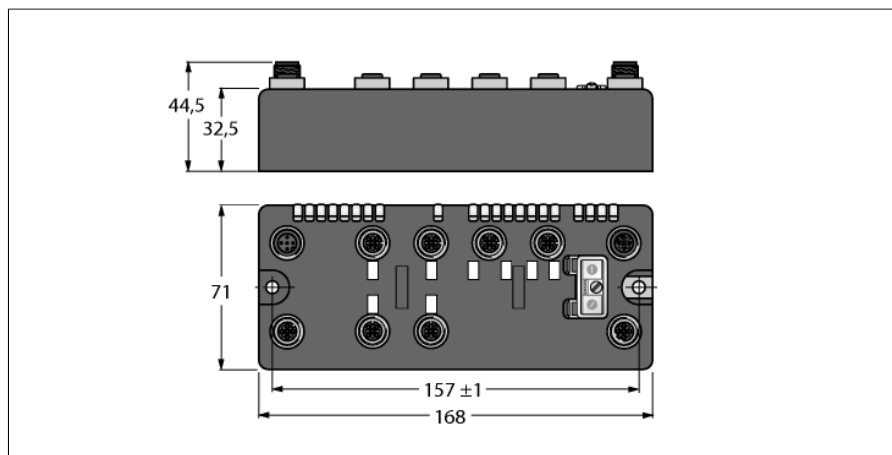


BL compact Multiprotocol Station for Industrial Ethernet

Interface for Connection of 2 BL ident® Read/Write Heads (HF/UHF) and 8 Configurable Digital PNP Channels

BLCEN-6M12LT-2RFID-S-8XSG-P



Type	BLCEN-6M12LT-2RFID-S-8XSG-P
ID	6811454
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	250 mA
Max. current Vi	2 A
Admissible range Vo	18...30 VDC
Nominal current Vo	100 mA
Max. current Vo	4 A
Electrical isolation	The 8XSG I/O cards have a common reference potential for operating and load voltage due to their freely selectable digital channels. All power sources on this unit (Vi/Vo/V+) must also be simultaneously connected to the power source.
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 x M12 4-pin, D-coded
Protocol detection	automatic
Web server	Integrated
Service interface	Ethernet
Vendor ID	48
Product type	12
Product code	11454

- 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
- 8 digital PNP channels, 24 VDC
- Max. 0.5 A per channel
- Adjustable filter times (input delay)
- Input inverting possible
- Simple RFID interface
- Connection of 2 BL ident read/write heads
- Max. cable length 50 m

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. 15 register
Input register start address	0 (0x0000 hex)
Output Data Size	max. 13 register
Output register start address	2048 (0x0800 hex)

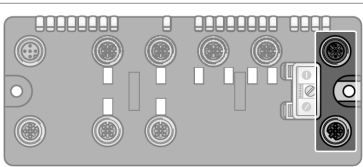
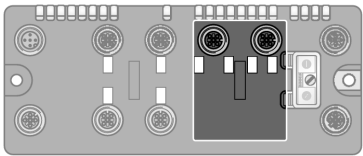
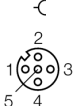
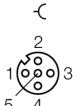
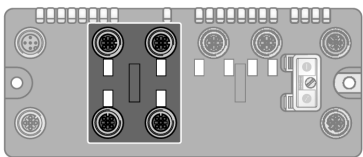
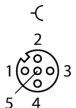
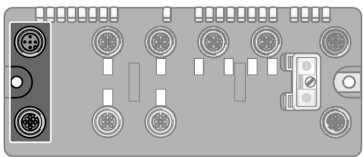
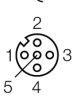
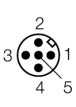
Ethernet/IP	
Addressing	acc. to EtherNet/IP specification
Device Level Ring (DLR)	supported
Class 1 connections (CIP)	6
Input Assembly Instance	103
Input Data Size	16 INT
Output Assembly Instance	104
Output Data Size	13 INT
Configuration Assembly Instance	106
Configuration Size	0
Comm Format	Data - INT

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. 26 BYTE
Output Data Size	max. 26 BYTE

