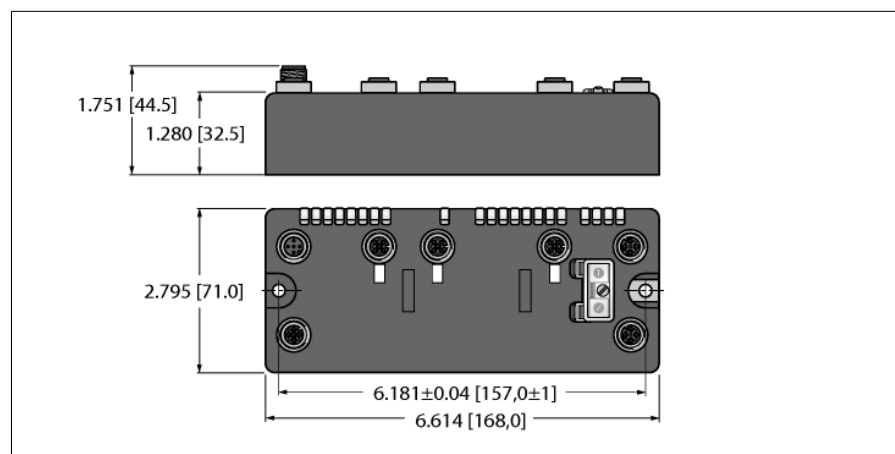


BL compact™ multiprotocol fieldbus station for Industrial Ethernet

RS232 Interface and Interface for Connection of 2 BL ident Read/Write Heads (HF/UHF)

BLCEN-3M12LT-1RS232-2RFID-S



Type	BLCEN-3M12LT-1RS232-2RFID-S
ID	6811463
Nominal system voltage	24 VDC
System power supply	Via auxiliary power
Voltage supply connection	2 x M12, 5-pin
Admissible range Vi	18...30 VDC
Nominal current Vi	200 mA
Max. current Vi	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 decimally coded rotary switches
Fieldbus connection technology	2 x M12 4-pole, D-coded
Protocol detection	automatic
Web server	Integrated
Service interface	Ethernet
Vendor ID	48
Product type	12
Product code	11463

- On-machine Compact fieldbus I/O block
- EtherNet/IP™, Modbus® TCP, or PROFINET slave
- Integrated Ethernet Switch
- 10 Mbps / 100 Mbps supported
- Two 4-pole M12, D-coded, connectors for fieldbus connection
- 2 rotary switches for node address
- IP67, IP69K
- M12 I/O connectors
- LEDs indicating status and diagnostics
- Electronics galvanically separated from the field level via optocouplers
- Transmission of serial data via RS232 interface
- For connection of devices such as: printers, scanners, or bar code readers

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
Class 1 connections (CIP)	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

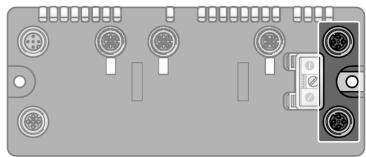
PROFINET	
Addressing	DCP
Conformance class	B (RT)
MinCycleTime	1 ms
Diagnostics	acc. to PROFINET alarm handling
Topology detection	supported
Automatic addressing	supported
Media Redundancy Protocol (MRP)	supported
Input Data Size	max. 32 BYTE
Output Data Size	max. 32 BYTE

Technology	
Signal type	RS232
Number of channels	1
Transmission level active (URS1)	-15...-3 VDC
Transmission level inactive (URSO)	3...15 VDC
Common-mode range (UGL)	-7...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	transmission rate, diagnostics, data bits, stop bits, XON-character, XOFF-character, parity, flow control
Electrical isolation	isolation of electronics and field level via optocouplers

