FIELDBUS COMPONENTS FOR FOUNDATION™ FIELDBUS
Fieldbus systems in process automation
Fieldbus systems have become prevalent in the field of process automation in addition to decentral peripheral systems. FOUNDATION™ fieldbus and PROFIBUS-PA fieldbus systems are now the established fieldbuses in this field (for further information about the TURCK-product portfolio and in particular PROFIBUS-PA products, please see catalog D301026). The advantages of both of these systems are the process adapted specification and the real interoperability of field devices from various manufacturers and their compatibility with external host systems.

Both the FOUNDATION™ fieldbus and PROFIBUS-PA fieldbus fulfill the demands of the chemical, pharmaceutical and petrochemical industries. The most important features are:
- standardised user profile
- suited for use in explosion hazardous areas
- bus supply and fieldbus communication via shielded and twisted pair cables
- online device exchange without affecting system processes
- diagnostics for Asset Management

Comprehensive tests performed by the industry, interest groups and committees confirm the unlimited suitability of both bus systems for use in process engineering.

TURCK fieldbus components
With TURCK products you are not tied down to company-specific fieldbus technologies, but can choose the most suitable bus product for your application from a comprehensive product spectrum.

TURCK offers the complete range for all conventional industrial fieldbus systems in factory and process automation, no matter whether you require junction modules, connection products or even complete systems.

TURCK fieldbus components are specially designed for the harsh industrial environment. The extensive product line for diverse applications fulfills all demands and provides Plug & Play connectivity to ensure fast and easy connection of the field device to the control system.

Fieldbus cables and cordsets in various fieldbus standards and materials and with different connector types are available for data transfer and voltage supply of the stations.

Junction modules in IP67 (1, 4 and 6 ports)
- Device versions for use in:
  - zone 1
  - zone 2
  - Non-Ex area
- Adjustable current limitation
- Switch-in terminating resistors
- Housing material: powder-coated aluminium die-cast (4- and 6-port types) or encapsulated Polyurethane (PUR) for the single channel versions.
- Connection technology: cable glands- or flange connections in 7/8” or M12 × 1, stainless steel

Junction modules in IP20 (4, 6, 8 and 12 ports)
- Device versions for use in:
  - zone 1
  - zone 2
  - Non-Ex area
- Adjustable current limitation
- Switch-in terminating resistors
- Housing material: aluminium

Connection technology: cage clamp terminals or removable connectors

Stainless steel housing for IP20 junction boxes
- Plastic or stainless steel cable glands
- Degree of protection IP67
- Pressure compensation element
- Isolated shielding bus

Multibarriers in IP66 (4 ports)
- Installation in explosion hazardous areas (zone 1)
- Galvanic isolation between the EEx i outputs and the EEx e main cable as well as between the individual EEx i outputs
- Fieldbus power supply according to enhanced safety EEx e
- Four intrinsically safe EEx ia outputs, 4 × 40 mA, short-circuit protected and non-interacting
- FISCO and Entity conform outputs (IEC TS 60079-27)
- Short-circuit indication via LEDs (inside housing)
- Integrated terminating resistors (switch-in)
**Diagnostic Power Conditioner System**
- Segment and system diagnostics
- Commissioning support
- Longterm diagnostics via FF-HSE
- FF functions blocks for diagnostic alarms
- Diagnostics via DTM and/or DD
- Redundant power supply
- High output power for extended fieldbus segments (800 mA, 30 VDC)
- Complete galvanic isolation

**FISCO and FNICO power supply**
- Integrated repeater function
- Certified to FISCO and FNICO
- Switch-in terminating resistor
- Switch-in power supply for the host
- Output current:
  - 120 mA or 265 mA for FISCO
  - 180 mA or 320 mA for FNICO

**Connectors**
- Connector size: M12 x 1 or 7/8”, type: straight or angled
  (angled M12 x 1 only)
- Plug-and-Play technology
- Load capacity: 7/8” with 9 A, M12 x 1 with 4 A
- Connector pin assignment conform to CENELEC standard EN 50044

**Fieldbus cable available as bulk cable or premoulded**
- For indoor and outdoor use
- For connection to field-wireable M12 x 1 or 7/8” connectors, PG9 or M16/M20 cable glands
- Simple installation via Fast-Assembly™ technology
- Just-In-Time delivery by the TURCK-JIT-SD-programme: Delivery of all available premoulded cable lengths within 5 days.

**Terminating resistors**
- Versions for intrinsically-safe and non-intrinsically safe circuits
- M12 x 1 or 7/8”
- Plug-and-Play technology
- Connector pin assignment conform to CENELEC standard EN 50044

**Special accessories**
- Stripping tool, stripping of round (shielded) data conductors from 2.5...8 mm Ø (also for FastConnect®/Fast Assembly™)
- Special tool for cable glands on multibarrier and junction modules
- Closure caps and feed-throughs in 7/8” and M12 x 1

**Flange connections**
- Field-wireable or prefabricated
- Connector size: M12 x 1 or 7/8”
- Solderable and screw-type versions
- Standard installation thread
- Stainless steel housings

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Service & Support

A fast delivery service and a comprehensive e-support system perfectly complement the extensive TURCK program.

With the product database, available on www.turck.com, TURCK offers a fast way to problem solving around the clock, seven days a week, at any place in this world and in six different languages.

Around 13000 products, clearly structured and completely documented, are ready for you to download together with all the necessary information you need. Please have a look on: www.turck.com
FIELDBUS COMPONENTS FOR FOUNDATION™ FIELDBUS

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FOUNDATION™ fieldbus
Basics

FOUNDATION™ fieldbus – Bus physics
With the publication of the international standard IEC 61158-2 in October 1994, a suitable transmission technology was determined and internationally specified for the application areas of FOUNDATION™ fieldbus and PROFIBUS-PA. This was later integrated into the European standards as EN 61158-2.

Both systems comply with IEC 61158-2 and operate on the voltage mode with a transmission speed of 31.25 kBit/s. In this way the data packages are modulated onto the supply voltage for the fieldbus station and transmitted via a shielded two-wire cable (see Fig. 1).

These bus physics offer a decisive advantage: fieldbus communication and power supply of the bus station can be implemented using a single cable. These bus physics lead to enhanced operational safety and lower costs compared with the conventional fieldbus solution used up to this point with its additional wiring effort.

Characteristics features of the IEC 61158-2 transmission physics

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data transmission</td>
<td>digital, bit synchronous, Manchester coding</td>
</tr>
<tr>
<td>Transmission speed</td>
<td>31.25 kBit/s, voltage mode</td>
</tr>
<tr>
<td>Data security</td>
<td>preamble, fault protected start and end delimiter</td>
</tr>
<tr>
<td>Cable</td>
<td>shielded and twisted 2-wire cable</td>
</tr>
<tr>
<td>Remote supply of the stations</td>
<td>optionally via signal cables</td>
</tr>
<tr>
<td>Protection classes</td>
<td>intrinsically safe (Ex ia/ib or Ex na), increased safe (Ex e or Ex na) and</td>
</tr>
<tr>
<td></td>
<td>explosion protected (EEx d/m/p/q)</td>
</tr>
<tr>
<td>Topology</td>
<td>spur and tree topologies; also in combination</td>
</tr>
<tr>
<td>Number of stations</td>
<td>up to 32 stations per cable segment</td>
</tr>
<tr>
<td>Repeater</td>
<td>can be extended with a maximum of 4 repeaters</td>
</tr>
</tbody>
</table>
FOUNDATION™ fieldbus – Topology

The FOUNDATION™ fieldbus network is either

- opened directly via a FOUNDATION™ fieldbus segment card from the process host system and supplied via the TURCK DPC system (diagnostic power conditioner system) (Fig. 2 and 3)
- or enabled via a “linking device” by high speed Ethernet (HSE).

We recommend the use of TURCK multibarriers for a FOUNDATION™ fieldbus application in the explosion hazardous area (Fig. 3) which can supply up to 32 stations (in the explosion hazardous area) when “cascaded”. The benefits compared to a simple intrinsically safe power supply device are primarily the enhanced number of stations within a bus segment. Furthermore, a higher level of security is given by the enhanced level of availability provided by the galvanic isolation to all sides in the barrier (refer to page 33 for more details).

The number of multibarriers, which can be switched in, and the usable cable lengths depend on the output power of the power conditioner and also on the cable type. TURCK recommends the long-distance cable type FBY.../LD (see page 125) for the main cable (trunk line); for the outputs the standard cable type FBY.../SD (see page 124) is recommended.

Both system configurations in Fig. 2 and 3 are operated with the TURCK DPC system (diagnostic power conditioner system, see from page 10 on). Due to the high output power of the DPC system, segments can be extended up to 1900 m.

**Fig. 2** Topology – FOUNDATION™ fieldbus in the non-explosion hazardous area

**Fig. 3** Topology – FOUNDATION™ fieldbus in the explosion hazardous area
In zone 2 a simple but safe energy limitation is necessary. Fig. 4 shows a FOUNDATION™ fieldbus network topology for zone 2. The power limitation can of cause be implemented in the power supply, e.g. with the TURCK-FNICO-Power-Supply. The advantage is, that working within zone 2 is possible while the system is under power. The disadvantages are, the low number of field devices per FNICO-Power-Supply and a limited segment extension of 1000 m maximum.

Due to these disadvantages TURCK recommends the combination of the power conditioner and the TURCK junction boxes with short circuit protection, also applicable in zone 2. The trunk line is fed with explosion protection Ex nA, as the output of the power conditioner is voltage limited. The limitation of power in the junction boxes is implemented such that the circuits of the drop line are limited according to Ex nL. Therefore working at the field devices during operation is possible and the segment can be extended up to 1900 m max. (Fig. 5).

A FOUNDATION™ fieldbus network in non-Ex and Ex areas can also be established via a HSE-H1 link. HSE stands for “High Speed Ethernet” and supports Ethernet fieldbus solutions. In addition to the Ethernet protocol family, the HSE also supports the FOUNDATION™ fieldbus H1 protocol. As a result, it is possible to access every Ethernet based network with a transmission speed of 10...1000 MBit/s in H1 fieldbus segments.

HSE and H1 have been fundamentally developed as supplementary networks. Whereas H1 has been optimized for applications in traditional process automation, HSE is more suited for high performance process control applications. Attractively-priced, commercial standard Ethernet devices can be operated in HSE applications.

The combined H1 and HSE fieldbus solution enables complete integration of fundamental and complex industrial process instrumentation and measurement into the higher level control system. This kind of integrated architecture not only helps to reduce system downtimes but also provides improved diagnostic functions and better user information.
### Overview – Application areas of TURCK’s fi eldbus components in the explosion hazardous and non-explosion hazardous area

<table>
<thead>
<tr>
<th>Application in EEx i circuits conform to FISCO</th>
<th>Application in EEx i circuits conform to EN 60079-11</th>
<th>Application in Ex nL circuits conform to</th>
<th>Installation in Zone 0</th>
<th>Installation in Zone 1</th>
<th>Installation in Zone 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 0</td>
<td>Zone 1</td>
<td>Zone 2</td>
<td>FNICO Entity</td>
<td>Zone 0</td>
<td>Zone 1</td>
</tr>
</tbody>
</table>

- **Junction boxes without short-circuit protection**
  - JBBS...M.../3G
  - JBBS...E.../3G
  - JBBS...T.../3G

- **Junction boxes with short-circuit protection**
  - JBBS...SC...M.../3G
  - JBBS...SC...E.../3G
  - JBBS...SC...T.../3G

- **Ex junction boxes without short-circuit protection**
  - JBBS...M.../Ex
  - JBBS...E.../Ex
  - JBBS...T.../Ex

- **Ex junction boxes with short-circuit protection**
  - JBBS...SC...M.../Ex
  - JBBS...SC...E.../Ex
  - JBBS...SC...T.../Ex

- **Ex junction boxes for DIN rail mounting**
  - JBBS...1)

- **Multibarriers**
  - MB...2)

- **Power conditioner system**
  - FISCO power supply
  - FNICO power supply

- **Terminating resistors**
  - RS...-TR
  - RS...-TR/Ex

- **Passive equipment without electronics (cable, connectors, fl anges ...3)**

**Application:**
- ✔ = allowed
- — = not allowed

---

1) Use only permitted when installed in an additional housing (minimum IP54 degree of protection)
2) Equipment with differing protection classes – only the EEx i outputs have intrinsically safe circuits
3) Taking consideration of the EN 60079-0, EN 60079-11 and EN 60079-14 standards

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**CAUTION**
If previously operated in non-intrinsically safe applications, subsequent installation in intrinsically safe applications is not allowed.
FOUNDATION™ fieldbus
Backplane for the DPC system
DPC-49-4RMB

The DPC system (Diagnostic Power Conditioner) is a power supply system for the installation of FOUNDATION™ fieldbus H1 segments. It provides extensive diagnostic options for monitoring FOUNDATION™ fieldbus segments and thus supports plant-wide asset management.

A DPC system consists of one or more module racks, each with up to eight DPC-49-IPS1 power supply modules and one DPC-49-ADU resp. DPC-49-DU diagnostics module. Up to four H1 segments for each module rack can be operated and monitored redundantly in the FOUNDATION™ fieldbus network. The diagnostic data of the H1 segment can be transmitted via the HSE interface module DPC-49-HSEFD/24VDC to the higher level asset management system (only in conjunction with the diagnostics module DPC-49-ADU).

The module rack consists of a backplane and the actual rack system for the power supply modules and the diagnostics module.

The single components of the system are electrically linked via the connection terminals of the backplane. From electrical perspective, the backplane is to be considered passive.

The power can be supplied via two 2-pole screw connectors. The connection of the host system is established per segment via removable 3-pole screw terminals.

For the connection of the H1 segments to the fieldbus side, each segment is individually connected with a removable 3-pole screw terminal.

The shielding is achieved via insulated shield bus or via the 3-pole screw terminal, which is internally connected with the M5 threaded bolt for equipotential bonding. A further M5 threaded bolt for equipontential bonding is simply connected to the housing.

For simple diagnostics processing, a connection is provided to the relay alarm contact of the diagnostics module.

- Module rack for up to 8 power supply modules and 1 diagnostics module for the mounting of up to 4 H1 segments.
- Redundant power supply
- Removable terminal blocks with screw connections
- RJ45 connector for HSE fieldbus diagnostics
FOUNDATION™ fieldbus
Backplane for the DPC system
DPC-49-4RMB

<table>
<thead>
<tr>
<th>Type</th>
<th>DPC-49-4RMB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6882024</td>
</tr>
</tbody>
</table>

**Operational voltage range:**
- Operational voltage range: 18 … 32 VDC
- Overvoltage protection: > 250 VDC

**Electrical connection:**
- removable terminal block, reverse polarity protected, screw connection
- RJ45 socket

**Dimensions**
- MT50/MT50/MT48
- MT50/MT49/MT48
- MT49/MT48/MT55
- MT49/MT49/MT51

**Operational voltage range:**
- Operational voltage range: 18 … 32 VDC
- Overvoltage protection: > 250 VDC

**Electrical connection:**
- removable terminal block, reverse polarity protected, screw connection
- RJ45 socket

**Degree of protection:**
- IP20

**Ambient temperature:**
- Ambient temperature: -20 … + 60 °C

**Housing material:**
- Housing material: aluminium

**Housing color:**
- Housing color: black/yellow

**Dimensions:**
- Dimensions: 220 x 210 x 113 mm

**Connection mode:**
- Connection mode: snap-on DIN rail (EN 60715)

**Accessories**

<table>
<thead>
<tr>
<th>Type code</th>
<th>Ident-No.</th>
<th>Short text</th>
<th>Dimension drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM-DPC</td>
<td>6882015</td>
<td>blind module for unused slots</td>
<td></td>
</tr>
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</table>
FOUNDATION™ fieldbus
Backplane for the DPC system
DPC-49-4RMB/SY

The DPC system (Diagnostic Power Conditioner) is a power supply system for the installation of FOUNDATION™ fieldbus H1 segments. It provides extensive diagnostic options for monitoring FOUNDATION™ fieldbus segments and thus supports plant-wide asset management.

A DPC system consists of one or more module racks, each with up to eight DPC-49-IPS1 power supply modules and one DPC-49-ADU resp. DPC-49-DU diagnostics module. Up to four H1 segments for each module rack can be operated and monitored redundantly in the FOUNDATION™ fieldbus network. The diagnostic data of the H1 segments can be transmitted via the HSE interface module DPC-49-HSEFD/24VDC to the higher level asset management system (only in conjunction with the diagnostics module DPC-49-ADU).

The module rack consist of a backplane and the actual rack system for the power supply modules and the diagnostics module.

The single components of the system are electrically linked via the connection terminals of the backplane. From electrical perspective, the backplane is to be considered passive.

The power can be supplied via two 2-pole screw connectors. The connection to the host system is provided via two system cables. Premoulded system cables are optionally available at TURCK.

For the connection of the H1 segments to the fieldbus side, each segment is individually connected with a removable 3-pole screw terminal.

The shielding is achieved via insulated shield bus or via the 3-pole screw terminal, which is internally connected with the M5 threaded bolt for equipotential bonding. A further M5 threaded bolt for equipotential bonding is simply connected to the housing.

For simple diagnostics processing, a connection is provided to the relay alarm contact of the diagnostics module.

- Module rack for up to 8 power supply modules and 1 diagnostics module for the mounting of up to 4 H1 segments.
- Redundant power supply
- Redundant HOST connection
- Removable terminal blocks with screw connections
- RJ45 connector for HSE fieldbus diagnostics
**FOUNDATION™ fieldbus**  
Backplane for the DPC system  
DPC-49-4RMB/SY

<table>
<thead>
<tr>
<th>Type</th>
<th>DPC-49-4RMB/SY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6882025</td>
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</tbody>
</table>

**Operational voltage range:**  
18 … 32 VDC

**Overvoltage protection:**  
> 250 VDC

**Electrical connection:**  
removable terminal block, reverse polarity protected, screw connection  
RJ45 socket

**Degree of protection:**  
IP20

**Ambient temperature:**  
-20 … + 60 °C

**Housing material:**  
aluminium

**Housing color:**  
black/yellow

**Dimensions:**  
220 x 210 x 113 mm

**Connection mode:**  
snap-on DIN rail (EN 60715)

**Accessories**

<table>
<thead>
<tr>
<th>Type code</th>
<th>Ident-No.</th>
<th>Short text</th>
<th>Dimension drawing</th>
</tr>
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<tr>
<td>BM-DPC</td>
<td>6882015</td>
<td>blind module for unused slots</td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions**
The DPC system (Diagnostic Power Conditioner) is a power supply system for the installation of FOUNDATION™ fieldbus H1 segments.

The module rack consists of a backplane and the actual rack system for the power supply modules.

The single components of the system are electrically linked via the connection terminals of the backplane.

Redundant power supply via two 2-pole screw connectors. The connection to the host system is established via a removable 3-pole screw terminal.

The H1 segment is connected separately on the fieldbus side via a removable 3-pole screw terminal.

The shielding is achieved via insulated shield bus or via the 3-pole screw terminal, which is internally connected with the M5 threaded bolt for equipotential bonding. A further M5 threaded bolt for equipotential bonding is simply connected to the housing.

A connection to the relay alarm contact is provided for redundancy monitoring of the external power supply and the H1 power supply modules.

- Module rack for two power supply modules to build a H1 segment
- Redundant power supply
- Removable terminal blocks with screw connections
FOUNDATION™ fieldbus
Backplane for the DPC system
DPC-49-1RMB

<table>
<thead>
<tr>
<th>Type</th>
<th>DPC-49-1RMB</th>
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<tbody>
<tr>
<td>Ident-No.</td>
<td>6882026</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Operational voltage range:</th>
<th>18 … 32 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overvoltage protection</td>
<td>&gt; 250 VDC</td>
</tr>
</tbody>
</table>

| Electrical connection       | removable terminal block, reverse polarity protected, screw connection |

<table>
<thead>
<tr>
<th>Degree of protection</th>
<th>IP20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>-20 … + 60 °C</td>
</tr>
<tr>
<td>Housing material</td>
<td>aluminium</td>
</tr>
<tr>
<td>Housing color</td>
<td>black/yellow</td>
</tr>
<tr>
<td>Dimensions</td>
<td>220 x 210 x 113 mm</td>
</tr>
<tr>
<td>Connection mode</td>
<td>snap-on DIN rail (EN 60715)</td>
</tr>
</tbody>
</table>
The DPC system (Diagnostic Power Conditioner) is a power supply system for the installation of FOUNDATION™ fieldbus H1 segments. It provides extensive diagnostic options for monitoring FOUNDATION™ fieldbus segments and thus supports plant-wide asset management.

A DPC system consists of one or more module racks, each with up to eight DPC-49-IPS1 power supply modules and one DPC-49-ADU resp. DPC-49-DU diagnostics modules. Up to four H1 segments for each module rack can be operated and monitored redundantly in the FOUNDATION™ fieldbus network. The diagnostic data of the H1 segment can be transmitted via the HSE interface module DPC-49-HSEFD/24VDC to the higher level asset management system (only in conjunction with the diagnostics module DPC-49-ADU).

The power supply module provides up to 30 VDC and 800 mA for the installation of a H1 segment. The network topology can be extended to 1900 m, due to the high output performance.

If two power supply modules are connected, the segment can be operated redundantly. Thereby the modules can be plugged and unplugged during operation (Hot swap-able in run).

Due to complete galvanic isolation, H1 to H1, H1 to internal supply, H1 to the diagnostic module, H1 to HSE diagnostic bus, formation of parasitic voltages is avoided and error-free communication is guaranteed.

Local commissioning and diagnostics are supported by the following LED indications:

- Pwr: green: Operational readiness
- ON/OFF: yellow: Output ON:
- Load: yellow: Consumer (field device) detected at segment:
- Com: yellow: Communication display
- Fault: red: Short-circuit message

- Supply of one FOUNDATION™ fieldbus H1 segment
- Output current: 800 mA
- Output voltage: 28...30 VDC
- Local diagnostics via LEDs
- Complete galvanic isolation
**FOUNDATION™ fieldbus**  
**Power supply module**  
**DPC-49-IPS1**

<table>
<thead>
<tr>
<th>Type</th>
<th>DPC-49-IPS1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6882023</td>
</tr>
</tbody>
</table>

**Supply voltage**  
Current consumption: 0.8 ... 1.7 A  
Test voltage: complete galvanic isolation, test voltage 500 VAC

**Output circuits**  
Field:  
- Output current: ≤ 800 mA  
- Output voltage: > 28 VDC  
- Short-circuit protection: ≤ 850 mA  
- Efficiency: 80 %

**Output circuits**  
HOST:  
- Output current: < 30 mA  
- Output voltage: 27 VDC

**Indication**  
- Operational readiness: 1 x green  
- Output active: 1 x yellow  
- Output current: 1 x yellow  
- Short-circuit message: 1 x red  
- Bus communication: 1 x yellow

**Degree of protection**  
- Operational readiness: IP20  
- Ambient temperature: -20 ... + 60 °C  
- Relative humidity: ≤ 95% at 55 °C acc. to EN 60069-2  
- Housing material: plastic  
- Flammability class: V-0 to UL 96  
- Housing color: yellow  
- Dimensions: 18 x 118 x 103 mm
The DPC system (Diagnostic Power Conditioner) is a power supply system for the installation of FOUNDATION™ fieldbus H1 segments. It provides extensive diagnostic options for monitoring FOUNDATION™ fieldbus segments and thus supports plant-wide asset management.

A DPC system consists of one or more module racks, each with up to eight DPC-49-IPS1 power supply modules and one DPC-49-ADU or DPC-49-DU diagnostic modules. Up to four H1 segments per module rack can be operated and monitored redundantly in the FOUNDATION™ fieldbus network. The diagnostic data of the H1 segment can be transmitted via the HSE interface module DPC-49-HSEFD/24VDC to the higher level Asset Management system (only in conjunction with the diagnostics module DPC-49-ADU).

The DPC-49-DU monitors the external power supply at the module rack, the FOUNDATION™ fieldbus-H1 power modules and their redundant operation mode. The diagnostic function can be switched off separately for each segment.

The device features three LEDs indicating the operating status. Alarm messages are indicated by a red LED. Alarm signals are also output via a relay contact.

- Redundancy monitoring of 4 H1 segments.
- Local diagnostics via LEDs
- Alarm signal via relay contact
- Complete galvanic isolation
**FOUNDATION™ fieldbus**  
**Diagnostic module**  
**DPC-49-DU**

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
<th>DPC-49-DU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ident-No.</strong></td>
<td>6882021</td>
</tr>
</tbody>
</table>

**Supply voltage**
- via the backplane
- Current consumption: $< 100 \text{ mA}$
- Test voltage: complete galvanic isolation, test voltage 500 VAC

**Diagnostics**
- 1 x relay
- Switching current: $\leq 1000 \text{ mA}$
- Switching voltage: $\leq 30 \text{ VDC}$
- Galvanically isolated from other electronic devices

**Operational readiness**
- 2 x green
- 1 x red

**Degree of protection**
- IP20
- Ambient temperature: $-20 \ldots + 60 \degree \text{ C}$
- Housing material: plastic
- Flammability class V-0 to UL 96
- Housing color: yellow
- Dimensions: $18 \times 118 \times 103 \text{ mm}$
The DPC system (Diagnostic Power Conditioner) is a power supply system for the installation of FOUNDATION™ fieldbus H1 segments. It provides extensive diagnostic options for monitoring FOUNDATION™ fieldbus segments and thus supports plant-wide asset management.

A DPC system consists of one or more module racks, each with up to eight DPC-49-IPS1 power supply modules and one DPC-49-ADU resp. DPC-49-DU diagnostics modules. Up to four H1 segments for each module rack can be operated and monitored redundantly in the FOUNDATION™ fieldbus network. The diagnostic data of the H1 segment can be transmitted via the HSE interface module DPC-49-HSEFD/24VDC to the higher level fieldbus network (e.g. the host) as diagnostic and alarm data. Thereby the modules can be plugged and unplugged during operation (Hot swap-able in run).

The diagnostics module DPC-49-ADU is used as a diagnostic interface between H1 segments and the HSE interface module. The diagnostics module monitors the electrical and the communication parameters of the H1 segments. Operation without diagnostics module is possible.

The diagnostic information is collected in the device and transmitted via the HSE interface module to the higher fieldbus level (e.g. the host) as diagnostic and alarm data. Additionally, alarm signals can be analysed via a relay contact.

- Long-term diagnostics for 4 H1 segments
- Local diagnostics via LEDs
- Alarm signal via relay contact
- Complete galvanic isolation
# FOUNDATION™ fieldbus

## Diagnostic module

### DPC-49-ADU

<table>
<thead>
<tr>
<th>Type</th>
<th>DPC-49-ADU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6882012</td>
</tr>
</tbody>
</table>

### Supply voltage

<table>
<thead>
<tr>
<th>Current consumption</th>
<th>via the backplane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test voltage</td>
<td>&lt; 100 mA</td>
</tr>
<tr>
<td></td>
<td>complete galvanic isolation, test voltage 500 VAC</td>
</tr>
</tbody>
</table>

### Diagnostics

<table>
<thead>
<tr>
<th>Switching current</th>
<th>≤ 1000 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switching voltage</td>
<td>≤ 30 VDC</td>
</tr>
<tr>
<td></td>
<td>galvanically isolated against other electronic parts</td>
</tr>
</tbody>
</table>

### Operational readiness

<table>
<thead>
<tr>
<th>Alarm</th>
<th>1 x green / red</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 x yellow / red</td>
</tr>
</tbody>
</table>

### Degree of protection

<table>
<thead>
<tr>
<th>Ambient temperature</th>
<th>-20 …+ 60 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing material</td>
<td>plastic</td>
</tr>
<tr>
<td>Housing color</td>
<td>yellow</td>
</tr>
<tr>
<td>Dimensions</td>
<td>18 x 118 x 103 mm</td>
</tr>
</tbody>
</table>
The DPC system (Diagnostic Power Conditioner) is a power supply system for the installation of FOUNDATION™ fieldbus H1 segments. It provides extensive diagnostic options for monitoring FOUNDATION™ fieldbus segments and thus supports plant-wide asset management.

A DPC system consists of one or more module racks, each with up to eight DPC-49-IPS1 power supply modules and one DPC-49-ADU resp. DPC-49-DU diagnostics modules. Up to four H1 segments for each module rack can be operated and monitored redundantly in the FOUNDATION™ fieldbus network. The diagnostic data of the H1 segment can be transmitted via the HSE interface module DPC-49-HSEFD/24VDC to the higher level asset management system (only in conjunction with the diagnostics module DPC-49-ADU).

The diagnostic data of up to 16 H1 segments are transmitted by the HSE interface module DPC-49-HSEFD/24VDC via the FOUNDATION™ fieldbus-HSE to the higher level asset management system. Only diagnostics data of the DPC-49-ADU are transmitted via the HSE interface module but not the process data of the H1 segments. Each diagnostics module monitors up to four H1 segments.

