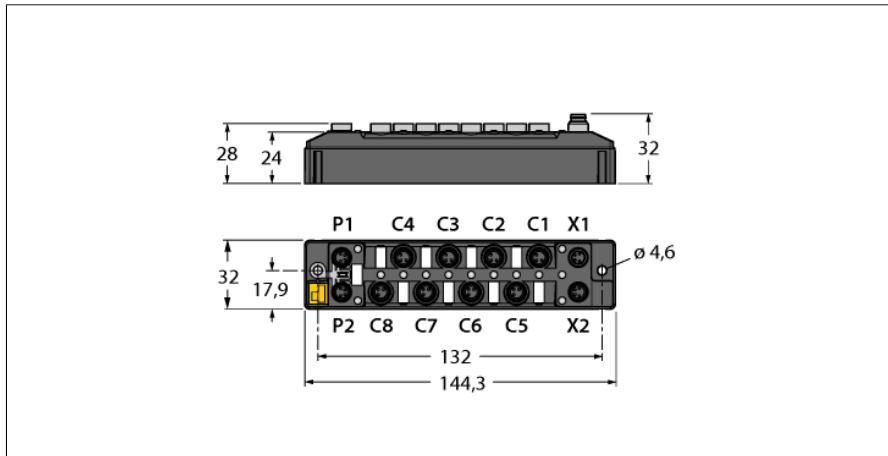


Compact multiprotocol I/O module for Ethernet
8 digital PNP outputs 0.5A
TBEN-S1-8DOP

- Max. 0.5A per output
- Output diagnostics per channel
- Male M8, 4-pin, for power supply
- Separated power groups for safety shutdown
- Glass-fiber reinforced housing
- Shock and vibration tested
- Fully potted module electronics
- Protection classes IP65 / IP67 / IP69K



| | |
|----------------------------------|--|
| Type code | TBEN-S1-8DOP |
| Ident no. | 6814022 |
| Supply | |
| Supply voltage | 24 VDC |
| Admissible range | 18...30 VDC |
| | Total current max. 4A per voltage group |
| Operating current | < 150 mA |
| Sensor/Actuatorsupply V_{AUX2} | supply of slots C1-C8 from V2 |
| | short-circuit proof, 0.5 A per group C1-C4, C5-C8 |
| Electrical isolation | V1 and V2 voltage groups galvanically isolated, voltages up to 500 VDC |
| System data | |
| Fieldbus transmission rate | 10 Mbps / 100 Mbps |
| Fieldbus connection technology | 2 x M8, 4-pin |
| Protocol detection | automatic |
| Web server | integrated |
| Service interface | Ethernet via P1 or P2 |
| Modbus TCP | |
| Addressing | Static IP, BOOTP, DHCP |
| Supported function codes | FC1, FC2, FC3, FC4, FC5, FC6, FC15, FC16, FC23 |
| Simultaneous CIP connections | 8 |
| EtherNet/IP™ | |
| Addressing | acc. to EtherNet/IP™ specification |
| Quick Connect (QC) | < 500 ms |
| Device Level Ring (DLR) | supported |
| Simultaneous CIP connections | 3 |
| PROFINET | |
| Addressing | DCP |
| Conformance Class | B (RT) |
| MinCycleTime | 1 ms |
| Fast Start-Up (FSU) | < 500 ms |
| Diagnostics | acc. to PROFINET alarm handling |
| Topology detection | supported |
| Automatic addressing | supported |
| Media Redundancy Protocol (MRP) | supported |

Compact multiprotocol I/O module for Ethernet

8 digital PNP outputs 0.5A

TBEN-S1-8DOP

TURCK

Industrial
Automation

Digital outputs

| | |
|-------------------------------|---|
| Number of channels | 8 |
| Connection technology Outputs | M8, 3-pol |
| Output type | PNP |
| Type of output diagnostics | Channel diagnostics |
| Output voltage | 24 VDC from potential group |
| Output current per channel | 0.5 A per port, short-circuit proof |
| Simultaneity factor | 0.88 |
| Load type | resistive, inductive, lamp load |
| Short-circuit protection | yes |
| Electrical isolation | galvanically isolated to the bus, voltages up to 500 VDC |