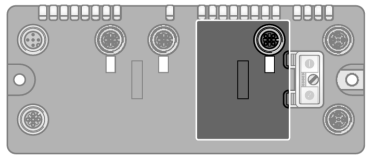
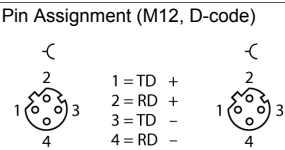
technology	
Signal type	Simple RFID interface
Number of channels	2
Sensor supply	0.5 A per channel, short-circuit proof
Simultaneity factor	1
Transmission rate	115.2 kbps
Cable length	50 m
Electrical isolation	isolation of electronics and field level via optocouplers

Dimensions	168 x 71 x 32.5 mm
Mounting	2 × 5.4 mm diameter holes, 1.7 Nm torque
Weight	500 ± 20 g
Housing material	Glass-filled nylon, nickel plated brass connectors
Housing color	Black
Material screw	Nickel-plated brass
Material label	Polyester with polycarbonate overlay
Ground label material	Nickel plated brass
Protection class	IP67 IP69K
Ambient temperature	-40...+70 °C
Storage temperature	-40...+85 °C
Relative humidity	15 to 95% (non-condensing)
Vibration test	Acc. to IEC 61131-2
- up to 20 g (at 10 up to 150 Hz)	For mounting on base plate or machinery
Shock test	according to IEC 61131-2
Electromagnetic compatibility	Acc. to IEC 61131-2
MTTF	122 years
MTTF note	acc. to SN 29500 (Ed. 99) 20 °C
Approvals and certificates	CE, cULus

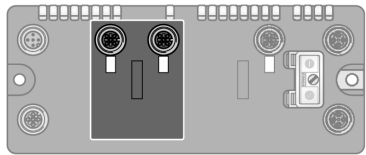
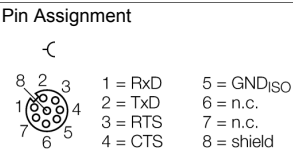
Pinning and wiring diagram



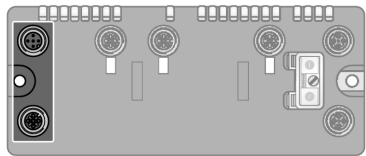
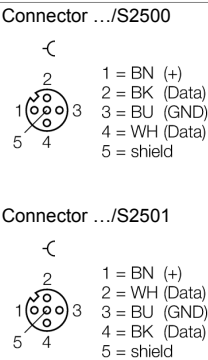
Ethernet
Fieldbus cable (IP67 example): RSSD RSSD 441-2M ID number U-02482 or RSSD-RSSD-441-2M/S2174 ID number 6914218



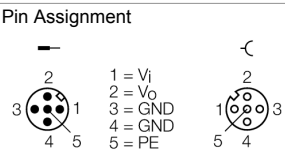
Slot 1: RS232 Interface
Extension cable (example): RKC 8T-2-RSC 8T/S1555 ident-no. U0933-01 or BS8181-0 ident-no. 6901004



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



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



Station LED status

LED	Color	Status	Description
IOs		OFF	No power
	RED	ON	Low power or station error
	RED	FLASHING (1 Hz)	I/O module configuration error
	RED	FLASHING (4 Hz)	No I/O module bus communication
	GREEN	ON	Station ok
	GREEN	FLASHING	Force mode active
BUS		OFF	Power Off
	GREEN	ON	Connected to Master
	GREEN	FLASHING	Ready
	GREEN	FLASHING 3x (1Hz)	ARGE Running
	RED	ON	Error
	RED	FLASHING	WINK
LNK/ACT	YELLOW	ON	DHCP/BOOTP Search
		OFF	No Link
	GREEN	ON	Link
	GREEN	FLASHING	Traffic
	YELLOW	ON	100 Mbit Linked

I/O LED status slot 1

LED	Color	Status	Description
D1 *		OFF	No diagnostics active
	RED	ON	Station error/ module bus communication failure
	RED	FLASHING (0.5Hz)	Diagnostics active (Slot 1)