As a FOUNDATION™ fieldbus device the HSE interface module features a resource and transducer block as well as several standard function blocks. On the basis of these standard function blocks, suitable applications can be programmed in the control system for the analysis of diagnostic data.

Features
- HSE interface device for transmission of diagnostics data
- FOUNDATION™ fieldbus function blocks for remote diagnostics
- Local diagnostics via LEDs
- Long-term diagnostics for 16 H1 segments
- Complete galvanic isolation
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Witzlebenstraße 7  
45472 Mülheim/Ruhr  
Germany  
Tel. +49 (0)208 4952-0  
Fax +49 (0)208 4952-264  
more@turck.com  
www.turck.com

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**FOUNDATION™ fieldbus**  
**HSE field device**  
**DPC-49-HSEFD/24VDC**

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
<th><strong>Ident-No.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>DPC-49-HSEFD/24VDC</td>
<td>6882014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Supply voltage</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption</td>
<td>&lt; 100 mA</td>
</tr>
<tr>
<td>Test voltage</td>
<td>complete galvanic isolation, test voltage 500 VAC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Indication</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational readiness</td>
<td>2 x green</td>
</tr>
<tr>
<td>State/ Fault</td>
<td>1 x yellow / red</td>
</tr>
<tr>
<td>Bus communication</td>
<td>1 x green / yellow</td>
</tr>
<tr>
<td>Int. communication (CAN)</td>
<td>1 x yellow / red</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Electrical connection</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>removable terminal block, reverse polarity protected, screw connection RJ45 connector</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Degree of protection</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>-20 … + 60 °C</td>
</tr>
<tr>
<td>Housing material</td>
<td>aluminium</td>
</tr>
<tr>
<td>Housing color</td>
<td>black/yellow</td>
</tr>
<tr>
<td>Dimensions</td>
<td>176 x 105 x 31 mm</td>
</tr>
<tr>
<td>Connection mode</td>
<td>snap-on DIN rail (EN 60715)</td>
</tr>
</tbody>
</table>

---

**Dimensions**

![Dimensions Diagram]
The RPC49-205 provides two segments for the installation of a FOUNDATION™ fieldbus network. In combination with the PSU-3214, each segment provides up to 500 mA with an output voltage of at least 27.5 V. The output voltage depends on the output current. The conditioner can be supplied redundantly by two supply devices, whereby "POWER A" is the primary input. As long as no redundant voltage supply is available, the voltage supply should be connected to "POWER B". Should the voltage at "POWER A" drop below 20 V, input "POWER B" is energized.

The two green LEDs indicate power ON. The green active LEDs also indicate power ON. The two short-circuit protected outputs of the power conditioner switch off the output in case of overload (I > 500 mA). The switch-off state is indicated by a red LED for each segment. The overload protection for the correspondent segment can be reset with two reset buttons.

Hardware diagnostics is provided via the monitor terminals. The power conditioner is equipped with an optional terminating resistor for the bus.

- Supply of 2 H1-segments, connection via removable screw terminals
- Aluminium rail housing
- Degree of protection IP20
- Connection of the housing potential via an M5 x 1 bolt
- Monitor function
- LEDs for indication of the operating status
- 2 x 500 mA output current
- Redundant power supply
- Short-circuit protected outputs
FOUNDATION™ fieldbus
Power conditioner, dual channel
RPC49-205

<table>
<thead>
<tr>
<th>Type</th>
<th>RPC49-205</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6603801</td>
</tr>
</tbody>
</table>

**Operational voltage range:**
- 21 … 32 VDC
- > 36 VDC

**Current consumption:**
- 535 mA (1 x 500 mA I_{out})
- 1043 mA (2 x 500 mA I_{out})

**Voltage drop:**
- ≤ 4.4 V

**Output circuits**
- Output current: ≤ 500 mA
- Output voltage: U_{out} = Pwr - [2 V + (I_{out} x 4.4 Ohm)]
- Short-circuit protection: ≤ 500 mA

**Diagnostics**
- 2 x solid state relay
- Switching current: ≤ 700 mA
- Switching voltage: ≤ 400 VDC
  - galvanically isolated against other electronic parts.

**Indication**
- Operational readiness: 2 x green
- Output active: 2 x green
- Short-circuit message: 2 x red

**Electrical connection**
- 8 x 3-pole removable terminal blocks, screw connection
- Terminal cross-section: 2.5 mm^2
- Earthing bolt: M5 x 1

**Degree of protection**
- IP20
- Ambient temperature: -20 … + 70 °C
- Relative humidity: ≤ 95 %, non condensing
- Housing material: aluminium
- Housing color: black/yellow
- Dimensions: 182 x 75 x 30 mm
- Connection mode: snap-on DIN rail (EN 60715)

**Dimensions**

**Segment (in/out):**
- Segment 2 In
- Segment 1 In
- Segment 2 Out
- Segment 1 Out

**power/monitor**
- Power A
- Monitor A
- Power B
- Monitor B

**Voltage dip/ load current**

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Hans Turck GmbH & Co.KG  •  Witzlebenstraße 7  •  45472 Mülheim/Ruhr  •  Germany  •  Tel. +49 (0)208 4952-0  •  Fax +49 (0)208 4952-264  •  more@turck.com  •  www.turck.com
The power supply unit PSU-3214 supplies a power conditioner.

The device provides safety extra-low voltage (SELV) according to IEC/EN 60950. It features protection class II and corresponds to EMC class B.

The output voltage is 32 VDC with a maximum output current of 1.4 A. The overload protection is activated if the current exceeds 1.6 A.

Depending on the output current, the fieldbus segment is supplied with an output voltage of approx. 29 V which is provided in combination with the TURCK power conditioner RPC49-205.

Cable lengths of up to 1900 m in the Ex area can be achieved with the TURCK multibarrier MBD49-T415/Ex in combination with the power conditioner.

The green LED indicates operational readiness.

- Output voltage 32 VDC
- Output current 1.4 A
- Safety extra low voltage SELV according to IEC/EN 60950
- Universal operating voltage (94...264 VAC)
Power supply
single-channel
PSU-3214

<table>
<thead>
<tr>
<th>Type</th>
<th>PSU-3214</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>7545024</td>
</tr>
</tbody>
</table>

**Operational voltage range:**
- 94 … 265 VAC
- 47 … 63 Hz
- Current consumption: 0.6 A at 230 V AC / 1.1 A at 120 V AC
- Starting current inrush: $I_{2t} < 2.8 \text{ A}^2\text{s}$
- Test voltage: Input circuit to output circuit and supply voltage for 250 V$_{\text{eff}}$; test voltage 3 kV$_{\text{eff}}$

**Output circuits**
- Output current: $\leq 1400 \text{ mA}$
- Output voltage: 32 VDC (± 3 %)
- Residual ripple: $\leq 50 \text{ mV}_{\text{ss}}$
- Short-circuit protection: $\leq 1600 \text{ mA}$
- Efficiency: 89 %
- Derating: 2.5 %/K (starting form +60°C)

**Indication**
- Operational readiness: 1 x green

**Electrical connection**
- flat terminals with self-lifting pressure plates
- Terminal cross-section: 1 x 2.5 mm$^2$ / 2 x 2.5 mm$^2$

**Degree of protection**
- IP20
- Ambient temperature: -10 … + 70 °C
- Housing material: plastic
- Housing color: blue
- Dimensions: 45 x 72 x 105 mm
- Connection mode: snap-on DIN rail (EN 60715)

**Dimensions**

**Output curve**
The intrinsically safe power supply RPC49-10120EX transmits the fieldbus signal from a host to an intrinsically safe fieldbus device in the Ex area, zone 2.

The RPC49-10120EX enables integrated transmission between the host and fieldbus connections and thus allows parallel connection of several devices in the fieldbus and accordingly a higher number of field devices in the segment.

Designed to operate in harsh environments and suitable for installation in zone 2, the TURCK power supply RPC49-10120EX expands the boundaries for fieldbus topologies.

The RPC49-10120EX provides up to 120 mA, powering field devices in Gas Group IIIC. The device is mounted on DIN rail. It is designed to exploit the very latest developments of the FISCO specification (Fieldbus Intrinsically Safe Concept) concerning the application in explosion hazardous areas. To reap the full potential of digital fieldbus communication without system inherent constrains is thus possible.

The excellent performance and flexibility of the RPC49-10120EX makes it easy to plan, install and mount fieldbus networks in compliance with the 31.25 kbits/s physical layer specification. Moreover, compatibility with the TURCK wiring components and accessories ensures high reliability, low installation costs and high operational safety.

Power supply to the host is procured via a switch making additional power sources redundant.

- FISCO compliant according to IEC TS 60079-27
- Protection type: [EEx ib] IIIC
- Mounting possible in zone 2
- FISCO power supply for FOUNDATION™ fieldbus
- Output current: 120 mA
- Fieldbus - Repeater
- Temperature range: -40 …+70°C
FOUNDATION™ fieldbus
FISCO Power Supply
RPC49-10120EX

<table>
<thead>
<tr>
<th>Type</th>
<th>RPC49-10120EX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6604157</td>
</tr>
</tbody>
</table>

**Operational voltage range:**

<table>
<thead>
<tr>
<th>Current consumption</th>
<th>235 mA (typ.) 330 mA (max.) at 20 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test voltage</td>
<td>Input circuit to output circuit and supply voltage for 250 V&lt;sub&gt;eff&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

**Output circuits**

<table>
<thead>
<tr>
<th>Output current</th>
<th>≤ 120 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output voltage</td>
<td>12.4 VDC</td>
</tr>
<tr>
<td>Short-circuit protection</td>
<td>≤ 140 mA</td>
</tr>
</tbody>
</table>

**Indication**

| Operational readiness        | 1 x green |
| Short-circuit message        | 1 x red  |
| Bus communication            | 2 x yellow |

**Ex approval acc. to conformity certificate**

| FISCO parameter according to IEC TS 60079-27 | BASEEFA 05 ATEX 0127 |

| Max. output voltage U<sub>o</sub> | ≤ 14 V |
| Max. output current I<sub>o</sub> | ≤ 180 mA |
| Max. output power P<sub>o</sub>   | ≤ 2520 mW |
| External inductance/capacitance L<sub>o</sub>/C<sub>o</sub> | 300 μH / 0.2 μF |
| Device designation             | II (2) GD [EEx ib] IIC |
|                               | II 3 G EEx nA II T4 X |
|                               | FISCO Power Supply |

**Electrical connection**

| 3 x 3-pole removable terminal blocks, reverse polarity protected, screw connection or tension spring |
| Terminal cross-section         | 2.5 mm<sup>2</sup> |

**Degree of protection**

| IP20 |

| Ambient temperature | -40 … + 70 °C |
| Housing material    | plastic      |
| Housing color       | black/yellow |
| Dimensions          | 42 x 166 x 137.5 mm |
| Connection mode     | snap-on DIN rail (EN 60715) |
The RPC49-10265EX transmits the fieldbus signal from a host to an intrinsically safe fieldbus device in the Ex area, zone 2.

The RPC49-10265EX enables integrated transmission between the host and fieldbus connections and thus allows parallel connection of several devices in the fieldbus and accordingly a higher number of field devices in the segment.

Designed to operate in harsh environments and suitable for installation in zone 2, the TURCK power supply RPC49-10265EX expands the boundaries for fieldbus topologies.

The RPC49-10265EX provides up to 265 mA, powering field devices in the Ex area of the Gas Group IIB. The device is mounted on DIN rail. It is designed to exploit the very latest developments of the FISCO specification (Fieldbus Intrinsically Safe Concept) concerning the application in explosion hazardous areas. To reap the full potential of digital fieldbus communication without system inherent constrains is thus possible.

The excellent performance and flexibility of the RPC49-10265EX makes it easy to plan, install and mount fieldbus networks in compliance with the 31.25 kbits/s physical layer specification. Moreover, compatibility with the TURCK wiring components and accessories ensures high reliability, low installation costs and high operational safety.

Power supply to the host is procured via a switch making additional power sources redundant.

- FISCO compliant according to IEC TS 60079-27
- Protection type: [EEx ib] IIb
- Mounting possible in zone 2
- FISCO power supply for FOUNDATION™ fieldbus
- Output current: 265 mA
- Fieldbus - Repeater
- Temperature range: -40 …+70°C
# FOUNDATION™ fieldbus

**FISCO Power Supply**

**RPC49-10265EX**

<table>
<thead>
<tr>
<th>Type</th>
<th>RPC49-10265EX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6604158</td>
</tr>
</tbody>
</table>

### Operational voltage range:

- **Current consumption:**
  - 380 mA (typ.) 495 mA (max.) at 20 V
  - 315 mA (typ.) 410 mA (max.) at 24 V
  - 255 mA (typ.) 330 mA (max.) at 30 V

- **Test voltage:** Input circuit to output circuit and supply voltage for 250 V<sub>eff</sub>

### Output circuits

- **Output current:** ≤ 265 mA
- **Output voltage:** 13.1 VDC
- **Short-circuit protection:** ≤ 285 mA

### Indication

- **Operational readiness:** 1 x green
- **Short-circuit message:** 1 x red
- **Bus communication:** 2 x yellow

### Ex approval acc. to conformity certificate

- BASEEFA 05 ATEX 0127
- FISCO parameter according to IEC TS 60079-27

### Electrical connection

- **3 x 3-pole removable terminal blocks, reverse polarity protected, screw connection or tension spring**
- **Terminal cross-section:** 2.5 mm<sup>2</sup>

### Degree of protection

- **IP20**
- **Ambient temperature:** -40 ... + 70 °C
- **Housing material:** plastic
- **Housing color:** black/yellow
- **Dimensions:** 42 x 166 x 137.5 mm
- **Connection mode:** snap-on DIN rail (EN 60715)
FOUNDATION™ fieldbus
The operating principle of the MBD49-T415/Ex multibarrier is physically based on IEC 61158-2. The use of multibarriers increases the number of fieldbus stations in the FOUNDATION™ fieldbus network to a maximum of 32 field devices.

This high number of stations is achieved by enhanced safety of the fieldbus supply which can be looped through from multibarrier to multibarrier. The fieldbus stations in zone 0 are supplied with power via the four intrinsically safe outputs of each multibarrier device.

User benefits
The user can expect substantial cost advantages due to the possibility of cascading the multibarriers in a single segment in the explosion hazardous area, thus fully exploiting the entire function range of the bus systems.

All fieldbus devices can be operated in a single fieldbus segment in the explosion hazard area. Thus, the costs for an additional bus coupler or a segment card as well as their integration and parameter definition are eliminated. An additional trunk line and the wiring material is also spared.

The supply of power to the multibarriers is implemented via the bus which means that an additional power cable is not required.

Installation in the explosion hazardous area
The area of application to ATEX is II 2 (1 GD) G EEx e [ia] IIC T4.

Due to its EEx e protection rating, the MBD49-T415/Ex multibarrier can be installed in zone 1 (II 2 G) according to 94/9/EC (ATEX 95a).

Use in explosion hazardous areas with explosion protection group IIC – in conjunction with temperature class T4 – is the standard in the process industry.

Within zone 1, the MBD49-T415/Ex is connected via a cable and connections with enhanced safety (EEx e) to the main line (trunk line) of a fieldbus conform to IEC 61158-2. This offers the advantage that the connection to the bus can be implemented using a loop isolator without ES approval, but with a sufficiently high capacity.

Intrinsic safety and galvanic isolation between all outputs
For safety reasons, galvanic isolation of signals plays a decisive role in the Ex area. The multibarrier provides four intrinsically safe and galvanically isolated outputs. The complete galvanic isolation exists between the main bus cable (trunk line) and the output circuits as well as between all of the four individual output circuits.

Galvanic isolation of intrinsically safe circuits, as demanded by the industry, in particular for zone 0, is thus provided.

Potential transfers and potential equalization currents are thus reduced and safe data transmission is guaranteed.

Operational safety
Operational safety of the bus system must be guaranteed should a bus station fail or malfunction. The four outputs of the multibarrier each supply an output current of max. 40 mA.

If a short-circuit occurs on a fieldbus station, the integrated short-circuit protection comes into play. Only the affected output will be shut down, the main line and the other outputs of the fieldbus segment remain operational. The short-circuit is indicated for each channel by a red LED inside the housing.

Industrially suitable housing
Industrial environmental conditions are frequently harsh and aggressive. Therefore, a housing suitable for these conditions is necessary. The enhanced IP66 degree of protection and the special housing material (die-cast aluminium) – in conjunction with the encapsulated module electronics – meet these demands and provide a high level of operational safety. Direct installation of a multibarrier in the system is thus unproblematic.

The EEx e cable glands guarantee safe and quick connection technology in conjunction with the high-quality cage clamps.

Shield terminals are capacitively connected to the housing potential in order to divert possible interference voltages on the cable shield. The riveted ground bolt connects the housing to the main potential equalization.

Functions which supplement the standard
• FISCO conformity
The FISCO model has been developed for the supply of power to fieldbus stations in the Ex area by the PTB in cooperation with renowned manufacturers. FISCO stands for Fieldbus Intrinsically Safe Concept. It is intended to simplify the verification of intrinsic safety of fieldbus systems. Intrinsically safe networks can be configured without highly complex calculations, and also expanded and operated without system certification. The outputs of the multibarrier are conform to the demands of an Ex current supply and also conform to FISCO.

• Switch-in terminating resistors
Data transmission on bus cables is frequently influenced by signal reflection, which can occur when the bus ends are not terminated. The fieldbus must be provided with a terminating resistor at both ends in order to avoid signal reflection. The multibarrier is provided with an integrated terminating resistor, which should be activated, when the multibarrier is connected as the last device on the main bus line (trunk line).

• Climatic compensation
In regions subject to large temperature and air-humidity variations, it is possible that formation of condensation or a build-up of water within the housing is possible during operation. In order to avoid this, the multibarrier is fitted on the cable connection end with a pressure equalization element to avoid the build-up of condensation. The pressure equalisation element features IP67 degree of protection and guarantees continuous and reliable ventilation and venting of the multibarriers. The ePTFE diaphragm in the centre of the gland features a very high water ingress pressure and repels oil. Even 100 % of salt crystals are kept out.
The 4-port multibarrier MBD49-T415/EX enables the connection of a large number of field devices to one fieldbus in the Ex-area, according to IEC 61158-2.

The number of field devices to be connected to the multibarrier depends on the current consumption of the individual devices. Up to 32 EEx i field devices can be connected to the bus. The number of slaves can be extended by the EEx e fieldbus supply which can be looped through from multibarrier to multibarrier.

Inputs and outputs of the trunk line feature increased safety protection (EEx e) and the outputs to the field devices are intrinsically safe (EEx i).

The multibarrier is equipped with an selectable bus terminating resistor. This switch is integrated in the housing on the board.

The multibarrier is equipped with four LEDs located on the printed circuit board inside the housing to provide short-circuit indications separately for each channel.

Because of complete galvanic isolation of the
- trunk line to EEx i outputs and between the
- EEx i outputs,
safe operation is guaranteed.

- Entity and FISCO compliant according to IEC TS 60079-27
- Galvanic isolation between the EEx i outputs and the EEx e bus line, as well as between the EEx i outputs
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Temperature range: -20…+70 °C (-4…+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive connection to housing potential
- Output data: 10 V/40 mA (short-circuit proof)
**FOUNDATION™ fieldbus**
**Multibarrier, 4-port**
**MBD49-T415/EX**

<table>
<thead>
<tr>
<th>Type</th>
<th>MBD49-T415/EX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6611247</td>
</tr>
</tbody>
</table>

**Fieldbus standard**
IEC 61158-2

**Operational voltage range:**
- Current self-consumption: ≤ 40 mA
- Test voltage: input circuits (EEx e) to output circuits (EEx i) for 253 V_{eff}, output circuits (EEx i) to each other for 60 V_{eff}

**Output circuits**
- Output current: ≤ 40 mA
- Output voltage: ≥ 10 VDC
- Short-circuit protection: ≤ 45 mA

**Indication**
- Short-circuit message: 4 x red

**Ex approval acc. to conformity certificate**
PTB 04 ATEX 2021

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>cable glands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment IN</td>
<td>1 x M20 x 1.5 (Ø 10…14 mm); plastic; black</td>
</tr>
<tr>
<td>Segment OUT</td>
<td>1 x M20 x 1.5 (Ø 10…14 mm); plastic; black</td>
</tr>
<tr>
<td>Drop line</td>
<td>4 x M20 x 1.5 (Ø 5…9 mm); plastic; blue</td>
</tr>
<tr>
<td>Terminal cross-section</td>
<td>2.5 mm²</td>
</tr>
<tr>
<td>Earthing bolt</td>
<td>M5 x 1</td>
</tr>
</tbody>
</table>

**Degree of protection**
- IP66
- Ambient temperature: -20 … + 70 °C
- Relative humidity: ≤ 95 %, non condensing
- Housing material: powder-coated die-cast aluminium
- Housing color: black/yellow
- Dimensions: 260 x 160 x 90 mm
- Connection mode: Wall mounting

**Current consumption**

**Trunk line**

**Outputs**

**Dimensions**
The 3-port digital indicator FD-49-T317/EX displays the process information of the fieldbus nodes of a FOUNDATION™ fieldbus network.

The device (listener) receives and displays the values of the adjusted fieldbus addresses. Parameterization is code word protected and implemented via a keypad on the front side. Adjustments can be done for each port separately. The process value of the actuator/sensor is displayed as a 5-digit number and the process value status is displayed via limit value markers.

Apart from a measuring value indicator, the display contains a 41-segment bargraph for trend monitoring, which can be scaled separately from the display value.

The FD-49-T317/EX performs as a "listener", i.e. initialization by the host is not required (integration via software redundant) and does not appear in the network as a node with an own address.

The device is supplied with energy by the fieldbus (≤10 mA) and can be applied in Ex areas up to temperatures of the class T6.

- Entity and FISCO compliant according to IEC TS 60079-27
- Digital fieldbus display for the indication of process values
- Powder-coated die-cast aluminium housing
- Connection of the housing potential via external earthing
**FOUNDATION™ fieldbus**  
Fieldbus display, 3-port  
FD-49-T317/EX

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
<th>FD-49-T317/EX</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ident-No.</strong></td>
<td>6901312</td>
</tr>
</tbody>
</table>

| **Fieldbus standard**           | IEC 61158-2                                      |
| **Operational voltage range:**  | 9 … 30 VDC                                        |
| **Current self-consumption**    | ≤ 10 mA                                            |

| **Indication**          | LCD, 5-digit, 7-segment                           |
| **Ex approval acc. to conformity certificate** | TÜV 07 ATEX 553588                                |

| **Max. input voltage** $U_i$ | ≤ 30 V                                            |
| **Max. input current** $I_i$ | ≤ 660 mA                                          |
| **Max. input power** $P_i$   | ≤ 1600 mW                                         |
| **External inductance/capacitance** $L_i/C_i$ | negligible                                      |

| **Device designation** | É II 2(1) G · EEx ia IIC T6 bzw. T5  
É II 2 D · IP65 T70°C  
FISCO / Entity field device |

| **Electrical connection** | cable glands                                      |
| **Terminal cross-section** | 2.5 mm²                                           |

| **Degree of protection** | IP66                                              |
| **Ambient temperature**  | -10 ... + 60 °C                                    |
| **Housing material**     | powder-coated die-cast aluminium                   |
| **Housing color**        | black                                              |
| **Dimensions**           | 140 x 140 x 71 mm                                 |
| **Connection mode**      | Wall mounting                                      |

**Dimensions**

![Dimensions Diagram](image-url)
TURCK offers junctions in various designs for the distribution of energy and data.

The junctions differ in the number of ports, the housing style and special features such as integrated short-circuit protection, switch-in terminating resistor and selectable shielding concept.

The following junctions are available as standard versions. Special solutions are available on request.

**IP67 T-pieces and junction boxes with or without short-circuit protection**

- 1, 4 and 6 ports
- Explosion-protected junctions (for use in zone 1 or 2, distribution of EEx ia signals in zone 0)
- Standard junctions (non-Ex)
- IP67 degree of protection
- Switch-in terminating resistor
- Selectable shielding concept (hard-wired or capacitive grounding)
- Active and passive types
- Pressure compensation element to prevent water condensation
- Housing material: powder-coated die-cast aluminium (4 and 6-port type)
- Connection technology: stainless steel flange connectors 7/8", M12 or cage-clamp terminals
- Cable glands: plastic, stainless steel, nickel-plated brass, EMC
- Temperature range: -25°C ... +70°C

**IP20 junction boxes with or without short-circuit protection**

- 4, 6, 8 and 12 ports
- Suitable for the explosion hazardous and the safe area
- For use in zone 1 or 2, distribution of EEx ia signals in zone 0
- IP20 degree of protection
- Switch-in terminating resistor
- Selectable shielding concept (hard-wired or capacitive grounding)
- Active and passive types
- Housing material: aluminium
- Connection technology: cage-clamp terminals or removable screw terminals
- Temperature range: -40°C ... +70°C

**CAUTION**

*Explosion Danger!*

The EC type test examination certificate and the manufacturer’s declaration of conformity must be observed. It is essential that the “special conditions” in the EU type test certificate are observed.