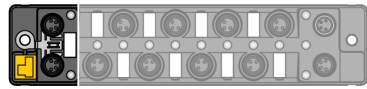
Conformance of Standard and Directives

| | |
|--------------------------------|---|
| Vibration test | acc. to EN 60068-2-6 Acceleration up to 20 g |
| Shock test | acc. to EN 60068-2-27 |
| Drop and topple | acc. to IEC 60068-2-31/IEC 60068-2-32 1 |
| Electro-magnetic compatibility | acc. to EN 61131-2 |
| Approvals and certificates | CE |
| UL conditions | cULus LISTED 21 W2, Encl.Type 1 IND.CONT.EQ. |

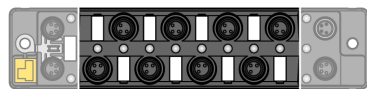
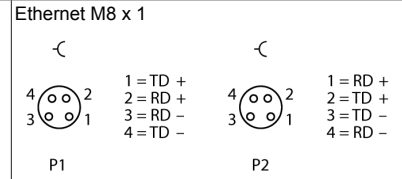
General Information

| | |
|------------------------|---------------------------|
| Dimensions (W x L x H) | 32x144x31mm |
| Operating temperature | -40 ... +70 °C |
| Storage temperature | -40 ... +70 °C |
| Altitude | max.5000 m |
| IP Rating | IP65 IP67 IP69K |
| MTTF | 283 years |
| Housing material | PA6-GF30 |
| Housing color | black |
| halogen-free | yes |
| Mounting | 2 mounting holes □ 4.6 mm |

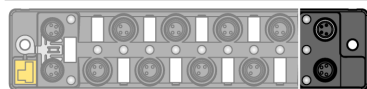
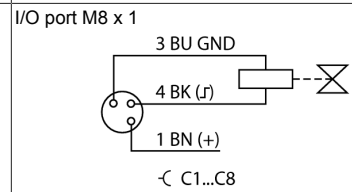
Compact multiprotocol I/O module for Ethernet
8 digital PNP outputs 0.5A
TBEN-S1-8DOP



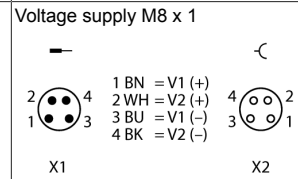
Note
 It is strongly recommended to use only ready-made Ethernet cables!
 Ethernet cable (example):
 M8-M8:
 PSGS4M-PSGS4M-4414-1M
 Ident. no. 6932993
 M8-RJ45:
 PSGS4M-RJ45S-4414-1M
 Ident. no.: 6933004
 M8-M12:
 RSSD-PSGS4M-4414-2M
 Ident. no.: 6933008



Note
 Actuator and sensor cable, PUR extension cable (example):
 M8 - open end
 PSG3M-2/TXL
 Ident no. 6625562



Note
 Power supply cable (example):
 M8-M8 4m
 PKG4M-4-PSG4M/TXL
 Ident no. 6626679



Compact multiprotocol I/O module for Ethernet
8 digital PNP outputs 0.5A
TBEN-S1-8DOP

Module LED status

| LED | Color | Status | Description |
|-------------|--------|----------|---|
| ETH1 / ETH2 | green | on | Ethernet Link (100 Mbps) |
| | | flashing | Ethernet communication (100 Mbps) |
| | yellow | on | Ethernet Link (10 Mbps) |
| | | flashing | Ethernet communication (10 Mbps) |
| | | off | no Ethernet link |
| BUS | green | on | Active connection to a master |
| | | flashing | ready |
| | red | on | IP-address conflict or Restore Mode or Modbus timeout |
| | | flashing | Blink/Wink command active |
| | | off | Power off |
| ERR | green | on | Diagnostics disabled |
| | red | on | Diagnostics enabled |
| PWR | green | on | V ₁ and V ₂ power on |
| | red | on | V ₂ power off or below defined tolerance |
| | off | off | V ₁ power off or below defined tolerance |

LED status IOs

| LED | Color | Status | Description |
|-------------|-------|----------|--|
| LED 1 ... 8 | Green | ON | Output active |
| | | Flashing | Overload of the power supply slot. All LEDs of the affected group C1-C4 or C5-C8 are flashing. |
| | Red | ON | Output active with overload / short circuit |
| | | OFF | Output inactive |

Compact multiprotocol I/O module for Ethernet

8 digital PNP outputs 0.5A

TBEN-S1-8DOP

Process data mapping of single protocols

For more details on the corresponding protocols see manual.

