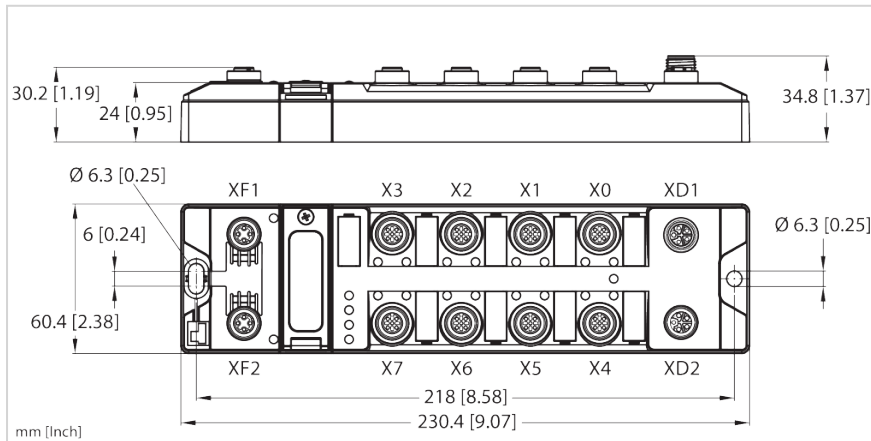


TBEN-LL-4RMC-2IOL

## Compact Multiprotocol I/O Module for Ethernet

4 Roller Motor Controllers

2 IO-Link Master Channels, 2 Digital PNP Inputs, 2 Universal Digital Channels, Configurable as PNP Inputs or 2-A Outputs



<b>Typ</b>	<b>TBEN-LL-4RMC-2IOL</b>
Ident-No.	100050635

### Technical data

Power supply	
Supply voltage	V1: 24 VDC V2: 24 VDC
Admissible range	V1: 18 ... 30 VDC V2: 18 ... 30 VDC XD1...XD2 forward current max. 16 A per voltage group
Voltage supply connection	M12, L-coded
Operating current	Operating temperature 20 °C V1: 24 VDC, 80 mA V2: 24 VDC, 40 mA
Sensor/actuator supply	Ports X0...X3 powered by V1 X0, X1 short-circuit proof, 120 mA per port X2, X3 short-circuit proof, 2 A per port
Sensor/actuator supply	Ports X4...X7 powered by V2 Short-circuit proof, irreversible, 4 A per port
Electrical isolation	Galvanic isolation of V1 and V2 voltage group Voltage proof up to 500 VDC
Electrical data	

### Features

- 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
- CAN-based roller motors from manufacturers MTA, MPC, Interroll
- IO-Link master port class A
- IO-Link protocol 1.1
- Programmable ARGEE

## Technical data

Short-circuit protection	yes
<b>Interfaces</b>	
Roller motor interface	Interroll RollerDrive EC5000 BI, FW version >=1.00.8, MPC MTR 46 AD product series, MTA MCS-24
<b>System data</b>	
Fieldbus transmission rate	10/100 Mbps
Fieldbus connection technology	2 x M12, 4-pin, D-coded
Protocol detection	automatic
Service interface	Ethernet via XF1 or XF2
ARGEE functionality	Supported
<b>Modbus TCP</b>	
Addressing	Static IP, DHCP
Supported function codes	FC3, FC4, FC6, FC16, FC23
Number of TCP connections	8
Input register start address	0 (0x0000 hex)
Output register start address	2048 (0x0800 hex)
<b>EtherNet/IP</b>	
Addressing	acc. to EtherNet/IP specification
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
<b>PROFINET</b>	
Addressing	DCP
Conformance class	B (RT)
MinCycleTime	1 ms
Diagnostics	acc. to PROFINET alarm handling
Topology detection	supported
Automatic addressing	supported
Media Redundancy Protocol (MRP)	supported
<b>Ein-/Ausgänge</b>	
Electrical isolation	Electronics and field level isolated via optocouplers
<b>Digital inputs</b>	