Junction boxes, which have been used in non intrinsically safe applications, may not be used in intrinsically safe applications subsequently.
Accessories for fieldbus systems
T-piece
RSV-2RKV49

- Version: 7/8” connector
- 4-pole, T-piece, stainless steel coupling nut
- For use in FOUNDATION Fieldbus™ applications

**FOUNDATION™ fieldbus connection**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>=</td>
<td>=</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>1 = -</td>
<td>2 = +</td>
<td>3 = shield</td>
<td>4 = n.c.</td>
</tr>
</tbody>
</table>

**Wiring diagram**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**Type**
- RSV-2RKV49

**Ident-No.**
- 6602319

**Junction box**
- T adapter, 7/8”
- Polarity: 4-pole
- Grip: plastic, PUR, yellow

**Connector**
- Female connector, 2x, 7/8”, straight
- Grip: plastic, PUR, yellow
- Contact carriers: plastic, PUR, black
- Contacts: metal, CuZn, gold-plated
- Coupling nut/screw: stainless steel, 1.4404
- Seal: plastic
- Degree of protection: IP67, only with screws tightened
- Mechanical lifespan: min. 100 Contact durability
- Pollution degree: 3/2

**Connector**
- Connector, 1x, 7/8”, straight
- Grip: plastic, PUR, yellow
- Contact carriers: plastic, PUR, black
- Contacts: metal, CuZn, gold-plated
- Coupling nut/screw: stainless steel, 1.4404
- Degree of protection: IP67, only when plugged in
- Mechanical lifespan: min. 100 Contact durability
- Pollution degree: 3/2

**Rated voltage**
- Max. 250 V

**Ampacity**
- 4 A

**Forward resistance**
- ≤ 5 mΩ

**Insulation resistance**
- ≥ 10^9 Ω

**Ambient temperature junction**
- -40 ... + 80 °C
Accessories for fieldbus systems
T-piece
RSCV-2RKCV49

- Version: M12 connector
- 4-pole, T-piece, stainless steel coupling nut
- For use in FOUNDATION™ fieldbus applications

FOUNDATION™ fieldbus connection

**Junction box**
- T adapter, M12 x 1
- Grip
  - 4-pole
  - plastic, PUR, yellow

**Connector**
- Female connector, 2x, M12 x 1, straight
- Grip
  - plastic, PUR, yellow
- Contact carriers
  - plastic, PA 6, black
- Contacts
  - metal, CuZn, gold-plated
- Coupling nut/screw
  - stainless steel, 1.4404
- Seal
  - plastic
- Degree of protection
  - IP67, only with screws tightened
- Mechanical lifespan
  - min. 100 Contact durability
- Pollution degree
  - 3/2

**Connector**
- Connector, 1x, M12 x 1, straight
- Grip
  - plastic, PUR, yellow
- Contact carriers
  - plastic, PA, black
- Contacts
  - metal, CuZn, gold-plated
- Coupling nut/screw
  - stainless steel, 1.4404
- Degree of protection
  - IP67, only when plugged in
- Mechanical lifespan
  - min. 100 Contact durability
- Pollution degree
  - 3/2

**Rated voltage**
- max. 250 V
- Amplacity
  - 4 A
- Forward resistance
  - ≤ 5 mΩ
- Insulation resistance
  - ≥ 10^9 Ω
- Ambient temperature junction
  - -40 … + 80 °C
The 4-port Ex-junction module JBBS-49SC-T415/3G is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 60079-27
- Mounting possible in zone 2
- Junction box for wall mounting with PVC cable glands M20 x 1.5
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
**FOUNDATION™ fieldbus**

IP67 junction box, 4-port

**JBBS-49SC-T415/3G**

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
<th>JBBS-49SC-T415/3G</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ident-No.</strong></td>
<td>6611440</td>
</tr>
</tbody>
</table>

**Fieldbus standard**

IEC 61158-2

**Operational voltage range:**

12 ... 32 VDC

Current self-consumption

≤ 7 mA

Voltage drop

≤ 0.3 V

**Short-circuit protection**

≤ 30 , 35 , 45 , 60 mA

**Indication**

Operational readiness

1 x green

Short-circuit message

4 x red

**Ex approval acc. to conformity certificate**

PTB 07 ATEX 2017 X

Device designation

É II 3 G Ex nA II T4

É II 3 G Ex nA [nL] IIC/IIB T4

FNICO / Entity field device

**Electrical connection**

cable glands

Segment IN

1 x M20 x 1.5 (Ø 6...12 mm)

Segment OUT

1 x M20 x 1.5 (Ø 6...12 mm)

Drop line

4 x M20 x 1.5 (Ø 6...12 mm)

Terminal cross-section

2.5 mm²

Earthing bolt

M5 x 1

**Degree of protection**

IP67

Ambient temperature

-25 ... + 70 °C

Housing material

powder-coated die-cast aluminium

Housing color

black/yellow

Dimensions

64 x 150 x 45 mm

Connection mode

Wall mounting
The 6-port Ex-junction module JBBS-49SC-T615/3G is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 60079-27
- Mounting possible in zone 2
- Junction box for wall mounting with PVC cable glands M20 x 1.5
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 6-port
JBBS-49SC-T615/3G

<table>
<thead>
<tr>
<th>Type</th>
<th>JBBS-49SC-T615/3G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6611442</td>
</tr>
<tr>
<td>Fieldbus standard</td>
<td>IEC 61158-2</td>
</tr>
<tr>
<td>Operational voltage range:</td>
<td>12 ... 32 VDC</td>
</tr>
<tr>
<td>Current self-consumption</td>
<td>≤ 7 mA</td>
</tr>
<tr>
<td>Voltage drop</td>
<td>≤ 0.3 V</td>
</tr>
<tr>
<td>Short-circuit protection</td>
<td>≤ 30 , 35 , 45 , 60 mA</td>
</tr>
<tr>
<td>Indication</td>
<td></td>
</tr>
<tr>
<td>Operational readiness</td>
<td>1 x green</td>
</tr>
<tr>
<td>Short-circuit message</td>
<td>6 x red</td>
</tr>
<tr>
<td>Ex approval acc. to conformity certificate</td>
<td>PTB 07 ATEX 2017 X</td>
</tr>
<tr>
<td>Device designation</td>
<td>II 3 G   Ex nA II T4</td>
</tr>
<tr>
<td></td>
<td>II 3 G   Ex nA [nL] IIC/IIB T4</td>
</tr>
<tr>
<td></td>
<td>FNICO / Entity field device</td>
</tr>
<tr>
<td>Electrical connection</td>
<td>cable glands</td>
</tr>
<tr>
<td>Segment IN</td>
<td>1 x M20 x 1.5 (Ø 6...12 mm)</td>
</tr>
<tr>
<td>Segment OUT</td>
<td>1 x M20 x 1.5 (Ø 6...12 mm)</td>
</tr>
<tr>
<td>Drop line</td>
<td>6 x M20 x 1.5 (Ø 6...12 mm)</td>
</tr>
<tr>
<td>Terminal cross-section</td>
<td>2.5 mm²</td>
</tr>
<tr>
<td>Earthing bolt</td>
<td>M5 x 1</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP67</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-25 ... + 70 °C</td>
</tr>
<tr>
<td>Housing material</td>
<td>powder-coated die-cast aluminium</td>
</tr>
<tr>
<td>Housing color</td>
<td>black/yellow</td>
</tr>
<tr>
<td>Dimensions</td>
<td>64 x 185.5 x 45 mm</td>
</tr>
<tr>
<td>Connection mode</td>
<td>Wall mounting</td>
</tr>
</tbody>
</table>

Dimensions

Terminal Configuration

1 = n.c.
2 = shield
3 = +
4 = –
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49SC-E413/3G

The 4-port Ex-junction module JBBS-49SC-E413/3G is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 60079-27
- Mounting possible in zone 2
- Junction box for wall mounting with stainless steel M12 flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
**FOUNDATION™ fieldbus**  
**IP67 junction box, 4-port**  
**JBBS-49SC-E413/3G**

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
<th>JBBS-49SC-E413/3G</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ident-No.</strong></td>
<td>6611432</td>
</tr>
</tbody>
</table>

**Fieldbus standard**  
IEC 61158-2

**Operational voltage range:**  
12 … 32 VDC

**Current self-consumption**  
≤ 7 mA

**Voltage drop**  
≤ 0.3 V

**Short-circuit protection**  
≤ 30 , 35 , 45 , 60 mA

**Indication**  
Operational readiness: 1 x green  
Short-circuit message: 4 x red

**Ex approval acc. to conformity certificate**  
PTB 07 ATEX 2017 X  
Compliance with:  
Ø III 3 G Ex nA II T4  
Ø III 3 G Ex nA [nL] IIC/IIB T4  
FNICO / Entity field device

**Device designation**  
É II 3 G Ex nA II T4  
É II 3 G Ex nA [nL] IIC/IIB T4

**Electrical connection**  
Segment IN: 1 x M12 - connector  
Segment OUT: 1 x M12 - female connector  
Drop line: 4 x M12 - female connector  
Earthing bolt: M5 x 1

**Degree of protection**  
IP67  
Ambient temperature: -25 … + 70 °C  
Housing material: powder-coated die-cast aluminium  
Housing color: black/yellow  
Dimensions: 64 x 150 x 45 mm  
Connection mode: Wall mounting

**Dimensions**

```
83
64
36
128
172
```

**Terminal Configuration**

```
M12 x 1  M12 x 1  
Segment IN  Segment out, Spur

1 = V-  1 = n.c.  
2 = V+  4 = n.c.  
3 = shield  3 = shield

nominal values: 4 A, 300 V
```
The 6-port Ex-junction module JBBS-49SC-E613/3G is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 60079-27
- Mounting possible in zone 2
- Junction box for wall mounting with stainless steel M12 flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 6-port
JBBS-49SC-E613/3G

**Type**
JBBS-49SC-E613/3G

**Ident-No.**
6611434

**Fieldbus standard**
IEC 61158-2

**Operational voltage range:**
12...32 VDC

**Current self-consumption**
≤ 7 mA

**Voltage drop**
≤ 0.3 V

**Short-circuit protection**
≤ 30, 35, 45, 60 mA

**Indication**
Operational readiness: 1 x green
Short-circuit message: 6 x red

**Ex approval acc. to conformity certificate**
PTB 07 ATEX 2017 X

**Device designation**
É II 3 G Ex nA II T4
É II 3 G Ex nA [nL] IIC/IIB T4
FNICO / Entity field device

**Electrical connection**
Segment IN: 1 x M12 - connector
Segment OUT: 1 x M12 - female connector
Drop line: 6 x M12 - female connector
Earthing bolt: M5 x 1

**Degree of protection**
IP67

**Ambient temperature**
-25 ... + 70 °C

**Housing material**
powder-coated die-cast aluminium

**Housing color**
black/yellow

**Dimensions**
64 x 185.5 x 45 mm

**Connection mode**
Wall mounting

---

**Dimensions**

**Terminal Configuration**

**M12 x 1**
Segment IN
1 = V -
2 = V +
3 = shield
4 = n.c.

**M12 x 1**
Segment out, Spur
1 = V -
2 = V +
3 = shield
4 = n.c.

nominal values: 4 A, 300 V
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49SC-M413/3G

The 4-port Ex-junction module JBBS-49SC-M413/3G is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 60079-27
- Mounting possible in zone 2
- Junction box for wall mounting with stainless steel 7/8" flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49SC-M413/3G

**Type**
JBBS-49SC-M413/3G
Ident-No. 6611436

**Fieldbus standard**
IEC 61158-2

**Operational voltage range:**
Current self-consumption ≤ 7 mA
Voltage drop ≤ 0.3 V

**Short-circuit protection**
≤ 30, 35, 45, 60 mA

**Indication**
Operational readiness 1 x green
Short-circuit message 4 x red

**Ex approval acc. to conformity certificate**
PTB 07 ATEX 2017 X
II 3 G  Ex nA II T4
II 3 G  Ex nA [nL] IIC/IIB T4
FNICO / Entity field device

**Electrical connection**
Segment IN 1 x 7/8” - plug
Segment OUT 1 x 7/8” - plug
Drop line 4 x 7/8” - plug
Earthing bolt M5 x 1

**Degree of protection**
Ambient temperature -25 ... + 70 °C
Housing material powder-coated die-cast aluminium
Housing color black/yellow
Dimensions 64 x 150 x 45 mm
Connection mode Wall mounting

**Dimensions**

**Terminal Configuration**

--- 7/8”
Segment in 1 = V –
2 = V +
3 = shield
4 = n.c.

< 7/8”
Segment out, Spur

nominal values: 9 A, 300 V
FOUNDATION™ fieldbus
IP67 junction box, 6-port
JBBS-49SC-M613/3G

The 6-port Ex-junction module JBBS-49SC-M613/3G is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 60079-27
- Mounting possible in zone 2
- Junction box for wall mounting with stainless steel 7/8" flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor [switch-in]
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 6-port
JBBS-49SC-M613/3G

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Ident-No.</td>
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<table>
<thead>
<tr>
<th>Fieldbus standard</th>
<th>IEC 61158-2</th>
</tr>
</thead>
</table>

| Operational voltage range: | 12 ... 32 VDC                  |
| Current self-consumption   | ≤ 7 mA                         |
| Voltage drop               | ≤ 0.3 V                        |

<table>
<thead>
<tr>
<th>Short-circuit protection</th>
<th>≤ 30, 35, 45, 60 mA</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Indication</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Operational readiness</td>
<td>1 x green</td>
</tr>
<tr>
<td>Short-circuit message</td>
<td>6 x red</td>
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<td>II 3 G Ex nA [nL] IIC/IIB T4</td>
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</table>

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>7/8&quot; flange connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment IN</td>
<td>1 x 7/8&quot; plug</td>
</tr>
<tr>
<td>Segment OUT</td>
<td>1 x 7/8&quot; plug</td>
</tr>
<tr>
<td>Drop line</td>
<td>6 x 7/8&quot; plug</td>
</tr>
<tr>
<td>Earthing bolt</td>
<td>M5 x 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Degree of protection</th>
<th>IP67</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>-25 ... + 70 °C</td>
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<tr>
<td>Housing material</td>
<td>powder-coated die-cast aluminium</td>
</tr>
<tr>
<td>Housing color</td>
<td>black/yellow</td>
</tr>
<tr>
<td>Dimensions</td>
<td>64 x 185.5 x 45 mm</td>
</tr>
<tr>
<td>Connection mode</td>
<td>Wall mounting</td>
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<table>
<thead>
<tr>
<th>Terminal Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment in</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Segment out, Spur</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

nominal values: 9 A, 300 V
The 4-port Ex-junction module JBBS-49SC-T415B/EX is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with PVC cable glands M20 x 1.5
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25…+70 °C (-13…+158 °F); for non-Ex applications: -40…+70 °C (-40…+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49SC-T415B/EX

**Type**
- JBBS-49SC-T415B/EX

**Ident-No.**
- 6611441

**Fieldbus standard**
- IEC 61158-2

**Operational voltage range:**
- 12 ... 32 VDC

**Current self-consumption**
- ≤ 7 mA

**Voltage drop**
- ≤ 0.3 V

**Short-circuit protection**
- ≤ 30 , 35 , 45 , 60 mA

**Indication**
- Operational readiness: 1 x green
- Short-circuit message: 4 x red

**Ex approval acc. to conformity certificate**
- PTB 03 ATEX 2236

**Entity Parameter**
- Max. output voltage \( U_o \) ≤ 24 V
- Max. output current \( I_o \) ≤ 250 mA
- Max. output power \( P_o \) ≤ 2560 mW
- Max. input voltage \( U_i \) ≤ 24 V
- Max. input current \( I_i \) ≤ 250 mA
- Max. input power \( P_i \) ≤ 2560 mW

**FISCO parameter according to IEC TS 60079-27**
- Max. output voltage \( U_o \) ≤ 17.5 V
- Max. output current \( I_o \) ≤ 380 mA
- Max. output power \( P_o \) ≤ 5320 mW
- Max. input voltage \( U_i \) ≤ 17.5 V
- Max. input current \( I_i \) ≤ 380 mA
- Max. input power \( P_i \) ≤ 5320 mW

**External inductance/capacitance \( L_i/C_i \)**
- trunk (in/out): negligible / ≤ 5.00 nF
- per field current circuit: negligible / ≤ 0.47 nF
- \( \Sigma \) field current circuits: negligible / ≤ 5.00 nF

**Device designation**
- II 2 G EEx ib IIC/IIB T4
- II 2(1) G EEx ia IIC/IIB T4
- II 2 G (2D) [Ex ibD] EEx ib IIB T4
- II 2 (1) G (1D) [Ex iaD] EEx ia IIB T4
- FISCO / Entity field device

**Electrical connection**
- cable glands
- Segment IN: 1 x M20 x 1.5 (Ø 6...12 mm)
- Segment OUT: 1 x M20 x 1.5 (Ø 6...12 mm)
- Drop line: 4 x M20 x 1.5 (Ø 6...12 mm)
- Terminal cross-section: 2.5 mm²
- Earthing bolt: M5 x 1

**Degree of protection**
- IP67
- Ambient temperature: -25 ... + 70 °C
- Housing material: powder-coated die-cast aluminium
- Housing color: black/yellow
- Dimensions: 64 x 150 x 45 mm
- Connection mode: Wall mounting
The 6-port Ex-junction module JBBS-49SC-T615B/EX is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with PVC cable glands M20 x 1.5
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25…+70 °C (-13…+158 °F); for non-Ex applications: -40…+70 °C (-40…+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 6-port
JBBS-49SC-T615B/EX

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<tbody>
<tr>
<td>Ident-No.</td>
<td>6611443</td>
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</tbody>
</table>

Fieldbus standard
IEC 61158-2

Operational voltage range:
12 ... 32 VDC
Current self-consumption
≤ 7 mA
Voltage drop
≤ 0.3 V

Short-circuit protection
≤ 30 , 35 , 45 , 60 mA

Indication
Operational readiness
1 x green
Short-circuit message
6 x red

Ex approval acc. to conformity certificate
PTB 03 ATEX 2236

Entity Parameter
Max. output voltage $U_0$
≤ 24 V
Max. output current $I_0$
≤ 250 mA
Max. output power $P_0$
≤ 2560 mW
Max. input voltage $U_I$
≤ 24 V
Max. input current $I_I$
≤ 250 mA
Max. input power $P_I$
≤ 2560 mW

RISCO parameter according to IEC TS 60079-27
Max. output voltage $U_0$
≤ 17.5 V
Max. output current $I_0$
≤ 380 mA
Max. output power $P_0$
≤ 5320 mW
Max. input voltage $U_I$
≤ 17.5 V
Max. input current $I_I$
≤ 380 mA
Max. input power $P_I$
≤ 5320 mW

External inductance/capacitance $L_i/C_i$
trunk (in/out):
negligible / ≤ 5.00 nF
per field current circuit:
negligible / ≤ 0.47 nF
Σ field current circuits:
negligible / ≤ 5.00 nF

Device designation
II 2 G EEx ib IIC/IIB T4
II 2(1) G EEx ia IIC/IIB T4
II 2 G (2D) [Ex ibD] EEx ib IIB T4
II 2 (1) G (1D) [Ex iaD] EEx ia IIB T4

FISCO / Entity field device

Electrical connection
cable glands
Segment IN
1 x M20 x 1.5 (Ø 6...12 mm)
Segment OUT
1 x M20 x 1.5 (Ø 6...12 mm)
Drop line
6 x M20 x 1.5 (Ø 6...12 mm)
Terminal cross-section
2.5 mm²
Earthing bolt
M5 x 1

Degree of protection
IP67
Ambient temperature
-25 ... + 70 °C
Housing material
powder-coated die-cast aluminium
Housing color
black/yellow
Dimensions
64 x 185.5 x 45 mm
Connection mode
Wall mounting

Dimensions

Terminal Configuration
The 4-port Ex-junction module JBBS-49SC-E413/EX is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with stainless steel M12 flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49SC-E413/EX

<table>
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<td>Ident-No.</td>
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| Fieldbus standard | IEC 61158-2       |

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<th>Operational voltage range:</th>
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<tbody>
<tr>
<td>Current self-consumption</td>
<td>≤ 7 mA</td>
</tr>
<tr>
<td>Voltage drop</td>
<td>≤ 0.3 V</td>
</tr>
</tbody>
</table>

| Short-circuit protection  | ≤ 30 , 35 , 45 , 60 mA |

<table>
<thead>
<tr>
<th>Indication</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational readiness</td>
<td>1 x green</td>
</tr>
<tr>
<td>Short-circuit message</td>
<td>4 x red</td>
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</table>

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<th>PTB 03 ATEX 2236</th>
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<table>
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<th>Entity Parameter</th>
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<tbody>
<tr>
<td>Max. output voltage Uo</td>
<td>≤ 24 V</td>
</tr>
<tr>
<td>Max. output current Io</td>
<td>≤ 250 mA</td>
</tr>
<tr>
<td>Max. output power Po</td>
<td>≤ 2560 mW</td>
</tr>
<tr>
<td>Max. input voltage Ui</td>
<td>≤ 24 V</td>
</tr>
<tr>
<td>Max. input current Ii</td>
<td>≤ 250 mA</td>
</tr>
<tr>
<td>Max. input power Pi</td>
<td>≤ 2560 mW</td>
</tr>
<tr>
<td>FISCO parameter according to IEC TS 60079-27</td>
<td></td>
</tr>
<tr>
<td>Max. output voltage Uo</td>
<td>≤ 17.5 V</td>
</tr>
<tr>
<td>Max. output current Io</td>
<td>≤ 380 mA</td>
</tr>
<tr>
<td>Max. output power Po</td>
<td>≤ 5320 mW</td>
</tr>
<tr>
<td>Max. input voltage Ui</td>
<td>≤ 17.5 V</td>
</tr>
<tr>
<td>Max. input current Ii</td>
<td>≤ 380 mA</td>
</tr>
<tr>
<td>Max. input power Pi</td>
<td>≤ 5320 mW</td>
</tr>
<tr>
<td>External inductance/capacitance L/Ci</td>
<td>negligible / ≤ 5.00 nF per field current circuit: negligible / ≤ 0.47 nF Σ field current circuits: negligible / ≤ 5.00 nF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device designation</th>
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<tbody>
<tr>
<td>FISCO / Entity field device</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Electrical connection</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment IN</td>
<td>1 x M12 - connector</td>
</tr>
<tr>
<td>Segment OUT</td>
<td>1 x M12 - female connector</td>
</tr>
<tr>
<td>Drop line</td>
<td>4 x M12 - female connector</td>
</tr>
<tr>
<td>Earthing bolt</td>
<td>M5 x 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Degree of protection</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>-25 ... + 70 °C</td>
</tr>
<tr>
<td>Housing material</td>
<td>powder-coated die-cast aluminium</td>
</tr>
<tr>
<td>Housing color</td>
<td>black/yellow</td>
</tr>
<tr>
<td>Dimensions</td>
<td>64 x 150 x 45 mm</td>
</tr>
<tr>
<td>Connection mode</td>
<td>Wall mounting</td>
</tr>
</tbody>
</table>

Dimensions

```
M12 x 1
Segment in
1 = V -
2 = V +
3 = shield
4 = n.c.
nominal values: 4 A, 300 V

M12 x 1
Segment out, Spur
```

Terminal Configuration
### FOUNDATION™ fieldbus
**IP67 junction box, 6-port**
**JBBS-49SC-E613/EX**

The 6-port Ex-junction module JBBS-49SC-E613/EX is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with stainless steel M12 flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25…+70 °C (-13…+158 °F); for non-Ex applications: -40…+70 °C (-40…+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable

---

The diagram shows the wiring connections for the 6-port Ex-junction module.

**Key Points:**
- **Segment IN**
  - P1: 1, 2, S3, n.c.
  - S1: 1, 2, 3, n.c.
  - S3: 1, 2, 3, n.c.
  - S5: 1, 2, 3, n.c.
- **Segment OUT**
  - S0: 1, 2, 3, n.c.
  - S2: 1, 2, 3, n.c.
  - S4: 1, 2, 3, n.c.
  - S6: 1, 2, 3, n.c.

---

**Legend:**
- **Pin 1:** Connection to housing potential via an M5 x 1 bolt
- **Pin 2:** Connection of the housing potential via switch
- **Pin 3:** Isolated support terminal for optional protective conductor
- **Pin 4:** Case ground

---

**Note:** The diagram illustrates the wiring connections and potential protection methods for the 6-port Ex-junction module JBBS-49SC-E613/EX.
FOUNDATION™ fieldbus
IP67 junction box, 6-port
JBBS-49SC-E613/EX

<table>
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<tr>
<td>Ident-No.</td>
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**Fieldbus standard**
IEC 61158-2

**Operational voltage range:**
- Current self-consumption: ≤ 7 mA
- Voltage drop: ≤ 0.3 V

**Short-circuit protection**
≤ 30 , 35 , 45 , 60 mA

**Indication**
- Operational readiness: 1 x green
- Short-circuit message: 6 x red

**Ex approval acc. to conformity certificate**
PTB 03 ATEX 2236

<table>
<thead>
<tr>
<th>Entity Parameter</th>
<th>Max. output voltage $U_o$</th>
<th>≤ 24 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. output current $I_o$</td>
<td>≤ 250 mA</td>
<td></td>
</tr>
<tr>
<td>Max. output power $P_o$</td>
<td>≤ 2560 mW</td>
<td></td>
</tr>
<tr>
<td>Max. input voltage $U_i$</td>
<td>≤ 24 V</td>
<td></td>
</tr>
<tr>
<td>Max. input current $I_i$</td>
<td>≤ 250 mA</td>
<td></td>
</tr>
<tr>
<td>Max. input power $P_i$</td>
<td>≤ 2560 mW</td>
<td></td>
</tr>
</tbody>
</table>

**FISCO parameter according to IEC TS 60079-27**

| Max. output voltage $U_o$ | ≤ 17.5 V |
| Max. output current $I_o$ | ≤ 380 mA  |
| Max. output power $P_o$ | ≤ 5320 mW |
| Max. input voltage $U_i$ | ≤ 17.5 V  |
| Max. input current $I_i$ | ≤ 380 mA  |
| Max. input power $P_i$ | ≤ 5320 mW |

**External inductance/capacitance $L/C_i$**
- trunk (in/out): negligible / ≤ 5.00 nF
- per field current circuit: negligible / ≤ 0.47 nF
- Σ field current circuits: negligible / ≤ 5.00 nF

**Device designation**
- II 2 G  EEx ib IIC/IIB T4
- II 2(1) G  EEx ia IIC/IIB T4
- II 2 G (2D)  [Ex ibD] EEx ib IIB T4
- II 2 (1) G (1D)  [Ex iaD] EEx ia IIB T4

**FISCO / Entity field device**

**Electrical connection**
- M12 flange connection
- Segment IN: 1 x M12 - connector
- Segment OUT: 1 x M12 - female connector
- Drop line: 6 x M12 - female connector
- Earthing bolt: M5 x 1

**Degree of protection**
- IP67
- Ambient temperature: -25 ... + 70 °C
- Housing material: powder-coated die-cast aluminium
- Housing color: black/yellow
- Dimensions: 64 x 185.5 x 45 mm
- Connection mode: Wall mounting

**Dimensions**

**Terminal Configuration**

- M12 x 1
  - Segment IN
  - 1 = V –
  - 2 = V +
  - 3 = shield
  - 4 = n.c.
  - nominal values: 4 A, 300 V

- M12 x 1
  - Segment out, Spur
The 4-port Ex-junction module JBBS-49SC-M413/EX is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with stainless steel 7/8” flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
**FOUNDATION™ fieldbus**  
**IP67 junction box, 4-port**  
**JBBS-49SC-M413/EX**

### Type

<table>
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<th>Parameter</th>
<th>Value</th>
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</tr>
<tr>
<td>Ident-No.</td>
<td>6611437</td>
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</table>

### Fieldbus standard

- IEC 61158-2

### Operational voltage range:

- Current self-consumption: ≤ 7 mA
- Voltage drop: ≤ 0.3 V

### Short-circuit protection

- ≤ 30, 35, 45, 60 mA

### Indication

- Operational readiness: 1 x green
- Short-circuit message: 4 x red

### Ex approval acc. to conformity certificate

- PTB 03 ATEX 2236

### Entity Parameter

- Max. output voltage $U_o$: ≤ 24 V
- Max. output current $I_o$: ≤ 250 mA
- Max. output power $P_o$: ≤ 2560 mW
- Max. input voltage $U_i$: ≤ 24 V
- Max. input current $I_i$: ≤ 250 mA
- Max. input power $P_i$: ≤ 2560 mW

### FISCO parameter according to IEC TS 60079-27

- Max. output voltage $U_o$: ≤ 17.5 V
- Max. output current $I_o$: ≤ 380 mA
- Max. output power $P_o$: ≤ 5320 mW
- Max. input voltage $U_i$: ≤ 17.5 V
- Max. input current $I_i$: ≤ 380 mA
- Max. input power $P_i$: ≤ 5320 mW

### External inductance/capacitance $L_i/C_i$

- trunk (in/out): negligible / ≤ 5.00 nF
- per field current circuit: negligible / ≤ 0.47 nF
- Σ field current circuits: negligible / ≤ 5.00 nF

### Device designation

- II 2 G  EEx ib IIC/IIB T4
- II 2(1) G  EEx ia IIC/IIB T4
- II 2 G (2D)  [Ex ibD] EEx ib IIC T4
- II 2 (1) G (1D)  [Ex iaD] EEx ia IIC T4
- FISCO / Entity field device

### Electrical connection

- 7/8” flange connection
- Segment IN: 1 x 7/8” - plug
- Segment OUT: 1 x 7/8” - plug
- Drop line: 4 x 7/8” - plug
- Earthing bolt: M5 x 1

### Degree of protection

- IP67
- Ambient temperature: -25 ... + 70 °C
- Housing material: powder-coated die-cast aluminium
- Housing color: black/yellow
- Dimensions: 64 x 150 x 45 mm
- Connection mode: Wall mounting
The 6-port Ex-junction module JBBS-49SC-M613/EX is designed for FOUNDATION™ fieldbus systems.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with stainless steel 7/8” flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 6-port
JBBS-49SC-M613/EX

Type
Ident-No.

