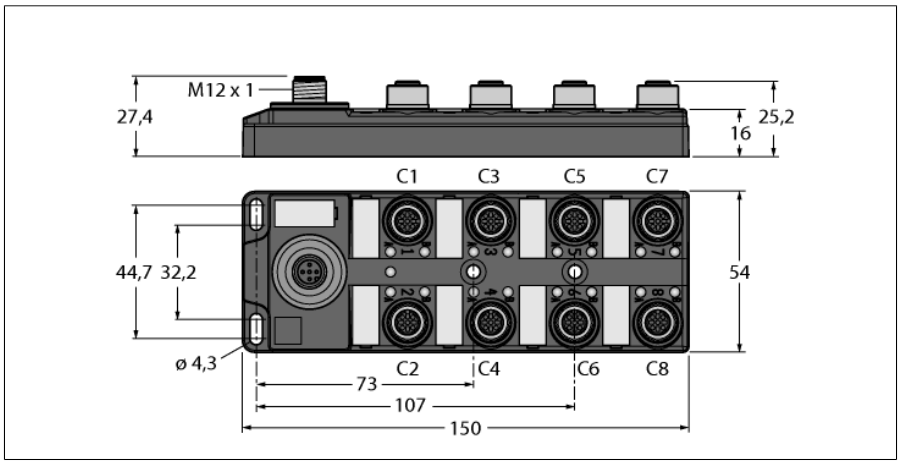
I/O Hub for Connection of Digital Signals to IO-Link Master
16 Universal Digital Channels, PNP
TBIL-M1-16DXP

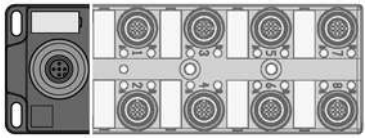
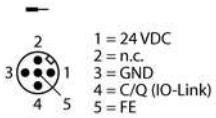
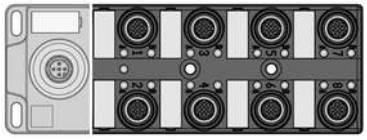
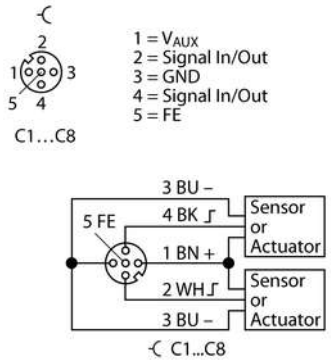


Type designation	TBIL-M1-16DXP
Ident-No.	6814102
Number of channels	16
Operating / load voltage	total current max. 4 A per module 18…30 VDC
Power dissipation, typical	≤ 3.2 W
Inputs	
Number of channels	16 digital PNP inputs (EN 61131-2)
Type of input diagnostics	Group diagnostics
Low level signal voltage	-3…5 VDC (EN 61131-2, type 1 and 3)
High level signal voltage	11…30 VDC (EN 61131-2, type 1 and 3)
Input delay	0.010 ms
Max. input current	15 mA
Electrical isolation	inputs to FE 500VDC
Outputs	
Number of channels	16 digital PNP outputs
Type of output diagnostics	Group diagnostics
Output voltage	24 VDC
Output current per channel	0.5 A, short-circuit proof
Output delay	0.15 ms
Load type	resistive, inductive, lamp load
Simultaneity factor	0.35
Electrical isolation	outputs to FE 500 VDC
Sensor supply	max. 120 mA per port
Actuator power supply	Max. 120 mA per plug
IO-Link	
IO-Link specification	Specified acc. to version 1.1
Programming	FDT/DTM
Transmission physics	corresponds to 3-wire physics (PHY2)
Transmission rate	COM 2 / 38.4 kbps
Frame type	2.6
Minimum cycle time	3.2 ms
Dimensions (W x L x H)	54 x 150 x 27.4mm
Housing material	PA6-GF30
Mounting	4 mounting holes Ø 4.3 mm
Operating temperature	-40 … 70 °C
Storage temperature	-40 …85 °C
Vibration test	acc. to EN 60068-2-6
Shock test	acc. to EN 60068-2-27
Electromagnetic compatibility	acc. to EN 61131-2:2007
Protection class	IP67 IP69K
MTTF	96 years
Approvals	CE

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I/O Hub for Connection of Digital Signals to IO-Link Master
16 Universal Digital Channels, PNP
TBIL-M1-16DXP

Pinning and wiring diagram

<table>
<tr>
<td></td>
<td>Accessories
Suitable IO-Link cables (Example):
2 m: RK 4T-2-RS 4T (Ident. no. U2151-3)
5 m: RK 4T-5-RS 4T (Ident. no. U2158-15)
Further lengths and variants in the product catalog or on request
Suitable IO-Link masters (Example):
BL20-E-4IOL (Ident. no. 6827385)
BL67-4IOL (Ident. no. 6827386)
SDPX-IOL4-0001 (Ident. no. 6825480)
Further types in the product catalog or on request</td>
<td>M12 x 1 IO-Link

