

- On-Machine™ compact fieldbus I/O blocks
- EtherNet/IP™, Modbus® TCP or PROFINET slave
- Integrated Ethernet switch
- 10 Mbps/100 Mbps supported
- Two 4-pin, D-coded M12 connectors for fieldbus connection
- 2 rotary coding switches for node-address
- IP 69K
- M12 I/O ports
- LEDs indicating status and diagnostics
- Electronics galvanically isolated from the field level via optocouplers
- Transmission of serial data via RS232 interface
- For connection of printers, scanners and bar code readers

Type designation	BLCEN-3M12LT-1RS232-2RFID-S
Ident no.	6811463
Nominal system voltage	24 VDC
System power supply	Via auxiliary power
Voltage supply connection	2 x M12, 5-pin
Admissible range Vi	18...30VDC
Nominal current Ii	200 mA
Max. current Ii	2 A
Fieldbus transmission rate	10/100 Mbps
Adjustment transmission rate	Automatic detection
Fieldbus address range	1...92 0 (192.168.1.254) 93 (BootP) 94 (DHCP) 95 (PGM) 96 (PGM-DHCP) *Recommended for PROFINET 97...98 (manufacturer specific)
Fieldbus addressing	2 dec. Rotary coding switches
Fieldbus connection technology	2 ← M12 4-pin, D-coded
Protocol detection	automatic
Web server	Integrated
Service Interface	Ethernet
Vendor ID	48
Product type	12
Product code	11463
Modbus TCP	
Addressing	Static IP, BOOTP, DHCP
Supported function codes	FC1, FC2, FC3, FC4, FC5, FC6, FC15, FC16, FC23
Number of TCP connections	6
Input Data Size	max. 18 register
Input register start address	0 (0x0000 hex)
Output Data Size	max. 16 register
Output register start address	2048 (0x0800 hex)
EtherNet/IP™	
Addressing	acc. to EtherNet/IP™ specification
Device Level Ring (DLR)	supported
Number of CIP connections	6
Input Assembly Instance	103
Input Data Size	19 INT
Output Assembly Instance	104
Output Data Size	16 INT
Configuration Assembly Instance	106
Configuration Size	0
Comm Format	Data - INT

PROFINET

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
Input Data Size	max. 32 BYTE
Output Data Size	max. 32 BYTE

Technology

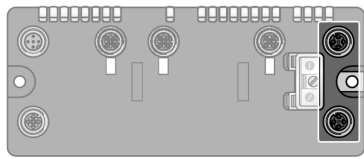
Signal type	RS232
Number of channels	1
Transmission level active (URS1)	-15 VDC bis -3 VDC
Transmission level inactive (URSO)	3 VDC bis 15 VDC
Common-mode range (UGL)	-7 VDC bis 12 VDC
Transmission signals	RxD, TxD, RTS, CTS
Receive data buffer	128 Byte
Send data buffer	64 Byte
Connection type	full duplex
Cable length	15 m
Parameters	Übertragungsrate, Diagnose, Datenbits, Stoppbits, XON - Zeichen, XOFF - Zeichen, Parität, Flusskon- trolle
Electrical isolation	Electronics and field level isolated via optocouplers

technology

Signal type	from 2RFID-S
Number of channels	Simple RFID interface
Sensor supply	2
Simultaneity factor	0,5 A pro Kanal, kurzschlussfest
Transmission rate	1
Cable length	115,2 KBit/s
Electrical isolation	50 m
	Trennung von Elektronik und Feldebene via Op- tokoppler

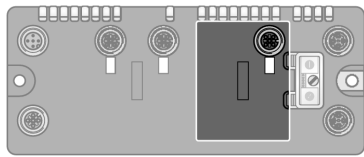
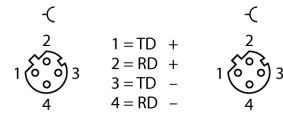
Dimensions

Operating temperature	168 x 71 x 32.5 mm
Storage temperature	-40...+70 °C
Relative humidity	-40...+85 °C
Vibration test	15 to 95% (non-condensing)
Extended vibration resistance	acc. to IEC 61131-2
- up to 20 g (at 10 up to 150 Hz)	For mounting on base plate or machinery
Shock test	acc. to IEC 61131-2
Electro-magnetic compatibility	acc. to IEC 61131-2
Protection class	IP67
	IP69K
Housing material	Glass fiber reinforced nylon, nickel-plated connector
Housing color	Black
Window material	Lexan
Material screw	Nickel-plated brass
Material label	Polyester with polycarbonate overlay
Ground tab material	Nickel-plated brass
Weight	500 ± 20 g
Approvals and certificates	CE, cULus