JBBS-49SC-M613/EX
6611439

Fieldbus standard
IEC 61158-2

Operational voltage range:
Current self-consumption
Voltage drop

12 ... 32 VDC
≤ 7 mA
≤ 0.3 V

Short-circuit protection

≤ 30, 35, 45, 60 mA

Indication
Operational readiness
Short-circuit message

1 x green
6 x red

Ex approval acc. to conformity certificate
PTB 03 ATEX 2236

Entity Parameter
Max. output voltage U_o
Max. output current I_o
Max. output power P_o
Max. input voltage U_i
Max. input current I_i
Max. input power P_i

≤ 24 V
≤ 250 mA
≤ 2560 mW
≤ 24 V
≤ 250 mA
≤ 2560 mW

FISCO parameter according to IEC TS 60079-27
Max. output voltage U_o
Max. output current I_o
Max. output power P_o
Max. input voltage U_i
Max. input current I_i
Max. input power P_i

≤ 17.5 V
≤ 380 mA
≤ 5320 mW
≤ 17.5 V
≤ 380 mA
≤ 5320 mW

External inductance/capacitance L/C

trunk [in/out]: negligible / ≤ 5.00 nF
per field current circuit: negligible / ≤ 0.47 nF
Σ field current circuits: negligible / ≤ 5.00 nF

Device designation

II 2 G EEx ib IIC/IIB T4
II 2(1) G EEx ia IIC/IIB T4
II 2 G (2D) [Ex ibD] EEx ib IIb T4
II 2 (1) G (1D) [Ex iaD] EEx ia IIb T4
FISCO / Entity field device

Electrical connection
Segment IN
Segment OUT
Drop line
Earthing bolt

1 x 7/8" - plug
1 x 7/8" - plug
6 x 7/8" - plug
M5 x 1

Degree of protection
IP67

Ambient temperature
-25 ... + 70 °C

Housing material
powder-coated die-cast aluminium

Housing color
black/yellow

Dimensions
64 x 185.5 x 45 mm

Connection mode
Wall mounting

Dimensions

Terminal Configuration

7/8" flange connection
1 x 7/8": plug
1 x 7/8": plug
6 x 7/8": plug
M5 x 1

nominal values: 9 A, 300 V
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49-T415/3G

The 4-port Ex-junction module JBBS-49-T415/3G is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 60079-27
- Mounting possible in zone 2
- Junction box for wall mounting with PVC cable glands M20 x 1.5
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
**FOUNDATION™ fieldbus**
**IP67 junction box, 4-port**
**JBBS-49-T415/3G**

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<td>IEC 61158-2</td>
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<td><strong>Operational voltage range:</strong></td>
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<td>PTB 07 ATEX 2017 X</td>
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<td><strong>Device designation</strong></td>
<td>II 3 G Ex nA II T4</td>
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<tr>
<td></td>
<td>II 3 G Ex nA [nL] IIC/IIB T4</td>
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<td>FNICO / Entity field device</td>
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<tr>
<td><strong>Electrical connection</strong></td>
<td>cable glands</td>
</tr>
<tr>
<td><strong>Segment IN</strong></td>
<td>1 x M20 x 1.5 (Ø 6...12 mm)</td>
</tr>
<tr>
<td><strong>Segment OUT</strong></td>
<td>1 x M20 x 1.5 (Ø 6...12 mm)</td>
</tr>
<tr>
<td><strong>Drop line</strong></td>
<td>4 x M20 x 1.5 (Ø 6...12 mm)</td>
</tr>
<tr>
<td><strong>Terminal cross-section</strong></td>
<td>2.5 mm²</td>
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<tr>
<td><strong>Earthing bolt</strong></td>
<td>M5 x 1</td>
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<tr>
<td><strong>Degree of protection</strong></td>
<td>IP67</td>
</tr>
<tr>
<td><strong>Ambient temperature</strong></td>
<td>-25 ... + 70 °C</td>
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<tr>
<td><strong>Housing material</strong></td>
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<tr>
<td><strong>Housing color</strong></td>
<td>black/yellow</td>
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<tr>
<td><strong>Dimensions</strong></td>
<td>64 x 150 x 45 mm</td>
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<tr>
<td><strong>Connection mode</strong></td>
<td>Wall mounting</td>
</tr>
</tbody>
</table>

**Dimensions**

**Terminal Configuration**

1 = n.c.  
2 = shield  
3 = +  
4 = –
The 6-port Ex-junction module JBBS-49-T615/3G is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 60079-27
- Mounting possible in zone 2
- Junction module for wall mounting with PVC cable glands M20 x 1.5
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 6-port
JBBS-49-T615/3G

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Fieldbus standard
IEC 61158-2

Operational voltage range:
9 ... 32 VDC

Ex approval acc. to conformity certificate
PTB 07 ATEX 2017 X
II 3 G Ex nA II T4
II 3 G Ex nA [nL] IIC/IIB T4
FNICO / Entity field device

Electrical connection
- cable glands
- Segment IN: 1 x M20 x 1.5 (Ø 6...12 mm)
- Segment OUT: 1 x M20 x 1.5 (Ø 6...12 mm)
- Drop line: 6 x M20 x 1.5 (Ø 6...12 mm)
- Terminal cross-section: 2.5 mm²
- Earthing bolt: M5 x 1

Degree of protection
IP67

Ambient temperature
-25 ... + 70 °C

Housing material
powder-coated die-cast aluminium

Housing color
black/yellow

Dimensions
64 x 185.5 x 45 mm

Connection mode
Wall mounting

Dimensions

Terminal Configuration
1 = n.c.
2 = shield
3 = +
4 = -
The 4-port Ex-junction module JBBS-49-E413/3G is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 60079-27
- Mounting possible in zone 2
- Junction box for wall mounting with stainless steel M12 flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49-E413/3G

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<td>Device designation</td>
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<td>II 3 G Ex nA [nL] II/II T4</td>
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<td></td>
<td>FNICO / Entity field device</td>
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<tr>
<td>Electrical connection</td>
<td>M12 flange connection</td>
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<tr>
<td>Segment IN</td>
<td>1 x M12 - connector</td>
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<tr>
<td>Segment OUT</td>
<td>1 x M12 - female connector</td>
</tr>
<tr>
<td>Drop line</td>
<td>4 x M12 - female connector</td>
</tr>
<tr>
<td>Earthing bolt</td>
<td>M5 x 1</td>
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<tr>
<td>Degree of protection</td>
<td>IP67</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-25 … + 70 °C</td>
</tr>
<tr>
<td>Housing material</td>
<td>powder-coated die-cast aluminium</td>
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<tr>
<td>Housing color</td>
<td>black/yellow</td>
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<tr>
<td>Dimensions</td>
<td>64 x 150 x 45 mm</td>
</tr>
<tr>
<td>Connection mode</td>
<td>Wall mounting</td>
</tr>
</tbody>
</table>

Dimensions

Terminal Configuration

- **M12 x 1**
  - Segment in
  - 1 = V-
  - 2 = V+
  - 3 = shield
  - 4 = n.c.

- **M12 x 1**
  - Segment out, Spur
  - 1
  - 2
  - 3
  - 4

nominal values: 4 A, 300 V
The 6-port Ex-junction module JBBS-49-E613/3G is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitive coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 60079-27
- Mounting possible in zone 2
- Junction box for wall mounting with stainless steel M12 flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
**FOUNDATION™ fieldbus**

**IP67 junction box, 6-port**

**JBBS-49-E613/3G**

<table>
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<td>6611426</td>
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| **Fieldbus standard** | IEC 61158-2 |
| **Operational voltage range:** | 9 ... 32 VDC |

| **Ex approval acc. to conformity certificate** | PTB 07 ATEX 2017 X |
| **Device designation** | IIE 3 G Ex nA II T4 |
| | IIE 3 G Ex nA [nL] IIC/IIB T4 |
| | FNICO / Entity field device |

| **Electrical connection** | M12 flange connection |
| **Segment IN** | 1 x M12 - connector |
| **Segment OUT** | 1 x M12 - female connector |
| **Drop line** | 6 x M12 - female connector |
| **Earthing bolt** | M5 x 1 |

| **Degree of protection** | IP67 |
| **Ambient temperature** | -25 ... + 70 °C |
| **Housing material** | powder-coated die-cast aluminium |
| **Housing color** | black/yellow |
| **Dimensions** | 64 x 185.5 x 45 mm |
| **Connection mode** | Wall mounting |

**Dimensions**

![Dimensions diagram](image)

**Terminal Configuration**

- **M12 x 1 Segment IN**
  - 1 = V-
  - 2 = V+
  - 3 = shield
  - 4 = n.c.
  - nominal values: 4 A, 300 V

- **M12 x 1 Segment out, Spur**
  - 1
  - 2
  - 3
  - 4

Hans Turck GmbH & Co.KG • Witzlebenstraße 7 • 45472 Mülheim/Ruhr • Germany • Tel. +49 (0)208 4952-0 • Fax +49 (0)208 4952-264 • more@turck.com • www.turck.com
The 4-port Ex-junction module JBBS-49-M413/3G is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 6007927
- Mounting possible in zone 2
- Junction box for wall mounting with stainless steel 7/8" flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49-M413/3G

**Type**
JBBS-49-M413/3G

**Ident-No.**
6611428

**Fieldbus standard**
IEC 61158-2

**Operational voltage range:**
9 ... 32 VDC

**Ex approval acc. to conformity certificate**
PTB 07 ATEX 2017 X
II 3 G Ex nA II T4
II 3 G Ex nA [nL] IIC/IIB T4
FNICO / Entity field device

**Electrical connection**
- Segment IN: 1 x 7/8" * plug
- Segment OUT: 1 x 7/8" * plug
- Drop line: 4 x 7/8" * plug
- Earthing bolt: M5 x 1

**Degree of protection**
IP67

**Ambient temperature**
-25 ... + 70 °C

**Housing material**
powder-coated die-cast aluminium

**Housing color**
black/yellow

**Dimensions**
64 x 150 x 45 mm

**Connection mode**
Wall mounting

---

**Terminal Configuration**

**Segment IN**
1 = V –
2 = V +
3 = shield
4 = n.c.

**Segment OUT**
nominal values: 9 A, 300 V
The 6-port Ex-junction module JBBS-49-M613/3G is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FNICO compliant according to IEC TS 60079-27
- Mounting possible in zone 2
- Junction box for wall mounting with stainless steel 7/8" flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
### FOUNDATION™ fieldbus
**IP67 junction box, 6-port**
**JBBS-49-M613/3G**

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<td><strong>Operational voltage range:</strong></td>
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<td>II 3 G   Ex nA [nL] IIIC/IIB T4</td>
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<tr>
<th><strong>FNICO / Entity field device</strong></th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Electrical connection</strong></td>
<td>7/8” flange connection</td>
</tr>
<tr>
<td><strong>Segment IN</strong></td>
<td>1 x 7/8 *- plug</td>
</tr>
<tr>
<td><strong>Segment OUT</strong></td>
<td>1 x 7/8 *- plug</td>
</tr>
<tr>
<td><strong>Drop line</strong></td>
<td>6 x 7/8 *- plug</td>
</tr>
<tr>
<td><strong>Earthing bolt</strong></td>
<td>M5 x 1</td>
</tr>
</tbody>
</table>

| **Degree of protection**                      | IP67                   |
| **Ambient temperature**                       | -25 …+ 70 °C           |
| **Housing material**                          | powder-coated die-cast aluminium |
| **Housing color**                             | black/yellow           |
| **Dimensions**                                | 64 x 185.5 x 45 mm     |
| **Connection mode**                           | Wall mounting          |

### Dimensions

![Dimensions diagram]

### Terminal Configuration

![Terminal Configuration diagram]

**7/8”**

**Segment in**

1. V –
2. V +
3. Shield
4. n.c.

**7/8”**

**Segment out, Spur**

1. V –
2. V +
3. Shield
4. n.c.

nominal values: 9 A, 300 V
The 4-port Ex-junction module JBBS-49-T415B/EX is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with PVC cable glands M20 x 1.5
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49-T415B/EX

<table>
<thead>
<tr>
<th>Type</th>
<th>JBBS-49-T415B/EX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6611445</td>
</tr>
</tbody>
</table>

**Fieldbus standard**
IEC 61158-2

**Operational voltage range:**
9 ... 32 VDC

**Ex approval acc. to conformity certificate**
PTB 03 ATEX 2236

**Entity Parameter**
- Max. output voltage $U_o$ ≤ 24 V
- Max. output current $I_o$ ≤ 250 mA
- Max. output power $P_o$ ≤ 2560 mW
- Max. input voltage $U_i$ ≤ 24 V
- Max. input current $I_i$ ≤ 250 mA
- Max. input power $P_i$ ≤ 2560 mW

**FISCO parameter according to IEC TS 60079-27**
- Max. output voltage $U_o$ ≤ 17.5 V
- Max. output current $I_o$ ≤ 380 mA
- Max. output power $P_o$ ≤ 5320 mW
- Max. input voltage $U_i$ ≤ 17.5 V
- Max. input current $I_i$ ≤ 380 mA
- Max. input power $P_i$ ≤ 5320 mW

**External inductance/capacitance $L/C_i$**
- trunk (in/out): negligible / ≤ 5.00 nF
- per field current circuit: negligible / ≤ 0.47 nF
- $\Sigma$ field current circuits: negligible / ≤ 5.00 nF

**Device designation**
- $\oplus$ II 2 G EEx ib IIC/IIB T4
- $\oplus$ II 2(1) G EEx ia IIC/IIB T4
- $\oplus$ II 2 G (2D) EEx ia IIB T4
- $\oplus$ II 2 (1) G (1D) EEx ia IIB T4
- FISCO / Entity field device

**Electrical connection**
- cable glands
- Segment IN 1 x M20 x 1.5 (Ø 6…12 mm)
- Segment OUT 1 x M20 x 1.5 (Ø 6…12 mm)
- Drop line 4 x M20 x 1.5 (Ø 6…12 mm)
- Terminal cross-section 2.5 mm²
- Earthing bolt M5 x 1

**Degree of protection**
IP67

**Ambient temperature**
-25 ... + 70 °C

**Housing material**
powder-coated die-cast aluminium

**Housing color**
black/yellow

**Dimensions**
64 x 150 x 45 mm

**Connection mode**
Wall mounting
The 6-port Ex-junction module JBBS-49-T615B/EX is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with PVC cable glands M20 x 1.5
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
# FOUNDATION™ fieldbus

## IP67 junction box, 6-port

**JBBS-49-T615B/EX**

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
<th>JBBS-49-T615B/EX</th>
</tr>
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<tbody>
<tr>
<td><strong>Ident-No.</strong></td>
<td>6611447</td>
</tr>
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</table>

## Fieldbus standard

IEC 61158-2

## Operational voltage range:

9 ... 32 VDC

## Ex approval acc. to conformity certificate

PTB 03 ATEX 2236

### Entity Parameter

- **Max. output voltage** $U_0$ ≤ 24 V
- **Max. output current** $I_0$ ≤ 250 mA
- **Max. output power** $P_o$ ≤ 2560 mW
- **Max. input voltage** $U_i$ ≤ 24 V
- **Max. input current** $I_i$ ≤ 250 mA
- **Max. input power** $P_i$ ≤ 2560 mW

FISCO parameter according to IEC TS 60079-27

- **Max. output voltage** $U_0$ ≤ 17.5 V
- **Max. output current** $I_0$ ≤ 380 mA
- **Max. output power** $P_o$ ≤ 5320 mW
- **Max. input voltage** $U_i$ ≤ 17.5 V
- **Max. input current** $I_i$ ≤ 380 mA
- **Max. input power** $P_i$ ≤ 5320 mW

### External inductance/capacitance $L/C_i$

- Trunk (in/out): negligible / ≤ 5.00 nF
- Per field current circuit: negligible / ≤ 0.47 nF
- $\Sigma$ field current circuits: negligible / ≤ 5.00 nF

## Device designation

- **II 2 G EEx ib IIC/IIB T4**
- **II 2(1) G EEx ia IIC/IIB T4**
- **II 2 G (2D) [Ex ibD] EEx ib IIB T4**
- **II 2 (1) G (1D) [Ex iaD] EEx ia IIB T4**

## Electrical connection

- **cable glands**
- **Segment IN** 1 x M20 x 1.5 (Ø 6...12 mm)
- **Segment OUT** 1 x M20 x 1.5 (Ø 6...12 mm)
- **Drop line** 6 x M20 x 1.5 (Ø 6...12 mm)
- **Terminal cross-section** 2.5 mm²
- **Earthing bolt** M5 x 1

## Degree of protection

<table>
<thead>
<tr>
<th><strong>Ambient temperature</strong></th>
<th>-25 ... + 70 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Housing material</strong></td>
<td>powder-coated die-cast aluminium</td>
</tr>
<tr>
<td><strong>Housing color</strong></td>
<td>black/yellow</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>64 x 185.5 x 45 mm</td>
</tr>
<tr>
<td><strong>Connection mode</strong></td>
<td>Wall mounting</td>
</tr>
</tbody>
</table>
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49-E413/EX

The 4-port Ex-junction module JBBS-49-E413/EX is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system's potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with stainless steel M12 flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
**FOUNDATION™ fieldbus**  
**IP67 junction box, 4-port**  
**JBBS-49-E413/EX**

### Type
- **Ident-No.** 6611425

### Fieldbus standard
- **IEC 61158-2**

### Operational voltage range:
- **9 ... 32 VDC**

### Ex approval acc. to conformity certificate

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Max. output voltage $U_0$</td>
<td>$\leq 24$ V</td>
</tr>
<tr>
<td>Max. output current $I_0$</td>
<td>$\leq 250$ mA</td>
</tr>
<tr>
<td>Max. output power $P_o$</td>
<td>$\leq 2560$ mW</td>
</tr>
<tr>
<td>Max. input voltage $U_i$</td>
<td>$\leq 24$ V</td>
</tr>
<tr>
<td>Max. input current $I_i$</td>
<td>$\leq 250$ mA</td>
</tr>
<tr>
<td>Max. input power $P_i$</td>
<td>$\leq 2560$ mW</td>
</tr>
</tbody>
</table>

### Entity Parameter

- **Max. output voltage $U_o$**  
  $\leq 17.5$ V
- **Max. output current $I_0$**  
  $\leq 380$ mA
- **Max. output power $P_o$**  
  $\leq 5320$ mW
- **Max. input voltage $U_i$**  
  $\leq 17.5$ V
- **Max. input current $I_i$**  
  $\leq 380$ mA
- **Max. input power $P_i$**  
  $\leq 5320$ mW

### FISCO parameter according to IEC 60079-27

- **Max. output voltage $U_o$**  
  $\leq 17.5$ V
- **Max. output current $I_0$**  
  $\leq 380$ mA
- **Max. output power $P_o$**  
  $\leq 5320$ mW
- **Max. input voltage $U_i$**  
  $\leq 17.5$ V
- **Max. input current $I_i$**  
  $\leq 380$ mA
- **Max. input power $P_i$**  
  $\leq 5320$ mW

### External inductance/capacitance $L_C$:
- **Trunk (in/out):** negligible / $\leq 5.00$ nF
- **Per field current circuit:** negligible / $\leq 0.47$ nF

### Device designation

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>E</td>
<td>IIC / IIC T4</td>
</tr>
<tr>
<td>G</td>
<td>IIB T4</td>
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<tr>
<td>EEx</td>
<td>ibD</td>
</tr>
<tr>
<td>PtB 03 ATEX 2236</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical connection

- **M12 flange connection**
  - **Segment IN:** 1 x M12 - connector
  - **Segment OUT:** 1 x M12 - female connector
  - **Drop line:** 4 x M12 - female connector
  - **Earthing bolt:** M5 x 1

### Degree of protection
- **IP67**
- **Ambient temperature:** -25 … + 70 °C
- **Housing material:** powder-coated die-cast aluminium
- **Housing color:** black/yellow
- **Dimensions:** 64 x 150 x 45 mm
- **Connection mode:** Wall mounting
The 6-port Ex-junction module JBBS-49-E613/EX is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with stainless steel M12 flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 6-port
JBBS-49-E613/EX

<table>
<thead>
<tr>
<th>Type</th>
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<tr>
<td>Ident-No.</td>
<td>6611427</td>
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| Fieldbus standard | IEC 61158-2  |

| Operational voltage range: | 9 ... 32 VDC |

| Ex approval acc. to conformity certificate | PTB 03 ATEX 2236 |

<table>
<thead>
<tr>
<th>Entity Parameter</th>
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<tbody>
<tr>
<td>Max. output voltage $U_o$</td>
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<tr>
<td>Max. output current $I_o$</td>
</tr>
<tr>
<td>Max. output power $P_o$</td>
</tr>
<tr>
<td>Max. input voltage $U_i$</td>
</tr>
<tr>
<td>Max. input current $I_i$</td>
</tr>
<tr>
<td>Max. input power $P_i$</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>External inductance/capacitance $L_i/C_i$ trunk (in/out):</th>
</tr>
</thead>
<tbody>
<tr>
<td>negligible / $\leq 5.00$ nF</td>
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</table>

<table>
<thead>
<tr>
<th>Device designation</th>
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<tbody>
<tr>
<td>$\mathbb{II} 2$ G $\mathbb{EEx , ib , II\text{C/II\text{B}} , T4}$</td>
</tr>
<tr>
<td>$\mathbb{II} 2$ (1) G $\mathbb{EEx , ia , II\text{C/II\text{B}} , T4}$</td>
</tr>
<tr>
<td>$\mathbb{II} 2$ G (2D) $\mathbb{[Ex , ibD]} , \mathbb{EEx , ib , II\text{B} , T4}$</td>
</tr>
<tr>
<td>$\mathbb{II} 2$ (1) G (1D) $\mathbb{[Ex , iaD]} , \mathbb{EEx , ia , II\text{B} , T4}$</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 flange connection</td>
</tr>
<tr>
<td>1 x M12 - connector</td>
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<tr>
<td>1 x M12 - female connector</td>
</tr>
<tr>
<td>6 x M12 - female connector</td>
</tr>
<tr>
<td>M5 x 1</td>
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<table>
<thead>
<tr>
<th>Degree of protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP67</td>
</tr>
<tr>
<td>Ambient temperature</td>
</tr>
<tr>
<td>Housing material</td>
</tr>
<tr>
<td>Housing color</td>
</tr>
<tr>
<td>Dimensions</td>
</tr>
<tr>
<td>Connection mode</td>
</tr>
</tbody>
</table>
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49-M413/EX

The 4-port Ex-junction module JBBS-49-M413/EX is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with stainless steel 7/8” flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 4-port
JBBS-49-M413/EX

**Type**
- JBBS-49-M413/EX

**Ident-No.**
- 6611429

**Fieldbus standard**
- IEC 61158-2

**Operational voltage range:**
- 9 ... 32 VDC

**Ex approval acc. to conformity certificate**
- PTB 03 ATEX 2236

**Entity Parameter**
- Max. output voltage $U_o$ ≤ 24 V
- Max. output current $I_o$ ≤ 250 mA
- Max. output power $P_o$ ≤ 2560 mW
- Max. input voltage $U_i$ ≤ 24 V
- Max. input current $I_i$ ≤ 250 mA
- Max. input power $P_i$ ≤ 2560 mW

**FISCO parameter according to IEC TS 60079-27**
- Max. output voltage $U_o$ ≤ 17.5 V
- Max. output current $I_o$ ≤ 380 mA
- Max. output power $P_o$ ≤ 5320 mW
- Max. input voltage $U_i$ ≤ 17.5 V
- Max. input current $I_i$ ≤ 380 mA
- Max. input power $P_i$ ≤ 5320 mW

**External inductance/capacitance $L_i/C_i$**
- trunk (in/out): negligible / ≤ 5.00 nF
- per field current circuit: negligible / ≤ 0.47 nF
- $\Sigma$ field current circuits: negligible / ≤ 5.00 nF

**Device designation**
- II 2 G EEx ib IIC/IIB T4
- II 2(1) G EEx ia IIC/IIB T4
- II 2 G (2D) [Ex ibD] EEx ib IIB T4
- II 2 (1) G (1D) [Ex iaD] EEx ia IIB T4

**FISCO / Entity field device**

**Electrical connection**
- 7/8" flange connection
- Segment IN: 1 x 7/8" *- plug
- Segment OUT: 1 x 7/8" *- plug
- Drop line: 4 x 7/8" *- plug
- Earthing bolt: M5 x 1

**Degree of protection**
- IP67

**Ambient temperature**
- -25 ... + 70 °C

**Housing material**
- powder-coated die-cast aluminium

**Housing color**
- black/yellow

**Dimensions**
- 64 x 150 x 45 mm

**Connection mode**
- Wall mounting
The 6-port Ex-junction module JBBS-49-M613/EX is designed for FOUNDATION™ fieldbus systems.

The housing is made of robust die-cast aluminium and features protection degree IP67.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

To avoid condensation build-up in the housing, the devices are equipped with a condensate drain.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for wall mounting with stainless steel 7/8” flange connections
- Powder-coated die-cast aluminium housing
- Pressure compensation element for protection against condensation water
- Connection of the housing potential via an M5 x 1 bolt
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Integrated terminating resistor (switch-in)
- Cable shielding: capacitive or direct connection to housing potential selectable via switch
- Isolated support terminal for optional protective conductor incorporated in cable
FOUNDATION™ fieldbus
IP67 junction box, 6-port
JBBS-49-M613/EX

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Ident-No.</td>
<td>6611431</td>
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</table>

**Fieldbus standard**
IEC 61158-2

**Operational voltage range:**
9 … 32 VDC

**Ex approval acc. to conformity certificate**
PTB 03 ATEX 2236

**Entity Parameter**
- Max. output voltage $U_o$ ≤ 24 V
- Max. output current $I_o$ ≤ 250 mA
- Max. output power $P_o$ ≤ 2560 mW
- Max. input voltage $U_i$ ≤ 24 V
- Max. input current $I_i$ ≤ 250 mA
- Max. input power $P_i$ ≤ 2560 mW

**FISCO parameter according to IEC TS 60079-27**
- Max. output voltage $U_o$ ≤ 17.5 V
- Max. output current $I_o$ ≤ 380 mA
- Max. output power $P_o$ ≤ 5320 mW
- Max. input voltage $U_i$ ≤ 17.5 V
- Max. input current $I_i$ ≤ 380 mA
- Max. input power $P_i$ ≤ 5320 mW

**External inductance/capacitance $L_i/C_i$**
- trunk (in/out): negligible / ≤ 5.00 nF
- per field current circuit: negligible / ≤ 0.47 nF
- $\Sigma$ field current circuits: negligible / ≤ 5.00 nF

**Device designation**
- II 2 G EEx ib IIC IIB T4
- II 2(1) G EEx ia IIC IIB T4
- II 2 G (2D) [Ex ibD] EEx ib IIB T4
- II 2 (1) G (1D) [Ex iaD] EEx ia IIB T4
- FISCO / Entity field device

**Electrical connection**
- 7/8” flange connection
- Segment IN 1 x 7/8’’ *: plug
- Segment OUT 1 x 7/8’’ *: plug
- Drop line 6 x 7/8’’ *: plug
- Earthing bolt M5 x 1

**Degree of protection**
IP67

**Ambient temperature**
-25 … + 70 °C

**Housing material**
powder-coated die-cast aluminium

**Housing color**
black/yellow

**Dimensions**
64 x 185.5 x 45 mm

**Connection mode**
Wall mounting
The 4-port Ex junction box JRBS-40SC-4C/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

**Accessories:** To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
FOUNDATION™ fieldbus and PROFIBUS-PA
IP20 junction box, 4-port
JRBS-40SC-4C/EX

<table>
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<tr>
<th>Type</th>
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<td>Ident-No.</td>
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Fieldbus standard
IEC 61158-2

Operational voltage range:
Current self-consumption
Voltage drop

<table>
<thead>
<tr>
<th>Voltage range</th>
<th>Current</th>
<th>Voltage</th>
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</thead>
<tbody>
<tr>
<td>12 ... 32 VDC</td>
<td>≤ 7 mA</td>
<td>≤ 0.3 V</td>
</tr>
</tbody>
</table>

Short-circuit protection

<table>
<thead>
<tr>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 30 , 35 , 45 , 60 mA</td>
</tr>
</tbody>
</table>

Indication
Operational readiness 1 x green
Short-circuit message 4 x red

Ex approval acc. to conformity certificate
PTB 05 ATEX 2002

Entity Parameter
Max. output voltage \( U_0 \)
Max. output current \( I_0 \)
Max. output power \( P_0 \)
Max. input voltage \( U_1 \)
Max. input current \( I_1 \)
Max. input power \( P_1 \)

FISCO parameter according to IEC TS 60079-27

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. output voltage ( U_0 )</td>
<td>≤ 17.5 V</td>
</tr>
<tr>
<td>Max. output current ( I_0 )</td>
<td>≤ 380 mA</td>
</tr>
<tr>
<td>Max. output power ( P_0 )</td>
<td>≤ 5320 mW</td>
</tr>
<tr>
<td>Max. input voltage ( U_1 )</td>
<td>≤ 17.5 V</td>
</tr>
<tr>
<td>Max. input current ( I_1 )</td>
<td>≤ 380 mA</td>
</tr>
<tr>
<td>Max. input power ( P_1 )</td>
<td>≤ 5320 mW</td>
</tr>
</tbody>
</table>

External inductance/capacitance \( L/C_1 \)
Trunk (In/Out):
per field current circuit:
\( \leq 5.00 \) nF
\( \leq 0.82 \) nF
\( \Sigma \) field current circuits:
\( \leq 5.00 \) nF

Device designation

<table>
<thead>
<tr>
<th>Device designation</th>
<th>Ex approval acc. to conformity certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>II 2 G Ex ib IIC/II B T4</td>
<td>PTB 07 ATEX 2035 X</td>
</tr>
<tr>
<td>II 2(1) G Ex ib IIC/II B T4</td>
<td></td>
</tr>
<tr>
<td>II 2 G (2D) Ex ib [ibD] II B T4</td>
<td></td>
</tr>
<tr>
<td>II 2 (1) G (1D) Ex ia [iaD] II B T4</td>
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</tbody>
</table>

FNICO / Entity field device

Device designation

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<th>Device designation</th>
<th>Ex approval acc. to conformity certificate</th>
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</thead>
<tbody>
<tr>
<td>II 3 G Ex nA II T4</td>
<td></td>
</tr>
<tr>
<td>II 3 G Ex nA [nL] IIC/II B T4</td>
<td></td>
</tr>
</tbody>
</table>

Electrical connection
cage clamp terminals

Terminal cross-section 2.5 mm²
Earthing bolt M5 x 1

Degree of protection
IP20

Ambient temperature
-25 ... + 70 °C
Housing material aluminium
Housing color black
Dimensions 119 x 31 x 75.5 mm
Connection mode snap-on DIN rail (EN 60715)
The 6-port Ex junction box JRBS-40SC-6C/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

**Accessories:** To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
# FOUNDATION™ fieldbus and PROFIBUS-PA
## IP20 junction box, 6-port
### JRBS-40SC-6C/EX

