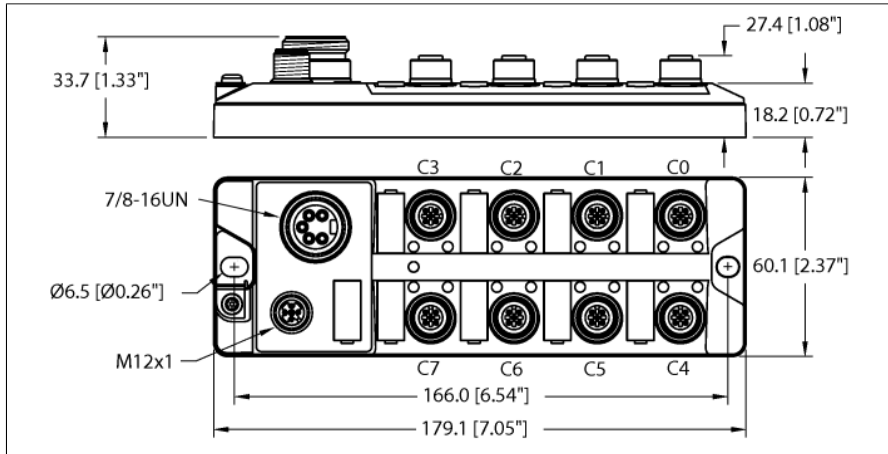


# I/O Hub for Connecting Digital Signals to IO-Link Master

## 16 Universal Digital Channels, PNP

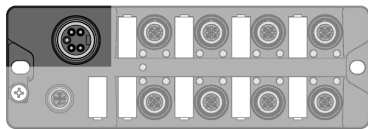
### TBIL-L5-16DXP-AUX



- Glass fiber reinforced housing
- Shock and vibration tested
- Fully potted module electronics
- Protection classes IP65, IP67, IP69K

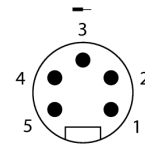
Type	TBIL-L5-16DXP-AUX
ID	100000882
<b>Supply</b>	
Supply voltage	24 VDC
Admissible range	18...30 VDC V1 max. 9 A V2 max. 9 A V1 + V2 max. 11 A
Voltage supply connection	5-pin male 7/8" connector
Operating current	120 mA
Sensor/actuator supply	Supply from V1, C0-C3, short-circuit proof, 2.0 A per slot
Sensor/actuator supply	Supply from V2, C4...C7, short-circuit protected, 2.0 A max. per pin.
Electrical isolation	Possible isolation of voltage groups V1, V2 and Viol Voltage proof up 500 VDC
Fault exclusion	Yes, acc. to EN ISO 13849-2, appendix D.2
<b>Digital inputs</b>	
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
<b>Digital outputs</b>	
Number of channels	16
Connectivity outputs	M12
Output type	PNP
Type of output diagnostics	Channel diagnostics
Output current per channel	2.0 A max. per pin. 2.5 A max. per slot.
Output delay	0.35 ms
Load type	Resistive, inductive, lamp load
Short-circuit protection	yes
Electrical isolation	500 VDC

<b>IO-Link</b>	
Connectivity IO-Link	1 × M12
IO-Link specification	V 1.1
IO-Link port type	Class A
Frame type	2,6
Transmission rate	COM 2/38.4 kbps
Programming	FDT/DTM
<b>Approvals and certificates</b>	
	CE
	UV-resistant acc. to DIN EN ISO 4892-2A (2013)
UL Certificate	cULus LISTED 21 W2, Encl.type 1 IND.CONT.EQ.
<b>General Information</b>	
Dimensions (W x L x H)	60.1 x 179.1 x 33.7 mm
Ambient temperature	-40...+60 °C
Storage temperature	-40...+85 °C
Altitude	Max. 5000 m
Protection class	IP65 IP67 IP69K
MTTF	164 years acc. to SN 29500 (Ed. 99) 20 °C
Housing material	PA6-GF30
Housing color	Black
Mounting	2 mounting holes Ø 6.5 mm

