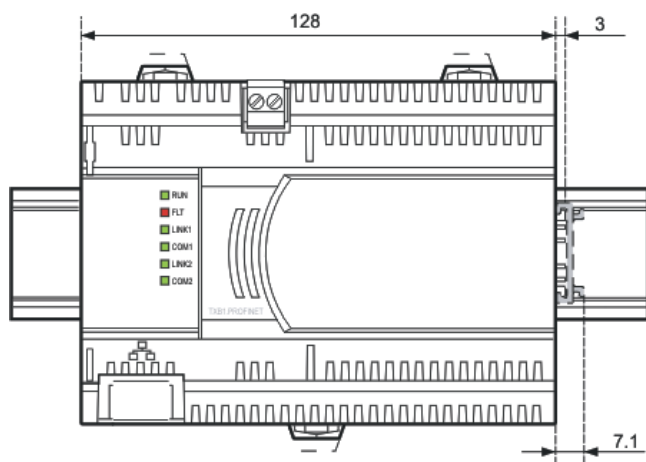
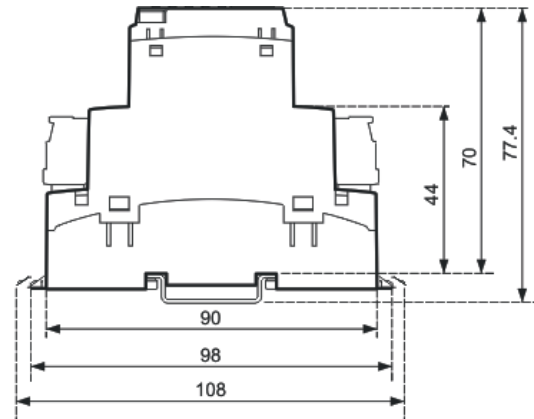
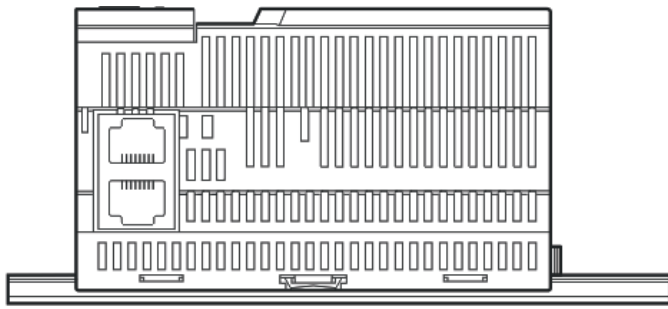
- T** Safety isolating transformer AC 230 V/AC 24 V to EN 61 558
- K** Terminal strip for ac 24 V distribution via star configuration
- N1** Automation station SIMATIC S7
- N2** PROFINET BIM
- U1** Power supply module TXS1.12F10
- X1** Bus interface module TXS1.EF10
- F1** Extra-low voltage fuse for max. power consumption, AC 24 V
- F2** Fine-wire slow-blow 10 A fuse, factory-fitted
- F3** Fine-wire slow-blow 10 A fuse, factory-fitted
- F4** Fine-wire slow-blow 10 A fuse, factory-fitted
- Tool** SIMATIC Manager tool for configuration, simulation, and diagnosis
- AC 24 V
- Island bus
- ==== PROFINET

⚠ Note

The PROFINET BIM **must not** be connected with either a **hub**, a **router**, or a **non real-time switch!**
 Always connect the PROFINET BIM with either a S7 CPU, a **S7 CP**, or a **real-time switch!**

Dimensions

Dimensions in mm



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