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
<th>JRBS-40SC-6C/EX</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ident-No.</strong></td>
<td>6611452</td>
</tr>
</tbody>
</table>

### Fieldbus standard
- IEC 61158-2

### Operational voltage range:
- Current self-consumption: ≤ 7 mA
- Voltage drop: ≤ 0.3 V

### Short-circuit protection
- ≤ 30, 35, 45, 60 mA

### Indication
- Operational readiness: 1 x green
- Short-circuit message: 6 x red

### Ex approval acc. to conformity certificate
- PTB 05 ATEX 2002

### Entity Parameter

| **Max. output voltage U_o** | ≤ 24 V |
| **Max. output current I_o** | ≤ 250 mA |
| **Max. output power P_o** | ≤ 2560 mW |
| **Max. input voltage U_i** | ≤ 24 V |
| **Max. input current I_i** | ≤ 250 mA |
| **Max. input power P_i** | ≤ 2560 mW |

### FISCO parameter according to IEC TS 60079-27

| **Max. output voltage U_o** | ≤ 17.5 V |
| **Max. output current I_o** | ≤ 380 mA |
| **Max. output power P_o** | ≤ 5320 mW |
| **Max. input voltage U_i** | ≤ 17.5 V |
| **Max. input current I_i** | ≤ 380 mA |
| **Max. input power P_i** | ≤ 5320 mW |

### External inductance/capacitance L_i/C_i

| **Trunk (In/Out):** | negligible / ≤ 5.00 nF |
| **per field current circuit:** | negligible / ≤ 0.82 nF |
| **Σ field current circuits:** | negligible / ≤ 5.00 nF |

### Device designation

| **II 2 G** | EEx ib IIC/IIB T4 |
| **II 2(1) G** | EEx ia IIC/IIB T4 |
| **II 2 G (2D)** | EEx ib [ibD] IIIB T4 |
| **II 2 (1) G (1D)** | EEx ia [iaD] IIIB T4 |

### Ex approval acc. to conformity certificate
- PTB 07 ATEX 2035 X

### Device designation

| **II 3 G** | Ex nA II T4 |
| **II 3 G** | Ex nA [nL] IIC/IIB T4 |

### Electrical connection
- **cage clamp terminals**
- **Terminal cross-section**: 2.5 mm²
- **Earthing bolt**: M5 x 1

### Degree of protection
- **IP20**
- **Ambient temperature**: -25 ... + 70 °C
- **Housing material**: aluminium
- **Housing color**: black
- **Dimensions**: 142 x 31 x 75.5 mm
- **Connection mode**: snap-on DIN rail (EN 60715)
The 8-port Ex junction box JRBS-40SC-8C/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

**Accessories:** To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.
FOUNDATION™ fieldbus and PROFIBUS-PA
IP20 junction box, 8-port
JRBS-40SC-8C/EX

<table>
<thead>
<tr>
<th>Type</th>
<th>JRBS-40SC-8C/EX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6611453</td>
</tr>
</tbody>
</table>

**Fieldbus standard**
IEC 61158-2

**Operational voltage range:**
- Current self-consumption: ≤ 7 mA
- Voltage drop: ≤ 0.3 V

**Short-circuit protection**
- ≤ 30, 35, 45, 60 mA

**Ex approval acc. to conformity certificate**
- PTB 05 ATEX 2002

**Operational voltage range:**
- Max. output voltage $U_o$: ≤ 24 V
- Max. output current $I_o$: ≤ 250 mA
- Max. output power $P_o$: ≤ 2560 mW
- Max. input voltage $U_i$: ≤ 24 V
- Max. input current $I_i$: ≤ 250 mA
- Max. input power $P_i$: ≤ 2560 mW

**FISCO parameter according to IEC TS 60079-27**
- Max. output voltage $U_o$: ≤ 17.5 V
- Max. output current $I_o$: ≤ 380 mA
- Max. output power $P_o$: ≤ 5320 mW
- Max. input voltage $U_i$: ≤ 17.5 V
- Max. input current $I_i$: ≤ 380 mA
- Max. input power $P_i$: ≤ 5320 mW

**External inductance/capacitance $L/C_i$**
- Trunk (In/Out): negligible / ≤ 5.00 nF
- per field current circuit: negligible / ≤ 0.47 nF
- $\Sigma$ field current circuits: negligible / ≤ 5.00 nF

**Device designation**
- II 2 G  Ex ib IIC/IIB T4
- II 2(1) G  Ex ia IIC/IIB T4
- II 2 G (2D)  Ex ib [ibD] IIB T4
- II 2 (1) G (1D)  Ex ia [iaD] IIB T4

**FISCO / Entity field device**
- PTB 07 ATEX 2035 X

**Electrical connection**
- cage clamp terminals
- Terminal cross-section: 2.5 mm²
- Earthing bolt: M5 x 1

**Degree of protection**
- IP20
  - Ambient temperature: -25 ... + 70 °C
  - Housing material: aluminium
  - Housing color: black
  - Dimensions: 177 x 31 x 75.5 mm
  - Connection mode: snap-on DIN rail (EN 60715)
FOUNDATION™ fieldbus and PROFIBUS-PA
IP20 junction box, 12-port
JRBS-40SC-12C/EX

The 12-port Ex junction box JRBS-40SC-12C/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

Accessories: To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
FOUNDATION™ fieldbus and PROFIBUS-PA
IP20 junction box, 12-port
JRBS-40SC-12C/EX

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Ident-No.</td>
<td>6611455</td>
</tr>
</tbody>
</table>

| Fieldbus standard | IEC 61158-2 |

| Operational voltage range: | 12 ... 32 VDC |
| Current self-consumption | ≤ 7 mA |
| Voltage drop | ≤ 0.3 V |

| Short-circuit protection | ≤ 30 , 35 , 45 , 60 mA |

| Indication |
| Operational readiness | 1 x green |
| Short-circuit message | 12 x red |

| Ex approval acc. to conformity certificate | PTB 05 ATEX 2002 |
| Entity Parameter |
| Max. output voltage $U_o$ | ≤ 24 V |
| Max. output current $I_o$ | ≤ 250 mA |
| Max. output power $P_o$ | ≤ 2560 mW |
| Max. input voltage $U_i$ | ≤ 24 V |
| Max. input current $I_i$ | ≤ 250 mA |
| Max. input power $P_i$ | ≤ 2560 mW |
| FISCO parameter according to IEC TS 60079-27 |
| Max. output voltage $U_o$ | ≤ 17.5 V |
| Max. output current $I_o$ | ≤ 380 mA |
| Max. output power $P_o$ | ≤ 5320 mW |
| Max. input voltage $U_i$ | ≤ 17.5 V |
| Max. input current $I_i$ | ≤ 380 mA |
| Max. input power $P_i$ | ≤ 5320 mW |
| External inductance/capacitance $L_i/C_i$ | Trunk (In/Out): negligible / ≤ 5.00 nF |
| per field current circuit: negligible / ≤ 0.33 nF |
| Σ field current circuits: negligible / ≤ 5.00 nF |

| Device designation |
| II 2 G Ex ib IIC/IIB T4 |
| II 2(1) G Ex ia IIC/IIB T4 |
| II 2 G (2D) Ex ib [ibD] IIB T4 |
| II 2 (1) G (1D) Ex ia [iaD] IIB T4 |

| FISCO / Entity field device |
| PTB 07 ATEX 2035 X |

| Device designation |
| II 3 G Ex nA II T4 |
| II 3 G Ex nA [nL] IIC/IIB T4 |

| FNICO / Entity field device |

| Electrical connection |
| Cage clamp terminals |
| Terminal cross-section | 2.5 mm² |
| Earthing bolt | M5 x 1 |

| Degree of protection |
| IP20 |
| Ambient temperature | -25 ... + 70 °C |
| Housing material | aluminium |
| Housing color | black |
| Dimensions | 276 x 31 x 75.5 mm |
| Connection mode | snap-on DIN rail (EN 60715) |
The 4-port Ex junction box JRBS-40SC-4R/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

Accessories: To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.
# FOUNDATION™ fieldbus und PROFIBUS-PA

## IP20 junction box, 4-port

**JRBS-40SC-4R/EX**

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
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</tr>
</thead>
<tbody>
<tr>
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<td>6611459</td>
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</table>

| **Fieldbus standard** | IEC 61158-2 |

<table>
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<tr>
<th><strong>Operational voltage range:</strong></th>
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<tbody>
<tr>
<td>Current self-consumption</td>
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<tr>
<td>Voltage drop</td>
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</tbody>
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<table>
<thead>
<tr>
<th><strong>Short-circuit protection:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th><strong>Indication</strong></th>
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<tbody>
<tr>
<td>Operational readiness</td>
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<tr>
<td>Short-circuit message</td>
</tr>
</tbody>
</table>

<table>
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<tbody>
<tr>
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<table>
<thead>
<tr>
<th><strong>Entity Parameter</strong></th>
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</thead>
<tbody>
<tr>
<td>Max. output voltage $U_0$</td>
</tr>
<tr>
<td>Max. output current $I_0$</td>
</tr>
<tr>
<td>Max. output power $P_0$</td>
</tr>
<tr>
<td>Max. input voltage $U_i$</td>
</tr>
<tr>
<td>Max. input current $I_i$</td>
</tr>
<tr>
<td>Max. input power $P_i$</td>
</tr>
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<table>
<thead>
<tr>
<th><strong>FISCO parameter acc. to IEC TS 60079-27</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. output voltage $U_0$</td>
</tr>
<tr>
<td>Max. output current $I_0$</td>
</tr>
<tr>
<td>Max. output power $P_0$</td>
</tr>
<tr>
<td>Max. input voltage $U_i$</td>
</tr>
<tr>
<td>Max. input current $I_i$</td>
</tr>
<tr>
<td>Max. input power $P_i$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>External inductance/capacitance $L_i/C_i$</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trunk (In/Out): negligible / ≤ 5.00 nF</td>
</tr>
<tr>
<td>per field current circuit: negligible / ≤ 0.82 nF</td>
</tr>
<tr>
<td>Σ field current circuits: negligible / ≤ 5.00 nF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Device designation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>II 2 G EEx ib IIC/IIB T4</td>
</tr>
<tr>
<td>II 2(1) G EEx ia IIC/IIB T4</td>
</tr>
<tr>
<td>II 2 G (2D) EEx ib [ibD] IIC/IIB T4</td>
</tr>
<tr>
<td>II 2 (1) G (1D) EEx ia [iaD] IIC/IIB T4</td>
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<table>
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<th><strong>Device designation</strong></th>
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<tbody>
<tr>
<td>II 3 G Ex nA II T4</td>
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<tr>
<td>II 3 G Ex nA [nL] IIC/IIB T4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Electrical connection</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>removable terminal block, reverse polarity protected, screw connection</td>
</tr>
</tbody>
</table>

| **Terminal cross-section** | 2.5 mm² |
| **Earthing bolt** | M5 x 1 |

<table>
<thead>
<tr>
<th><strong>Degree of protection</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>IP20</td>
</tr>
</tbody>
</table>

| **Ambient temperature** | -25 … + 70 °C |
| **Housing material** | aluminium |
| **Housing color** | black |
| **Dimensions** | 119 x 31 x 75.5 mm |
| **Connection mode** | snap-on DIN rail (EN 60715) |
The 6-port Ex junction box JRBS-40SC-6R/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

**Accessories:** To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- Short-circuit protection per drop line/spur
- For Ex applications: -25…+70 °C (-13…+158 °F); for non-Ex applications: -40…+70 °C (-40…+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
FOUNDATION™ fieldbus und PROFIBUS-PA
IP20 junction box, 6-port
JRBS-40SC-6R/EX

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Ident-No.</td>
<td>6611460</td>
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</tbody>
</table>

Fieldbus standard: IEC 61158-2

Operational voltage range:
- Current self-consumption: ≤ 7 mA
- Voltage drop: ≤ 0.3 V

Short-circuit protection: ≤ 30, 35, 45, 60 mA

Indication:
- Operational readiness: 1 x green
- Short-circuit message: 6 x red

Ex approval acc. to conformity certificate: PTB 05 ATEX 2002

<table>
<thead>
<tr>
<th>Entity Parameter</th>
<th>Max. output voltage Uo</th>
<th>≤ 24 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. output current Io</td>
<td>≤ 250 mA</td>
<td></td>
</tr>
<tr>
<td>Max. output power Po</td>
<td>≤ 2560 mW</td>
<td></td>
</tr>
<tr>
<td>Max. input voltage U1</td>
<td>≤ 24 V</td>
<td></td>
</tr>
<tr>
<td>Max. input current I1</td>
<td>≤ 250 mA</td>
<td></td>
</tr>
<tr>
<td>Max. input power Pi</td>
<td>≤ 2560 mW</td>
<td></td>
</tr>
</tbody>
</table>

FISCO parameter acc. to IEC TS 60079-27
- Max. output voltage Uo | ≤ 17.5 V |
- Max. output current Io | ≤ 380 mA |
- Max. output power Po | ≤ 5320 mW |
- Max. input voltage U1 | ≤ 17.5 V |
- Max. input current I1 | ≤ 380 mA |
- Max. input power Pi | ≤ 5320 mW |

External inductance/capacitance L/Ci:
- Trunk (In/Out): negligible / ≤ 5.00 nF
- Per field current circuit: negligible / ≤ 0.82 nF
- Σ field current circuits: negligible / ≤ 5.00 nF

Device designation:
- II 2 G EEEx ib IIC/IIB T4
- II 2 (1) G EEEx ia IIC/IIB T4
- II 2 G (2D) EEEx ib [ibD] IIB T4
- II 2 (1) G (1D) EEEx ia [iaD] IIB T4

Ex approval acc. to conformity certificate: PTB 07 ATEX 2035 X

Device designation:
- II 3 G Ex nA II T4
- II 3 G Ex nA [nL] IIC/IIB T4

Electrical connection:
- removable terminal block, reverse polarity protected, screw connection
- Terminal cross-section: 2.5 mm²
- Earthing bolt: M5 x 1

Degree of protection: IP20
- Ambient temperature: -25 ... + 70 °C
- Housing material: aluminium
- Housing color: black
- Dimensions: 142 x 31 x 75.5 mm
- Connection mode: snap-on DIN rail (EN 60715)
The 8-port Ex junction box JRBS-40SC-8R/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

Accessories: To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.
FOUNDATION™ fieldbus und PROFIBUS-PA
IP20 junction box, 8-port
JRBS-40SC-8R/EX

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Ident-No.</td>
<td>6611461</td>
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</table>

**Fieldbus standard**
IEC 61158-2

**Operational voltage range:**
Current self-consumption
\[ \leq 7 \text{ mA} \]
Voltage drop
\[ \leq 0.3 \text{ V} \]

**Short-circuit protection**
\[ \leq 30, 35, 45, 60 \text{ mA} \]

**Indication**
- Operational readiness: 1 x green
- Short-circuit message: 8 x red

**Ex approval acc. to conformity certificate**
PTB 05 ATEX 2002

<table>
<thead>
<tr>
<th>Entity Parameter</th>
<th>Max. output voltage (U_o) (\leq 24 \text{ V})</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max. output current (I_o) (\leq 250 \text{ mA})</td>
</tr>
<tr>
<td></td>
<td>Max. output power (P_o) (\leq 2560 \text{ mW})</td>
</tr>
<tr>
<td></td>
<td>Max. input voltage (U_i) (24 \text{ V})</td>
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<td></td>
<td>Max. input current (I_i) (\leq 250 \text{ mA})</td>
</tr>
<tr>
<td></td>
<td>Max. input power (P_i) (\leq 2560 \text{ mW})</td>
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**FISCO parameter acc. to IEC TS 60079-27**
- Max. output voltage \(U_o\) \(\leq 17.5 \text{ V}\)
- Max. output current \(I_o\) \(\leq 380 \text{ mA}\)
- Max. output power \(P_o\) \(\leq 5320 \text{ mW}\)
- Max. input voltage \(U_i\) \(17.5 \text{ V}\)
- Max. input current \(I_i\) \(\leq 380 \text{ mA}\)
- Max. input power \(P_i\) \(\leq 5320 \text{ mW}\)

**External inductance/capacitance \(L_i/C_i\)**
- Trunk (In/Out): negligible / \(\leq 5.00 \text{ nF}\)
- per field current circuit: negligible / \(\leq 0.47 \text{ nF}\)
- \(\Sigma\) field current circuits: negligible / \(\leq 5.00 \text{ nF}\)

**Device designation**
- II 2 G EEx ib IIC/IIB T4
- II 2(1) G EEx ia IIC/IIB T4
- II 2 G (2D) EEx ib [ibD] IIB T4
- II 2 (1) G (1D) EEx ia [iaD] IIB T4

**FISCO / Entity field device**
- II 3 G Ex nA II T4
- II 3 G Ex nA [nL] IIC/IIB T4

**FNICO / Entity field device**
- II 3 G Ex nA II T4

**Electrical connection**
- removable terminal block, reverse polarity protected, screw connection
- Terminal cross-section: 2.5 mm²
- Earthing bolt: M5 x 1

**Degree of protection**
- IP20
- Ambient temperature: \(-25 \ldots + 70 \text{ °C}\)
- Housing material: aluminium
- Housing color: black
- Dimensions: 177 x 31 x 75.5 mm
- Connection mode: snap-on DIN rail (EN 60715)
FOUNDATION™ fieldbus und PROFIBUS-PA
IP20 junction box, 12-port
JRBS-40SC-12R/EX

The 12-port Ex junction box JRBS-40SC-12R/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The junction box features an adjustable short-circuit limit. The max. current limitation is selected for all ports via a rotary switch. The following values can be selected: 30, 35, 45 and 60 mA.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

Accessories: To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- Short-circuit protection per drop line/spur
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
FOUNDATION™ fieldbus und PROFIBUS-PA
IP20 junction box, 12-port
JRBS-40SC-12R/EX

| Type | Ident-No. | JRBS-40SC-12R/EX | 6611463 |
| Fieldbus standard | | | IEC 61158-2 |

**Operational voltage range:**

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FOUNDATION™ fieldbus and PROFIBUS-PA
IP20 junction box, 4-port
JRBS-40-4C/EX

The 4-port Ex junction box JRBS-40-4C/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

Accessories: To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
# FOUNDATION™ fieldbus and PROFIBUS-PA

**IP20 junction box, 4-port**

**JRBS-40-4C/EX**

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## Fieldbus standard

IEC 61158-2

## Operational voltage range:

9 ... 32 VDC

## Ex approval acc. to conformity certificate

PTB 05 ATEX 2002

### Entity Parameter

- **Max. output voltage** $U_o$ ≤ 24 V
- **Max. output current** $I_o$ ≤ 250 mA
- **Max. output power** $P_o$ ≤ 2560 mW
- **Max. input voltage** $U_i$ ≤ 24 V
- **Max. input current** $I_i$ ≤ 250 mA
- **Max. input power** $P_i$ ≤ 2560 mW

**FISCO parameter according to IEC TS 60079-27**

- **Max. output voltage** $U_o$ ≤ 17.5 V
- **Max. output current** $I_o$ ≤ 380 mA
- **Max. output power** $P_o$ ≤ 5320 mW
- **Max. input voltage** $U_i$ ≤ 17.5 V
- **Max. input current** $I_i$ ≤ 380 mA
- **Max. input power** $P_i$ ≤ 5320 mW

### External inductance/capacitance $L_i/C_i$

- **Trunk (In/Out):** negligible / ≤ 5.00 nF
- **per field current circuit:** negligible / ≤ 0.82 nF
- **Σ field current circuits:** negligible / ≤ 5.00 nF

### Device designation

- **II 2 G** EEx ib IIC/IIB T4
- **II 2(1) G** EEx ia IIC/IIB T4
- **II 2 G (2D)** EEx lb [ibD] IIB T4
- **II 2 (1) G (1D)** EEx ia [iaD] IIB T4

**FISCO / Entity field device**

### Ex approval acc. to conformity certificate

PTB 07 ATEX 2035 X

### Device designation

- **II 3 G** Ex nA II T4
- **II 3 G** Ex nA [nL] IIC/IIB T4

**FNICO / Entity field device**

## Electrical connection

- **Cage clamp terminals**
- **Terminal cross-section** 2.5 mm²
- **Earthing bolt** M5 x 1

## Degree of protection

| **IP20** |

### Ambient temperature

-25 ... + 70 °C

### Housing material

aluminium

### Housing color

black

### Dimensions

119 x 31 x 75.5 mm

### Connection mode

snap-on DIN rail (EN 60715)
The 6-port Ex junction box JRBS-40-6C/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

**Accessories:** To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- For Ex applications: -25...+70 °C (-13...+158 °F), for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
FOUNDATION™ fieldbus and PROFIBUS-PA
IP20 junction box, 6-port
JRBS-40-6C/EX

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Fieldbus standard: IEC 61158-2

Operational voltage range: 9 ... 32 VDC

Ex approval acc. to conformity certificate: PTB 05 ATEX 2002

Device designation:
- II 2 G EEx ib IIC/IIB T4
- II 2(1) G EEx ia IIC/IIB T4
- II 2 G (2D) EEx lb [ibD] IIB T4
- II 2 (1) G (1D) EEx ia [iaD] IIB T4

FISCO / Entity field device:
- II 3 G Ex nA II T4
- II 3 G Ex nA [nL] IIC/IIB T4

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- II 3 G Ex nA II T4

Type: JRBS-40-6C/EX
Ident-No.: 6611449

Fieldbus standard: IEC 61158-2

Operational voltage range: 9 ... 32 VDC

Ex approval acc. to conformity certificate: PTB 05 ATEX 2002

Device designation:
- II 2 G EEx ib IIC/IIB T4
- II 2(1) G EEx ia IIC/IIB T4
- II 2 G (2D) EEx lb [ibD] IIB T4
- II 2 (1) G (1D) EEx ia [iaD] IIB T4

FISCO / Entity field device:
- II 3 G Ex nA II T4
- II 3 G Ex nA [nL] IIC/IIB T4

FNICO / Entity field device:
- II 3 G Ex nA II T4

Electrical connection: cage clamp terminals
Terminal cross-section: 2.5 mm²
Earthing bolt: M5 x 1

Degree of protection: IP20
Ambient temperature: -25 ... + 70 °C
Housing material: aluminium
Housing color: black
Dimensions: 142 x 31 x 75.5 mm
Connection mode: snap-on DIN rail (EN 60715)
FOUNDATION™ fieldbus and PROFIBUS-PA
IP20 junction box, 8-port
JRBS-40-8C/EX

The 8-port Ex junction box JRBS-40-8C/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

Accessories: To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- For Ex applications: -25...+70 °C (-13...+158 °F), for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
FOUNDATION™ fieldbus and PROFIBUS-PA
IP20 junction box, 8-port
JRBS-40-8C/EX

<table>
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<tr>
<td>Ident-No.</td>
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<th>Operational voltage range:</th>
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<th>PTB 05 ATEX 2002</th>
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<thead>
<tr>
<th>Entity Parameter</th>
<th>Max. output voltage U_o</th>
<th>≤ 24 V</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Max. output current I_o</td>
<td>≤ 250 mA</td>
</tr>
<tr>
<td></td>
<td>Max. output power P_o</td>
<td>≤ 2560 mW</td>
</tr>
<tr>
<td></td>
<td>Max. input voltage U_i</td>
<td>≤ 24 V</td>
</tr>
<tr>
<td></td>
<td>Max. input current I_i</td>
<td>≤ 250 mA</td>
</tr>
<tr>
<td></td>
<td>Max. input power P_i</td>
<td>≤ 2560 mW</td>
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| FISCO parameter according to IEC TS 60079-27 |

<table>
<thead>
<tr>
<th>External inductance/capacitance L/C</th>
<th>negligible / ≤ 5.00 nF</th>
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</table>

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<tr>
<th>Device designation</th>
<th>II 2 G   Ex lb IIC/IIB T4</th>
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<tbody>
<tr>
<td></td>
<td>II 2 (1) G    Ex ia IIC/IIB T4</td>
</tr>
<tr>
<td></td>
<td>II 2 G (2D)  Ex lb [iaD] IIB T4</td>
</tr>
<tr>
<td></td>
<td>II 2 (1) G (1D)  Ex ia [iaD] IIB T4</td>
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<th>Device designation</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>II 3 G   Ex nA [nL] IIC/IIB T4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>cage clamp terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal cross-section</td>
<td>2.5 mm²</td>
</tr>
<tr>
<td>Earthing bolt</td>
<td>M5 x 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Degree of protection</th>
<th>IP20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>-25 °C...+ 70 °C</td>
</tr>
<tr>
<td>Housing material</td>
<td>aluminium</td>
</tr>
<tr>
<td>Housing color</td>
<td>black</td>
</tr>
<tr>
<td>Dimensions</td>
<td>177 x 31 x 75.5 mm</td>
</tr>
<tr>
<td>Connection mode</td>
<td>snap-on DIN rail (EN 60715)</td>
</tr>
</tbody>
</table>
FOUNDATION™ fieldbus and PROFIBUS-PA
IP20 junction box, 12-port
JRBS-40-12C/EX

The 12-port Ex junction box JRBS-40-12C/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS-PA and FOUNDATION™ fieldbus.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

**Accessories:** To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
# FOUNDATION™ fieldbus and PROFIBUS-PA
# IP20 junction box, 12-port
# JRBS-40-12C/EX

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<tr>
<th>Type</th>
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<tr>
<td>Ident-No.</td>
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<td>Fieldbus standard</td>
<td>IEC 61158-2</td>
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<td>Operational voltage range:</td>
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**Ex approval acc. to conformity certificate**

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<thead>
<tr>
<th>Entity Parameter</th>
<th>PTB 05 ATEX 2002</th>
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</thead>
<tbody>
<tr>
<td>Max. output voltage $U_o$</td>
<td>$\leq 24$ V</td>
</tr>
<tr>
<td>Max. output current $I_o$</td>
<td>$\leq 250$ mA</td>
</tr>
<tr>
<td>Max. output power $P_o$</td>
<td>$\leq 2560$ mW</td>
</tr>
<tr>
<td>Max. input voltage $U_i$</td>
<td>$\leq 24$ V</td>
</tr>
<tr>
<td>Max. input current $I_i$</td>
<td>$\leq 250$ mA</td>
</tr>
<tr>
<td>Max. input power $P_i$</td>
<td>$\leq 2560$ mW</td>
</tr>
</tbody>
</table>

**FISCO parameter according to IEC TS 60079-27**

<table>
<thead>
<tr>
<th>Entity Parameter</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. output voltage $U_o$</td>
<td>$\leq 17.5$ V</td>
</tr>
<tr>
<td>Max. output current $I_o$</td>
<td>$\leq 380$ mA</td>
</tr>
<tr>
<td>Max. output power $P_o$</td>
<td>$\leq 5320$ mW</td>
</tr>
<tr>
<td>Max. input voltage $U_i$</td>
<td>$\leq 17.5$ V</td>
</tr>
<tr>
<td>Max. input current $I_i$</td>
<td>$\leq 380$ mA</td>
</tr>
<tr>
<td>Max. input power $P_i$</td>
<td>$\leq 5320$ mW</td>
</tr>
</tbody>
</table>

| External inductance/capacitance $L_i/C_i$ | negligible / $\leq 5.00$ nF |

| Per field current circuit: | negligible / $\leq 0.33$ nF |

| $\Sigma$ field current circuits: | negligible / $\leq 5.00$ nF |

<table>
<thead>
<tr>
<th><strong>Device designation</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>II 2 G EEx ib IIC/IIB T4</td>
<td></td>
</tr>
<tr>
<td>II 2(1) G EEx ia IIC/IIB T4</td>
<td></td>
</tr>
<tr>
<td>II 2 G (2D) EEx lb [lbD] IIB T4</td>
<td></td>
</tr>
<tr>
<td>II 2 (1) G (1D) EEx ia [iaD] IIB T4</td>
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| **Ex approval acc. to conformity certificate** | PTB 07 ATEX 2035 X |

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<th><strong>Device designation</strong></th>
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</tr>
</thead>
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<tr>
<td>II 3 G Ex nA II T4</td>
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</tr>
<tr>
<td>II 3 G Ex nA [nL] IIC/IIB T4</td>
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</table>

| **FNICO / Entity field device** |  |

<table>
<thead>
<tr>
<th><strong>Electrical connection</strong></th>
<th>cage clamp terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Terminal cross-section</strong></td>
<td>2.5 mm²</td>
</tr>
<tr>
<td><strong>Earthing bolt</strong></td>
<td>M5 x 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Degree of protection</strong></th>
<th>IP20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ambient temperature</strong></td>
<td>-25 ... +70 °C</td>
</tr>
<tr>
<td><strong>Housing material</strong></td>
<td>aluminium</td>
</tr>
<tr>
<td><strong>Housing color</strong></td>
<td>black</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>276 x 31 x 75.5 mm</td>
</tr>
<tr>
<td><strong>Connection mode</strong></td>
<td>snap-on DIN rail (EN 60715)</td>
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</table>
The 4-port Ex junction box JRBS-40-4R/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

