



Your Global Automation Partner

TBIL-EMN-...

I/O Hubs with IO-Link

Instructions for Use

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1 About these instructions

These instructions describe the setup, functions and use of the product and help you to operate the product according to its intended purpose. Read these instructions carefully before using the product. This will prevent the risk of personal injury and damage to property. Keep these instructions safe during the service life of the product. If the product is passed on, pass on these instructions as well.

1.1 Target groups

These instructions are aimed at qualified personnel and must be carefully read by anyone mounting, commissioning, operating, maintaining, dismantling or disposing of the device.

1.2 Explanation of symbols

The following symbols are used in these instructions:



DANGER

DANGER indicates a hazardous situation with a high level of risk, which, if not avoided, will result in death or serious injury.



WARNING

WARNING indicates a hazardous situation with a medium level of risk, which, if not avoided, will result in death or serious injury.



CAUTION

CAUTION indicates a hazardous situation with a medium level of risk, which, if not avoided, will result in moderate or minor injury.



NOTICE

CAUTION indicates a situation which, if not avoided, may cause damage to property.



NOTE

NOTE indicates tips, recommendations and important information about special action steps and issues. The notes simplify your work and help you to avoid additional work.



MANDATORY ACTION

This symbol denotes actions that the user must carry out.



RESULT OF ACTION

This symbol denotes the relevant results of an action.

1.3 Additional documents

The following additional documents are available online at www.turck.com:

- Data sheet
- Commissioning manual IO-Link devices
- EU Declaration of Conformity (current version)
- Approvals

1.4 Feedback about these instructions

We make every effort to ensure that these instructions are as informative and as clear as possible. If you have any suggestions for improving the design or if some information is missing in the document, please send your suggestions to techdoc@turck.com.

2 Notes on the product

2.1 Product identification

These instructions apply to the following devices:

- TBIL-EMN-16DIP
- TBIL-EMN-16DXP

2.2 Scope of delivery

The delivery consists of the following:

- I/O hub
- 1 dust cap for IO-Link connector (XZ1)
- 2 screw caps for I/O connectors (X0...X7)

2.3 TURCK service

TURCK supports you in your projects — from the initial analysis right through to the commissioning of your application. The TURCK product database at www.turck.com offers you several software tools for programming, configuring or commissioning, as well as data sheets and CAD files in many export formats.

For the contact details of our branches worldwide, please see page [▶ 29].

3 For your safety

The product is designed according to state of the art technology. Residual hazards, however, still exist. Observe the following safety instructions and warnings in order to prevent danger to persons and property. TURCK accepts no liability for damage caused by failure to observe these safety instructions.

3.1 Intended use

The TBIL-EMN-... are IO-Link devices (Class A) and serve as I/O hub between field devices (sensors and actuators) and an IO-Link master. Depending on the device type, the I/O hubs have 16 digital input channels or 16 digital universal channels, which can be used as either digital inputs or outputs without additional configuration. The TBIL-EMN-... are designed in IP67 and can be mounted directly in the field.

The device must only be used as described in these instructions. Any other use is not in accordance with the intended use. TURCK accepts no liability for any resulting damage.

3.2 General safety instructions

- The device must only be fitted, installed, operated, parameterized and maintained by trained and qualified personnel.
- Only use the device in compliance with the applicable national and international regulations, standards and laws.
- The device meets the EMC requirements for the industrial areas. When used in residential areas, take measures to prevent radio frequency interference.

4 Product description

Depending on the device type, the I/O hub connects up to 16 digital sensors (TBIL-EMN-16DIP) or sensors and actuators (TBIL-EMN-16DXP) to an IO-Link master port.

Eight 5-pin M12 connectors (X0...X7) are available for connecting the field devices. The connection to the IO-Link master is made via a 4-pin M12 connector (XZ1).