Digital inputs	
Input type	PNP
Type of input diagnostics	Group diagnostics
Sensor supply (V_{SENS})	24 VDC from supply voltage
Low-level signal voltage	4.5 V
Low-level signal voltage	< 4.5 VDC
High-level signal voltage	7...30 VDC
Low-level signal current	< 1.5 mA
High-level signal current	2.1...3.7 mA
Input delay	0.25 or 2.5 ms (configurable)

Digital outputs	
Output type	PNP
Sensor supply (V_{SENS})	24 VDC
Output current per channel	0.5 A
Output voltage	24 VDC from supply voltage
Output delay	3 ms
Load type	Resistive, inductive, lamp load
Load resistance, resistive	> 48 Ω
Load resistance, inductive	< 1.2 H
Lamp load	< 3 W
Switching frequency, resistive	< 200 Hz
Switching frequency, inductive	< 2 Hz
Switching frequency, lamp load	< 20 Hz
Short-circuit protection	yes

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	Electronics and field level isolated via optocouplers
Dimensions	168 x 71 x 32.5 mm
Mounting	2 × 5.4 mm diameter holes, 1.7 Nm torque
Weight	600 ± 20 g
Housing material	Glass fiber reinforced nylon, nickel-plated connector
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...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	acc. to IEC 61131-2
Electromagnetic compatibility	Acc. to IEC 61131-2
MTTF	97 years
MTTF note	acc. to SN 29500 (Ed. 99) 20 °C
Approvals and certificates	CE, cULus, Class I Div.2

	Ethernet Fieldbus cable (IP67 example): RSSD RSSD 441-2M ID number U-02482 or RSSD-RSSD-441-2M/S2174 ID number 6914218	Pin assignment (M12, D-coded)  1 = TD + 2 = RD + 3 = TD - 4 = RD - 1 = TD + 2 = RD + 3 = TD - 4 = RD -
	Slot 1: 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  1 = BN (+) 2 = BK (Data) 3 = BU (GND) 4 = WH (Data) 5 = shield 1 = BN (+) 2 = WH (Data) 3 = BU (GND) 4 = BK (Data) 5 = shield .../S2501 Connectors  1 = BN (+) 2 = WH (Data) 3 = BU (GND) 4 = BK (Data) 5 = shield 1 = BN (+) 2 = WH (Data) 3 = BU (GND) 4 = BK (Data) 5 = shield
	Slot 2: Digital Inputs and Outputs Extension cable (example): RK 4.4T-2-RS 4.4T ident-no. U2445 or RKC4.4T-2-RSC4.4T/TEL ident-no. 6625208	Pin Assignment  1 = VSNS 2 = Signal B 3 = GND 4 = Signal A 5 = PE 1 = VSNS 2 = Signal B 3 = GND 4 = Signal A 5 = PE
	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  1 = V_I 2 = V_O 3 = GND 4 = GND 5 = PE 1 = V_I 2 = V_O 3 = GND 4 = GND 5 = PE

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
RW0 / RW1		OFF	No tag, diagnostic disabled
	GREEN	ON	Tag available
	GREEN	FLASHING (2 Hz)	Data exchange with tag enabled
	RED	ON	Read/write head fault
	RED	FLASHING (2 Hz)	Short-circuit in the supply line of read/write head

* 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
XSG channels 2 ₀ ...2 ₇		OFF	Channel status x = "0" (OFF), no diagnostics active
	GREEN	ON	Channel status x = "1" (ON)
	RED	ON	Short-circuit at output

