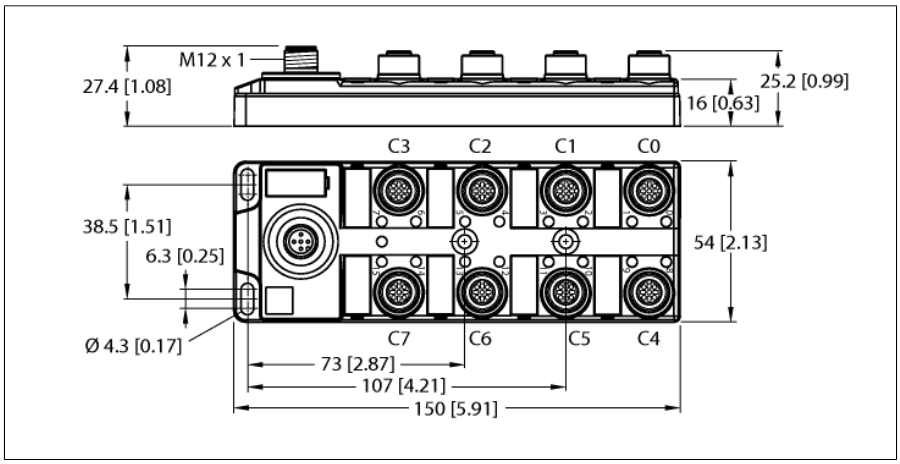
I/O hub for connection of digital signals to IO-Link master
16 universal digital channels, PNP
TBIL-M1-16DXP-B



- **IO-Link diagnostics for short-circuit and supply voltage**
- **IO-Link V1.1 Class B**
- **2 universal digital channels per port**
- **Galvanic isolated Class B to support safeness**
- **I&M data to support identification**
- **Rugged, fully potted I/O hub in IP67**
- **Metal Connector**
- **Glass fiber reinforced housing**

Type designation	TBIL-M1-16DXP-B
Ident-No.	100000881
Supply	
Supply voltage	24
Admissible range	20.4…28.8 VDC
	V1 max. 4 A
	V2 max. 4 A
	V1+V2 max. 5.4 A at 55 °C
	V1+V2 max. 4 A at 70 °C
Operating current	120 mA
Sensor/Actuator supply V_{AUX1}	Class A supply C0...C3 from V1
	Short-circuit protected, 1.8 A per connector
Sensor/Actuator supply V_{AUX2}	Class B supply C4...C7 from V2
	Short-circuit protected, 1.8 A per connector
Electrical isolation	Potential isolation of V1 and V2 voltage group
	Voltage proof up 500 VDC
Digital inputs	
Number of channels	16
Connectivity inputs	M12
Type of input diagnostics	Channel 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
Digital outputs	
Number of channels	16
Connectivity outputs	M12
Output type	PNP
Type of output diagnostics	Channel diagnostics
Output delay	0.35 ms
Load type	resistive, inductive, lamp load
Short-circuit protection	yes
Electrical isolation	500 VDC
IO-Link	
Connectivity IO-Link	1 × M12
IO-Link specification	Specified acc. to version 1.1
IO-Link port type	Class A and Class B
Frame type	2.6
Transmission rate	COM 2 / 38.4 kbps, COM 3 / 230.4 kbps
Programming	FDT/DTM
Approvals and certificates	CE, cULus, Class I Div.2

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General Information	
Dimensions (W x L x H)	54 x 150 x 27.4mm
Operating temperature	-40...70 °C
Storage temperature	-40...85 °C
Protection class	IP65 IP67 IP69K
MTTF	79 years
Housing material	PA6-GF30
Housing color	Black
Mounting	4 mounting holes Ø 4.3 mm

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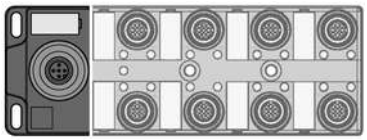
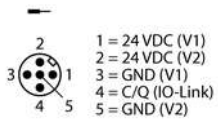
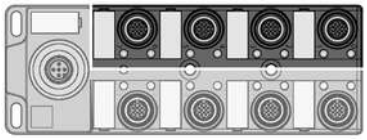
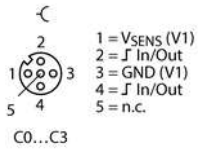
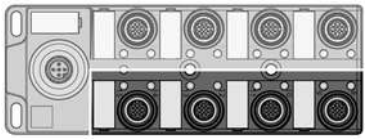
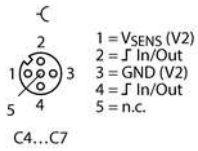
	**Accessories** Extension cable (example):□RK 4.5T-2-RS 4.5T□Ident-No. U2187-1□or□RKC4.5T-2-RSC4.5T/TEL□ID No. 6625212	IO-Link M12 x 1 
	**Accessories** Extension cable (example): RK 4.4T-2-RS 4.4T ident-no. U2445 or RKC4.4T-2-RSC4.4T/TEL ident-no. 6625208	I/O Port M12 x 1 
	**Accessories** Extension cable (example): RK 4.4T-2-RS 4.4T ident-no. U2445 or RKC4.4T-2-RSC4.4T/TEL ident-no. 6625208	I/O Port M12 x 1 

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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, V1 or V2 undervoltage

I/O LED Status

LED	Color	Status	Description
C0 … C7	Green	ON	Input or output active
0 … 15	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, 0…15 = Signal LED (Even = signal pin 4, Odd = signal pin 2)

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Process Data

INPUT	**BYTE**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Inputs	0	DI7 C3P2 (B)	DI6 C3P4 (A)	DI5 C2P2 (B)	DI4 C2P4 (A)	DI3 C1P2 (B)	DI2 C1P4 (A)	DI1 C0P2 (B)	DI0 C0P4 (A)
	1	DI15 C7P2 (B)	DI14 C7P4 (A)	DI13 C6P2 (B)	DI12 C6P4 (A)	DI11 C5P2 (B)	DI10 C5P4 (A)	DI9 C4P2 (B)	DI8 C4P4 (A)
Diagnostics	2	Group diag.	-	-	-	V2 low	V1 low	-	-
	3	OC C7	OC C6	OC C5	OC C4	OC C3	OC C2	OC C1	OC C0
	4	OC C3P2	OC C3P4	OC C2P2	OC C2P4	OC C1P2	OC C1P4	OC C0P2	OC C0P4
	5	OC C7P2	OC C7P4	OC C6P2	OC C6P4	OC C5P2	OC C5P4	OC C4P2	OC C4P4
OUTPUT	**BYTE**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Outputs	0	DO7 C3P2 (B)	DO6 C3P4 (A)	DO5 C2P2 (B)	DO4 C2P4 (A)	DO3 C1P2 (B)	DO2 C1P4 (A)	DO1 C0P2 (B)	DO0 C0P4 (A)
	1	DO15 C7P2 (B)	DO14 C7P4 (A)	DO13 C6P2 (B)	DO12 C6P4 (A)	DO11 C5P2 (B)	DO10 C5P4 (A)	DO9 C4P2 (B)	DO8 C4P4 (A)

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