4.1 Device overview

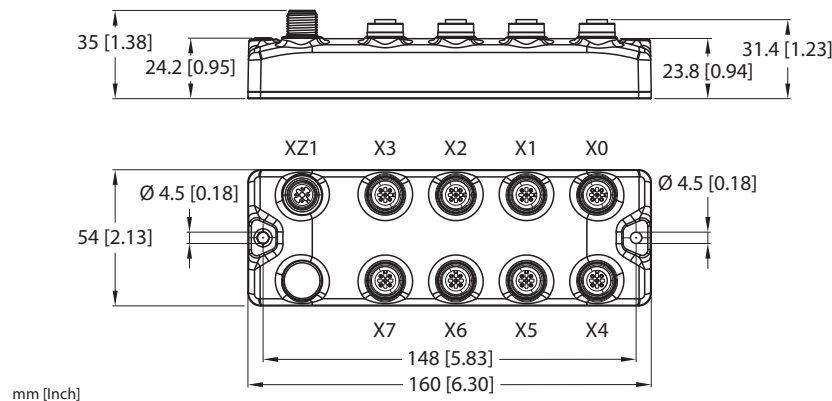


Fig. 1: Dimensions

4.1.1 Display elements

The device has the following LED indicators:

- IO-Link communication
- Channel active/inactive

4.2 Properties and features

- Shock and vibration tested
- Protection class IP67
- IO-Link V1.1 Class A
- IO-Link diagnostics for short-circuit and supply over- and undervoltage
- Two universal digital channels per connector
- I&M data sets support installation and maintenance

4.3 Functions and operating modes

The I/O hub collects input signals from digital sensors and transmits them via IO-Link to an IO-Link master. Output signals for up to 16 digital actuators are forwarded from the IO-Link master to the actuators via the hub.

The device provides diagnostics for power supply and short circuit of the sensors and actuators on the IO-Link master.

5 Installing

The device is mounted via two M4 screws on a flat and pre-drilled mounting surface.

- Attach the module to the mounting surface with two M4 screws. The maximum tightening torque for the screws is 1.5...2.0 Nm

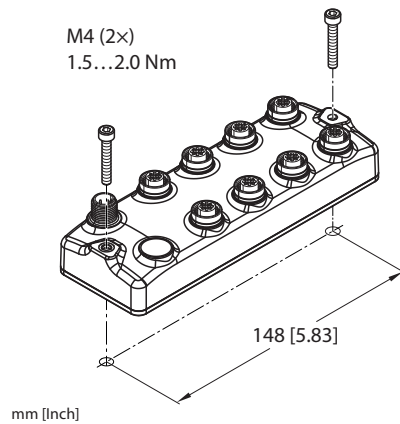


Fig. 2: Mounting the device to a mounting plate

6 Connecting

6.1 Connecting the device to an IO-Link master

The device provides a 4 pin M12 connector for the connection to an IO-Link master.

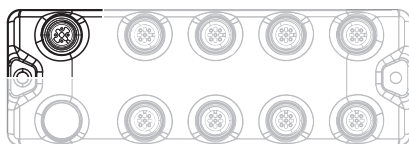


Fig. 3: M12 connector for the connection to an IO-Link master

- Connect the device to an IO-Link master according to the pin assignment below.

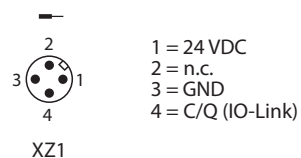


Fig. 4: Pin assignment

6.2 Connecting digital sensors and actuators

For connecting digital sensors and actuators, 5-pin M12 connectors are available.

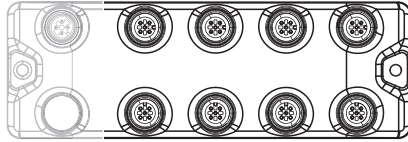


Fig. 5: M12 connector for connecting digital sensors and actuators (X0...X7)

TBIL-EMN-16DIP

- Connect the sensors and actuators to the device according to the pin assignment.

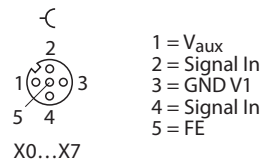


Fig. 6: Pin assignment TBIL-EMN-16DIP (X0...X7)

TBIL-EMN-16DXP

- Connect the sensors and actuators to the device according to the pin assignment.

