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 bus interface module) 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

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Type (ASN)</th>
<th>SSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Profinet BIM</td>
<td>TXB1.PROFINET</td>
<td>S55661-J104</td>
</tr>
</tbody>
</table>

Compatibility

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

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, ⊥).
• 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 (⊥).
• The I/O island and the Profinet are electrically isolated.
**Basic circuit**

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**.

<table>
<thead>
<tr>
<th>LED display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Run (gn)</strong></td>
<td><strong>FLT (rd)</strong></td>
</tr>
<tr>
<td>on</td>
<td>off</td>
</tr>
<tr>
<td>on</td>
<td>flashing</td>
</tr>
<tr>
<td>on</td>
<td>on</td>
</tr>
<tr>
<td>flashing</td>
<td>flashing</td>
</tr>
<tr>
<td>flashing</td>
<td>off</td>
</tr>
<tr>
<td>flashing</td>
<td>on</td>
</tr>
<tr>
<td>off</td>
<td>on</td>
</tr>
</tbody>
</table>

| **Disposal**

The device is considered electrical and electronic equipment for disposal in terms of the applicable European Directive 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:

<table>
<thead>
<tr>
<th>Dokument</th>
<th>Nummer</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX-I/O™ module data sheets</td>
<td>CM1N817...</td>
</tr>
<tr>
<td>TX-I/O™ functions and operation</td>
<td>CM110561</td>
</tr>
<tr>
<td>TX-I/O™ design and installation manual</td>
<td>CM110562</td>
</tr>
<tr>
<td>TX-I/O PROFINET BIM V1.0 – User’s manual</td>
<td>CM110564</td>
</tr>
</tbody>
</table>

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-I/O™ 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 ± 20% (3 VA) (SELV) oder
  - DC 24 V (20.8...28.8 V, 2 W) (SELV) oder
  - 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
  - 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
  - 1 x 0.6 mm² to 2.5 mm²
  - or 2 x 0.6 mm² to 1.0 mm²
  - 1 x 0.6 mm² to 2.5 mm²
  - or 2 x 0.6 mm² to 1.5 mm²
- **Screwdriver**
  - Slot-headed screws
  - Screwdriver No. 1, with shaft diameter ≤ 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)**
- **CSA certification**
  - Class 4812 [https://www.csagroup.org/services-industries/product-listing/](https://www.csagroup.org/services-industries/product-listing/)
- **RCM-conformity (EMC)**
  - CM1T10870en_C1 *)

### Environmental compatibility
- **Product environmental declaration (contains data on RoHS compliance, materials composition, packaging, environmental benefit, disposal)**
  - CM2E8186 *)

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

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**Application examples**

![Diagram of application examples]

**Key**

- **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 medium time lag 10 A fuse, factory-fitted
- **F3**: Fine-wire medium time lag 10 A fuse, factory-fitted
- **F4**: Fine-wire medium time lag 10 A fuse, factory-fitted
- **Tool**: SIMATIC Manager tool for configuration, simulation, and diagnosis

**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

Published by:
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www.siemens.com/buildingtechnologies

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