## Technical data

Number of channels	4 DIP + 2 DXP + 2 SIO
Input type	PNP
Switching threshold	DIP & DXP: EN 61131-2 type 3, PNP SIO: EN 61131-2 type 1, 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	Galvanic isolation from the fieldbus Voltage proof up to 500 VDC
<b>Digital outputs</b>	
Number of channels	2 DXP + 2 SIO
Output type	PNP
Type of output diagnostics	Channel diagnostics
Output voltage	24 VDC from potential group
Output current per channel	DXP: 2 A, short-circuit proof SIO: 250 mA, short-circuit proof
Load type	EN 60947-5-1: DC-13
Electrical isolation	Galvanic isolation from the fieldbus Voltage proof up to 500 VDC
<b>IO-Link</b>	
Number of channels	2
	Pin 4 in IOL mode
IO-Link specification	V 1.1
IO-Link port type	Class A
Transmission rate	4.8 kbps (COM 1)/38.4 kbps (COM 2)/ 230 kbps (COM 3)
Supported devices	Max. 32 bytes in/32 bytes out per port
Frame type	Supports all specified frame types
<b>Mechanical data</b>	
Dimensions	230,4 mm x 60,4 mm x 34,8 mm
Housing material	PA6-GF30
Housing color	Black
Material screw	303 stainless steel
Material label	Polycarbonate
Male connector material	Nickel-plated brass
Window material	Lexan
Mounting	2 mounting holes Ø 6.3 mm
<b>Ambient conditions</b>	

## Technical data

Ambient temperature	-40...+70 °C
Storage temperature	-40...+85 °C
Altitude	max. 5000 m
Electromagnetic compatibility	Acc. to EN 61131-2
Shock test	Acc. to EN 60068-2-27
Vibration test	Acc. to EN 60068-2-6, acceleration up to 20 g
Protection class	IP65 IP67 IP69K, Not assessed by UL
<b>Standards/directives</b>	
Drop and topple	Acc. to IEC 60068-2-31/IEC 60068-2-32
<b>Tests/approvals</b>	
Approvals	cURus
Approvals and certificates	CE and UKCA FCC statement, UV resistant acc. to DIN EN ISO 4892-2A (2013)
Approvals	cURus
UL Certificate	cURus Recognized Component E517268, IND.CONT.EQ For installation and use, see "Conditions of Acceptability."
MTTF	131 Years
<b>Other properties</b>	
Halogen-free	yes
<b>Remarks</b>	
Packaging unit	1

## Module status LED

L/A LED	Meaning
Off	No Ethernet connection
Green	Ethernet connection established, 100 Mbps
Yellow	Ethernet connection established, 10 Mbps
Green flashing	Data transfer, 100 Mbps
Yellow flashing	Data transfer, 10 Mbps

BUS LED	Meaning
Off	No voltage present
Green	Connection to a master is active
Green flashing 3 × in 2 s	ARGEE active
Green flashing (1 Hz)	Device ready for operation
Red	IP address conflict, restore mode active, F_Reset active or Modbus connection timeout
Red flashing	Wink command active
Red/green 1 Hz	Autonegotiation and/or waiting for IP address allocation in DHCP or BootP mode

ERR LED	Meaning
Off	No voltage present
Green	No diagnostics
Red	Diagnostics present

<b>PWR LED</b>	<b>Meaning</b>
Off	No voltage or undervoltage at V1
Green	Voltage at V1 and V2 OK
Green flashing	No voltage or undervoltage at V2 (LED behavior configurable)
Red	

### **I/O status LED**

<b>DIP channel LEDs</b> X0: LED 0, 1 X1: LED 2, 3	
Off	Input inactive
Green	Input active
Red flashing (1 Hz)	Power overload at the corresponding port. Both port LEDs flash.

<b>DXP channel LEDs</b> X2: LED 5 X3: LED 7	<b>Meaning (input)</b>
Off	Input inactive
Green	Input active
Red	-
Red flashing (1 Hz)	Power overload at the corresponding port. Both port LEDs flash.
	<b>Meaning (output)</b>
Off	Output not active
Green	Output active (max. 2 A)
Red	Actuator overload
Red flashing (1 Hz)	Power overload at the corresponding port. Both port LEDs flash.

<b>LED IOL</b> X2: IO-Link port 1: LED 4 X3: IO-Link port 2: LED 6	<b>Channel in IO-Link mode</b>
	<b>Meaning</b>
Off	Port inactive, no IO-Link communication, diagnostics deactivated
Green flashing	IO-Link communication, process data valid
Red flashing	IO-Link communication and module errors, process data invalid
Red	IO-Link supply error-free, no IO-Link communication and/or module error, process data invalid

<b>LED IOL</b> X2: IO-Link port 1: LED 4 X3: IO-Link port 2: LED 6	<b>Channel in SIO mode (C/Q)</b>
	<b>Meaning (input)</b>
Off	Input inactive
Green	Input active
Red	-
Red flashing (1 Hz)	VAUX1 power overload, both port LEDs flash
	<b>Meaning of output</b>
Off	Output inactive
Green	Output active
Red	Output active with overload/short circuit
Red flashing (1 Hz)	Power overload at the corresponding port. Both port LEDs flash.