* 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
RFID 1 ₀	0	Done	Busy	Fehler	Trans. Conn.	Trans. On	TP	TFR	-
	1	Error Cat. (Category Code)							
	2	Error Desc. (Description Code)							
	3	-	-	-	-	-	-	-	-
	4...11	Read Data (8 Byte)							
RFID 1 ₁	12	Done	Busy	Fehler	Trans. Conn.	Trans. On	TP	TFR	-
	13	Error Cat. (Category Code)							
	14	Error Desc. (Description Code)							
	15	-	-	-	-	-	-	-	-
	16...23	Read Data (8 Byte)							
	24	DI 2 ₇	DI 2 ₆	DI 2 ₅	DI 2 ₄	DI 2 ₃	DI 2 ₂	DI 2 ₁	DI 2 ₀
	25	-	-	-	-	-	-	-	-
Diagnose	26	Modulnummer meldet Diagnose Daten							
	27	Austauschstation	-	Diagnose aktiv	-	-	-	-	-
Steckplatz 1 (ref. Byte 26)	28	-	-	-	-	-	RFID 1 ₀ Trans. PS Off	-	-
	29	-	-	-	-	RFID 1 ₀ Trans. PS Error	-	-	RFID 1 ₀ Trans. Hardware-Fehler
	30	-	-	-	-	-	RFID 1 ₁ Trans. PS Off	-	-
	31	-	-	-	-	RFID 1 ₁ Trans. PS Error	-	-	RFID 1 ₁ Trans. Hardware-Fehler
OUTPUT	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
RFID 1 ₀	0	Transceiver	Next	TAG ID	lesen	Write	TAG Info	Trans. Info.	Reset
	1	-	-	-	-	-	Byte Count 2	Byte Count 1	Byte Count 0
	2	Address High Byte (MSB)							
	3	Address Low Byte (LSB)							
	4...11	Write Data (8 Byte)							
RFID 1 ₁	12	Transceiver	Next	TAG ID	lesen	Write	TAG Info	Trans. Info.	Reset
	13	-	-	-	-	-	Byte Count 2	Byte Count 1	Byte Count 0
	14	Address High Byte (MSB)							
	15	Address Low Byte (LSB)							
	16...23	Write Data (8 Byte)							
	24	DO 2 ₇	DO 2 ₆	DO 2 ₅	DO 2 ₄	DO 2 ₃	DO 2 ₂	DO 2 ₁	DO 2 ₀
	25	-	-	-	-	-	-	-	-

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	
Eingänge (RO)	0x0000	Error Cat. (Category Code)									Done	Busy	Fehler	Trans. Conn.	Trans. On	TP	TFR	-
	0x0001	-	-	-	-	-	-	-	-	Error Desc. (Description Code)								
	0x0002 ... 0x0005	Read Data (4 Words)																
	0x0006	Error Cat. (Category Code)									Done	Busy	Fehler	Trans. Conn.	Trans. On	TP	TFR	-
	0x0007	-	-	-	-	-	-	-	-	Error Desc. (Description Code)								
	0x0008 ... 0x000B	Read Data (4 Words)																
	0x000C	-	-	-	-	-	-	-	-	DI 2 ₇	DI 2 ₆	DI 2 ₅	DI 2 ₄	DI 2 ₃	DI 2 ₂	DI 2 ₁	DI 2 ₀	
Status (RO)	0x000D	-	FCE	-	-	CFG	COM	VI low	-	VO low	-	-	-	-	-	-	DIA	
Diag. (RO)	0x000E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	S2 DIA	S1 DIA	
Ausgänge (RW)	0x0800	-	-	-	-	-	Byte CNT 2	Byte CNT 1	Byte CNT 0	Trans.	Next	TAG ID	lesen	Write	TAG Info	Trans. Info.	Reset	
	0x0801	Address																
	0x0802 ... 0x0805	Write Data (4 Words)																
	0x0806	-	-	-	-	-	Byte CNT 2	Byte CNT 1	Byte CNT 0	Trans.	Next	TAG ID	lesen	Write	TAG Info	Trans. Info.	Reset	
	0x0807	Address																