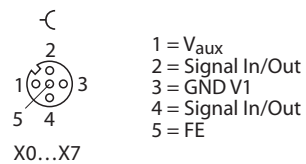


Fig. 7: Pin assignment TBIL-EMN-16DXP (X0...X7)

7 Commissioning

After connecting the cables and switching on the supply voltage, the device is automatically ready for operation after 300 ms. If the device is connected to an IO-Link master, IO-Link communication starts automatically. For this the IO-Link master sends a wakeup request to the device.

8 Parameterizing and configuring

8.1 Parameters

IO-Link object directory – ISDU device parameters: Direct Parameter Page

ISDU Index Hex. (dec.)	Sub index	Object name	Access	Length in bytes	Meaning/default value
0x00 (0)		Direct Parameter Page 1	read only	16	
	0x03	Minimum cycle time	read only	1	E. g.: TBIL-EMN-16DXP: 3.2 ms
	0x05	IO-Link version ID	read only	1	17
	0x08 0x09	Vendor ID	read only	2	ID for TURCK: 0x013D
	0x0A 0x0B 0x0C	Device ID	read only	3	E. g.: TBIL-EMN-16DXP: 0x1E3403

IO-Link object directory – ISDU device parameters: Identification

ISDU Index Hex. (dec.)	Object name	Access	Length in bytes	Meaning/ default value	Comment
0x10 (16)	Vendor name	read only	16	TURCK	
0x11 (17)	Vendor text	read only	32	www.turck.com	
0x12 (18)	Product name	read only	32	E. g.: TBIL-EMN-16DXP	
0x13 (19)	Product ID	read only	16	Ident no. of the device. E. g.: 100051094	
0x14 (20)	Product text	read only	32	I/O hub	
0x15 (21)	Serial number	read only	16	Sequential serial number	
0x16 (22)	Hardware ID	read/ write	16	Hardware revision of the device	
0x17 (23)	Firmware revision	read only	16	Firmware revision of the device, e. g. V1.0.7.0	

ISDU Index Hex. (dec.)	Object name	Access	Length in bytes	Meaning/ default value	Comment
0x18 (24)	Application Specific Tag	read/ write	32	Default "****"	Fields for customer or application-specific data
0x19 (25)	Function Tag	read/ write	32	Default "****"	
0x1A (26)	Location Tag	read/ write	32	Default "****"	

IO-Link object directory – ISDU device parameters: Preferred Index (parameters and diagnostics of the digital in- and outputs)

ISDU Index Hex. (dec.)	Object name	Access	Length in bytes	Meaning
0x40 (64)	Parameter ID	read/ write	4	Customer-specific ID, freely assignable (not part of data storage)
0x41 (65)	Inverting input	read/ write	2	Invert digital input
0x42 (66)	Activate output	read/ write	2	Activate output
0x43 (67)	Impulse stretching input	read/ write	16	Pulse stretching input
0x44 (68)	Short Circuit Recovery	read/ write	2	Manual output reset after overcurrent
0x45 (69)	Failsafe	read/ write	16	Output failsafe
Diagnostics				
0x50 (80)	Supply error	read only	2	Undervoltage/overvoltage supply Overcurrent VAUX Connector X0...X7
0x51 (81)	Output short circuit	read only	2	Overcurrent output X0...X7, A/B

Parameter ID – 0x40 (64), sub index 0

This parameter contains a freely assignable number to identify the device, e.g. a module number.

Format	Length
Byte	4 byte

Byte 0	Byte 1	Byte 2	Byte 3
Bit offset			
31...24	23...16	15...8	7...0

Inverting input – 0x41 (65), sub index 0

This parameter applies to:

- TBIL-EMN-16DIP
- TBIL-EMN-16DXP

This parameter inverts the state of the digital input in the process image.

Format	Length
Byte	2 byte

1 bit per channel

Default values are shown in bold.

Value	Meaning
0	No
1	Yes

Byte 0								Byte 1							
Bit offset								Bit offset							
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Sub index								Sub index							
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
X7P2 (B)	X7P4 (A)	X6P2 (B)	X6P4 (A)	X5P2 (B)	X5P4 (A)	X4P2 (B)	X4P4 (A)	X3P2 (B)	X3P4 (A)	X2P2 (B)	X2P4 (A)	X1P2 (B)	X1P4 (A)	X0P2 (B)	X0P4 (A)



NOTE

This parameter can also be set for all connectors of the module via the IODD.