Ethernet

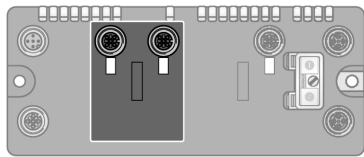
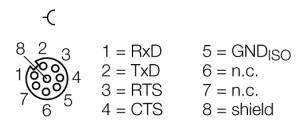
Fieldbus cable (IP67 example): RSSD RSSD 441-2M ID number U-02482 or RSSD-RSSD-441-2M/S2174 ID number 6914218



Slot 1: RS232 Interface

Extension cable (example): RKC 8T-2-RSC 8T/S1555 ident-no. U0933-01 or BS8181-0 ident-no. 6901004

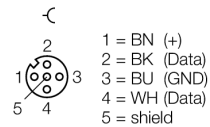
Pin Assignment



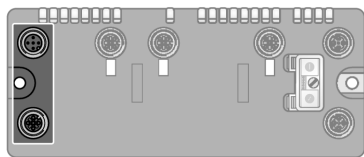
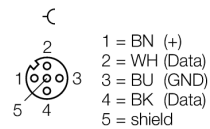
Slot 2: RFID Channels

Extension cable (example): RK 4.5T-2-RS 4.5T/S2501 ident-no. U3-01243 or RK4.5T-2-RS4.5T/S2500 ident-no. 6699200

.../S2500 Connectors



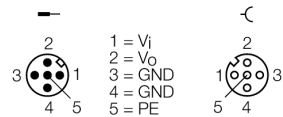
.../S2501 Connectors



Auxiliary Power

Extension cable (example): RKC 4.4T-2-RSC 4.4T ident-no. U5264 or RKC4.4T-2-RSC4.4T/TEL ident-no. 6625208

Pin Assignment



Status: Station LED

LED	Color	Status	Description
IOs		OFF	Power off
	RED	ON	Insufficient power supply
	RED	FLASHING (1Hz)	Deviating station configuration
	RED	FLASHING (4 Hz)	No module bus communication
	GREEN	ON	Station OK
	GREEN	FLASHING	Force mode active
BUS		OFF	Power Off
	GREEN	ON	Connected to Master
	GREEN	FLASHING	Ready
	RED	ON	Error
	RED	FLASHING	WINK
	YELLOW	ON	DHCP/BOOTP Search
IO	GREEN	ON	I/O slots OK
	GREEN	FLASHING (1Hz)	At least one I/O slot in idle state
	RED	ON	At least one faulty I/O slot
	RED	FLASHING	At least one I/O slot in faulty state

Status: I/O LED, slot 1

LED	Color	Status	Description
D1 *		OFF	Diagnostic disabled
	RED	ON	Station / module bus communication failure
	RED	FLASHING (0.5Hz)	Summarized diagnostic

* D1 LED also indicates gateway diagnostic

I/O LED Status Slot 2

LED	Colour	Status	Description
D2 *		OFF	Diagnostic disabled
	RED	ON	Station / module bus communication failure
	RED	FLASHING (0.5Hz)	Summarized diagnostic
RW0 / RW1		OFF	No tag, no active diagnostics
	GREEN	ON	Tag available
	GREEN	FLASHING (2 Hz)	Data transfer from/to tag active
	RED	ON	Read/write head error
	RED	FLASHING (2 Hz)	Short-circuit in transceiver feed