	0x0808 ... 0x080B	Write Data (4 Words)															
	0x080C	-	-	-	-	-	-	-	-	DO 2 ₇	DO 2 ₆	DO 2 ₅	DO 2 ₄	DO 2 ₃	DO 2 ₂	DO 2 ₁	DO 2 ₀
I/O Diag (RO)	0xA000	-	-	-	-	PS RFID 1 ₀	-	-	HW RFID 1 ₀	-	-	-	-	-	SCO RFID 1 ₀	-	-
	0xA001	-	-	-	-	PS RFID 1 ₁	-	-	HW RFID 1 ₁	-	-	-	-	-	SCO RFID 1 ₁	-	-
	0xA002	SCDO 2 ₇	SCDO 2 ₆	SCDO 2 ₅	SCDO 2 ₄	SCDO 2 ₃	SCDO 2 ₂	SCDO 2 ₁	SCDO 2 ₀	SCDI 2 ₇	SCDI 2 ₆	SCDI 2 ₅	SCDI 2 ₄	SCDI 2 ₃	SCDI 2 ₂	SCDI 2 ₁	SCDI 2 ₀

PROFINET® Process Data

	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Eingänge	0	RFID 1 ₀ Done	RFID 1 ₀ Busy	RFID 1 ₀ Busy	RFID 1 ₀ Trans. Conn.	RFID 1 ₀ Trans. On	RFID 1 ₀ TP	RFID 1 ₀ TFR	-
	1	RFID 1 ₀ Error Cat. (Category Code)							
	2	RFID 1 ₀ Error Desc. (Description Code)							
	3	-	-	-	-	-	-	-	-
	4...11	RFID 1 ₀ Read Data (8 Byte)							
	12	RFID 1 ₁ Done	RFID 1 ₁ Busy	RFID 1 ₁ Busy	RFID 1 ₁ Trans. Conn.	RFID 1 ₁ Trans. On	RFID 1 ₁ TP	RFID 1 ₁ TFR	-
	13	RFID 1 ₁ Error Cat. (Category Code)							
	14	RFID 1 ₁ Error Desc. (Description Code)							
	15	-	-	-	-	-	-	-	-
	16...23	RFID 1 ₁ Read Data (8 Byte)							
	24	DI 2 ₇	DI 2 ₆	DI 2 ₅	DI 2 ₄	DI 2 ₃	DI 2 ₂	DI 2 ₁	DI 2 ₀
	25	-	-	-	-	-	-	-	-
Ausgänge	0	RFID 1 ₀ Transceiver	RFID 1 ₀ Next	RFID 1 ₀ Tag ID	RFID 1 ₀ Read	RFID 1 ₀ Write	RFID 1 ₀ Tag Info.	RFID 1 ₀ Trans. Info.	RFID 1 ₀ Reset
	1	-	-	-	-	-	RFID 1 ₀ Byte Count 2	RFID 1 ₀ Byte Count 1	RFID 1 ₀ Byte Count 0
	2	RFID 1 ₀ Address High Byte (MSB)							
	3	RFID 1 ₀ Address Low Byte (LSB)							
	4...11	RFID 1 ₀ Write Data (8 Byte)							
	12	RFID 1 ₁ Transceiver	RFID 1 ₁ Next	RFID 1 ₁ Tag ID	RFID 1 ₁ Read	RFID 1 ₁ Write	RFID 1 ₁ Tag Info.	RFID 1 ₁ Trans. Info.	RFID 1 ₁ Reset
	13	-	-	-	-	-	RFID 1 ₁ Byte Count 2	RFID 1 ₁ Byte Count 1	RFID 1 ₁ Byte Count 0
	14	RFID 1 ₁ Address High Byte (MSB)							
	15	RFID 1 ₁ Address Low Byte (LSB)							
	16...23	RFID 1 ₁ Write Data (8 Byte)							
	24	DO 2 ₇	DO 2 ₆	DO 2 ₅	DO 2 ₄	DO 2 ₃	DO 2 ₂	DO 2 ₁	DO 2 ₀
	25	-	-	-	-	-	-	-	-

Accessories

Type code	Ident no.		Dimension drawing
LOCK-EURO-C	A0885	Locking guard for straight eurofast™ C-body connectors (RKC, RKCV, RSC, RSCV) in a Class I, Division 2 installations	
LOCK-EURO-C (10/BAG)	A0886	Locking guard for straight eurofast™ C-body connectors (RKC, RKCV, RSC, RSCV) in a Class I, Division 2 installations	