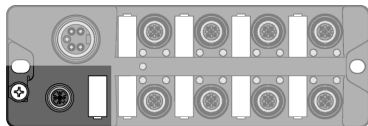


**Accessories**

**7/8" Aux Power**

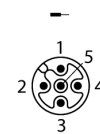


- 1 = GND (V2)
- 2 = GND (V1)
- 3 = FE
- 4 = 24 VDC (V1)
- 5 = 24 VDC (V2)

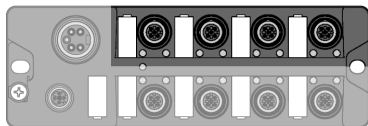


**Accessories**

**M12 IO-Link**

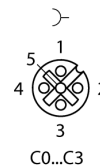


- 1 = 24 VDC (V<sub>IOL</sub>)
- 2 = n.c.
- 3 = GND (V<sub>IOL</sub>)
- 4 = C/Q (IO-LINK)
- 5 = n.c.

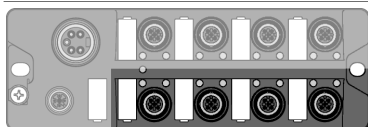


**Accessories**

**M12 x 1 I/O Port**

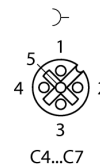


- 1 = VAUX1 (V1)
- 2 = In/Out (odd)
- 3 = GND (V1)
- 4 = In/Out (even)
- 5 = FE



**Accessories**

**M12 x 1 I/O Port**



- 1 = VAUX2 (V2)
- 2 = In/Out (odd)
- 3 = GND (V2)
- 4 = In/Out (even)
- 5 = FE

## Module LED status

LED Display	Color	Status	Description
IO-Link	Green	OFF	Power off
		Flashing	IO-Link communication OK, valid process data is being 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

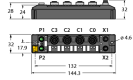
LED Display	Color	Status	Description
C0...C7	Green	ON	Input or output active
0...15	Red	ON	Output active with overload/short circuit
		Flashing	Power overload at the corresponding port. Both port LEDs are flashing.
		OFF	Input or output inactive

C... = port no., 0...15 = signal LED (even = pin 4, uneven = pin 2)

Process data

<b>INPUT</b>	<b>BYTE</b>	<b>Bit 7</b>	<b>Bit 6</b>	<b>Bit 5</b>	<b>Bit 4</b>	<b>Bit 3</b>	<b>Bit 2</b>	<b>Bit 1</b>	<b>Bit 0</b>
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		Hardware Error						
	3	V2 Aux high	V1 Aux high	V2 high	V1 high	V2 Aux low	V1 Aux low	V2 low	V1 low
	4	Vsens OC C7P1	Vsens OC C6P1	Vsens OC C5P1	Vsens OC C4P1	Vsens OC C3P1	Vsens OC C2P1	Vsens OC C1P1	Vsens OC C0P1
	5	DO7 SC	DO6 SC	DO5 SC	DO4 SC	DO3 SC	DO2 SC	DO1 SC	DO0 SC
	6	DO15 SC	DO14 SC	DO13 SC	DO12 SC	DO11 SC	DO10 SC	DO9 SC	DO8 SC
<b>OUTPUT</b>	<b>BYTE</b>	<b>Bit 7</b>	<b>Bit 6</b>	<b>Bit 5</b>	<b>Bit 4</b>	<b>Bit 3</b>	<b>Bit 2</b>	<b>Bit 1</b>	<b>Bit 0</b>
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)

## Function accessories

Type code	Ident no.		Dimension drawing
TBEN-S2-4IOL	6814024	Compact multiprotocol I/O module, 4 IO-Link Master 1.1 Class A, 4 universal PNP digital channels 0.5 A	 <p>The drawing shows a top view of the TBEN-S2-4IOL module. It is a rectangular board with a width of 100 mm and a height of 44 mm. On the left side, there are two 5-pin headers labeled 'F' and 'E'. On the right side, there are two 5-pin headers labeled 'A' and 'B'. The module is populated with several integrated circuits and components. The drawing includes dimension lines and labels for the various pins and components.</p>