RM channel LEDs X4 ... X7	Meaning
<b>LED 8, 10, 12, 14</b>	
Off	No motor parameterized and connected
Green	Motor connected, CANopen PDO transfer in progress
Red	Motor parameterized but not yet connected or ready
<b>LED 9, 11, 13, 15</b>	
Off	Motor at a standstill
Green	Motor in motion
Green flashing	Motor ready for operation, CANopen communication acc. to the CANopen drives profile
Red	Motor reports an error

WINK LED (without designation on device)	Meaning
White flashing	Wink command active

### Process Data Mapping of the Single Protocols

For more details on the corresponding protocols see manual.

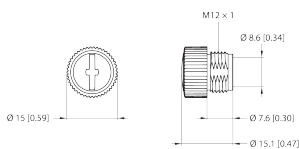
### Connections and pin assignments

Technical details on connecting the power supply, fieldbus and IO level can be found in the manual.

## Connection accessories

<b>VS-M12-PWR</b>	<b>100034822</b>
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Blanking plug for M12 female connectors

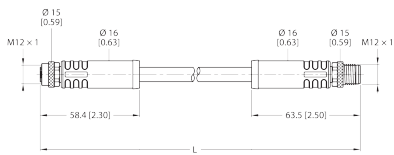


www.turck.com

## Connection accessories - Power supply

**RKP56PLA-2-RSP56PLA/TXG**

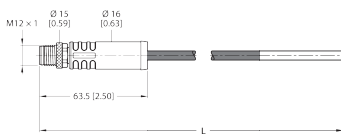
**100038722**



Extension cable, M12 female connector, straight, 4-pin + FE, L-coded; M12 male connector, straight, 4-pin + FE, L-coded; cable length: 2 m, jacket material: PUR, gray

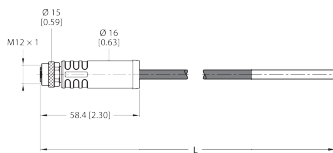
**RSP56PLA-2/TXG**

**100038699**



**RKP56PLA-2/TXG**

**100038706**

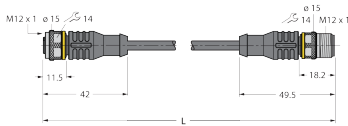


## Connection accessories - I/O

### RKC4T-2-RSC4T/TXL

6625604

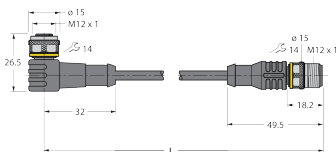
Extension cable, M12 female connector, straight, 3-pin to M12 male connector, straight, 3-pin; cable length: 2 m, jacket material: PUR, black; cULus approval



### WKC4T-2-RSC4T/TXL

6625636

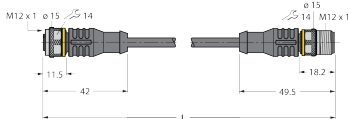
Extension cable, M12 female connector, angled, 3-pin to M12 male connector, straight, 3-pin; cable length: 2 m, jacket material: PUR, black; cULus approval



### RKC4.4T-2-RSC4.4T/TXL

6625608

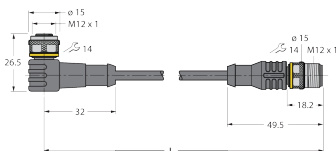
Extension cable, M12 female connector, straight, 4-pin to M12 male connector, straight, 4-pin; cable length: 2 m, jacket material: PUR, black; cULus approval



### WKC4.4T-2-RSC4.4T/TXL

6625640

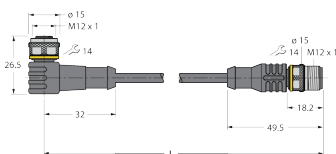
Extension cable, M12 female connector, angled, 4-pin to M12 male connector, straight, 4-pin, cable length: 2 m, jacket material: PUR, black; cULus approval



### WKC4.5T-2-RSC4.5T/TXL

6625644

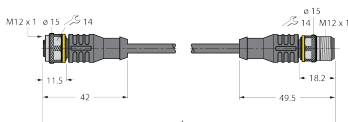
Extension cable, M12 female connector, angled, 5-pin to M12 male connector, straight, 5-pin; cable length: 2 m, jacket material: PUR, black; cULus approval



### RKC4.5T-2-RSC4.5T/TXL

6625612

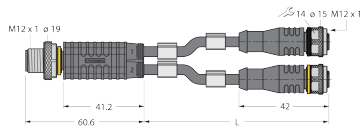
Extension cable, M12 female connector, straight, 5-pin to M12 male connector, straight, 5-pin; cable length: 2 m, jacket material: PUR, black; cULus approval