Activate output – 0x42 (66), sub index 0

This parameter applies to:

- TBIL-EMN-16DXP

This parameter activates or deactivates the output function of the digital channel.

Format	Length	
Byte	2 byte	1 bit per channel

Default values are shown in **bold**.

Value	Meaning
0	No Output function deactivated, channel can only be used as input
1	Yes Output function activated, channel can be used as in- or output

Byte 0								Byte 1							
Bit offset								Bit offset							
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Sub index								Sub index							
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
X7P2 (B)	X7P4 (A)	X6P2 (B)	X6P4 (A)	X5P2 (B)	X5P4 (A)	X4P2 (B)	X4P4 (A)	X3P2 (B)	X3P4 (A)	X2P2 (B)	X2P4 (A)	X1P2 (B)	X1P4 (A)	X0P2 (B)	X0P4 (A)



NOTE

This parameter can also be set for all slots of the module using a system command.

Pulse stretching input – 0x43 (67)

This parameter applies to:

- TBIL-EMN-16DIP
- TBIL-EMN-16DXP

This parameter defines the duration of the pulse stretching for digital input edges in multiples of 10 ms. This allows that even short signals with longer PLC cycle times can be detected.

Format	Length
Array of byte	16 byte

1 byte per channel

Default values are shown in **bold**.

Value	Meaning
0	Disabled Pulse stretching deactivated
1	1...255 Pulse stretching (in steps of 10 ms)

Byte															
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Bit offset								Bit offset							
120	112	104	96	88	80	72	64	56	48	40	32	24	16	8	0
Sub index								Sub index							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X0P4 (A)	X0P2 (B)	X1P4 (A)	X1P2 (B)	X2P4 (A)	X2P2 (B)	X3P4 (A)	X3P2 (B)	X4P4 (A)	X4P2 (B)	X5P4 (A)	X5P2 (B)	X6P4 (A)	X6P2 (B)	X7P4 (A)	X7P2 (B)



NOTE

This parameter can also be set for all slots of the module using a system command.

Manual output reset after overcurrent – 0x44 (68), sub index 0

This parameter applies to:

- TBIL-EMN-16DXP

This parameter defines if a manual reset is necessary after an overcurrent occurred at the digital channel.

Format	Length
Byte	2 byte
	1 bit per channel

Default values are shown in **bold**.

Value	Meaning
0	No Automatic recovery mode
1	Yes Controlled recovery mode (output has to be reset manually)



NOTE

This parameter can also be set for all slots of the module using a system command.

Byte 0								Byte 1							
Bit offset								Bit offset							
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Sub index								Sub index							
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
X7P2 (B)	X7P4 (A)	X6P2 (B)	X6P4 (A)	X5P2 (B)	X5P4 (A)	X4P2 (B)	X4P4 (A)	X3P2 (B)	X3P4 (A)	X2P2 (B)	X2P4 (A)	X1P2 (B)	X1P4 (A)	X0P2 (B)	X0P4 (A)

Output failsafe – 0x45 (69), Sub Index 0

This parameter applies to:

- TBIL-EMN-16DXP

This parameter defines the behavior of the output in case of an interruption of the IO-Link communication.

Format	Length
Array of byte	16 byte

2 bit per channel

Default values are shown in bold.

Value	Meaning
0	0 Set output to 0
1	1 Set output to 1
2	Current value Hold current value

Byte															
0	1	2	3	4	5	6	7								
Bit offset															
121	120	113	112	105	104	97	96	89	88	81	80	73	72	65	64
Sub index															
1	2	3	4	5	6	7	8								
Channel 0 (X0P4)	Channel 1 (X0P2)	Channel 2 (X1P4)	Channel 3 (X1P2)	Channel 4 (X2P4)	Channel 5 (X2P2)	Channel 6 (X3P4)	Channel 7 (X3P2)								

Byte															
8	9	10	11	12	13	14	15								
Bit offset															
57	58	49	48	41	40	33	32	25	24	17	16	9	8	1	0
Sub index															
9	10	11	12	13	14	15	16								
Channel 8 (X4P4)	Channel 8 (X4P2)	Channel 10 (X5P4)	Channel 11 (X5P2)	Channel 12 (X6P4)	Channel 13 (X6P2)	Channel 14 (X7P4)	Channel 15 (X7P2)								



NOTE

This parameter can also be set for all slots of the module using a system command.