* The D2 LED also indicates gateway diagnosis

Process Data Mapping of the Single Protocols

EtherNet/IP™ I/O and Diagnostic Data Mapping

INPUT	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
RS232 1, Status Bytes	0	STAT	TX_CNT_ACK		RX_CNT		RX_BYTE_CNT		
	1	BUF_OVFL	FRAME_ERR	HNDSH_ERR	HW_FAILURE	PRM_ERR	-	-	-
RS232 1, User Data	2	Data Byte 0							
	3	Data Byte 1							
	4	Data Byte 2							
	5	Data Byte 3							
	6	Data Byte 4							
RFID 2,	7	Data Byte 5							
	8	Done	Busy	Fehler	Trans. Conn.	Trans. On	TP	TFR	-
	9	Error Cat. (Category Code)							
	10	Error Desc. (Description Code)							
	11	-	-	-	-	-	-	-	-
12...19	Read Data (8 Byte)								
RFID 2,	20	Done	Busy	Fehler	Trans. Conn.	Trans. On	TP	TFR	-
	21	Error Cat. (Category Code)							
	22	Error Desc. (Description Code)							
	23	-	-	-	-	-	-	-	-
	24...31	Read Data (8 Byte)							
Diagnostics	32	Module number reporting diagnostic data							
	33	Replace Station	-	Diagnostics Active	-	-	-	-	-
Slot 1* (ref. Byte 32)	10	-	-	-	Buffer Overflow	Frame Error	Data Flow Control Error	Hardware Failure	Parameterization Error
	11	-	-	-	-	-	-	-	-
Slot 2* (ref. Byte 32)	10	-	-	-	-	-	RFID 2, Trans. PS Off	-	-
	11	-	-	-	-	RFID 2, Trans. PS Error	-	-	RFID 2, Trans. Hdwr Error
	12	-	-	-	-	-	RFID 2, Trans. PS Off	-	-
	13	-	-	-	-	RFID 2, Trans. PS Error	-	-	RFID 2, Trans. Hdwr Error
OUTPUT	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
RS232 1, Control Byte	0	STAT_RES	RX_CNT_ACK		TCX_CNT		TX_BYTE_CNT		
	1	-	-	-	-	-	-	RXBUF_FLUSH	TXBUF_FLUSH
RS232 1, User Data	2	Data Byte 0							
	3	Data Byte 1							
	4	Data Byte 2							
	5	Data Byte 3							
	6	Data Byte 4							
RFID 2,	7	Data Byte 5							
	8	Transceiver	Next	TAG ID	lesen	Write	TAG Info	Trans. Info.	Reset
	9	-	-	-	-	-	Byte Count 2	Byte Count 1	Byte Count 0
	10	Address High Byte (MSB)							
	11	Address Low Byte (LSB)							
12...19	Write Data (8 Byte)								
RFID 2,	20	Transceiver	Next	TAG ID	lesen	Write	TAG Info	Trans. Info.	Reset
	21	-	-	-	-	-	Byte Count 2	Byte Count 1	Byte Count 0
	22	Address High Byte (MSB)							
	23	Address Low Byte (LSB)							
	24...31	Write Data (8 Byte)							

* If both slots of the module are diagnosable, the display of continuous diagnostic (scheduled diagnostic) switches every 125 ms between slot 1 and 2.

Attention:

For 1RS232 an additional data format is available; please contact our technical customer service at TURCK.

Modbus TCP Register Mapping

5 / 7	Hans Turck GmbH & Co. KG	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
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Eingänge (RO)	0x0000	BUF OVFL	FRM	HND SH ERR	HW	PRM	-	-	-	STAT	TX_CNT_ACK	RX_CNT	RX_BYTE_CNT					
	0x0001 ... 0x0003	Read Data (3 Words)																
	0x0004	Error Cat. (Category Code)									Done	Busy	Fehler	Trans. Conn.	Trans. On	TP	TFR	-
	0x0005	-	-	-	-	-	-	-	-	Error Desc. (Description Code)								
	0x0006 ... 0x0009	Read Data (4 Words)																
	0x000A	Error Cat. (Category Code)									Done	Busy	Fehler	Trans. Conn.	Trans. On	TP	TFR	-
	0x000B	-	-	-	-	-	-	-	-	Error Desc. (Description Code)								
	0x000C ... 0x000F	Read Data (4 Words)																
Status (RO)	0x0010	-	FCE	-	-	CFG	COM	VI low	-	VO low	-	-	-	-	-	-	-	DIA
Diag. (RO)	0x0011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	S2 DIA	S1 DIA	
Ausgänge (RW)	0x0800	-	-	-	-	-	-	RXBUF FLUSH	TXBUF FLUSH	STAT RES	RX_CNT_ACK	TCX_CNT	TX_BYTE_CNT					
	0x0801 ... 0x0804	Write Data (3 Words)																
	0x0805	-	-	-	-	-	Byte CNT 2	Byte CNT 1	Byte CNT 0	Trans.	Next	TAG ID	lesen	Write	TAG Info	Trans. Info.	Reset	
	0x0806	Address																
	0x0807 ... 0x080A	Write Data (4 Words)																
	0x080B	-	-	-	-	-	Byte CNT 2	Byte CNT 1	Byte CNT 0	Trans.	Next	TAG ID	lesen	Write	TAG Info	Trans. Info.	Reset	
	0x080C	Address																
	0x080D ... 0x0810	Write Data (4 Words)																
I/O Diag (RO)	0xA000	-	-	-	-	-	-	-	-	OF	FRM	DFC	HW	PRM	-	-	-	
	0xA001	-	-	-	-	PS RFID 2 ₀	-	-	HW RFID 2 ₀	-	-	-	-	-	SCO RFID 2 ₀	-	-	
	0xA002	-	-	-	-	PS RFID 2 ₁	-	-	HW RFID 2 ₁	-	-	-	-	-	SCO RFID 2 ₁	-	-	