**Accessories:** To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
FOUNDATION™ fieldbus und PROFIBUS-PA
IP20 junction box, 4-port
JRBS-40-4R/EX

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Ident-No.</td>
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</table>

Fieldbus standard: IEC 61158-2

Operational voltage range: 9 … 32 VDC

Ex approval acc. to conformity certificate
PTB 05 ATEX 2002

Entity Parameter
- Max. output voltage \( U_o \) ≤ 24 V
- Max. output current \( I_o \) ≤ 250 mA
- Max. output power \( P_o \) ≤ 2560 mW
- Max. input voltage \( U_i \) ≤ 24 V
- Max. input current \( I_i \) ≤ 250 mA
- Max. input power \( P_i \) ≤ 2560 mW

FISCO parameter acc. to IEC TS 60079-27
- Max. output voltage \( U_o \) ≤ 17.5 V
- Max. output current \( I_o \) ≤ 380 mA
- Max. output power \( P_o \) ≤ 5320 mW
- Max. input voltage \( U_i \) ≤ 17.5 V
- Max. input current \( I_i \) ≤ 380 mA
- Max. input power \( P_i \) ≤ 5320 mW

External inductance/capacitance \( L_i / C_i \)
- Trunk (In/Out): negligible / ≤ 5.00 nF
- per field current circuit: negligible / ≤ 0.82 nF
- \( \Sigma \) field current circuits: negligible / ≤ 5.00 nF

Device designation
- II 2 G Ex ib IIC/IIB T4
- II 2(1) G EEx ia IIC/IIB T4
- II 2 G (2D) EEx ib [ibD] IIB T4
- II 2 (1) G (1D) EEx ia [iaD] IIB T4
- FISCO / Entity field device

Ex approval acc. to conformity certificate
PTB 07 ATEX 2035 X

Device designation
- II 3 G Ex nA II T4
- II 3 G Ex nA [nL] IIC/IIB T4
- FNICO / Entity field device

Electrical connection
- removable terminal block, reverse polarity protected, screw connection

Terminal cross-section 2.5 mm²

Earthing bolt M5 x 1

Degree of protection: IP20

Ambient temperature -25 …+ 70 °C

Housing material aluminium

Housing color black

Dimensions 119 x 31 x 75.5 mm

Connection mode snap-on DIN rail (EN 60715)
The 6-port Ex junction box JRBS-40-6R/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

Accessories: To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
FOUNDATION™ fieldbus und PROFIBUS-PA
IP20 junction box, 6-port
JRBS-40-6R/EX

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<tbody>
<tr>
<td>Entity Parameter</td>
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<tr>
<td>Max. output voltage U_o</td>
<td>≤ 24 V</td>
</tr>
<tr>
<td>Max. output current I_o</td>
<td>≤ 250 mA</td>
</tr>
<tr>
<td>Max. output power P_o</td>
<td>≤ 2560 mW</td>
</tr>
<tr>
<td>Max. input voltage U_i</td>
<td>≤ 24 V</td>
</tr>
<tr>
<td>Max. input current I_i</td>
<td>≤ 250 mA</td>
</tr>
<tr>
<td>Max. input power P_i</td>
<td>≤ 2560 mW</td>
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<tr>
<td>FISCO parameter acc. to IEC TS 60079-27</td>
<td></td>
</tr>
<tr>
<td>Max. output voltage U_o</td>
<td>≤ 17.5 V</td>
</tr>
<tr>
<td>Max. output current I_o</td>
<td>≤ 380 mA</td>
</tr>
<tr>
<td>Max. output power P_o</td>
<td>≤ 5320 mW</td>
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<tr>
<td>Max. input voltage U_i</td>
<td>≤ 17.5 V</td>
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<tr>
<td>Max. input current I_i</td>
<td>≤ 380 mA</td>
</tr>
<tr>
<td>Max. input power P_i</td>
<td>≤ 5320 mW</td>
</tr>
<tr>
<td>External inductance/capacitance L/C_i</td>
<td>Trunk (In/Out):</td>
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<td>negligible / ≤ 5.00 nF</td>
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<tr>
<td></td>
<td>per field current circuit:</td>
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<td></td>
<td>negligible / ≤ 0.82 nF</td>
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<td>Σ field current circuits:</td>
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<td>negligible / ≤ 5.00 nF</td>
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<th>Device designation</th>
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</thead>
<tbody>
<tr>
<td>II 2 G EEx ib IIC/IIB T4</td>
<td></td>
</tr>
<tr>
<td>II 2(1) G EEx ia IIC/IIB T4</td>
<td></td>
</tr>
<tr>
<td>II 2 G (2D) EEx ib [ibD] IIB T4</td>
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<td>II 2 (1) G (1D) EEx ia [iaD] IIB T4</td>
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<tr>
<td>FISCO / Entity field device</td>
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<tr>
<td>Device designation</td>
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<tr>
<td>II 3 G Ex nA II T4</td>
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<td>II 3 G Ex nA [nL] IIC/IIB T4</td>
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<td>FNICO / Entity field device</td>
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<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>removable terminal block, reverse polarity protected, screw connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal cross-section</td>
<td>2.5 mm²</td>
</tr>
<tr>
<td>Earthing bolt</td>
<td>M5 x 1</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Degree of protection</th>
<th>IP20</th>
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<tr>
<td>Ambient temperature</td>
<td>-25 ... + 70 °C</td>
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<tr>
<td>Housing material</td>
<td>aluminium</td>
</tr>
<tr>
<td>Housing color</td>
<td>black</td>
</tr>
<tr>
<td>Dimensions</td>
<td>142 x 31 x 75.5 mm</td>
</tr>
<tr>
<td>Connection mode</td>
<td>snap-on DIN rail (EN 60715)</td>
</tr>
</tbody>
</table>

Dimensions

Terminal Configuration

![Terminal Configuration Diagram]

75,5
31
142
FOUNDATION™ fieldbus und PROFIBUS-PA
IP20 junction box, 8-port
JRBS-40-8R/EX

The 8-port Ex junction box RBS-40-8R/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

Attention: Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

Accessories: To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
FOUNDATION™ fieldbus und PROFIBUS-PA
IP20 junction box, 8-port
JRBS-40-8R/EX

<table>
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<tr>
<th>Type</th>
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<tr>
<td>Ident-No.</td>
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**Fieldbus standard**: IEC 61158-2

**Operational voltage range**: 9 ... 32 VDC

**Ex approval acc. to conformity certificate**: PTB 05 ATEX 2002

**Device designation**:
- Ex nA II T4
- Ex nA III B T4

**Electrical connection**: removable terminal block, reverse polarity protected, screw connection

**Terminal cross-section**: 2.5 mm²

**Earthing bolt**: M5 x 1

**Degree of protection**: IP20

**Ambient temperature**: -25 ... + 70 °C

**Housing material**: aluminium

**Housing color**: black

**Dimensions**: 177 x 31 x 75.5 mm

**Connection mode**: snap-on DIN rail (EN 60715)
The 12-port Ex junction box JRBS-40-12R/EX is designed for fieldbus systems according to IEC 61158-2, i.e. it is suited for both PROFIBUS PA and FOUNDATION™ fieldbus.

The housing is made of aluminium and features protection degree IP20.

The junction box is equipped with a selectable bus terminating resistor. The according switch is integrated in the housing on the board.

The shield is capacitively coupled to the housing potential. A switch for direct coupling of the shield and housing is implemented.

**Attention:** Sufficient equipotential bonding of the installation must be ensured. The device is connected via the bolt of the housing to the system’s potentializer.

**Accessories:** To increase the degree of protection, there are various aluminium and stainless steel housings with IP6x rating and various cable glands available on request.

- Entity and FISCO compliant according to IEC TS 60079-27
- Junction box for DIN rail mounting
- Aluminium housing
- For Ex applications: -25...+70 °C (-13...+158 °F); for non-Ex applications: -40...+70 °C (-40...+158 °F)
- Switch-in terminating resistor
- Cable shielding: Capacitive or direct connection with housing potential selectable via switch
## FOUNDATION™ fieldbus und PROFIBUS-PA
### IP20 junction box, 12-port
#### JRBS-40-12R/EX

<table>
<thead>
<tr>
<th>Type</th>
<th>JRBS-40-12R/EX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6611462</td>
</tr>
</tbody>
</table>

### Fieldbus standard
- IEC 61158-2

### Operational voltage range:
- 9 ... 32 VDC

### Ex approval acc. to conformity certificate

#### PTB 05 ATEX 2002

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational voltage range</td>
<td>9 ... 32 VDC</td>
</tr>
</tbody>
</table>

**Type**
- JRBS-40-12R/EX

**Ident-No.**
- 6611462

**Fieldbus standard**
- IEC 61158-2

**Operational voltage range:**
- 9 ... 32 VDC

**Ex approval acc. to conformity certificate**
- PTB 05 ATEX 2002

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. output voltage $U_o$</td>
<td>$\leq 24$ V</td>
</tr>
<tr>
<td>Max. output current $I_o$</td>
<td>$\leq 250$ mA</td>
</tr>
<tr>
<td>Max. output power $P_o$</td>
<td>$\leq 2560$ mW</td>
</tr>
<tr>
<td>Max. input voltage $U_i$</td>
<td>$\leq 24$ V</td>
</tr>
<tr>
<td>Max. input current $I_i$</td>
<td>$\leq 250$ mA</td>
</tr>
<tr>
<td>Max. input power $P_i$</td>
<td>$\leq 2560$ mW</td>
</tr>
</tbody>
</table>

**FISCO parameter acc. to IEC TS 60079-27**
- Max. output voltage $U_o$
  - 17.5 V
- Max. output current $I_o$
  - 380 mA
- Max. output power $P_o$
  - 5320 mW
- Max. input voltage $U_i$
  - 17.5 V
- Max. input current $I_i$
  - 380 mA
- Max. input power $P_i$
  - 5320 mW

**External inductance/capacitance $L/C_i$**
- Trunk (In/Out):
  - negligible / $\leq 5.00$ nF
- per field current circuit:
  - negligible / $\leq 0.33$ nF
- $\Sigma$ field current circuits:
  - negligible / $\leq 5.00$ nF

**Device designation**
- $\oplus$ II 2 G EEx ib IIC/IIB T4
- $\oplus$ II 2(1) G EEx ia IIC/IIB T4
- $\oplus$ II 2 G (2D) EEx ib [ibD] IIB T4
- $\oplus$ II 2 (1) G (1D) EEx ia [iaD] IIB T4

**FISCO / Entity field device**
- PTB 07 ATEX 2035 X

**Device designation**
- $\oplus$ II 3 G Ex nA II T4
- $\oplus$ II 3 G Ex nA [nL] IIC/IIB T4

**FNICO / Entity field device**

**Electrical connection**
- removable terminal block, reverse polarity protected, screw connection

**Terminal cross-section**
- 2.5 mm²

**Earthing bolt**
- M5 x 1

**Degree of protection**
- IP20

**Ambient temperature**
- -25 ... + 70 °C

**Housing material**
- aluminium

**Housing color**
- black

**Dimensions**
- 276 x 31 x 75.5 mm

**Connection mode**
- snap-on DIN rail (EN 60715)
A two or three wire cable is prescribed by IEC 61158-2 as the transmission medium for transmission energy and data.

**Cable parameters**
Electrical data and permissible cable types are not prescribed. Cable parameters determine the achievable fieldbus properties such as the distances to be covered, number of connectable stations and electromagnetic compatibility.

In the following table (Tab. 1) we compare the four standard cable types (at 25 °C):

<table>
<thead>
<tr>
<th>Type</th>
<th>Cable design</th>
<th>Conductor cross-section (nominal)</th>
<th>Loop impedance (DC current)</th>
<th>Wave resistance at 31.25 kHz</th>
<th>Wave resistance at 39 kHz</th>
<th>Wave attenuation at 39 kHz</th>
<th>Capacitive asymmetry</th>
<th>Group delay distortion (7,9...39 kHz)</th>
<th>Degree of shield coverage</th>
<th>Recommended network expansion (incl. spur lines)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Twisted</td>
<td>0.8 mm² (AWG 18)</td>
<td>44 Ω/km</td>
<td>100 Ω ± 20 %</td>
<td>3 dB/km</td>
<td>2 nF/km</td>
<td>1.7 μs/km</td>
<td>90 %</td>
<td>1900 m</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>One or multiple twisted conductor pairs, overall shield</td>
<td>0.32 mm² (AWG 22)</td>
<td>112 Ω/km</td>
<td>100 Ω ± 30 %</td>
<td>5 dB/km</td>
<td>2 nF/km</td>
<td>not specified</td>
<td>not specified</td>
<td>1200 m</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Multiple twisted pairs, not shielded</td>
<td>0.13 mm² (AWG 26)</td>
<td>264 Ω/km</td>
<td>not specified</td>
<td>8 dB/km</td>
<td>not specified</td>
<td>not specified</td>
<td>not specified</td>
<td>400 m</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Multiple non-twisted pairs not shielded</td>
<td>1.25 mm² (AWG 16)</td>
<td>40 Ω/km</td>
<td>not specified</td>
<td>8 dB/km</td>
<td>not specified</td>
<td>not specified</td>
<td>not specified</td>
<td>200 m</td>
<td></td>
</tr>
</tbody>
</table>

Tab. 1  Cable types to IEC 61158-2

**Use of the individual cable types**
Cables conforming to the minimum requirements of type A, should be used for new installations. Cable types C and D should only be used in so-called “Retrofit Applications” (usage of cable already installed) involving only very limited network extensions. It is necessary to consider that in these cases the immunity to interference during data transmission may not meet the demands described in the standard.

**Installations conform to the FISCO model**
Installations conform to the FISCO model are not subject to any technical safety limitations, if the limit values defined in Tab. 1 are observed. Operation outside of these limit values is not generally excluded, but requires that each case is considered individually.

For example, the TURCK long distance “Cable FBY../LD” is not comparable with the types and limit values listed in Tab. 1, but its particularly suitable for FOUNDATION™ fieldbus and PROFIBUS-PA fieldbus systems. All of TURCK’s cables for fieldbuses compliant with IEC 61158-2 feature optimum quality even exceeding type A requirements.

**Maximum cable lengths, spur lines**
Each fieldbus installation must follow a defined set of rules, the “Network configuration rules” (see IEC 61158-2, Chap. 11.2.2). The following limit values for permissible attenuation, reflection and distortion (rule 8), as well as the maximum signal delay (rule 4) are listed (see Tab. 2).

<table>
<thead>
<tr>
<th>Limit value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attenuation between any two bus interfaces (at 31.25 kHz)</td>
<td>10.5 dB</td>
</tr>
<tr>
<td>Attenuation distortion a (f = 39 kHz) – a (f = 7.8 kHz), monotonic increasing with frequency</td>
<td>6 dB</td>
</tr>
<tr>
<td>Reflection factor at any point (7.8...39 kHz)</td>
<td>0.2</td>
</tr>
<tr>
<td>Signal delay between any two bus interfaces</td>
<td>640 μs</td>
</tr>
</tbody>
</table>

Tab. 2  Limit values for attenuation, distortion, reflection and propagation delay
**Topology**
If the limit values listed on the previous page are taken into consideration, various topologies such as star, tree or linear structures, as well as every cable is permissible.

An individual calculation of the four variables listed in Tab. 2 for all possible connections between two bus interfaces is associated with a very high effort. It is advisable to define rules which set down an optimum basic topology. These rules should ensure that the limit values stated cannot be exceeded.

The basis for a network should be a tree or linear topology or a combination of both. A network of this type consists of a main cable (trunk line), a number of spur lines (spur), connection elements (connectors or junction boxes) and a terminating resistor (see Fig. 1).

![Network topology](image)

**Maximum cable lengths**
The sum of main cable lengths and all spur line lengths results in the overall cable length, as already defined in Tab. 1 as the network expansion (see Tab. 3).

<table>
<thead>
<tr>
<th>Cable</th>
<th>Max. cable lengths (incl. spur lines)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A</td>
<td>1900 m</td>
</tr>
<tr>
<td>Type B</td>
<td>1200 m</td>
</tr>
<tr>
<td>Type C</td>
<td>400 m</td>
</tr>
<tr>
<td>Type D</td>
<td>200 m</td>
</tr>
</tbody>
</table>

Tab. 3 Maximum cable lengths (main cable and spur lines)

**Maximum spur cable lengths**
The maximum spur cable length depends on the number of field devices per spur line and is listed in Tab. 4.

<table>
<thead>
<tr>
<th>Number of devices</th>
<th>1 device per spur line</th>
<th>2 devices per spur line</th>
<th>3 devices per spur line</th>
<th>4 devices per spur line</th>
</tr>
</thead>
<tbody>
<tr>
<td>25...32</td>
<td>1 m</td>
<td>1 m</td>
<td>1 m</td>
<td>1 m</td>
</tr>
<tr>
<td>19...24</td>
<td>30 m</td>
<td>1 m</td>
<td>1 m</td>
<td>1 m</td>
</tr>
<tr>
<td>15...18</td>
<td>60 m</td>
<td>30 m</td>
<td>1 m</td>
<td>1 m</td>
</tr>
<tr>
<td>13...14</td>
<td>90 m</td>
<td>60 m</td>
<td>30 m</td>
<td>1 m</td>
</tr>
<tr>
<td>1...12</td>
<td>120 m</td>
<td>90 m</td>
<td>60 m</td>
<td>30 m</td>
</tr>
</tbody>
</table>

Tab. 4 Maximum spur line lengths

**Instrumentation to FISCO**
With FISCO conform EEEx i instrumentation, the maximum expansion of the trunk line in the explosion hazardous area is 1000 m. A maximum spur line length of 60 m may not be exceeded.
Fieldbus cables for fieldbus systems
According to IEC61158-2
CABLE FBY-.../SD-...M

- Fieldbus cables, type A, IEC 61158-2
- PVC cable jacket, colour blue, black, yellow or orange
- Oil, gas and sunlight resistant
- Temperature range -40...+75 °C
- Cable conductor cross section: 18/7 AWG (0.8 mm²)

<table>
<thead>
<tr>
<th>Type</th>
<th>Cable</th>
<th>Shield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>CABLE FBY-.../SD-...M</td>
<td>depending on length and colour, Ident-No. on request</td>
</tr>
</tbody>
</table>

- Cable jacket: PVC (blue, black, yellow or orange)
- Core insulation material: PE-foam with PE-casing
- Core insulation colours: BN, BU
- Core cross-section: 2 x 0.8 mm²
- DC resistance (loop): 43.6 Ω/km
- Shield resistance: nom. 9 Ω/km
- Nom. Impedance: 100 ± 20 (31.25 kBit/s) Ω
- Working capacitance: nom. 60 nF/km
- Capacitive earthing: max. 2 nF/km
- Dampering: max. 3.0 dB/km (with f = 39 kHz)
- Skew: max. 1.7 μs/km (7.9 kHz - 39 kHz)
- Inductivity: nom. 0.7 mH/km

- Rated voltage: max. 300 V
- Ambient temperature: -40...+75 °C
- At rest
- In moving state: -5...+50 °C
- Approvals: UL
- UV resistance: according to UL 1581, section 1200
- Resistance to oil: according to ICEA S82-552
- Flame retardant: according to IEC 60332
**Fieldbus cables for fieldbus systems**

According to IEC61158-2

CABLE FBY-BK/LD-...M

---

<table>
<thead>
<tr>
<th>Type</th>
<th>CABLE FBY-BK/LD-...M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>depending on the length, Ident-No. on request</td>
</tr>
</tbody>
</table>

### Cable

- **Cable jacket**: PVC, black
- **Shield**: aluminium foil, tinned copper braid and stranded fill wire

### Max. tensile strength

- ≤ 90 N

### Bending radius

- Minimum 5 x cable diameter

### Core insulation material

- PE-foam with PE-casing

### Core insulation colours

- BN, BU

### Core cross-section

- 2 x 2.1 mm²

### DC resistance (loop)

- 17.2 Ω/km

### Shield resistance

- Nom. 6 Ω/km

### Nom. Impedance

- 100 ± 20 (31.25 kBit/s) Ω

### Working capacitance

- Nom. 60 nF/km

### Capacitive earthing

- Max. 2 nF/km

### Dampening

- Max. 3.0 dB/km (with f = 39 kHz)

### Skew

- Max. 1.7 µs/km (7.9 kHz -39 kHz)

### Inductivity

- Nom. 0.7 mH/km

### Rated voltage

- Max. 300 V

### Ambient temperature

- At rest: -40... + 75 °C
- In moving state: -5... + 50 °C

### Approvals

- UL

### UV resistance

- According to UL 1581, section 1200

### Resistance to oil

- According to ICEA S82-552

### Flame retardant

- According to IEC 60332

---

- **Long-distance fieldbus cables, type A, acc.IEC 61158-2**
- **PVC cable jacket, colour black**
- **Oil, gas and sunlight resistant**
- **Temperature range -40... +75 °C**
- **Cable conductor cross section: 14/7 AWG (2.1 mm²)**
Fieldbus cables for fieldbus systems
According to IEC61158-2
CABLE FBH-YE/SD-...M

![Diagram of fieldbus cable structure]

<table>
<thead>
<tr>
<th>Type</th>
<th>CABLE FBH-YE/SD-...M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>depending on the length, Ident-No. on request</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cable</th>
<th>18/7 AWG (0.8 mm²), stranded plain copper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable jacket</td>
<td>LSZH (low smoke zero halogen) mix, yellow</td>
</tr>
<tr>
<td>Shield</td>
<td>aluminium foil, tin coated copper braid and stranded filler twist wire</td>
</tr>
</tbody>
</table>

- Max. tensile strength ≤ 90 N
- Bending radius minimum 5 x cable diameter
- Core insulation material PE-foam with PE-casing
- Core insulation colours BN, BU
- Core cross-section 2 x 0.8 mm²
- DC resistance (loop) 43.6 Ω/km
- Shield resistance nom. 9 Ω/km
- Nom. Impedance 100 ± 20 (31.25 kBit/s) Ω
- Working capacitance nom. 60 nF/km
- Capacitive earthing max. 2 nF/km
- Dampening max. 3.0 dB/km (with f = 39 kHz)
- Skew max. 1.7 μs/km (7.9 kHz - 39 kHz)
- Inductivity nom. 0.7 mH/km

<table>
<thead>
<tr>
<th>Rated voltage</th>
<th>max. 300 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>-40... + 75 °C</td>
</tr>
<tr>
<td>At rest</td>
<td>-5... + 50 °C</td>
</tr>
<tr>
<td>In moving state</td>
<td>UL</td>
</tr>
<tr>
<td>Approvals</td>
<td>according to UL 1581, section 1200</td>
</tr>
<tr>
<td>UV resistance</td>
<td>according to ICEA S82-552</td>
</tr>
<tr>
<td>Resistance to oil</td>
<td>yes</td>
</tr>
<tr>
<td>Flame retardant</td>
<td>yes</td>
</tr>
<tr>
<td>Halogen-free</td>
<td>yes</td>
</tr>
</tbody>
</table>
**Fieldbus cables for fieldbus systems**

**According to IEC61158-2**

CABLE FBA-YE/SD...M

---

<table>
<thead>
<tr>
<th>Type</th>
<th>CABLE FBA-YE/SD...M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>depending on the length, Ident-No. on request</td>
</tr>
</tbody>
</table>

**Cable**

- 18/7 AWG (0.8 mm²), stranded plain copper
- PVC, yellow
- aluminium foil, tinned copper braid and stranded filler litz wire
- ≤ 90 N
- PE-foam with PE-casing
- BN, BU
- 2 x 0.8 mm²
- 43.6 Ω/km
- zinc-plated steel round wire
- 0.9 mm
- nom. 9 Ω/km
- 100 ± 20 (31.25 kBit/s) Ω
- nom. 60 nF/km
- max. 2 nF/km
- max. 3.0 dB/km (with f = 39 kHz)
- max. 1.7 μs/km (7.9 kHz - 39 kHz)
- norm. 0.7 mH/km

**Rated voltage**

- max. 300 V

**Ambient temperature**

- At rest: -40... + 75 °C
- In moving state: -5... + 50 °C

**Approvals**

- UL

**Resistance to oil**

- according to ICEA S82-552

**Flame retardant**

- according to IEC 60332

---

**Fieldbus cables, type A, acc. to IEC 61158-2**

- PVC cable jacket, colour yellow
- Armouring Steel round wire
- Oil, gas and sunlight resistant
- Temperature range -40... +75 °C
- Cable conductor cross section: 18/7 AWG (0.8 mm²)
Fieldbus cables for fieldbus systems
According to IEC 61158-2
Cable 492A-...M, 492BA-...M

Type designation and Ident-No.
Type Cable 492A-...M depending on the length, Ident-No. on request
Type Cable 492BA-...M depending on the length, Ident-No. on request

Cable
Insulation 18/7 AWG (0.8 mm²), stranded bare copper
Color code A-conductor: brown; B-conductor: blue;
ground: green/yellow
Shield aluminium foil, metallic external surface
with contact to the tinned copper braid and
stranded drain wire
Jacket Polyvinyl chloride (PVC)
Armoured Aluminium
Overall diameter approx. 12.7 mm

Physical properties/
fire resistance
Minimum bending radius once: 40 mm/repeated: 60 mm
Ambient temperature At rest -40 ... +75 °C
In moving state -5 ... +50 °C
UV resistance conform to UL 1581, section 1200
Flame retardant PLTC cable, flame resistant conform to CSA-FT4

Electrical properties at 20 °C
Inductance max. 0.44 mH/km
Total capacitance max. 52.43 nF/km
Impedance (at 31.25 kBit/s) 100 Ω / ± 20 Ω
DC resistance 2 x 21.3 Ω/Km
High voltage test (conductor/conductor and conductor/shield) 1500 V
Operational voltage max. 300 V

Fieldbus cables, type A, IEC 61158-2
Suitable for harsh environmental conditions
Aluminium armouring
Suitable for 7/8” male connector
UV resistant
Temperature range -40...+75 °C
Cable conductor cross section 18/7 AWG (0.8 mm²)
Cable 492A with yellow cable jacket
Cable 492BA with blue cable jacket
**Fieldbus cables for fieldbus systems**

**According to IEC 61158-2**

**Cable FB4910-BK...M**

- **Fieldbus cables, type A, IEC 61158-2**
- **Special cable for FOUNDATION fieldbus™**
- **Area of application:**
  - offshore
  - extremely cold regions
  - tropical regions
- **Resistant to oil, gases and sunlight**
- **Excellent tensile strength and abrasion resistance**
- **Highly flame resistant conform to IEEE 1202/FT4 and IEC 332-3, category A**
- **Temperature range -50..+90 °C**
- **Cable conductor cross section 18/7 AWG (0.8 mm²)**
- **Approvals**
  - UL 1309 (Marine Shipboard) and CSA 222 No. 245

**Type**

- **Ident-No.**
  - depending on the length, Ident-No. on request

**Cable**

- **Insulation**
  - 18/7 AWG (0.8 mm²), stranded bare copper

- **Color code**
  - XLPE foam
  - A-conductor: brown; B-conductor: blue; ground: green

- **Shield**
  - aluminium foil, metallic external surface with contact to the tinned copper braid and stranded drain wire

- **Jacket**
  - TPE

- **Overall diameter**
  - approx. 8.9 mm

**Physical properties/fire resistance**

- **Minimum bending radius**
  - once: 40 mm/repeated: 60 mm

- **Ambient temperature**
  - At rest: -40 ... +90 °C
  - In moving state: -50 ... +50 °C

- **UV resistance**
  - conform to UL 1581, section 1200

- **Resistance to oils**
  - conform to ICEA S61-402

- **Flame resistance**
  - conform to IEC 60332

**Electrical properties at 20 °C**

- **Inductance**
  - max. 0.44 mH/km

- **Total capacitance**
  - max. 52.43 nF/km

- **Impedance (at 31.25 kBit/s)**
  - 100 Ω / ± 20 Ω

- **DC resistance**
  - 2 x 21.3 Ω/Km

- **High voltage test (conductor/conductor and conductor/shield)**
  - 1500 V

- **Operational voltage**
  - max. 300 V

---

**Conductor cross-section**

- **8.9 mm**

---
Ideally the length of the cord set is adjusted according to the requirements of the plant. For this reason TURCK now offers a Just-in-Time-delivery service (JIT) for premoulded cables.

