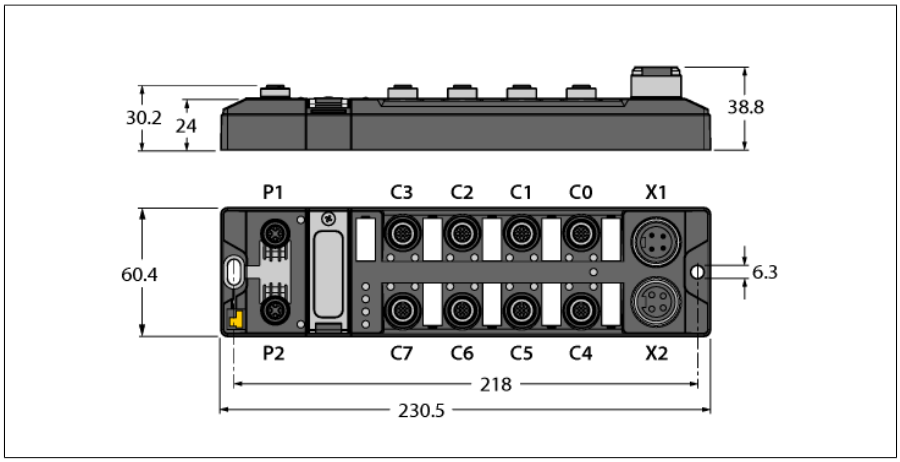
Compact Multiprotocol RFID Module for Ethernet
Compact RFID and I/O module programmable via CODESYS V3
TBEN-L4-4RFID-8DXP-CDS



Type	TBEN-L4-4RFID-8DXP-CDS
ID	6814121

Supply	
Supply voltage	24 VDC
Admissible range	18…30 VDC Total current V1 max. 8 A [UL: 7 A] + V2 max. 9 A at 70 °C [UL: 55 °C] per module
Voltage supply connection	7/8″, 4-pin
Operating current	V1: max. 200 mA V2: max. 50 mA
RFID supply $V_{AUX\,1}$	Slots C0–C3 from V1 Short-circuit proof, 2 A per channel at 70 °C, [UL: 1.74 A per channel at 55 °C]
Sensor/actuator supply	Slots C4–C7 powered by V2 Power supply Pin1 switchable for each slot Short-circuit proof, 2 A per slot at 70 °C [UL: 55 °C]
Electrical isolation	galvanic isolation of the voltage groups V1 and V2, voltages up to 500 VAC
Power dissipation, typical	≤ 6.5 W

system description	
Processor	ARM Cortex A8, 32 Bit, 800 MHz
Program memory and data memory	20 MB
Memory	256 MB Flash
RAM memory	128 MB DDR3
Add-on memory	1 x USB host port
Real time clock	yes
Operating system	Linux

- CODESYS V3 PLC runtime
- CODESYS OPC UA server/client
- PROFINET device, EtherNet/IP device or Modbus TCP client/server
- 4 channels with M12 connection for RFID
- 8 universal digital channels, configurable as PNP inputs or outputs, 2 A
- Switched or dual MAC mode
- Integrated Ethernet switch
- Supports 10 Mbps/100 Mbps
- Glass fiber reinforced housing
- Shock and vibration tested
- Fully potted module electronics
- Protection classes IP65, IP67, IP69K
- ATEX zone 2/22
- CCC-Ex
- Integration in PLC systems without the use of a special function module
- Up to 128 bytes of user data per read/write cycle per channel as well as use of fragments for larger data volumes
- Data interface for convenient use of the RFID functions
- Continuous HF bus mode with up to 32 HF read/write heads per channel
- 4 channels with M12 connection for RFID
- 8 universal digital channels, configurable as PNP inputs or outputs, 2 A

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PLC data	
Programming	CODESYS V3
Released for CODESYS version	V 3.5.11.20
Programming languages	IEC 61131-3 (AWL, KOP, FUP, AS, ST)
Application tasks	10
Number of POUs	1024
Programming interface	Ethernet, USB
Cycle time	< 1 ms for 1000 AWL commands (without I/O cycle)
Input data	8 kByte
Output data	8 kByte

System data	
Transmission rate Ethernet	10/100 Mbps
Connection technology Ethernet	2 x M12, 4-pin, D-coded
Web server	Default: 192.168.1.100
Service interface	Ethernet via P1 or P2

Modbus TCP	
Addressing	Static IP, BOOTP, DHCP
Supported function codes	FC1, FC2, FC3, FC4, FC6, FC15, FC16, FC23
Number of TCP connections	8

Ethernet/IP	
Addressing	acc. to EtherNet/IP specification
Class 3 connections (TCP)	3
Class 1 connections (CIP)	10
Input Assembly Instance	103
Input Data Size	248 INT
Output Assembly Instance	104
Output Data Size	248 INT
Configuration Assembly Instance	106

