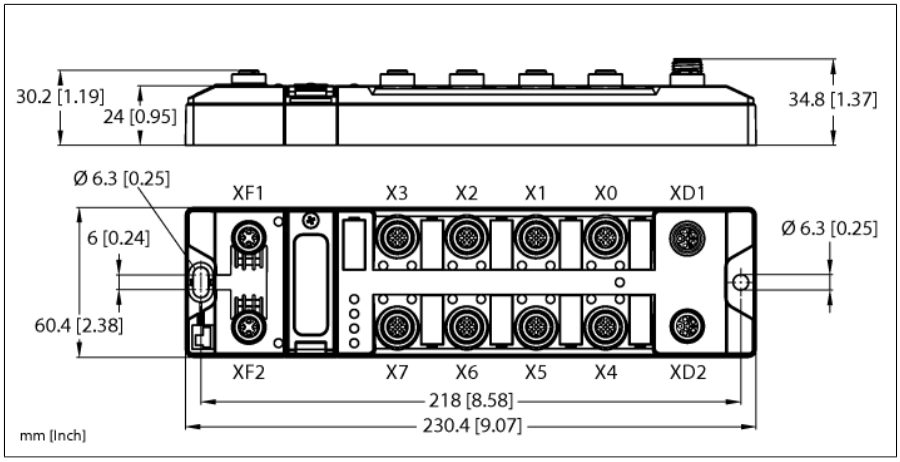
Compact multiprotocol I/O module for Ethernet
4 Roller Motor Controllers
4 digital PNP inputs, 4 universal digital channels, configurable as PNP inputs or 2A outputs
TBEN-LLH-4RMC



Type	TBEN-LLH-4RMC
ID	100018352

Supply	
Supply voltage	V1: 24 VDC V2: 24 VDC/48 VDC
Admissible range	V1: 18…30 VDC V2: 18…56 VDC Pass-through current XD1–XD2 max. 16 A per voltage group
Voltage supply connection	M12, L-coded
Operating current	Operating temperature 20° C V1: 24 VDC, 80 mA V2: 48 VDC, 20 mA V2: 24 VDC, 40 mA
Sensor/actuator supply	Ports X0-X3 powered by V1 Short-circuit proof, 120 mA per slot
Sensor/actuator supply	Slots X4–X7 powered by V2 Short-circuit proof, irreversible, 4 A per slot
Electrical isolation	galvanic isolation of the voltage groups V1 and V2, voltages up to 500 VAC

System data	
Fieldbus transmission rate	10/100 Mbps
Fieldbus connection technology	2 × M12, 4-pin, D-coded
Protocol detection	automatic
Service interface	Ethernet via XF1 or XF2
ARGEE functionality	Supported

ARGEE Engineering Version	3.2.217.0

- PROFINET device, EtherNet/IP device or Modbus TCP server
- Integrated Ethernet switch
- Supports 10 Mbps/100 Mbps
- 2 × M12, 4-pin, D-coded, Ethernet fieldbus connection
- Glass fiber reinforced housing
- Shock and vibration tested
- Fully potted module electronics
- Protection classes IP65, IP67, IP69K
- Roller motor controller for Interroll Roller-Drive
- Programmable ARGEE

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Modbus TCP	
Addressing	Static IP, DHCP
Supported function codes	FC1, FC2, FC3, FC4, FC5, FC6, FC15, FC16, FC23
Number of TCP connections	8
Input register start address	0 (0x0000 hex)
Output register start address	2048 (0x0800 hex)

Ethernet/IP	
Addressing	acc. to EtherNet/IP specification
Quick Connect (QC)	< 150 ms
min. RPI	2 ms
Device Level Ring (DLR)	supported
Class 3 connections (TCP)	3
Class 1 connections (CIP)	10
Input Assembly Instance	101
Output Assembly Instance	102
Configuration Assembly Instance	106

PROFINET	
Addressing	DCP
Conformance class	B (RT)
MinCycleTime	1 ms
Fast Start-Up (FSU)	< 150 ms
Diagnostics	acc. to PROFINET alarm handling
Topology detection	supported
Automatic addressing	supported
Media Redundancy Protocol (MRP)	supported

Roller motor interface	
Roller motor interface	Interroll RollerDrive EC5000 BI, FW version >=1.00.8