The new JIT-5D-Programme for perfect connections:
- Just-in-Time delivery within 5 days only
- Free choice of cable length
- Premoulded fieldbus and power cables
- High flexibility with respect to planning and mounting of your application
- High cost savings

* valid for deliveries within the European Union (EU)
## Cable Layout

**Outer Jacket:** Polyvinyl chloride (PVC)

**Core Isolation:** PE-foam with PR-jacket

**Color Code:** BN, BU

**Insulation:** Extruded special compound

**Shield:** One side plastic coated with aluminium strip, metal exterior with contact to tin-plated copper braid and stranded drain wire

**Diameter:** ≤ 8 mm

**Conductor:** 18/7 AWG (0.8 mm²), stranded blank copper

### Table: Cable Type Designation

<table>
<thead>
<tr>
<th>M12 x 1</th>
<th>Type Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cable Type FBY49x, x = Colour (BU, BK, OG, YE), *M = Variable Length in m</td>
</tr>
</tbody>
</table>
| RSCV    | RSCV-FBY49x-  
| WSCV    | WSCV-FBY49x-  
| RKCV    | RKCV-FBY49x-  
| WKCV    | WKCV-FBY49x-  

**Pin Configuration:**

- **Male**
  1 = – (BU)  
  2 = + (BN)  
  3 = S (Shield)  
  4 = n.c.  

- **Female**
  1 = – (BU)  
  2 = + (BN)  
  3 = S (Shield)  
  4 = n.c.  

### Table: 7/8" Type Designation

<table>
<thead>
<tr>
<th>7/8&quot;</th>
<th>Type Designation</th>
</tr>
</thead>
</table>
| RSV  | RSV-FBY49x-  
| WSV  | WSV-FBY49x-  
| RKV  | RKV-FBY49x-  
| WKV  | WKV-FBY49x-  

**Pin Configuration:**

- **Male**
  1 = – (BU)  
  2 = + (BN)  
  3 = S (Shield)  
  4 = n.c.  

- **Female**
  1 = – (BU)  
  2 = + (BN)  
  3 = S (Shield)  
  4 = n.c.  

### Additional Information

- **Connectors:** Stainless steel, Gold-plated, PA, IP67
- **Protection Degree:** IP67
Note: This field-wireable fieldbus cable is not included in the JIT-5D-Programme.
Accessories for fieldbus systems
Flange connector
RSFV49

- Version: male 7/8” connector
- 1/2-14 NPT screw-in thread
- Stainless steel flange housing
- 4-pole, solderable
- For FOUNDATION™ fieldbus applications

<table>
<thead>
<tr>
<th>FOUNDATION™ fieldbus connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Type</th>
<th>RSFV49</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6602199</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male flange connector, 7/8”</td>
</tr>
</tbody>
</table>

- Polarity: 4-pole
- Contacts: metal, CuZn, gold-plated
- Contact carriers: plastic, PUR, black
- Screw-in thread seal: NBR
- Flange housing: stainless steel, 1.4401 (316)
- Degree of protection: IP67, only with screws tightened
- Screw-in thread: 1/2-14 NPT
- Mechanical lifespan: min. 100 Contact durability
- Pollution degree: 3

<table>
<thead>
<tr>
<th>Rated voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>max. 600 V</td>
</tr>
</tbody>
</table>
- Insulation resistance: $\geq 10^9$ Ω
- Ampacity: 9 A
- Forward resistance: $\leq 5$ mΩ
- Ambient temperature Connector: -40 ... + 105 °C
Accessories for fieldbus systems
Flange connector
RKFV49

- Version: female 7/8" connector
- 1/2-14 NPT screw-in thread
- Stainless steel flange housing
- 4-pole, solderable
- For FOUNDATION™ fieldbus applications

**FOUNDATION™ fieldbus connection**

```
1 = –
2 = +
3 = shield
4 = n.c.
```

<table>
<thead>
<tr>
<th>Type</th>
<th>RKFV49</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6602198</td>
</tr>
</tbody>
</table>

**Connector**

- female flange connector, 7/8"
- Polarity: 4-pole
- Contacts: metal, CuZn, gold-plated
- Contact carriers: plastic, PUR, black
- Screw-in thread seal: NBR
- Flange housing: stainless steel, 1.4401 (316)
- Degree of protection: IP67, only with screws tightened
- Screw-in thread: 1/2-14 NPT
- Mechanical lifespan: min. 100 Contact durability
- Pollution degree: 3

<table>
<thead>
<tr>
<th>Rated voltage</th>
<th>max. 600 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation resistance</td>
<td>( \geq 10^9 ) ( \Omega )</td>
</tr>
<tr>
<td>Ampacity</td>
<td>9 A</td>
</tr>
<tr>
<td>Forward resistance</td>
<td>( \leq 5 ) m( \Omega )</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-40 °C</td>
</tr>
</tbody>
</table>
## Accessories for fieldbus systems

### Flange connector

**RSFV49-0,3M/14,5/C1117**

[![Flange connector diagram]

- **Version:** male 7/8\" connector
- **1/2-14 NPT screw-in thread**
- **Stainless steel flange housing**
- **4-pole, litz wire length 0.3 m**
- **For FOUNDATION™ fieldbus applications**

### Pin configuration

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BU</td>
</tr>
<tr>
<td>2</td>
<td>BN</td>
</tr>
<tr>
<td>3</td>
<td>GY</td>
</tr>
<tr>
<td>4</td>
<td>GNVE</td>
</tr>
</tbody>
</table>

### Type

<table>
<thead>
<tr>
<th>Type</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RSFV49-0,3M/14,5/C1117</strong></td>
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### Ident-No.

<table>
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<th>Details</th>
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</thead>
<tbody>
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<td>6603396</td>
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### Connector

<table>
<thead>
<tr>
<th>Connector</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male flange connector, 7/8&quot;, with litz wire</td>
<td></td>
</tr>
<tr>
<td><strong>Polarity</strong></td>
<td>4-pole</td>
</tr>
<tr>
<td><strong>Contacts</strong></td>
<td>metal, CuZn, gold-plated</td>
</tr>
<tr>
<td><strong>Contact carriers</strong></td>
<td>plastic, PUR, black</td>
</tr>
<tr>
<td><strong>Screw-in thread seal</strong></td>
<td>NBR</td>
</tr>
<tr>
<td><strong>Flange housing</strong></td>
<td>stainless steel, 1.4401 (316)</td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
<td>IP67, only with screws tightened</td>
</tr>
<tr>
<td><strong>Screw-in thread</strong></td>
<td>1/2-14 NPT</td>
</tr>
<tr>
<td><strong>Mechanical lifespan</strong></td>
<td>min. 100 Contact durability</td>
</tr>
<tr>
<td><strong>Pollution degree</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

### Litz wire length

<table>
<thead>
<tr>
<th>Litz wire length</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3 m</td>
<td></td>
</tr>
</tbody>
</table>

### Core insulation material

<table>
<thead>
<tr>
<th>material</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC</td>
<td></td>
</tr>
</tbody>
</table>

### Core insulation colours

<table>
<thead>
<tr>
<th>colours</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>BU, BN, GY, GNVE</td>
<td></td>
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</table>

### Core cross-section

<table>
<thead>
<tr>
<th>cross-section</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 x 0.8 mm²</td>
<td></td>
</tr>
</tbody>
</table>

### Rated voltage

<table>
<thead>
<tr>
<th>voltage</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>max. 600 V</td>
<td></td>
</tr>
</tbody>
</table>

### Insulation resistance

<table>
<thead>
<tr>
<th>resistance</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 10⁹ Ω</td>
<td></td>
</tr>
</tbody>
</table>

### Ampacity

<table>
<thead>
<tr>
<th>Ampacity</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 A</td>
<td></td>
</tr>
</tbody>
</table>

### Forward resistance

<table>
<thead>
<tr>
<th>resistance</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 5 mΩ</td>
<td></td>
</tr>
</tbody>
</table>

### Ambient temperature Connector

<table>
<thead>
<tr>
<th>temperature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>-40 ... + 105 °C</td>
<td></td>
</tr>
</tbody>
</table>
Accessories for fieldbus systems

Flange connector

RKFV49-0,3M/14,5

- Version: female 7/8" connector
- 1/2-14 NPT screw-in thread
- Stainless steel flange housing
- 4-pole, litz wire length 0.3 m
- For FOUNDATION™ fieldbus applications

Pin configuration

FOUNDATION™ fieldbus connection

- 1 = BU
- 2 = BN
- 3 = GY
- 4 = GNYE

<table>
<thead>
<tr>
<th>Type</th>
<th>RKFV49-0,3M/14,5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6602475</td>
</tr>
</tbody>
</table>

**Connector**
- female flange connector, 7/8", with litz wire 4-pole
- metal, CuZn, gold-plated
- plastic, PUR, black
- NBR
- stainless steel, 1.4401 (316)
- IP67, only with screws tightened
- 1/2-14 NPT
- min. 100 Contact durability
- 3

**Litz wire length**
- 0.3 m

**Core insulation material**
- PVC

**Core insulation colours**
- BU, BN, GY, GNYE

**Core cross-section**
- 4 x 0.8 mm²

**Rated voltage**
- max. 600 V

**Insulation resistance**
- ≥ 10⁹ Ω

**Ampacity**
- 9 A

**Forward resistance**
- ≤ 5 mΩ

**Ambient temperature Connector**
- -40 ... +105 °C
## Accessories for fieldbus systems

### Flange connector

**RSFV49-0,3M/M20/C1117**

<table>
<thead>
<tr>
<th>Type</th>
<th>RSFV49-0,3M/M20/C1117</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
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</table>

<table>
<thead>
<tr>
<th>Connector</th>
<th>Male flange connector, 7/8&quot;, with litz wire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polarity</td>
<td>4-pole</td>
</tr>
<tr>
<td>Contacts</td>
<td>metal, CuZn, gold-plated</td>
</tr>
<tr>
<td>Contact carriers</td>
<td>plastic, PUR, black</td>
</tr>
<tr>
<td>Screw-in thread seal</td>
<td>NBR</td>
</tr>
<tr>
<td>Flange housing</td>
<td>stainless steel, 1.4401 (316)</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP67, only with screws tightened</td>
</tr>
<tr>
<td>Screw-in thread</td>
<td>M20 x 1.5</td>
</tr>
<tr>
<td>Mechanical lifespan</td>
<td>min. 100 Contact durability</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>3</td>
</tr>
</tbody>
</table>

| Litz wire length | 0.3 m |
| Core insulation material | PVC |
| Core insulation colours | BU, BN, GY, GNYE |
| Core cross-section | 4 x 0.8 mm² |

| Rated voltage | max. 600 V |
| Insulation resistance | ≥ 10⁹ Ω |
| Ampacity | 9 A |
| Forward resistance | ≤ 5 mΩ |
| Ambient temperature Connector | -40 ... + 105 °C |

- Version: male 7/8" connector
- M20 x 1.5 screw-in thread
- Stainless steel flange housing
- 4-pole, litz wire length 0.3 m
- For FOUNDATION™ fieldbus applications

### Pin configuration

```
1 2 3 4
1 = BU
2 = BN
3 = GY
4 = GNYE
```

### FOUNDATION™ fieldbus connection

```
1 2 3 4
1 = –
2 = +
3 = shield
4 = n.c.
```
Accessories for fieldbus systems
Flange connector
RKFV49-0,3M/M20

- Version: female 7/8" connector
- M20 x 1.5 screw-in thread
- Stainless steel flange housing
- 4-pole, litz wire length 0.3 m
- For FOUNDATION™ fieldbus applications

Pin configuration

 FOUNDATION™ fieldbus connection

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>BU</td>
</tr>
<tr>
<td>2</td>
<td>BN</td>
</tr>
<tr>
<td>1</td>
<td>GY</td>
</tr>
<tr>
<td>4</td>
<td>GNYE</td>
</tr>
</tbody>
</table>

**Type**
- RKFV49-0,3M/M20

**Ident-No.**
- 6603584

**Connector**
- female flange connector, 7/8", with litz wire
- 4-pole

**Polarity**
- metal, CuZn, gold-plated

**Contacts**
- plastic, PUR, black

**Contact carriers**
- NBR

**Screw-in thread seal**
- stainless steel, 1.4401 (316)

**Degree of protection**
- IP67, only with screws tightened

**Screw-in thread**
- min. 100 Contact durability

**Mechanical lifespan**
- 3

**Litz wire length**
- 0.3 m

**Core insulation material**
- PVC

**Core insulation colours**
- BU, BN, GY, GNYE

**Core cross-section**
- 4 x 0.8 mm²

**Rated voltage**
- max. 600 V

**Insulation resistance**
- ≥ 10⁷ Ω

**Ampacity**
- 9 A

**Forward resistance**
- ≤ 5 mΩ

**Ambient temperature Connector**
- -40 ... + 105 °C
Accessories for fieldbus systems
Flange connector
FSV49

- Version: M12 connector
- PG 9 screw-in thread
- Stainless steel flange housing
- 4-pole, solderable
- For use in Foundation™ fieldbus and PROFIBUS-PA applications

FOUNDATION™ fieldbus connection

PROFIBUS-PA connection

<table>
<thead>
<tr>
<th>Type</th>
<th>FSV49</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6604378</td>
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</table>

<table>
<thead>
<tr>
<th>Connector</th>
<th>Male flange connector, M12 x 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polarity</td>
<td>4-pole</td>
</tr>
<tr>
<td>Contacts</td>
<td>metal, CuZn, gold-plated</td>
</tr>
<tr>
<td>Contact carriers</td>
<td>plastic, PA, black</td>
</tr>
<tr>
<td>Screw-in thread seal</td>
<td>plastic</td>
</tr>
<tr>
<td>Flange housing</td>
<td>stainless steel, 1.4401 (316)</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP67, only with screws tightened</td>
</tr>
<tr>
<td>Screw-in thread</td>
<td>PG 9</td>
</tr>
<tr>
<td>Mechanical lifespan</td>
<td>min. 100 Contact durability</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rated voltage</th>
<th>max. 250 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation resistance</td>
<td>$\geq 10^9 \Omega$</td>
</tr>
<tr>
<td>Ampacity</td>
<td>4 A</td>
</tr>
<tr>
<td>Forward resistance</td>
<td>$\leq 5 , m\Omega$</td>
</tr>
<tr>
<td>Ambient temperature Connector</td>
<td>-40 ... + 90 °C</td>
</tr>
</tbody>
</table>
## Accessories for fieldbus systems
### Flange connector
#### FKV49

<table>
<thead>
<tr>
<th>Type</th>
<th>FKV49</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6603426</td>
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</tbody>
</table>

**Connector**
- Female flange connector, M12 x 1
- Polarity: 4-pole
- Contacts: metal, CuZn, gold-plated
- Contact carriers: plastic, PA, black
- Screw-in thread seal: plastic
- Flange housing: stainless steel, 1.4401 (316)
- Degree of protection: IP67, only with screws tightened
- Screw-in thread: PG 9
- Mechanical lifespan: min. 100 Contact durability
- Pollution degree: 3

**Rated voltage**
- max. 250 V
- Insulation resistance: $\geq 10^9 \, \Omega$
- Ampacity: 4 A
- Forward resistance: $\leq 5 \, m\Omega$
- Ambient temperature Connector: -40 °C ... + 90 °C

**FOUNDATION™ fieldbus connection**

**PROFIBUS-PA connection**

- Version: female M12 connector
- PG 9 screw-in thread
- Stainless steel flange housing
- 4-pole, solderable
- For use in Foundation™ fieldbus and PROFIBUS-PA applications

![Diagram of FKV49 flange connector](attachment:diagram.png)
Accessories for fieldbus systems
Flange connector
FSV49-0,3M/14,5/C1117

- Version: M12 connector
- 1/2-14 NPT screw-in thread
- Stainless steel flange housing
- 4-pole, litz wire length 0.3 m
- For FOUNDATION™ fieldbus applications

**Pin configuration**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BU</td>
</tr>
<tr>
<td>2</td>
<td>BN</td>
</tr>
<tr>
<td>3</td>
<td>GY</td>
</tr>
<tr>
<td>4</td>
<td>GNYE</td>
</tr>
</tbody>
</table>

**Type**

<table>
<thead>
<tr>
<th>Type</th>
<th>FSV49-0,3M/14,5/C1117</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6602107</td>
</tr>
</tbody>
</table>

**Connector**

- Male flange connector, M12 x 1, with litz wire
- Polarity: 4-pole
- Contacts: metal, CuZn, gold-plated
- Contact carriers: plastic, PA, black
- Screw-in thread seal: plastic
- Flange housing: stainless steel, 1.4401 (316)
- Degree of protection: IP67, only with screws tightened
- Screw-in thread: 1/2-14 NPT
- Mechanical lifespan: min. 100
- Contact durability: |
- Pollution degree: 3
- Litz wire length: 0.3 m
- Core insulation material: PVC
- Core insulation colours: BU, BN, GY, GNYE
- Core cross-section: 4 x 0.8 mm²
- Rated voltage: max. 600 V
- Insulation resistance: ≥ 10⁹ Ω
- Ampacity: 9 A
- Forward resistance: ≤ 5 mΩ
- Ambient temperature Connector: -40 ... + 105 °C
Accessories for fieldbus systems
Flange connector
FKV49-0,3M/14,5/C1117

- Version: female M12 connector
- 1/2-14 NPT screw-in thread
- Stainless steel flange housing
- 4-pole, litz wire length 0.3 m
- For FOUNDATION™ fieldbus applications

Pin configuration

FOUNDATION™ fieldbus connection

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = BU</td>
<td>2 = BN</td>
<td>3 = GY</td>
<td>4 = GNYE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>FKV49-0,3M/14,5/C1117</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6603298</td>
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</tbody>
</table>

**Connector**
- female flange connector, M12 x 1, with litz wire
- Polarity: 4-pole
- Contacts: metal, CuZn, gold-plated
- Contact carriers: plastic, PA, black
- Screw-in thread seal: plastic
- Flange housing: stainless steel, 1.4401 (316)
- Degree of protection: IP67, only with screws tightened
- Screw-in thread: 1/2-14 NPT
- Mechanical lifespan: min. 100 Contact durability
- Pollution degree: 3

**Litz wire length**
- 0.3 m

**Core insulation material**
- PVC

**Core insulation colours**
- BU, BN, GY, GNYE

**Core cross-section**
- 4 x 0.8 mm²

**Rated voltage**
- max. 300 V

**Insulation resistance**
- \( \geq 10^9 \) \( \Omega \)

**Ampacity**
- 4 A

**Forward resistance**
- \( \leq 5 \) m\( \Omega \)

**Ambient temperature Connector**
- -40 ... + 105 °C
## Accessories for fieldbus systems
### Flange connector
FSV49-0,3M/M20/C1117

- **Version:** M12 connector
- **M20 x 1.5 screw-in thread**
- **Stainless steel flange housing**
- **4-pole, litz wire length 0.3 m**
- **For FOUNDATION™ fieldbus applications**

### Pin configuration

<table>
<thead>
<tr>
<th>Pin</th>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BU</td>
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</tr>
<tr>
<td>2</td>
<td>BN</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>GY</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>GNYE</td>
<td></td>
</tr>
</tbody>
</table>

### FOUNDATION™ fieldbus connection

<table>
<thead>
<tr>
<th>Pin</th>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>shield</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>n.c.</td>
<td></td>
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</tbody>
</table>

### Type

<table>
<thead>
<tr>
<th>Type</th>
<th>FSV49-0,3M/M20/C1117</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6603682</td>
</tr>
</tbody>
</table>

### Connector

- **Male flange connector, M12 x 1, with litz wire**
- **Polarity:** 4-pole
- **Contacts:** metal, CuZn, gold-plated
- **Contact carriers:** plastic, PA, black
- **Screw-in thread seal:** plastic
- **Flange housing:** stainless steel, 1.4401 (316)
- **Degree of protection:** IP67, only with screws tightened
- **Screw-in thread:** M20 x 1.5
- **Mechanical lifespan:** min. 100 Contact durability
- **Pollution degree:** 3

### Litz wire length

- **Length:** 0.3 m

### Core insulation material

- **Material:** PVC

### Core insulation colours

- **Colours:** BU, BN, GY, GNYE

### Core cross-section

- **Cross-section:** 4 x 0.8 mm²

### Rated voltage

- **Max. voltage:** 600 V
- **Insulation resistance:** ≥ $10^9$ Ω
- **Ampacity:** 9 A
- **Forward resistance:** ≤ 5 mΩ
- **Ambient temperature Connector:** -40 ... + 105 °C
Accessories for fieldbus systems
Flange connector
FKV49-0,3M/M20/C1117

- Version: female M12 connector
- M20 x 1.5 screw-in thread
- Stainless steel flange housing
- 4-pole, litz wire length 0.3 m
- For FOUNDATION™ fieldbus applica-tions

Pin configuration

<table>
<thead>
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<tbody>
<tr>
<td>BU</td>
<td>BN</td>
<td>GY</td>
<td>GNYE</td>
</tr>
</tbody>
</table>

FOUNDATION™ fieldbus connection

- Type: FKV49-0,3M/M20/C1117
- Ident-No.: 6603683
- Connector: female flange connector, M12 x 1, with litz wire
- Polarity: 4-pole
- Contacts: metal, CuZn, gold-plated
- Contact carriers: plastic, PA, black
- Screw-in thread seal: plastic
- Flange housing: stainless steel, 1.4401 (316)
- Degree of protection: IP67, only with screws tightened
- Screw-in thread: M20 x 1.5
- Mechanical lifespan: min. 100 Contact durability
- Pollution degree: 3
- Litz wire length: 0.3 m
- Core insulation material: PVC
- Core insulation colours: BU, BN, GY, GNYE
- Core cross-section: 4 x 0.8 mm²
- Rated voltage: max. 300 V
- Insulation resistance: ≥ 10⁸ Ω
- Ampacity: 4 A
- Forward resistance: ≤ 5 mΩ
- Ambient temperature: -40 ... + 105 °C
## Accessories for fieldbus systems
### Field wireable connectors
#### BS4140-0/9

<table>
<thead>
<tr>
<th>Type</th>
<th>BS4140-0/9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6914550</td>
</tr>
</tbody>
</table>

- **Connector**
  - **field-wireable male connector, 7/8'', straight**
  - **4-pole**
  - **Metal, CuZn, gold-plated**
  - **Plastic, TPU, black**
  - **Metal, Al, anodized**
  - **Plastic, NBR**
  - **Metal, PG 9**
  - **Screw terminals**
  - **Pollution degree 3**

- **Rated voltage**
  - **max. 250 V**
  - **≥ 10^9 Ω**
  - **9 A**
  - **≤ 5 mΩ**
  - **-40 ... + 90 °C**

- **PROFIBUS-PA connection**
  - 1 = +
  - 2 = n.c.
  - 3 = −
  - 4 = shield

- **FOUNDATION™ fieldbus connection**
  - 1 = −
  - 2 = +
  - 3 = shield
  - 4 = n.c.
## Accessories for fieldbus systems
### Field wireable connectors
**BK4140-0/9**

<table>
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<th>Type</th>
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<tbody>
<tr>
<td>Ident-No.</td>
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</table>

### Connector
- Field-wireable female connector, 7/8”, straight
- Polarity: 4-pole
- Contacts: metal, CuZn, gold-plated
- Contact carriers: plastic, TPU, black
- Grip: plastic, PA, black
- Coupling nut/screw: metal, Al, anodized
- Seal: plastic, NBR
- Screw-in thread seal: plastic, NBR
- Degree of protection: IP67, only with screws tightened
- External diameter of the cable: 6 ... 8 mm
- Core cross-section/Clamping ability: max. 1 mm²
- Screw-in thread: PG 9
- Connection mode: Screw terminals
- Pollution degree: 3

<table>
<thead>
<tr>
<th>Rated voltage</th>
<th>max. 250 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation resistance</td>
<td>≥ 10⁸ Ω</td>
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<tr>
<td>Ampacity</td>
<td>9 A</td>
</tr>
<tr>
<td>Forward resistance</td>
<td>≤ 5 mΩ</td>
</tr>
<tr>
<td>Ambient temperature Connector</td>
<td>-40 ... + 90 °C</td>
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**PROFIBUS-PA connection**

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<th>Type</th>
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<tr>
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### Connector
- Field-wireable female connector, 7/8”, straight
- Polarity: 4-pole
- Contacts: metal, CuZn, gold-plated
- Contact carriers: plastic, TPU, black
- Grip: plastic, PA, black
- Coupling nut/screw: metal, Al, anodized
- Seal: plastic, NBR
- Screw-in thread seal: plastic, NBR
- Degree of protection: IP67, only with screws tightened
- External diameter of the cable: 6 ... 8 mm
- Core cross-section/Clamping ability: max. 1 mm²
- Screw-in thread: PG 9
- Connection mode: Screw terminals
- Pollution degree: 3

<table>
<thead>
<tr>
<th>Rated voltage</th>
<th>max. 250 V</th>
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<tbody>
<tr>
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<td>≥ 10⁸ Ω</td>
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<tr>
<td>Ampacity</td>
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<tr>
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<td>≤ 5 mΩ</td>
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<tr>
<td>Ambient temperature Connector</td>
<td>-40 ... + 90 °C</td>
</tr>
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</table>

### FOUNDATION™ fieldbus connection

- **Type:** BK4140-0/9
- **Ident-No.:** 6914551

### Voltage supply

- **Type:** BK4140-0/9
- **Ident-No.:** 6914551

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### PROFIBUS-PA connection

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<tr>
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### FOUNDATION™ fieldbus connection

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### Voltage supply

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</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6914551</td>
</tr>
</tbody>
</table>

### Version: female connector
### Round connector 7/8”
### Field-wireable
### Screw/terminal connection
### 4-pole, straight anodised aluminium coupling nut
### Cable exit 6 ... 8 mm
### For use in PROFIBUS-PA and FOUNDATION™ fieldbus applications and as auxiliary supply for DeviceNet™ slaves

### PROFIBUS-PA connection

- **Type:** BK4140-0/9
- **Ident-No.:** 6914551

### FOUNDATION™ fieldbus connection

- **Type:** BK4140-0/9
- **Ident-No.:** 6914551

### Voltage supply

- **Type:** BK4140-0/9
- **Ident-No.:** 6914551

### PROFIBUS-PA connection

- **Type:** BK4140-0/9
- **Ident-No.:** 6914551

### FOUNDATION™ fieldbus connection

- **Type:** BK4140-0/9
- **Ident-No.:** 6914551

### Voltage supply

- **Type:** BK4140-0/9
- **Ident-No.:** 6914551
**Accessories for fieldbus systems**

**Field wireable connectors**

**BSV4140-0/9**

![Diagram of BSV4140-0/9 connector](image)

- **Version:** Connector
- **Round connector 7/8”**
- **Field-wireable**
- **Screw/terminal connection**
- **4-pole, straight, stainless steel coupling nut**
- **Cable exit 6 … 8 mm**
- **For use in PROFIBUS-PA and FOUNDATION™ fieldbus applications**

### PROFIBUS-PA connection

- 1
- 2 = n.c.
- 3 = +
- 4 = shield

### FOUNDATION™ fieldbus connection

- 1
- 2 = –
- 3 = +
- 4 = shield

#### Type and Ident-No.

<table>
<thead>
<tr>
<th>Type</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6914542</td>
</tr>
</tbody>
</table>

#### Connector

- **field-wireable male connector, 7/8”, straight**
- **4-pole**
- **Contacts**
  - metal, CuZn, gold-plated
- **Contact carriers**
  - plastic, TPU, black
- **Grip**
  - plastic, PA, black
- **Coupling nut/screw**
  - stainless steel, 1.4404
- **Seal**
  - plastic, NBR
- **Screw-in thread seal**
  - plastic, NBR
- **Degree of protection**
  - IP67, only with screws tightened
- **External diameter of the cable**
  - 6 … 8 mm
- **Core cross-section/Clamping ability**
  - max. 1 mm²
- **Screw-in thread**
  - PG 9
- **Connection mode**
  - Screw terminals
- **Pollution degree**
  - 3

#### Rated voltage

- **max. 250 V**
- **Insulation resistance**
  - $\geq 10^9$ Ω
- **Ampacity**
  - 9 A
- **Forward resistance**
  - $\leq 5$ mΩ
- **Ambient temperature Connector**
  - -40 … + 90 °C
Accessories for fieldbus systems
Field wireable connectors
BKV4140-0/9

● Version: female connector
● Round connector 7/8"
● Field-wireable
● Screw/terminal connection
● 4-pole, straight, stainless steel coupling nut
● Cable exit 6 … 8 mm
● For use in PROFIBUS-PA and FOUNDATION™ fieldbus applications

PROFIBUS-PA connection

FOUNDATION™ fieldbus connection

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<tbody>
<tr>
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</tbody>
</table>

Connector

- field-wireable female connector, 7/8", straight
- Polarity: 4-pole
- Contacts: metal, CuZn, gold-plated
- Contact carriers: plastic, TPU, black
- Grip: plastic, PA, black
- Coupling nut/screw: stainless steel, 1.4404
- Seal: plastic, NBR
- Screw-in thread seal: plastic, NBR
- Degree of protection: IP67, only with screws tightened
- External diameter of the cable: 6 … 8 mm
- Core cross-section/Clamping ability: max. 1 mm²
- Screw-in thread: PG 9
- Connection mode: Screw terminals
- Pollution degree: 3