* D1 LED also indicates gateway diagnostics

I/O LED status slot 2

LED	Color	Status	Description
D2 *		OFF	No diagnostics active
	RED	ON	Station error/ module bus communication failure
	RED	FLASHING (0.5Hz)	Diagnostics active (Slot 2)
RW0 / RW1		OFF	No tag present, no diagnostics active
	GREEN	ON	Tag present
	GREEN	FLASHING (2 Hz)	Data communication from / to tag active
	RED	ON	Error in the R/W head
	RED	FLASHING (2 Hz)	Short circuit in the transceiver supply

* D2 LED also indicates gateway diagnostics

Process Data Mapping of Each Protocol

EtherNet/IP™ I/O & Diagnostics Data Mapping

INPUT	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
RS232 1, Sta- tus 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							
	7	Data Byte 5							
RFID 2,	8	Done	Busy	Error	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	Error	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 Sta- tion	-	Diagnostics Active	-	-	-	-	-
Slot 1* (ref. Byte 32)	34	-	-	-	Buffer Over- flow	Frame Error	Data Flow Control Error	Hardware Failure	Parameteriza- tion Error
	35	-	-	-	-	-	-	-	-
Slot 2* (ref. Byte 32)	34	-	-	-	-	-	RFID 2, Trans. PS Off	-	-
	35	-	-	-	-	RFID 2, Trans. PS Error	-	-	RFID 2, Trans. Hdwr Error
	36	-	-	-	-	-	RFID 2, Trans. PS Off	-	-
	37	-	-	-	-	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, Con- trol 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							
	7	Data Byte 5							
RFID 2,	8	Transceiver	Next	Tag ID	Read	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	Read	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)							

* The scheduled diagnostic information changes every 125 ms between Slot 1 and Slot 2, if both slots send active diagnostics.

ATTENTION !

1RS232 has additional data format available; contact TURCK technical support for details.

Legend:

Done	Channel is ready to receive command	Tag_ID	Turn on to read UID (HF)
Busy	Channel is processing command	Read	Read data
Error	Channel has encountered an error	Write	Write data
Trans_Conn	Transceiver is connected	Tag_Info	Turn on to read information about tag in field
Trans_On	Transceiver turned on	Trans_Info	Turn on to read information about transceiver
TP	Tag present	Reset	Reset any in process or queued commands

TFR	Tag fully read	ByteCount	3 bits represent the number of bytes to read or write
Error_Cat Error_Desc	Error category and description	Domain	2 bits represent memory domain used (UHF)
Read Data Bytes	Data read from the tag	Address	Starting address in the domain to read / write
Transceiver	Turns transceiver on and off	Write Data Bytes	Data to be written to tag
Next	Starting address in the domain to read / write		

Modbus® TCP Register Mapping

	REG	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	
Inputs (RO)	0x0000	BUF OVFL	FRM	HNDSH ERR	HHW	PRM	-	-	-	-	STAT	TX_CNT_ACK	RX_CNT		RX_BYTE_CNT			
	0x0001 ... 0x0003	Read Data (3 Words)																
	0x0004	Error Cat. (Category Code)									Done	Busy	Error	Trans. Conn.	Trans. On	TP	TFR	-
	0x0005	-	-	-	-	-	-	-	-	Error Desc. (Description Code)								
	0x0006 ... 0x0009	Read Data (4 Words)																
	0x000A	Error Cat. (Category Code)									Done	Busy	Error	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	
Outputs (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	Read	Write	Tag In- fo.	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	Read	Write	Tag In- fo.	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
Inputs	0	STAT	TX_CNT_ACK		RX_CNT		RX_BYTE_CNT		
	1	BUF_OVFL	FRAME_ERR	HNDSH_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 ₁ Done	RFID 2 ₁ Busy	RFID 2 ₁ Error	RFID 2 ₁ Trans. Conn.	RFID 2 ₁ Tran. On	RFID 2 ₁ TP	RFID 2 ₁ TFR	-
	21	RFID 2 ₁ Error Cat. (Category Code)							
	22	RFID 2 ₁ Error Desc. (Description Code)							
	23	-	-	-	-	-	-	-	-

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