8.2 System commands

The device supports the following system commands.

General system commands (according to IO-Link specification)

Command		
128	Device reset	The device will restart. The communication is interrupted by the device and then restarted by the IO-Link master.
129	Application reset	The parameters of the device except for the identification parameters are set to default values. If the port configuration of the IO-Link master allows a data upload, the parameter settings are loaded into the IO-Link master.
130	Restore factory settings	Note: Downloading the data memory the next time the device is switched off and on can overwrite the factory settings.
131	Back-to-box	The device parameters are set to the factory settings and communication is blocked until the next time the device is switched off and on. Note: ► Disconnect the device from the master port after resetting.

Manufacturer specific system commands

Command		
Invert digital input		
170	Deactivate input inversion	The inputs will not be inverted.
171	Activate input inversion	The inputs will be inverted.
Pulse stretching input		
180	Deactivate impulse stretching	Deactivate pulse stretching for all channels (standard pulse = 2.5 ms)
Activate output		
190	Configure all channels as input	
191	Configure all channels as output	
Manual output reset after overcurrent		
200	Automatic output recovery after overcurrent for all channels	
201	Manual output reset after overcurrent for all channels	
Output failsafe		
210	All outputs set LOW after error	
211	All outputs set HIGH after error	
212	All outputs hold their current value after error	

Command		
Test events		
250	Test event warning disappears	System commands for testing the occurrence of events in your system during commissioning
251	Test event warning appears	
252	Test event error 2 disappears	
253	Test event error 2 appears	
254	Test event error 1 disappears	
255	Test event error 1 appears	

9 Operating



CAUTION

Operating the device outside the specification

Minor injuries possible

- ▶ Operate the unit only within the operating temperature specified in the technical data.
- ▶ Use only thermally suitable connection cables.



CAUTION

Utilisation de l'appareil en dehors des spécifications

Blessures légères possibles

- ▶ Utiliser l'appareil uniquement dans les limites de température de fonctionnement spécifiées dans les données techniques.
- ▶ Utiliser uniquement des câbles de raccordement adaptés sur le plan thermique.

9.1 Process input data

TBIL-EMN-16DIP and TBIL-EMN-16DXP

Bit offset								Bit offset							
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
X7P2 (B)	X7P4 (A)	X6P2 (B)	X6P4 (A)	X5P2 (B)	X5P4 (A)	X4P2 (B)	X4P4 (A)	X3P2 (B)	X3P4 (A)	X2P2 (B)	X2P4 (A)	X1P2 (B)	X1P4 (A)	X0P2 (B)	X0P4 (A)
Designation		Meaning													
Inputs															
X...P...		0		Input inactive											
		1		Input active											



NOTE

The diagnostics can also be accessed via IO-Link indices.

9.2 Process output data

TBIL-EMN-16DXP

Bit offset								Bit offset							
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
X7P2 (B)	X7P4 (A)	X6P2 (B)	X6P4 (A)	X5P2 (B)	X5P4 (A)	X4P2 (B)	X4P4 (A)	X3P2 (B)	X3P4 (A)	X2P2 (B)	X2P4 (A)	X1P2 (B)	X1P4 (A)	X0P2 (B)	X0P4 (A)
Designation		Meaning													
X...P...		0		Output inactive											
		1		Output active											

9.3 LED displays

The device has the following LED indicators:

- IO-Link communication
- Channel active/inactive

9.3.1 IO-Link

IO-Link LED	Meaning
Green flashing (1 Hz)	IO-Link communication OK, valid process data are sent
Red	IO-Link communication error or module error
Red flashing (1 Hz)	IO-Link communication OK, invalid process data or diagnostic message
Off	No voltage supply