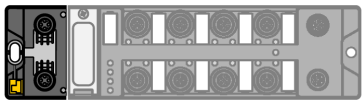
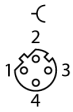
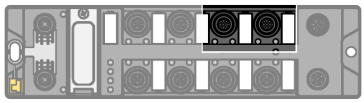
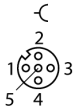
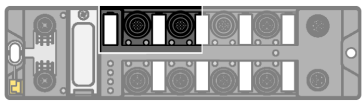
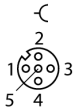
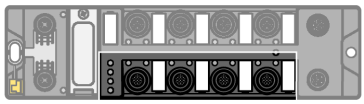
Digital inputs	
Number of channels	8
Input type	PNP
Switching threshold	EN 61131-2 Typ 3, PNP
Low-level signal voltage	< 5 V
High level signal voltage	> 11 V
Low level signal current	< 1.5 mA
High level signal current	> 2 mA
Electrical isolation	Galvanically isolated to the fieldbus Voltage proof up 500 VDC

Digital outputs	
Number of channels	4
Output type	PNP
Type of output diagnostics	Channel diagnostics
Output voltage	24 VDC from potential group
Load type	EN 60947-5-1: DC-13
Short-circuit protection	yes
Electrical isolation	Galvanically isolated to the fieldbus Voltage proof up 500 VDC

Standard/Directive conformity	
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 EN 60068-2-31/IEC 60068-2-32
Electromagnetic compatibility	Acc. to EN 61131-2
Approvals and certificates	CE and UKCA FCC statement, UV resistant acc. to DIN EN ISO 4892-2A (2013)
UL Certificate	cULus LISTED 21 W2, Encl.Type 1 IND.CONT.EQ.

General Information	
Dimensions (W x L x H)	60.4 x 230.4 x 34.8 mm
Ambient temperature	-40…+70 °C
Storage temperature	-40…+85 °C
Altitude	Max. 5000 m
Protection class	IP65 IP67 IP69K
MTTF	130 years acc. to SN 29500 (Ed. 99) 20 °C
Housing material	PA6-GF30
Housing color	Black
Connector material	Nickel-plated brass
Window material	Lexan
Material screw	303 stainless steel
Material label	Polycarbonate
Halogen-free	yes
Mounting	2 mounting holes □ 6.3 mm

	Note about the item name: Until August 2024, this item was published by Turck under the name TBEN-LL-4RMC-4DIP-4DXP. The ID (100018352) for this device type has not changed and is still valid without limitation.

	**Note** Ethernet connection; M12, D-coded	M12 × 1 Ethernet  XF1 1 = TX + 2 = RX + 3 = TX – 4 = RX – flange = FE XF2 1 = RX + 2 = TX + 3 = RX – 4 = TX – flange = FE
	**Note** Connection of digital inputs; M12, A-coded	I/O slot, M12 × 1  X0…X1 1 = $V_{aux}1$ 2 = Signal In 3 = GND V1 4 = Signal In 5 = FE
	**Note** Connection of universal digital channels; M12, A-coded	I/O slot, M12 × 1  X2…X3 1 = $V_{aux}1$ 2 = Signal In/Out 3 = GND V1 4 = Signal In/Out 5 = FE
	**Note** Roller motor connection; M12, B-coded Accessories: Folding ferrites for motor cables, see manual for details: - Würth STAR-TEC snap-on 74271132 - KEMET ESD-SR-H/HL snap-on ESD-SR-S12	I/O slot, M12 × 1 X4…X7 1 = $V_{AUX}2$ 2 = CAN High 3 = GND V2 4 = CAN Low 5 = GND V2

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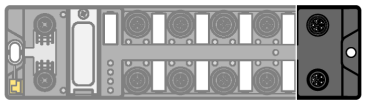
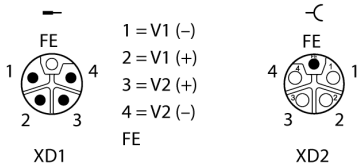
	**Note** Connection of power supply; M12, L-coded, Attention: M12-L pin assignment for roller motor module type deviating from standard assignment	M12 power supply, L-coded 

Module Status LED

LED	Color	Status	Description
L/A	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	Steady flashing: Ready Sequence of 3 flashes in 2 seconds: FLC/ARGEE active
	Red	On	IP address conflict or restore mode or Modbus timeout
		Flashing	Blink/Wink command active
	Green/red	Alternating	Autonegotiation and/or waiting for DHCP/Boot-P addressing
		Off	Power off
ERR	Green	On	No diagnostics available
	Red	On	Diagnostics available Undervoltage diagnosis response is parameter dependent

Process Data Mapping of the Single Protocols

For more details on the corresponding protocols see manual.

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