</td>
</tr>
<tr>
<td></td>
<td>Accessories
Suitable Sensor supply cables (Example):
2 m: RK 4.4T-2-RS 4.4T Ident. no. (U2445)
5 m: RK 4.4T-5-RS 4.4T Ident. no. (U2167-3)
Splitter YBZ2-FSM4.4/2FK4 Ident. No. (U2-07374)
Further lengths and variants in the product catalog or on request
Optional Accessories
Closure cap VZ3 M12 Ident. no. (01202601)
Labels KS9/20 Ident. no. (10267953)</td>
<td>M12 x 1 I/O Port

</td>
</tr>
</table>

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Module LED status

LED	Color	Status	Description
IO-Link	Green	OFF	Power off
		Flashing	IO-Link communication OK, valid process data is sent or received
	Red	ON	IO-Link communication or module error
		Flashing	IO-Link communication OK, invalid process data or diagnosis enabled

I/O LED Status

LED	Color	Status	Description
C1 A / B … C8 A / B	Green	ON	Input or output active
	Red	ON	Output active with overload / short circuit
		Flashing	Power overload at the corresponding port. Both port LEDs are flashing.
		OFF	Input or output inactive

C … = slot number, A / B = Signal LED (signal A = pin 4, B = signal pin 2)

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I/O Hub for Connection of Digital Signals to IO-Link Master
16 Universal Digital Channels, PNP
TBIL-M1-16DXP

Process Data Mapping

Details can be found in the manual.

	Byte	Bit 7 MSB	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0 LSB
Inputs	0	DI8 C4P2 (B)	DI7 C4P4 (A)	DI6 C3P2 (B)	DI5 C3P4 (A)	DI4 C2P2 (B)	DI3 C2P4 (A)	DI2 C1P2 (B)	DI1 C1P4 (A)
	1	DI16 C8P2 (B)	DI15 C8P4 (A)	DI14 C7P2 (B)	DI13 C7P4 (A)	DI12 C6P2 (B)	DI11 C6P4 (A)	DI10 C5P2 (B)	DI9 C5P4 (A)
Outputs	0	DO8 C4P2 (B)	DO7 C4P4 (A)	DO6 C3P2 (B)	DO5 C3P4 (A)	DO4 C2P2 (B)	DO3 C2P4 (A)	DO2 C1P2 (B)	DO1 C1P4 (A)
	1	DO16 C8P2 (B)	DO15 C8P4 (A)	DO14 C7P2 (B)	DO13 C7P4 (A)	DO12 C6P2 (B)	DO11 C6P4 (A)	DO10 C5P2 (B)	DO9 C5P4 (A)

C… = slot no., P… = pin no.

Diagnostics / Events

Class/Qualifier				Code	Description
Mode	Type	Instance			
0xC0	0x30	0x04	0xF4 appears	0x5110	Supply voltage too high
0x80	0x30	0x04	0xB4 disappears	0x5110	
0xC0	0x30	0x04	0xF4 appears	0x5111	Supply voltage too low
0x80	0x30	0x04	0xB4 disappears	0x5111	
0xC0	0x30	0x04	0xF4 appears	0x7710	Short circuit to GND
0x80	0x30	0x04	0xB4 disappears	0x7710	
0xC0	0x30	0x04	0xF4 appears	0x5000	Hardware error
0x80	0x30	0x04	0xB4 disappears	0x5000	

Device Parameters

ISDU		Parameter Name	Access R: Read W: Write	Data Length	Data Type	
Index	Sub-Index					
0x0C	0x02	Data Storage Lock	R/W	1Bit	Boolean	Lock Parameter Upload 0: Unlocked; 1: Locked Default: 0
0x10	0x00	Vendor Name	R	16 Bytes	String	TURCK
0x11	0x00	Vendor Text	R	32 Bytes	String	www.turck.com
0x12	0x00	Product Name	R	32 Bytes	String	TBIL-M1-16DXP
0x13	0x00	Product ID	R	16 Bytes	String	6814102
0x14	0x00	Product Text	R	32 Bytes	String	I/O HUB
0x15	0x00	Serial Number	R	16 Bytes	String	
0x17	0x00	FW Revision	R	16 Bytes	String	
0x18	0x00	Application Specific Tag	R/W	32 Bytes	String	Free text e.g for application name Default: ***
0x40	0x00	Parameter ID	R/W	4 Bytes	Unsigned 32	ID no. e.g. for module identification Default: 0x0000
0x41	0x00	Inverting Input	R/W	2 bytes	Unsigned 16	Inverting the input logic 0: Normal; 1: Inverted Default: 0x00
0x42	0x00	Activate Output	R/W	2 Bytes	Unsigned 16	Activate Output 0: Inactive; 1: Active Default: 0xFFFF
0x43	0x00	Impulse Stretching	R/W	16 Bytes	Unsigned 8	Expansion of input pulse 0: Off, 1-255; Basis: 10 ms Default: 0x00
0x44	0x00	Short Circuit Recovery	R/W	2 Bytes	Unsigned 16	Behaviour after short circuit output 0: Automatic 1: Controlled (output newly set) Default: 0x0000
0x45	0x00	Failsafe	R/W	2 Bytes	Unsigned 32	Behavior on communication loss 00: Output on 0 01: Output on 1 10: Last value 11: Reserved Default: 0x0000

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