9.3.2 Channel LEDs

LED X0 (A/B)...X7 (A/B)	Meaning (input)	Meaning (output)
Green	Input signal present	Output active
Off	No input signal or overload connector supply	Output inactive

9.4 Software diagnostic messages

Supply error - 0x50 (80), subindex 0

This diagnostic applies to:

- TBIL-EMN-16DIP
- TBIL-EMN-16DXP

The group diagnosis indicates an overcurrent at auxiliary supply or a voltage supply error:

- Undervoltage (UV), per module
- Overvoltage (OV), per module
- Overcurrent sensor supply (VAUX X...) per connector

Format	Length
Array of byte	2 bytes

0 = no diagnostics

1 = diagnostic message available

Byte 0								Byte 1							
Bit offset								Bit offset							
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Sub index								Sub index							
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
-	-	-	-	-	-	UV	OV	VAUX X7	VAUX X6	VAUX X5	VAUX X4	VAUX X3	VAUX X2	VAUX X1	VAUX X0

Overcurrent output – 0x51 (81), sub index 0

This diagnostic applies to:

- TBIL-EMN-16DXP

The diagnostics indicates an overcurrent at the corresponding digital output.

Format	Length
Array of byte	2 bytes 1 bit per output

0 = no diagnostics

1 = overcurrent at the output

Bit offset															
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Sub index															
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
X7P2 (B)	X7P4 (A)	X6P2 (B)	X6P4 (A)	X5P2 (B)	X5P4 (A)	X4P2 (B)	X4P4 (A)	X3P2 (B)	X3P4 (A)	X2P2 (B)	X2P4 (A)	X1P2 (B)	X1P4 (A)	X0P2 (B)	X0P4 (A)

9.5 IO-Link events

Event Code	Description	Event Mode	
0x5000	Hardware error	0xF4 (appears) 0xB4 (disappears)	
0x5110	Overvoltage	0xF4 (appears) 0xB4 (disappears)	Overvoltage at supply
0x5111	Undervoltage	0xF4 (appears) 0xB4 (disappears)	Undervoltage at supply
0x7710	Overcurrent VAUX connector x or overcurrent output x	0xF4 (appears) 0xB4 (disappears)	Group event for overcurrent: Overcurrent of the sensor supply at one of the connectors (X0...X7) or overcurrent at one of the outputs (DO0...DO15) The mapped diagnostics in the process image of the inputs show which slot or output detects an overcurrent.
0x8CAB	Test event error 1	0xB4 (disappears) 0xF4 (appears)	Can be triggered for testing purposes using system command 255 and deleted again using 254.
0x8CAC	Test event error 2		Can be triggered for testing purposes using system command 253 and deleted again using 252.
0x8CAD	Test event warning		Can be triggered for testing purposes using system command 251 and deleted again using 250.

9.6 IO-Link error codes

Error code	Description	
0x8000	Device application error - no details	Service was denied by the application. No detailed information is available.
0x8011	Index not available	
0x8012	Sub index not available	
0x8023	Access denied	Index cannot be written
0x8030	Parameter value out range	
0x8031	Parameter value above limit	The written parameter value is above its specified value range
0x8032	Parameter value below limit	The written parameter value is below its specified value range
0x8033	Parameter length overrun	The length of data to be written does not match the length defined for this para- meter.
0x8034	Parameter length underrun	
0x8035	Function unavailable	Function not available in the device
0x8036	Function temporarily unavailable	The written command is unavailable due to the current state application.
0x8040	Invalid parameter set	A single written parameter value collides with other existing parameter settings.
0x8041	Inconsistent parameter set	The parameters are inconsistent and the device plausibility check failed.
0x8082	Application not ready	The read or write access has been denied. The application is temporarily unavail- able.

10 Troubleshooting

If the device does not function as expected, first check whether ambient interference is present. If there is no ambient interference present, check the connections of the device for faults.

If there are no faults, there is a device malfunction. In this case, decommission the device and replace it with a new device of the same type.

If the device does not work as expected, proceed as follows:

- ▶ Exclude environmental disturbances.
- ▶ Check the connections of the device for errors.
- ▶ Check device for parameterization errors.

