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VIPA Networking Solutions

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HB159 | PBT | 924-1BB10 | en | 18-22  

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1 General

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Information product support

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1.2 About this manual

Objective and contents This manual describes the PROFIBUS Terminator 924-1BB10 from VIPA. It contains a description of the construction, project implementation and usage.

<table>
<thead>
<tr>
<th>Product</th>
<th>Order number</th>
<th>as of state:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBT-T1</td>
<td>924-1BB10</td>
<td>HW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>01</td>
</tr>
</tbody>
</table>

Target audience The manual is targeted at users who have a background in automation technology.

1.3 Safety information

Applications conforming with specifications The system is constructed and produced for:

- communication and process control
- general control and automation tasks
- industrial applications
- operation within the environmental conditions specified in the technical data
- installation into a cubicle

DANGER!
This device is not certified for applications in:
- in explosive environments (EX-zone)

Documentation The manual must be available to all personnel in the

- project design department
- installation department
- commissioning
- operation
CAUTION!
The following conditions must be met before using or commissioning the components described in this manual:
  – Hardware modifications to the process control system should only be carried out when the system has been disconnected from power!
  – Installation and hardware modifications only by properly trained personnel.
  – The national rules and regulations of the respective country must be satisfied (installation, safety, EMC ...)

Disposal
National rules and regulations apply to the disposal of the unit!
2 Product description

The T1 Terminator provides active and reliable termination for PROFIBUS networks which are based on RS485. By using this component it is possible to turn off, remove or replace devices without disturbing the bus communication. This applies in particular to the devices at the end of the segment.

- The T1 has a couple of special features which makes it a very useful infrastructure component; it has a redundant power supply and diagnostic LEDs to indicate the status of each power source. It is also equipped with an additional DB9 connector for maintenance/engineering tool. The DB9 connector can also be used as the primary bus connection if circumstances so dictate.
- The T1 Terminator can be installed on a standard DIN-rail.
3 Installation instruction

3.1 Location

The T1 Terminator can be installed everywhere in a non-hazardous area that complies with IP 20 (DIN 40 050) and the specified temperature range of -20 ... +60 °C.

3.2 Position

The T1 Terminator can be installed in every position, but it is recommended to install it with the green PROFIBUS connector pointing down. In this position it is easier to read the status display and to perform measurements on the DB9 connector.

3.3 Mounting and dismounting

The T1 has to be mounted on a 35 mm DIN rail with a minimum width of 60 mm.

Mounting

Pull-down the T1 and push it on the DIN rail.

Dismounting

Push-up the T1 and pull it of the DIN rail.

3.4 Power supply

Parameters

The power supply has to comply with the following specifications:

Voltage: 19 to 28 V DC
Current: min. 65 mA
Wiring

The leads of both power connectors have to be wired as follows:

<table>
<thead>
<tr>
<th>Pin</th>
<th>Wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>Positive voltage</td>
</tr>
<tr>
<td>-</td>
<td>0V</td>
</tr>
<tr>
<td>SH</td>
<td>Shield</td>
</tr>
</tbody>
</table>

Redundancy

Both power connectors are linked 1-on-1 to the internal power supply of the T1. If 1 power supply would fail, the other takes over without delay time. When redundancy is not required, it is sufficient to use 1 power connector. When the T1 is flipped 180°, the connectors can be used without alteration.

Diagnostic LEDs

<table>
<thead>
<tr>
<th></th>
<th>OFF</th>
<th>Blinking</th>
<th>ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Power is OFF or an internal failure. Check if P2 is on.</td>
<td>Power supply not stable or an internal failure. Check if P2 is on.</td>
<td>Power supply OK</td>
</tr>
<tr>
<td>P2</td>
<td>Power is OFF or an internal failure. Check if P1 is on.</td>
<td>Power supply not stable or an internal failure. Check if P1 is on.</td>
<td>Power supply OK</td>
</tr>
</tbody>
</table>
3.5 PROFIBUS

The T1 Terminator has 1 PROFIBUS connector, this is where the DP segment ends. It is common practice to connect the PROFIBUS cable to the green screw connector. This keeps the DB9 connector available for maintenance activities.

**Screw connectors**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Green wire</td>
</tr>
<tr>
<td>B1</td>
<td>Red wire</td>
</tr>
<tr>
<td>SH</td>
<td>Cable shielding</td>
</tr>
</tbody>
</table>

**Piggy back connector**

The piggy back DB9 connector is connected 1-on-1 with the PROFIBUS screw connector.
Ground Clip

It is recommended to use the supplied ground clip to attach the cable shield to the screw connector, for easier shield connection and better strain relief.
## Technical data

<table>
<thead>
<tr>
<th>Order no.</th>
<th>924-1BB10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions and weight</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Dimensions L x W x H (mm) | 106 x 55 x 33 mm (without plugs)  
106 x 55 x 55 mm (with plugs) |
| Weight | ca. 125 g |
| **Ambient conditions** | |
| Operating temperature | -20 ... +60 °C |
| Isolation class | IP 20 (DIN 40 050) |
| **Protocol specifications** | |
| Supported Protocols | DP-V0, DP-V1, DP-V2, FDL, MPI, FMS, PROFlsafe, PROFldrive and any other FDL based protocol |
| Transmission speed | 9.6 kbps to 12 Mbps (including 45.45 kbps) |
| **PROFIBUS cable specifications** | |
| Cable lengths | 1200 m at 9.6 kbps to 93.75 kbps  
1000 m at 187.5 kbps  
400 m at 500 kbps  
200 m at 1.5 Mbps  
100 m at 3 Mbps to 12 Mbps |
| Wire diameter | < 2.5 mm² |
| Wire type | Stranded or Solid core |
| Termination | Powered according to IEC 61158 (390/220/390 Ohm) |
| **Power supply specifications** | |
| Nominal supply voltage | 19 to 28 V DC |
| Current consumption | 65 mA at 24 V DC |
| Power dissipation | max. 2W |
| Redundancy | Yes (Power 1 OR Power 2) |
| Power LED | Power 1 OR Power 2 |
| Reverse polarity protection | Yes |
| Wire diameter | < 2.5 mm² |