Rated voltage

- max. 240 V
- Insulation resistance: $\geq 10^9 \Omega$
- Ampacity: 9 A
- Forward resistance: $\leq 5 \, m\Omega$
- Ambient temperature Connector: -40 … + 90 °C
Accessories for fieldbus systems
Field wireable connectors
BSV4140-0/13.5

- Version: Connector
- Round connector 7/8"
- Field-wireable
- Screw/terminal connection
- 4-pole, straight, stainless steel coupling nut
- Cable exit 10 ... 12 mm
- For use in PROFIBUS-PA and FOUNDATION™ fieldbus applications

PROFIBUS-PA connection

<table>
<thead>
<tr>
<th>1</th>
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<tr>
<td>3</td>
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FOUNDATION™ fieldbus connection

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<tr>
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<table>
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<th>Type</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6914562</td>
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</table>

Connection mode

- Screw terminals
- Field-wireable male connector, 7/8", straight
- Polarity 4-pole
- Grip plastic, PA, black
- Contact carriers plastic, TPU, black
- Coupling nut/screw stainless steel, 1.4404
- Seal plastic, NBR

Degree of protection

- IP67, only with screws tightened
- Pollution degree 3

External diameter of cable

- max. 12 mm

Rated voltage

- max. 250 V
- Ampacity 9 A
- Forward resistance ≤ 5 mΩ
- Insulation resistance ≥ 10^8 Ω
- Ambient temperature junction -40 ... + 90 °C
## Accessories for fieldbus systems
### Field wireable connectors
**BKV4140-0/13.5**

<table>
<thead>
<tr>
<th>Type</th>
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</thead>
<tbody>
<tr>
<td>Ident-No.</td>
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</tbody>
</table>

### Connector
- **Version**: female connector
- **Round connector**: 7/8"
- **Field-wireable**
- **Screw/terminal connection**
- **4-pole, straight, stainless steel coupling nut**
- **Cable exit**: 10 ... 12 mm
- **For use in PROFIBUS-PA and FOUNDATION™ fieldbus applications**

#### PROFIBUS-PA connection

<table>
<thead>
<tr>
<th>Type</th>
<th>1</th>
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#### FOUNDATION™ fieldbus connection

<table>
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<tr>
<td>4</td>
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<td>shield</td>
<td>n.c.</td>
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</table>

### Technical Specifications
- **Type**: field-wireable female connector, 7/8", straight
- **Polarity**: 4-pole
- **Contacts**: metal, CuZn, gold-plated
- **Contact carriers**: plastic, TPU, black
- **Grip**: plastic, PA, black
- **Coupling nut/screw**: stainless steel, 1.4404
- **Seal**: plastic, NBR
- **Screw-in thread seal**: plastic, NBR
- **Degree of protection**: IP67, only with screws tightened
- **External diameter of the cable**: 10 ... 12 mm
- **Core cross-section/Clamping ability**: max. 1 mm²
- **Screw-in thread**: PG 13,5
- **Connection mode**: Screw terminals
- **Pollution degree**: 3
- **Rated voltage**: max. 240 V
- **Insulation resistance**: \( \geq 10^9 \Omega \)
- **Ampacity**: 9 A
- **Forward resistance**: \( \leq 5 \, m\Omega \)
- **Ambient temperature Connector**: -40 ... +90 °C
## Accessories for fieldbus systems
### Field wireable connectors
**BSV4140-0/16**

<table>
<thead>
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<th>Type</th>
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<tbody>
<tr>
<td>Ident-No.</td>
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#### Connector
- **field-wireable male connector, 7/8\"", straight**
- **4-pole**
- **Contacts**
  - metal, CuZn, gold-plated
- **Contact carriers**
  - plastic, TPU, black
- **Grip**
  - plastic, PA, black
- **Coupling nut/screw**
  - stainless steel, 1.4404
- **Seal**
  - plastic, NBR
- **Screw-in thread seal**
  - plastic, NBR
- **Degree of protection**
  - IP67, only with screws tightened
- **External diameter of the cable**
  - 12 ... 14 mm
- **Core cross-section/Clamping ability**
  - max. 1 mm²
- **Screw-in thread**
  - PG 16
- **Connection mode**
  - Screw terminals
- **Pollution degree**
  - 3

#### Rated voltage
- **max. 250 V**
- **Insulation resistance**
  - $\geq 10^9$ Ω
- **Ampacity**
  - 9 A
- **Forward resistance**
  - $\leq 5$ mΩ
- **Ambient temperature Connector**
  - -40 ... + 90 °C

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**PROFIBUS-PA connection**

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**FOUNDATION™ fieldbus connection**

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</table>
Accessories for fieldbus systems
Field wireable connectors
BKV4140-0/16

- Version: female connector
- Round connector 7/8"
- Field-wireable
- Screw/terminal connection
- 4-pole, straight, stainless steel coupling nut
- Cable exit 12 … 14 mm
- For use in PROFIBUS-PA and FOUNDATION™ fieldbus applications

PROFIBUS-PA connection

<table>
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**Connector**

<table>
<thead>
<tr>
<th>Type</th>
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</tr>
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<tbody>
<tr>
<td>Polarity</td>
<td>4-pole</td>
</tr>
<tr>
<td>Contacts</td>
<td>metal, CuZn, gold-plated</td>
</tr>
<tr>
<td>Contact carriers</td>
<td>plastic, TPU, black</td>
</tr>
<tr>
<td>Grip</td>
<td>plastic, PA, black</td>
</tr>
<tr>
<td>Coupling nut/screw</td>
<td>stainless steel, 1.4404</td>
</tr>
<tr>
<td>Seal</td>
<td>plastic, NBR</td>
</tr>
<tr>
<td>Screw-in thread seal</td>
<td>plastic, NBR</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP67, only with screws tightened</td>
</tr>
<tr>
<td>External diameter of the cable</td>
<td>12 … 14 mm</td>
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<tr>
<td>Core cross-section/Clamping ability</td>
<td>max. 1 mm²</td>
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<tr>
<td>Screw-in thread</td>
<td>PG 16</td>
</tr>
<tr>
<td>Connection mode</td>
<td>Screw terminals</td>
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<tr>
<td>Pollution degree</td>
<td>3</td>
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**Rated voltage**

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<td>Insulation resistance</td>
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<td>Ampacity</td>
<td>9 A</td>
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<tr>
<td>Forward resistance</td>
<td>≤ 5 mΩ</td>
</tr>
<tr>
<td>Ambient temperature Connector</td>
<td>-40 … + 90 °C</td>
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</table>
### Accessories for fieldbus systems

**Field wireable connectors**

**BSV8140-0/9**

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</thead>
<tbody>
<tr>
<td>Ident-No.</td>
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</table>

**Connector**

- Field-wireable male connector, M12 x 1, straight
- Polarity: 4-pole
- Contacts: metal, CuZn, CuSnZn, Optalloy coated
- Contact carriers: plastic, PA, black
- Grip: plastic, PA, black
- Coupling nut/screw: stainless steel, 1.4404
- Seal: plastic, FKM/FPM
- Screw-in thread seal: plastic, NBR
- Degree of protection: IP67, only with screws tightened
- External diameter of the cable: 4 ... 8 mm
- Core cross-section/Clamping ability: 0.14 ... 0.75 mm²
- Screw-in thread: PG 9
- Connection mode: Screw terminals
- Pollution degree: 3

**Rated voltage**

- max. 250 V
- Insulation resistance: ≥ 10⁶ Ω
- Ampacity: 4 A
- Forward resistance: ≤ 5 mΩ
- Ambient temperature Connector: -25 ... + 90 °C

**PROFIBUS-PA connection**

![PROFIBUS-PA connection diagram]

**FOUNDATION™ fieldbus connection**

![FOUNDATION™ fieldbus connection diagram]
## Accessories for fieldbus systems
### Field wireable connectors

**BKV8140-0/9**

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Ident-No.</strong></td>
<td>6914538</td>
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</tbody>
</table>

**Connector**
- Field-wireable female connector, M12 x 1, straight
- **Polarity**: 4-pole
- **Contacts**: metal, CuZn, CuSnZn, Optalloy coated
- **Contact carriers**: plastic, PA, black
- **Grip**: plastic, PA, black
- **Coupling nut/screw**: stainless steel, 1.4404
- **Seal**: plastic, FKM/FPM
- **Screw-in thread seal**: plastic, NBR
- **Degree of protection**: IP67, only with screws tightened
- **External diameter of the cable**: 4 … 8 mm
- **Core cross-section/Clamping ability**: 0.14… 0.75 mm²
- **Screw-in thread**: PG 9
- **Connection mode**: Screw terminals
- **Pollution degree**: 3

**Rated voltage**
- Max. 250 V
- **Insulation resistance**: ≥ 10⁸ Ω
- **Ampacity**: 4 A
- **Forward resistance**: ≤ 5 mΩ
- **Ambient temperature Connector**: -25 … + 90 °C

- **Version**: female M12 connector
- **Field-wireable**
- **4-pole, straight, stainless steel coupling nut**
- **Cable exit 4.0 … 8.0 mm**
- **For use in PROFIBUS-PA and FOUNDATION™ fieldbus applications**

**PROFIBUS-PA connection**

![PROFIBUS-PA connection diagram](image)

**FOUNDATION™ fieldbus connection**

![FOUNDATION™ fieldbus connection diagram](image)
Accessories for fieldbus systems
Field wireable connectors
BSV8240-0/9

- Version: M12 connector
- Field-wireable
- 4-pole, angled, stainless steel coupling nut
- Cable exit 4...8 mm
- For use in PROFIBUS-PA and FOUNDATION™ fieldbus applications

PROFIBUS-PA connection

<table>
<thead>
<tr>
<th>Type</th>
<th>BSV8240-0/9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6914539</td>
</tr>
<tr>
<td>Connector</td>
<td>field-wireable male connector, M12 x 1, angled</td>
</tr>
<tr>
<td>Polarity</td>
<td>4-pole</td>
</tr>
<tr>
<td>Contacts</td>
<td>metal, CuZn,CuSnZn, Optalloy coated</td>
</tr>
<tr>
<td>Contact carriers</td>
<td>plastic, PA, black</td>
</tr>
<tr>
<td>Grip</td>
<td>plastic, PA, black</td>
</tr>
<tr>
<td>Coupling nut/screw</td>
<td>stainless steel, 1.4404</td>
</tr>
<tr>
<td>Seal</td>
<td>plastic, FKM/FPM</td>
</tr>
<tr>
<td>Screw-in thread seal</td>
<td>plastic, NBR</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP67, only with screws tightened</td>
</tr>
<tr>
<td>External diameter of the cable</td>
<td>4...8 mm</td>
</tr>
<tr>
<td>Core cross-section/Clamping ability</td>
<td>0.14...0.75 mm²</td>
</tr>
<tr>
<td>Screw-in thread</td>
<td>PG 9</td>
</tr>
<tr>
<td>Connection mode</td>
<td>Screw terminals</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>3</td>
</tr>
<tr>
<td>Rated voltage</td>
<td>max. 250 V</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>≥ 10⁹ Ω</td>
</tr>
<tr>
<td>Ampacity</td>
<td>4 A</td>
</tr>
<tr>
<td>Forward resistance</td>
<td>≤ 5 mΩ</td>
</tr>
<tr>
<td>Ambient temperature Connector</td>
<td>-25 ... + 90 °C</td>
</tr>
</tbody>
</table>
Accessories for fieldbus systems
Field wireable connectors
BKV8240-0/9

- Version: female M12 connector
- Field-wireable
- 4-pole, angled, stainless steel coupling nut
- Cable exit 4.0 ... 8.0 mm
- For use in PROFIBUS-PA and FOUNDATION™ fieldbus applications

PROFIBUS-PA connection

FOUNDATION™ fieldbus connection

### Connector

<table>
<thead>
<tr>
<th>Type</th>
<th>BKV8240-0/9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6914540</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field-wireable female connector, M12 x 1, angled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polarity</td>
</tr>
<tr>
<td>Contacts</td>
</tr>
<tr>
<td>Contact carriers</td>
</tr>
<tr>
<td>Grip</td>
</tr>
<tr>
<td>Coupling nut/screw</td>
</tr>
<tr>
<td>Seal</td>
</tr>
<tr>
<td>Screw-in thread seal</td>
</tr>
<tr>
<td>Degree of protection</td>
</tr>
<tr>
<td>External diameter of the cable</td>
</tr>
<tr>
<td>Core cross-section/Clamping ability</td>
</tr>
<tr>
<td>Screw-in thread</td>
</tr>
<tr>
<td>Connection mode</td>
</tr>
<tr>
<td>Pollution degree</td>
</tr>
</tbody>
</table>

| Rated voltage | max. 250 V |
| Insulation resistance | ≥ 10⁸ Ω |
| Ampacity | 4 A |
| Forward resistance | ≤ 5 mΩ |
| Ambient temperature Connector | -25 ... + 90 °C |
Data transmission on bus cables is frequently influenced by signal reflection, which can occur when the bus ends are not terminated. The fieldbus must be provided with a termination resistor at both ends in order to avoid signal reflection.

TURCK offers plug-in termination resistors, type M12 × 1 and 7/8", for intrinsically safe and non-intrinsically safe circuits.

Use of the intrinsically-safe version
The intrinsically-safe fieldbus termination resistors feature protection class “intrinsic safety” and may be used in the explosion hazardous area category 1 G (zone 0), 2 G (zone 1) or 3 G (zone 2).

In zone 0 the power supply circuit must conform to protection class “ia”.

The RS-49-TR-Ex termination resistor can be used in networks, which are designed conform to the FISCO model.

CAUTION
The EC type test examination certificate and the manufacturer’s declaration of conformity must be observed. It is essential that the “special conditions” in the EU type test examination certificate are observed.

NOTE
The TURCK JBBS... junctions to IP67 (4 and 6 ports) and JRBS... to IP20 are already provided with integrated switch-in bus termination resistors. Special versions excepted.

### Specification

<table>
<thead>
<tr>
<th>Connector</th>
<th>PUR housing material and contact carriers, oil resistant, 300 V rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coupling nut</td>
<td>stainless steel</td>
</tr>
<tr>
<td>Protection degree (IEC 60529/EN 60529)</td>
<td>IP67 and NEMA 1, 3, 4, 6P</td>
</tr>
<tr>
<td>Max. ratings</td>
<td>U_{max} = 50 VDC</td>
</tr>
<tr>
<td></td>
<td>T_a = -40...+80 °C</td>
</tr>
<tr>
<td>RSV49-TR, RSEV49-TR</td>
<td>U_i = 25 VDC, I = 250 mA, P_i =1.2 W</td>
</tr>
<tr>
<td></td>
<td>T_a = -40...70 °C (EEx ia IIC T4)</td>
</tr>
<tr>
<td></td>
<td>-40...40 °C (EEx ia IIC T6)</td>
</tr>
<tr>
<td>RSV-49-TR-Ex</td>
<td></td>
</tr>
</tbody>
</table>
Accessories for fieldbus systems
Bus termination resistor
RSV49-TR

- Version: male 7/8" connector
- 4-pole, straight, stainless steel coupling nut
- For use in FOUNDATION™ fieldbus applications

**Wiring diagram**

<table>
<thead>
<tr>
<th>Type</th>
<th>RSV49-TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6602094</td>
</tr>
</tbody>
</table>

**Connector**
- Connector, 7/8"
- Oil, CuZn, gold-plated
- Plastic, PUR, black
- Plastic, PUR, yellow
- Stainless steel, 1.4404
- IP67, only with screws tightened
- -40…+ 70 °C

![Wiring Diagram]
Accessories for fieldbus systems
Bus termination resistor
RSEV49-TR

- Version: M12 connector
- 4-pole, straight, stainless steel coupling nut
- For use in FOUNDATION™ fieldbus applications

Wiring diagram

<table>
<thead>
<tr>
<th>Type</th>
<th>RSEV49-TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6602096</td>
</tr>
</tbody>
</table>

**Connector**
- Connector, M12 x 1
- Polarity: 4-pole
- Contacts: metal, CuZn, gold-plated
- Contact carriers: plastic, PUR, black
- Grip: plastic, PUR, black
- Coupling nut/screw: stainless steel, 1.4404
- Degree of protection: IP67, only with screws tightened
- Ambient temperature: -40…+ 70 °C
Accessories for fieldbus systems
Bus termination resistor
RSV-49TR-EX

- FISCO compliant according to IEC TS 60079-27
- Version: male 7/8" connector
- 4-pole, straight, stainless steel coupling nut
- For use in FOUNDATION™ fieldbus applications

Wiring diagram

<table>
<thead>
<tr>
<th>Type</th>
<th>RSV-49TR-EX</th>
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</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6602709</td>
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</table>

<table>
<thead>
<tr>
<th>Connector</th>
<th>Connector, M12 x 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polarity</td>
<td>4-pole</td>
</tr>
<tr>
<td>Contacts</td>
<td>metal, CuZn, gold-plated</td>
</tr>
<tr>
<td>Contact carriers</td>
<td>plastic, PUR, black</td>
</tr>
<tr>
<td>Grip</td>
<td>plastic, PUR, blue</td>
</tr>
<tr>
<td>Coupling nut/screw</td>
<td>stainless steel, 1.4404</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP67, only with screws tightened</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-40...+ 70 °C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ex approval acc. to conformity certificate</th>
<th>TÜV 03 ATEX 2379 X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. input voltage $U_i$</td>
<td>$\leq 25$ V</td>
</tr>
<tr>
<td>Max. input current $I_i$</td>
<td>$\leq 250$ mA</td>
</tr>
<tr>
<td>Max. input power $P_i$</td>
<td>$\leq 1200$ mW</td>
</tr>
<tr>
<td>External inductance/capacitance $L/C_i$</td>
<td>negligible</td>
</tr>
<tr>
<td>Device designation</td>
<td>Hz 1 G EEx is IIC T6</td>
</tr>
</tbody>
</table>

FISCO / Entity field device
Accessories for fieldbus systems
IP67 stainless steel housing
EG-VA2020/BV67-T105

The stainless steel housing EG-VA2020/BV67-T105 is suited for the integration of TURCK junction boxes JRBS…

The robust model is especially suited for rough and aggressive environmental conditions.

Inside the housing a hat rail is located used for retaining a 4, 6 or 8 port JRBS junction box with a maximum width of 180 mm.

The connection of the cables is attained with ten M20 × 1.5-cable glands.

With a pressure compensation element (Protection degree IP67) a continuous and reliable ventilation is ensured. This way condensation and accumulation of water is avoided.

Note: Ensure sufficient equipotential bonding of the installation. The housing is connected to the equipotential bond via an M5 x 1 connector.

- Stainless steel housing to accommodate the TURCK IP20 junction modules
- Protection degree IP67 (IEC/EN 60529)
- 10 plastic cable glands M20 x 1.5 for cable guides
- Insulated shield terminals
- Wall mounting
- Pressure compensation element
- Connection of the housing potential via an M5 x 1 bolt
## Accessories for fieldbus systems
### IP67 stainless steel housing
#### EG-VA2020/BV67-T105

<table>
<thead>
<tr>
<th>Type</th>
<th>EG-VA2020/BV67-T105</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6884135</td>
</tr>
</tbody>
</table>

**Electrical connection**
- cable glands
- 10 x M20 x 1.5 (Ø 6…13mm); plastic, black
- M5 x 1

**Earthing bolt**
- M5 x 1

**Degree of protection**
- IP67
- Ambient temperature: -30 … + 80 °C
- Relative humidity: ≤ 95 %, non condensing
- Housing material: Stainless steel 1.430/AISI304
- Wall thickness: 1.5 mm
- Housing surface: grinded and polished (240 grain size distribution)
- Housing color: silver
- Sealing material: PUR
- Dimensions: 200 x 200 x 80.5 mm
- Connection mode: Wall mounting

### Dimensions
![Dimensions Diagram](image-url)

- M5 x 12
- 200, 220, 160, 80, 5

---

*Note: The image of the diagram has been omitted for this response.*
The stainless steel housing EG-VA2020/BV67-T103 is suited for the integration of TURCK junction boxes JRBS…

The robust model is especially suited for rough and aggressive environmental conditions.

Inside the housing a hat rail is located used for retaining a 4, 6 or 8 port JRBS junction box with a maximum width of 180 mm.

The connection of the cables is attained with ten M20 x 1.5-cable glands.

With a pressure compensation element (Protection degree IP67) a continuous and reliable ventilation is ensured. This way condensation and accumulation of water is avoided.

**Note:** Ensure sufficient equipotential bonding of the installation. The housing is connected to the equipotential bond via an M5 x 1 connector.

- Stainless steel housing to accommodate the TURCK IP20 junction modules
- Protection degree IP67 (IEC/EN 60529)
- 10 stainless steel cable glands M20 x 1.5 for cable guides
- Insulated shield terminals
- Wall mounting
- Pressure compensation element
- Connection of the housing potential via an M5 x 1 bolt
## Accessories for fieldbus systems

**IP67 stainless steel housing**

**EG-VA2020/BV67-T103**

<table>
<thead>
<tr>
<th>Type</th>
<th>EG-VA2020/BV67-T103</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>6884136</td>
</tr>
</tbody>
</table>

### Electrical connection
- cable glands
- 10 x M20 x 1.5 (Ø 6…13mm); stainless steel
- M5 x 1

### Earthing bolt
- M5 x 1

### Degree of protection
- IP67
- Ambient temperature: -30 … + 80 °C
- Relative humidity: ≤ 95 %, non condensing
- Housing material: Stainless steel 1.430/AISI304
- Wall thickness: 1.5 mm
- Housing surface: grinded and polished (240 grain size distribution)
- Housing color: silver
- Sealing material: PUR
- Dimensions: 200 x 200 x 80.5 mm
- Connection mode: Wall mounting

### Dimensions

![Dimensions diagram](image-url)
**FOUNDATION™ fieldbus**

**Accessories for fieldbus systems**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Application</th>
<th>Type designation</th>
<th>Ident-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stripping the insulation from round (shielded) data cables from Ø 2.5...8 mm (also for FastConnect®/Fast Assembly™), 1, 2 and 3-stage cable stripping in a single operation; Adjustment block provided for fast preadjustment of the depth, cutting edges can be used on both sides</td>
<td>TCS wire stripping tool</td>
<td>6900454</td>
</tr>
<tr>
<td></td>
<td>Special tool for cable glands on multibarriers, excom®- housings¹ and junctions. Open and close cable glands from various positions. Also work in difficult positions using the swivelling handle. Use is simplified by the slot provided in the tube (the cables fed through the cable gland are pushed through the slot on the tube). Tool sizes 22, 24 and 27, special sizes are available on request</td>
<td>VSTS22 (AF 22)</td>
<td>6884043</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VSTS24 (AF 24)</td>
<td>6900462</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VSTS27 (AF 27)</td>
<td>6884073</td>
</tr>
</tbody>
</table>

¹ excom® is the TURCK Ex remote I/O system for use in zones 1 and 2. More detailed information can be found in the product catalog.
<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Application</th>
<th>Material and colour</th>
<th>Type designation</th>
<th>Ident-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7/8&quot; end cap, male, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P</td>
<td>stainless steel</td>
<td>RSMV-BC</td>
<td>6603783</td>
</tr>
<tr>
<td></td>
<td>7/8&quot; end cap, female, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P</td>
<td>stainless steel</td>
<td>RKMV-BC</td>
<td>6603784</td>
</tr>
<tr>
<td></td>
<td>7/8&quot; end cap, male, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P, with wire rope</td>
<td>stainless steel</td>
<td>RSMV-CC</td>
<td>6604030</td>
</tr>
<tr>
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<td>7/8&quot; end cap, female, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P, with wire rope</td>
<td>stainless steel</td>
<td>RKMV-CC</td>
<td>6604038</td>
</tr>
<tr>
<td></td>
<td>7/8&quot; end cap, male, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P, with chain, approx. 210 mm, closure closed</td>
<td>stainless steel</td>
<td>RSMV-CCC</td>
<td>6604490</td>
</tr>
<tr>
<td></td>
<td>7/8&quot; end cap, male, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P, with chain, approx. 210 mm, closure closed</td>
<td>stainless steel</td>
<td>RKMV-CCC</td>
<td>6604488</td>
</tr>
</tbody>
</table>
### FOUNDATION™ fieldbus

Accessories for fieldbus systems

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Application</th>
<th>Material and colour</th>
<th>Type designation</th>
<th>Ident-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>7/8&quot; end cap, male, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P, with chain, approx. 210 mm, closure open</td>
<td>stainless steel</td>
<td>RSMV-CCO</td>
<td>6604489</td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td>7/8&quot; end cap, female, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P, with chain, approx. 210 mm, closure open</td>
<td>stainless steel</td>
<td>RKMV-CCO</td>
<td>6604485</td>
</tr>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td>M12 x 1 end cap, male, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P</td>
<td>stainless steel</td>
<td>RSEV-BC</td>
<td>6902305</td>
</tr>
<tr>
<td><img src="image4.png" alt="Image" /></td>
<td>M12 x 1 end cap, female, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P, with chain, approx. 210 mm, closure open</td>
<td>stainless steel</td>
<td>RKEV-BC</td>
<td>6902304</td>
</tr>
<tr>
<td><img src="image5.png" alt="Image" /></td>
<td>M12 x 1 end cap, male, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P, with chain</td>
<td>stainless steel</td>
<td>RSEV-CC</td>
<td>6604174</td>
</tr>
<tr>
<td><img src="image6.png" alt="Image" /></td>
<td>M12 x 1 end cap, female, oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P, with chain</td>
<td>stainless steel</td>
<td>RKEV-CC</td>
<td>6604176</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Application</td>
<td>Material and colour</td>
<td>Type designation</td>
<td>Ident-No.</td>
</tr>
<tr>
<td>------------</td>
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</tr>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td>Screw-on cap for 7/8&quot; female connectors, no internal wiring</td>
<td>polyamide black</td>
<td>VZ8</td>
<td>8018816</td>
</tr>
<tr>
<td><img src="image2.png" alt="Diagram" /></td>
<td>Screw-on cap for 7/8&quot; male connectors, no internal wiring</td>
<td>polyamide black</td>
<td>VK-7/8</td>
<td>6999027</td>
</tr>
<tr>
<td><img src="image3.png" alt="Diagram" /></td>
<td>Dust cap for 7/8&quot; flange fitting, for male flanges, no internal wiring</td>
<td>polyamide black</td>
<td>RSM-DUST-CAP</td>
<td>6914862</td>
</tr>
<tr>
<td><img src="image4.png" alt="Diagram" /></td>
<td>Dust cap for 7/8&quot; flange fitting, for female flanges, no internal wiring</td>
<td>polyamide black</td>
<td>RKM-DUST-CAP</td>
<td>6914863</td>
</tr>
<tr>
<td><img src="image5.png" alt="Diagram" /></td>
<td>M12 × 1 end cap, male, oil resistant, IP54 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P</td>
<td>PUR yellow</td>
<td>VS-M12</td>
<td>6999003</td>
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<tr>
<td><img src="image6.png" alt="Diagram" /></td>
<td>M12 × 1 end cap, female, oil resistant, IP54 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P</td>
<td>PUR yellow</td>
<td>VK-M12</td>
<td>6999025</td>
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</tbody>
</table>
## FOUNDATION™ fieldbus

**Accessories for fieldbus systems**

### Dimensions

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Application</th>
<th>Material and colour/ Connection technology</th>
<th>Type designation</th>
<th>Ident-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td>M12 × 1 end cap, male oil resistant, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6P</td>
<td>stainless steel/PUR grey</td>
<td>RSEV49-CC</td>
<td>6603489</td>
</tr>
<tr>
<td><img src="image2.png" alt="Diagram" /></td>
<td>7/8” feed-through receptacles, male/female, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6, stainless steel</td>
<td></td>
<td>RSFV-RKFV49/22</td>
<td>6602357</td>
</tr>
<tr>
<td><img src="image3.png" alt="Diagram" /></td>
<td>M12 × 1 feed-through receptacles, male/female, IP67 to IEC 60529/EN 60529 and NEMA 1, 3, 4, 6, stainless steel</td>
<td></td>
<td>FKV-FSV49/M12</td>
<td>6603678</td>
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### Pin assignment

<table>
<thead>
<tr>
<th>(F015)</th>
<th>(F016)</th>
<th>(F040)</th>
<th>(F041)</th>
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<tbody>
<tr>
<td><img src="image4.png" alt="Diagram" /></td>
<td><img src="image5.png" alt="Diagram" /></td>
<td><img src="image6.png" alt="Diagram" /></td>
<td><img src="image7.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

1 = –  
2 = +  
3 = shield  
4 = earth
<table>
<thead>
<tr>
<th>Type designation</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK4140-0/9</td>
<td>147</td>
</tr>
<tr>
<td>BKV4140-0/13,5</td>
<td>151</td>
</tr>
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