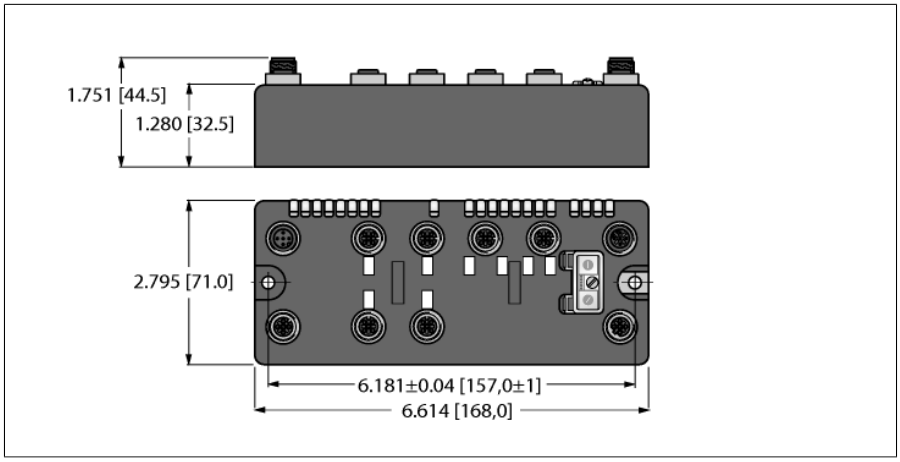
BL compact™ multiprotocol fieldbus station for Industrial Ethernet
Interface for Connection of 2 BL ident Read/Write Heads (HF/UHF) and 8 Configurable Digital PNP Channels
BLCEN-6M12LT-2RFID-S-8XSG-P



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 inputs and outputs of the 8XSG I/O cards are supplied via a common ground. Therefore, it is recommend not to use this module for safety or emergency stop applications.

- 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
- 8 Configurable digital PNP channels, 24 VDC
- Max. 0.5A per channel
- Selection of filtering times (Input delay)
- Invertible inputs
- Simple RFID interface
- Connection of 2 BL ident® read/write heads
- Max cable length of 50 m

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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 × M12
	4-pole, D-coded
Protocol detection	automatic
Web server	Integrated
Service interface	Ethernet
Vendor ID	48
Product type	12
Product code	11454

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	From 8XSG
Input type	PNP
Type of input diagnostics	Group diagnostics
Sensor supply (V_{SENS})	24 VDC
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)

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Digital outputs	From 8XSG
Output type	PNP
Sensor supply (V_{SENS})	24 VDC
Output current per channel	0.5 A
Output voltage	24 VDC
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	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	600 ± 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	97 years
MTTF note	acc. to SN 29500 (Ed. 99) 20 °C
Approvals and certificates	CE, cULus, Class I Div.2

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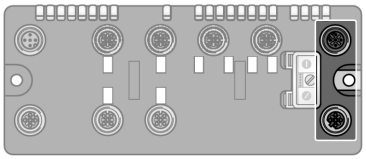
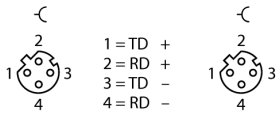
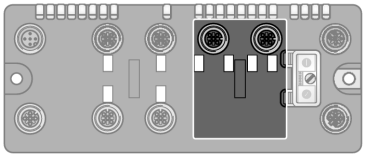
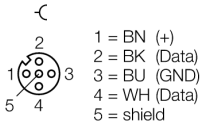
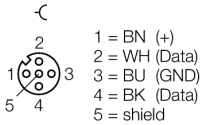
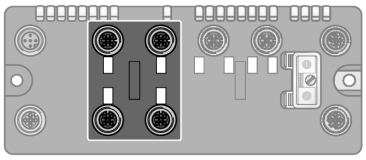
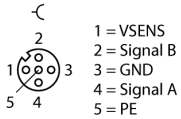
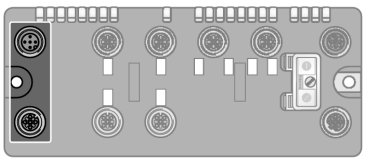
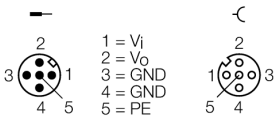
Pinning and wiring diagram

	**Ethernet** Fieldbus cable (IP67 example): RSSD RSSD 441-2M ID number U-02482 or RSSD-RSSD-441-2M/S2174 ID number 6914218	Pin assignment (M12, D-coded) 
	**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  …/S2501 Connectors 
	**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 
	**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 

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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)	ARGEE Running
	RED	ON	Error
	RED	FLASHING	WINK
	YELLOW	ON	DHCP/BOOTP Search
LNK/ACT		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)
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

* 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)
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

* D2 LED also indicates gateway diagnostics

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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
RFID 1_0	0	Done	Busy	Error	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	Error	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	-	-	-	-	-	-	-	-
Diagnostics	26	Module number reporting diagnostic data							
	27	Replace Station	-	Diagnostics Active	-	-	-	-	-
Slot 1 (ref. Byte 26)	28	-	-	-	-	-	RFID 1_0 Trans. PS Off	-	-
	29	-	-	-	-	RFID 1_0 Trans. PS Error	-	-	RFID 1_0 Trans. Hardware Error
	30	-	-	-	-	-	RFID 1_1 Trans. PS Off	-	-
	31	-	-	-	-	RFID 1_1 Trans. PS Error	-	-	RFID 1_1 Trans. Hardware Error
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	Read	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	Read	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
Inputs (RO)	0x0000	Error Cat. (Category Code)								Done	Busy	Error	Trans. Conn.	Trans. On	TP	TFR	-
	0x0001	-	-	-	-	-	-	-	-	Error Desc. (Description Code)							
	0x0002 … 0x0005	Read Data (4 Words)															
	0x0006	Error Cat. (Category Code)								Done	Busy	Error	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
Outputs (RW)	0x0800	-	-	-	-	-	Byte CNT 2	Byte CNT 1	Byte CNT 0	Trans.	Next	Tag ID	Read	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	Read	Write	Tag Info.	Trans. Info.	Reset
	0x0807	Address															

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	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**
Inputs	0	RFID 1_0 Done	RFID 1_0 Busy	RFID 1_0 Error	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 Error	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	-	-	-	-	-	-	-	-
Outputs	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	-	-	-	-	-	-	-	-

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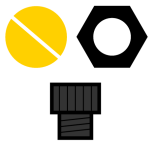
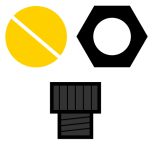
Accessories

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	

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