If the malfunction persists, the device is faulty. In this case, decommission the device and replace it with a new device of the same type.

11 Maintenance

Ensure regularly that the plug connections and cables are in good condition.

The devices are maintenance-free, clean dry if required.

12 Repair

The device is not intended for repair by the user. The device must be decommissioned if it is faulty. Observe our return acceptance conditions when returning the device to TURCK.

12.1 Returning devices

If a device has to be returned, bear in mind that only devices with a decontamination declaration will be accepted. This is available for download at <https://www.turck.de/en/return-service-6079.php> and must be completely filled in, and affixed securely and weather-proof to the outside of the packaging.

13 Disposal



The devices must be disposed of properly and do not belong in the domestic waste.

14 Technical data

General technical data

Technical data	
Connectors	
IO-Link	M12 × 1, A coded, 4-pin
Input/output	M12 × 1, A coded, 5-pin
Permissible torques	
■ IO-Link and I/O channels	0.6...0.8 Nm
■ Mounting (M4 screws)	1.5...2.0 Nm
IO-Link	
IO-Link specification	V 1.1
IO-Link port type	Class A
Transmission physics	3-wire physics (PHY2)
Transmission rate	COM 2: 38.4 kbps
Minimum cycle time	
■ TBIL-EMN-16DIP	2.3 ms
■ TBIL-EMN-16DXP	3.2 ms
Parameterization	IODD, TAS, TBEN IO-Link master
Mechanical data	
Dimensions (L × W × H)	160 × 54 × 35 mm
Housing material	Polycarbonate
Connection technology input	8 × M12
Mounting	2 mounting holes, Ø 4.5 mm
MTTF	
■ TBIL-EMN-16DIP	456 years acc. to SN 29500 (Ed. 99) 20 °C
■ TBIL-EMN-16DXP	314 years acc. to SN 29500 (Ed. 99) 20 °C
Ambient conditions	
Ambient temperature	-25...+60 °C
Storage temperature	-40...+85 °C
Operating altitude	Max. 5000 m
Degree of protection	IP67 (not evaluated by UL)
Standard/directive conformity	
Electromagnetic compatibility	According to IEC/EN 61131-2
Shock test	According to IEC/EN 60068-2-27
Vibration test	According to IEC/EN 60068-2-6
Drop and topple	According to IEC/EN 60068-2-31
Tests and approvals	
Approvals and certificates	CE
	UKCA
	cULus
	UV resistant

TBIL-EMN-16DIP

Technical data	
Supply	
Operating/load voltage	24 VDC
Permissible range	18...30 VDC (SELV/PELV or comparable)
Total current	V1 Max. 4 A per module
Total output current	Max. 1 A
Operating current	Max. 200 mA
Sensor/actuator supply VAUX	Class A supply from V1, short-circuit-proof, max. 120 mA per connector
Inputs	
Number of channels	16 digital pnp inputs (EN 61131-2)
Type of input diagnostics	Group diagnostics
Signal voltage, low level	-3...5 VDC (EN 61131-2, type 1 and 3)
Signal voltage, high level	11...30 VDC (EN 61131-2, type 1 and 3)
Max. input current	7 mA
Potential isolation	Inputs to FE 500 VDC

TBIL-EMN-16DXP

Technical data	
Supply	
Operating/load voltage	24 VDC
Permissible range	18...30 VDC (SELV/PELV or comparable)
Total current	V1 Max. 4 A per module
Total output current	Max. 3.8 A
Operating current	Max. 200 mA
Sensor/actuator supply VAUX	Class A supply from V1, short-circuit-proof, max. 120 mA per connector
Inputs	
Number of channels	16 digital pnp inputs (EN 61131-2)
Type of input diagnostics	Group diagnostics
Signal voltage, low level	-3...5 VDC (EN 61131-2, type 1 and 3)
Signal voltage, high level	11...30 VDC (EN 61131-2, type 1 and 3)
Max. input current	7 mA
Potential isolation	Inputs to FE 500 VDC
Outputs	
Number of channels	16 digital pnp outputs
Type of output diagnostics	Group diagnostics
Output voltage	24 VDC from supply voltage
Output current per channel	0.35 A
Load type	Ohmic, inductive lamp load UL: ohmic, General Use, Pilot Duty
Potential isolation	Outputs to FE 500 VDC