Modbus TCP register mapping

| | Reg | Bit 15 | Bit 14 | Bit 13 | Bit 12 | Bit 11 | Bit 10 | Bit 9 | Bit 8 | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|---------------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Status (RO) | 0x0000 | - | FCE | - | - | CFG | COM | V1 | - | V2 | - | - | - | - | - | - | Diag Warn |
| Diag (RO) | 0x0001 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | I/O Diag |
| Outputs (RW) | 0x0800 | - | - | - | - | - | - | - | - | DO8 C8P4 | DO7 C7P4 | DO6 C6P4 | DO5 C5P4 | DO4 C4P4 | DO3 C3P4 | DO2 C2P4 | DO1 C1P4 |
| I/O Diag (RO) | 0xA000 | SCO8 | SCO7 | SCO6 | SCO5 | SCO4 | SCO3 | SCO2 | SCO1 | SCS8 | SCS7 | SCS6 | SCS5 | SCS4 | SCS3 | SCS2 | SCS1 |

EtherNet/IP™ data mapping with activated scheduled diagnostics

| | Word | Bit 15 | Bit 14 | Bit 13 | Bit 12 | Bit 11 | Bit 10 | Bit 9 | Bit 8 | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|---------------------------------|------|----------|--------|---------------|--------|--------|--------|-------|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Input data (Station -> Scanner) | | | | | | | | | | | | | | | | | |
| GW Status | 1 | - | FCE | - | - | CFG | COM | V1 | - | V2 | - | - | - | - | - | - | Diag Warn |
| Diag 1 | 2 | - | - | Sched Diag | - | - | - | - | - | - | - | - | - | - | - | - | I/O Diag |
| Diag 2 | 3 | SCO8 | SCO7 | SCO6 | SCO5 | SCO4 | SCO3 | SCO2 | SCO1 | - | - | - | - | - | - | - | SCG2 SCG1 |
| Output (Scanner -> Station) | | | | | | | | | | | | | | | | | |
| Control | 1 | reserved | | | | | | | | | | | | | | | |
| Outputs | 2 | - | - | - | - | - | - | - | - | DO8 C8P4 | DO7 C7P4 | DO6 C6P4 | DO5 C5P4 | DO4 C4P4 | DO3 C3P4 | DO2 C2P4 | DO1 C1P4 |

EtherNet/IP™ data mapping with activated summarized diagnostics

| | Word | Bit 15 | Bit 14 | Bit 13 | Bit 12 | Bit 11 | Bit 10 | Bit 9 | Bit 8 | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|---------------------------------|------|----------|--------|---------------|--------|--------|--------|-------|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Input data (Station -> Scanner) | | | | | | | | | | | | | | | | | |
| GW Status | 1 | - | FCE | - | - | CFG | COM | V1 | - | V2 | - | - | - | - | - | - | Diag Warn |
| Diag 1 | 3 | - | - | Sched Diag | - | - | - | - | - | - | - | - | - | - | - | - | I/O Diag |
| Output (Scanner -> Station) | | | | | | | | | | | | | | | | | |
| Control | 1 | reserved | | | | | | | | | | | | | | | |
| Outputs | 2 | - | - | - | - | - | - | - | - | DO8 C8P4 | DO7 C7P4 | DO6 C6P4 | DO5 C5P4 | DO4 C4P4 | DO3 C3P4 | DO2 C2P4 | DO1 C5P4 |

PROFINET process data

| | Byte | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|---------|------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Outputs | 0 | DO8 C8P4 | DO7 C7P4 | DO6 C6P4 | DO5 C5P4 | DO4 C4P4 | DO3 C3P4 | DO2 C2P4 | DO1 C1P4 |

Key:

| | | | |
|----------|--|-----------|---|
| Dlx | Digital input channel x | CFG | I/O Configuration error |
| DOx | Digital output channel x | FCE | I/O-ASSISTANT Force Mode active |
| Cx | Port x | I/ODiag | I/O diagnostics connected |
| Px | Pin x | SchedDiag | Manufacturer-specific diagnostics configured and active |
| DiagWarn | Diagnostic at least on 1 channel | SCSx | Short-circuit at port x |
| V1 | Undervoltage V1 | SCG1 | Short-circuit supply ports C1-C4 |
| V2 | Undervoltage V2 | SCG2 | Short-circuit supply ports C5-C8 |
| COM | Communication error on internal module bus | SCOx | Short-circuit output channel x |
| SPEX | Spanner port active | | |