PROFINET	
Addressing	DCP
MinCycleTime	4 ms
Diagnostics	acc. to PROFINET alarm handling
Automatic addressing	supported
Media Redundancy Protocol (MRP)	supported

RFID	
Number of channels	4
Connectivity	M12
Power supply	2 A per channel at 70 °C [UL: 1.74 A per channel at 55 °C], short-circuit proof
Operation per channel	1 × HF or UHF read/write head, up to 32 bus-compatible HF read/write heads ending on /C53 (additional power supply may be needed for static applications)
Mixed operation of	HF and UHF read/write heads
RFID data interface	HF und UHF
Cable length	Max. 50 m

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Digital inputs	
Number of channels	8
Connectivity inputs	M12, 5-pin
Input type	PNP
Type of input diagnostics	Channel diagnostics
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	8
Connectivity outputs	M12, 5-pin
Output type	PNP
Type of output diagnostics	Channel diagnostics
Output voltage	24 VDC from potential group
Output current per channel	2.0 A, short-circuit proof, max. 4.0 A per port
Simultaneity factor	0.56
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 UKCA ATEX zone 2/22 CCC-Ex FM class I, zone 2, UV resistant acc. to DIN EN ISO 4892-2A (2013)
UL Certificate	cULus LISTED 21 W2, Encl.type 1 IND.CONT.EQ.
Note on ATEX/IECEx	The Quick Start Guide with information on use in Ex areas must be observed.

General Information	
Dimensions (W x L x H)	60.4 x 230.4 x 38.8 mm
Ambient temperature	-40…+70 °C
	UL: +55 °C
Storage temperature	-40…+85 °C
Altitude	Max. 5000 m
Protection class	IP65 IP67 IP69K
MTTF	75 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 Ø 6.3 mm

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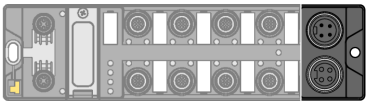
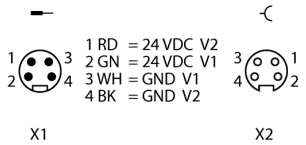
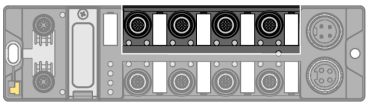
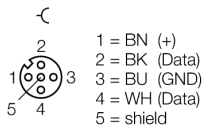
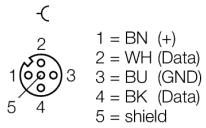
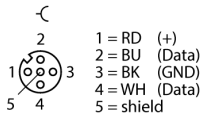
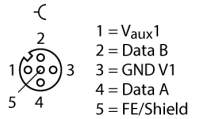
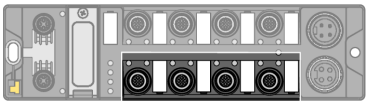
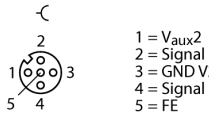
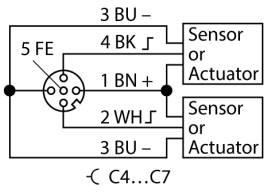
	**Note** Power supply cable (example): RSM RKM 40-2M (Ident. no. U2280-0)	7/8″ Power Supply 
	**Note** RFID cable (example): RK4.5T-2-RS4.5T/S2501 Ident. no. U3-01243 Connection of TB and TN read/write heads (example): TN-CK40-H1147 Ident. no. 7030006	…/S2500 Connectors  …/S2501 Connectors  Connectors …/S2503  Wiring diagram 
	**Note** Actuator and sensor cable/PUR cable (example): RK4.4T-2-RS4.4T ID number U2445 Y connection for single occupancy YB2-FSM4.5-2FKM4.5 ID number U0875-78	M12 x 1 I/O Port  C4...C7 

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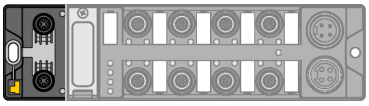
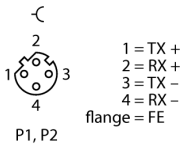
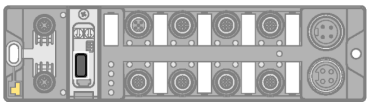
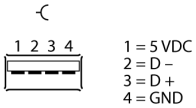
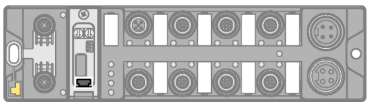
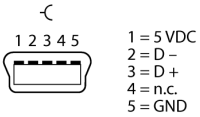
	**Note** Ethernet cable (example): RSSD-RSSD-441-2M Ident. no. U-02482	M12 x 1 Ethernet 
	**USB Host Interface** For use with USB sticks	USB 2.0 A Jack 
	**USB Device Interface** For use as a programming interface (alternative to Ethernet) USB cable	USB 2.0 mini-B Jack 

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