PROFINET® Process Data

	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0		
Eingänge	0	STAT	TX_CNT_ACK	RX_CNT		RX_BYTE_CNT					
	1	BUF_OVFL	FRAME_ERR	HND SH_ERR	HW_FAILURE	PRM_ERR	-	-	-		
	2	Data Byte 0									
	3	Data Byte 1									
	4	Data Byte 2									
	5	Data Byte 3									
	6	Data Byte 4									
	7	Data Byte 5									
	8	RFID 2 ₀ Done	RFID 2 ₀ Busy	RFID 2 ₀ Error	RFID 2 ₀ Trans. Conn.	RFID 2 ₀ Trans. On	RFID 2 ₀ TP	RFID 2 ₀ TFR	-		
	9	RFID 2 ₀ Error Cat. (Category Code)									
	10	RFID 2 ₀ Error Desc. (Description Code)									
	11	-	-	-	-	-	-	-	-		
	12...19	RFID 2 ₀ Read Data (8 Byte)									
	20	RFID 2 ₀ Done	RFID 2 ₀ Busy	RFID 2 ₀ Error	RFID 2 ₀ Trans. Conn.	RFID 2 ₀ Tran. On	RFID 2 ₀ TP	RFID 2 ₀ TFR	-		
	21	RFID 2 ₀ Error Cat. (Category Code)									
	22	RFID 2 ₀ Error Desc. (Description Code)									
	23	-	-	-	-	-	-	-	-		
	24...31	RFID 2 ₀ Read Data (8 Byte)									
	Ausgänge	0	STAT_RES	RX_CNT_ACK	TCX_CNT			TX_BYTE_CNT			
		1	-	-	-	-	-	-	RXBUF_FLUSH	TXBUF_FLUSH	
		2	Data Byte 0								
		3	Data Byte 1								
		4	Data Byte 2								

5	Data Byte 3							
6	Data Byte 4							
7	Data Byte 5							
8	RFID 2 ₀ Transceiver	RFID 2 ₀ Next	RFID 2 ₀ Tag ID	RFID 2 ₀ Read	RFID 2 ₀ Write	RFID 2 ₀ Tag Info.	RFID 2 ₀ Trans. Info.	RFID 2 ₀ Reset
9	-	-	-	-	-	RFID 2 ₀ Byte Count 2	RFID 2 ₀ Byte Count 1	RFID 2 ₀ Byte Count 0
10	RFID 2 ₀ Address High Byte (MSB)							
11	RFID 2 ₀ Address Low Byte (LSB)							
12...19	RFID 2 ₀ Write Data (8 Byte)							
20	RFID 2 ₁ Transceiver	RFID 2 ₁ Next	RFID 2 ₁ Tag ID	RFID 2 ₁ Read	RFID 2 ₁ Write	RFID 2 ₁ Tag Info.	RFID 2 ₁ Trans. Info.	RFID 2 ₁ Reset
21	-	-	-	-	-	RFID 2 ₁ Byte Count 2	RFID 2 ₁ Byte Count 1	RFID 2 ₁ Byte Count 0
22	RFID 2 ₁ Address High Byte (MSB)							
23	RFID 2 ₁ Address Low Byte (LSB)							
24...31	RFID 2 ₁ Write Data (8 Byte)							