15 TURCK branches — contact data

Germany	TURCK GmbH Witzlebenstraße 7, 45472 Mülheim an der Ruhr www.turck.de
Australia	Turck Australia Pty Ltd Building 4, 19-25 Duerdin Street, Notting Hill, 3168 Victoria www.turck.com.au
Austria	Turck GmbH Graumannsgasse 7/A5-1, A-1150 Vienna www.turck.at
Belgium	Turck Multiprox N. V. Lion d'Orweg 12, B-9300 Aalst www.multiprox.be
Brazil	Turck do Brasil Automação Ltda. Rua Anjo Custódio Nr. 42, Jardim Anália Franco, CEP 03358-040 São Paulo www.turck.com.br
Canada	Turck Canada Inc. 140 Duffield Drive, CDN-Markham, Ontario L6G 1B5 www.turck.ca
China	Turck (Tianjin) Sensor Co. Ltd. 18,4th Xinghuazhi Road, Xiqing Economic Development Area, 300381 Tianjin www.turck.com.cn
Czech Republic	TURCK s.r.o. Na Brně 2065, CZ-500 06 Hradec Králové www.turck.cz
France	TURCK BANNER S.A.S. 11 rue de Courtalin Bat C, Magny Le Hongre, F-77703 MARNE LA VALLEE Cedex 4 www.turckbanner.fr
Hungary	TURCK Hungary kft. Árpád fejedelem útja 26-28., Óbuda Gate, 2. em., H-1023 Budapest www.turck.hu
India	TURCK India Automation Pvt. Ltd. 401-403 Aurum Avenue, Survey. No 109 /4, Near Cummins Complex, Baner-Balewadi Link Rd., 411045 Pune - Maharashtra www.turck.co.in
Italy	TURCK BANNER S.R.L. Via San Domenico 5, IT-20008 Bareggio (MI) www.turckbanner.it
Japan	TURCK Japan Corporation ISM Akihabara 1F, 1-24-2, Taito, Taito-ku, 110-0016 Tokyo www.turck.jp

Korea	Turck Korea Co, Ltd. A605, 43, Iljik-ro, Gwangmyeong-si 14353 Gyeonggi-do www.turck.kr
Malaysia	Turck Banner Malaysia Sdn Bhd Unit A-23A-08, Tower A, Pinnacle Petaling Jaya, Jalan Utara C, 46200 Petaling Jaya Selangor www.turckbanner.my
Mexico	Turck Comercial, S. de RL de CV Blvd. Campestre No. 100, Parque Industrial SERVER, C.P. 25350 Arteaga, Coahuila www.turck.com.mx
Netherlands	Turck B. V. Ruiterlaan 7, NL-8019 BN Zwolle www.turck.nl
Poland	TURCK sp.z.o.o. Wroclawska 115, PL-45-836 Opole www.turck.pl
Romania	Turck Automation Romania SRL Str. Siriului nr. 6-8, Sector 1, RO-014354 Bucuresti www.turck.ro
Sweden	Turck AB Fabriksstråket 9, 433 76 Jonsered www.turck.se
Singapore	TURCK BANNER Singapore Pte. Ltd. 25 International Business Park, #04-75/77 (West Wing) German Centre, 609916 Singapore www.turckbanner.sg
South Africa	Turck Banner (Pty) Ltd Boeing Road East, Bedfordview, ZA-2007 Johannesburg www.turckbanner.co.za
Turkey	Turck Otomasyon Ticaret Limited Sirketi Inönü mah. Kayisdagi c., Yesil Konak Evleri No: 178, A Blok D:4, 34755 Kadiköy/ Istanbul www.turck.com.tr
United Kingdom	TURCK BANNER LIMITED Blenheim House, Hurricane Way, GB-SS11 8YT Wickford, Essex www.turckbanner.co.uk
USA	Turck Inc. 3000 Campus Drive, USA-MN 55441 Minneapolis www.turck.us

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