### VBRS4.4-2RKC4T-1/1/TXL

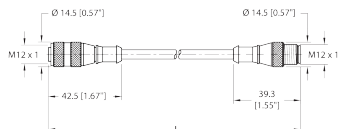
6628112

## Connection accessories - I/O



2-port junction systems — Y-splitter with cable, M12 male connector, straight, 4-pin — 2 × M12 female connector, straight, 3-pin, cable length: 1 m, jacket material: PUR, black

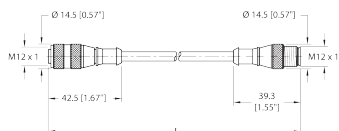
### RK 4T-2-RS 4T



### U2151-3

Actuator and sensor cordset, extension cable, M12 female connector, straight, 3-pin, M12 male connector, straight, 3-pin, IP68, IP69K, cable length: 2 m, cable jacket PVC, gray, other cable lengths and versions available, see [www.turck.com](http://www.turck.com)

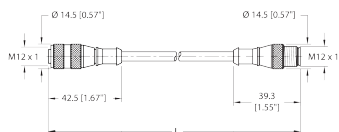
### RK 4.4T-2-RS 4.4T



### U2445

Actuator and sensor cordset, extension cable, M12 female connector, straight, 4-pin, M12 male connector, straight, 4-pin, IP68, IP69K, cable length: 2 m, cable jacket PVC, gray, other cable lengths and versions available, see [www.turck.com](http://www.turck.com)

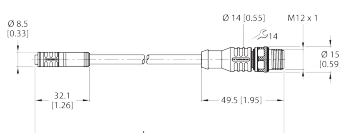
### RK 4.5T-2-RS 4.5T



### U2187-1

Actuator and sensor cordset, extension cable, M12 female connector, straight, 5-pin, M12 male connector, straight, 5-pin, IP68, IP69K, cable length: 2 m, cable jacket PVC, gray, other cable lengths and versions available, see [www.turck.com](http://www.turck.com)

### PKG4.5S-2-RSW4.5T/TEL



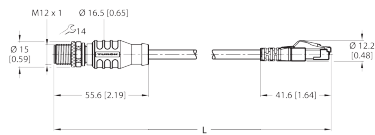
### 6634924

Extension cable, Ø 8-mm female connector, snap-on, straight, 5-pin to M12 male connector, straight, 5-pin, B-coded; cable length: 2 m, jacket material: PVC, black; cULus approval

## Connection accessories - network

### RSSD-RJ45S-4422-2M

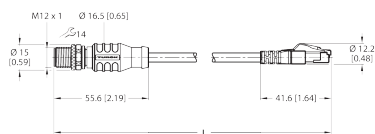
6635170



Cable for Industrial Ethernet, M12 male connector, D-coded, straight to RJ45 male connector, straight, cable length: 2 m, jacket material: PUR, green

### RSSD-RJ45S-4422-7M

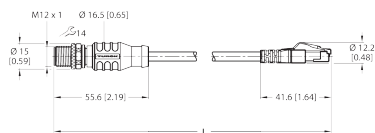
6635579



Cable for Industrial Ethernet, M12 male connector, D-coded, straight to RJ45 male connector, straight, cable length: 2 m, jacket material: PUR, green

### RSSD-RJ45S-4422-8M

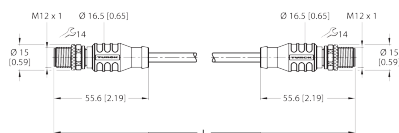
6635538



Cable for Industrial Ethernet, M12 male connector, D-coded, straight to RJ45 male connector, straight, cable length: 2 m, jacket material: PUR, green

### RSSD-RSSD-4422-2M

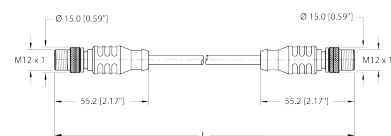
6635150



Cable for Industrial Ethernet, M12 male connector, D-coded, straight to M12 male connector, D-coded, straight, cable length: 2 m, jacket material: PUR, green

### RSSD RSSD 441-2M

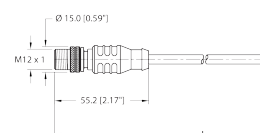
U-02482



Cable for Industrial Ethernet, M12 male connector, D-coded, straight to M12 male connector, D-coded, straight, cable length: 2 m, jacket material: TPE, turquoise

### RSSD RJ45 441-2M

U-08880



Cable for Industrial Ethernet, M12 male connector, D-coded, straight to RJ45 male connector, straight, cable length: 2 m, jacket material: TPE, turquoise