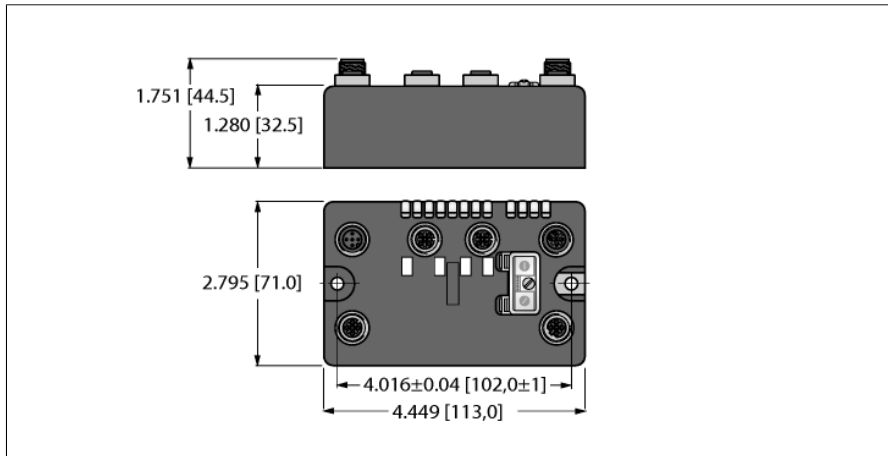


**BL compact™ multiprotocol fieldbus station for Industrial Ethernet**  
**Interface for Connection of 2 BL ident Read/Write Heads (HF/UHF)**  
**BLCEN-2M12MT-2RFID-S**



- 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
- Simple RFID interface
- Connection of 2 BL ident® read/write heads
- Max cable length of 50 m
- FLC/ARGE programmable

<b>Type designation</b>	BLCEN-2M12MT-2RFID-S
Ident-No.	6811450
Ident-No (TUSA)	F6811450
<b>Nominal system voltage</b>	24 VDC
System power supply	Via auxiliary power
Voltage supply connection	2 x M12, 5-pin
Admissible range Vi	18...30VDC
Nominal current Vi	150 mA
Max. current Vi	1 A
<b>Fieldbus transmission rate</b>	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	11450

<b>Modbus TCP</b>	
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. 14 register
Input register start address	0 (0x0000 hex)
Output Data Size	max. 12 register
Output register start address	2048 (0x0800 hex)

<b>EtherNet/IP™</b>	
Addressing	acc. to EtherNet/IP™ specification
Device Level Ring (DLR)	supported
Number of CIP connections	6
Input Assembly Instance	103
Input Data Size	15 INT
Output Assembly Instance	104
Output Data Size	12 INT
Configuration Assembly Instance	106
Configuration Size	0
Comm Format	Data - INT

**BL compact™ multiprotocol fieldbus station for Industrial Ethernet  
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**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. 24 BYTE
Output Data Size	max. 24 BYTE

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**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

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**Dimensions**

Mounting	113 x 71 x 32.5 mm
Weight	2 × 5.4 mm diameter holes, 1.7 Nm torque
Housing material	360 ± 20 g
Housing color	Glass-filled nylon, nickel plated brass connectors
Window material	Black
Material screw	Lexan
Material label	Nickel-plated brass
Ground tab material	Polyester with polycarbonate overlay
Protection class	Nickel plated brass
	IP67
	IP69K
Operating temperature	-40...+70 °C
Storage temperature	-40...+85 °C
Relative humidity	15 to 95% (non-condensing)
Vibration test	according to IEC 61131-2
Extended vibration resistance	
- up to 20 g (at 10 up to 150 Hz)	For mounting on base plate or machinery
Shock test	according to IEC 61131-2
Electro-magnetic compatibility	according to IEC 61131-2
MTTF	148 years
MTTF note	acc. to SN 29500 (Ed. 99) 20 °C
Approvals and certificates	CE, cULus, Class I Div.2

**Pinning and wiring diagram**

	<p><b>Ethernet</b>            Fieldbus cable (IP67 example): RSSD RSSD 441-2M ID number U-02482 or RSSD-RSSD-441-2M/S2174 ID number 6914218</p>	<p>Pin assignment (M12, D-coded)</p>
	<p><b>RFID Channels</b>            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</p>	<p>.../S2500 Connectors</p> <p>.../S2501 Connectors</p>
	<p><b>Auxiliary Power</b>            Extension cable (example): RKC 4.4T-2-RSC 4.4T ident-no. U5264 or RKC4.4T-2-RSC4.4T/TEL ident-no. 6625208</p>	<p>Pin Assignment</p>

**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**

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

\* D 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
RFID 1 <sub>0</sub>	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 <sub>1</sub>	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)							
Diagnostics	24	Module number reporting diagnostic data							
	25	Replace Station	-	Diagnostics Active	-	-	-	-	-
Slot 1 (ref. Byte 24)	26	-	-	-	-	-	RFID 1 <sub>0</sub> Trans. PS Off	-	-
	27	-	-	-	-	RFID 1 <sub>0</sub> Trans. PS Error	-	-	RFID 1 <sub>0</sub> Trans. Hardware Error
	28	-	-	-	-	-	RFID 1 <sub>1</sub> Trans. PS Off	-	-
	29	-	-	-	-	RFID 1 <sub>1</sub> Trans. PS Error	-	-	RFID 1 <sub>1</sub> Trans. Hardware Error
OUTPUT	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
RFID 1 <sub>0</sub>	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 <sub>1</sub>	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)							

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**

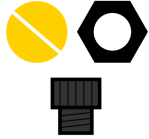
	REG	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
Inputs (RO)	0x0000	Error Cat. (Category Code)									Done	Busy	Error	Trans. Conn.	Trans. On	TP	TFR	-
	0x0001	-	-	-	-	-	-	-	-	Error Desc. (Description Code)								
	0x0002 ... 0x0005	Read Data (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)															
Status (RO)	0x000C	-	FCE	-	-	CFG	COM	VI low	-	VO low	-	-	-	-	-	-	DIA
Diag. (RO)	0x000D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	S1 DIA
Outputs (RW)	0x0800	-	-	-	-	-	Byte CNT 2	Byte CNT 1	Byte CNT 0	Trans.	Next	Tag ID	Read	Write	Tag In- fo.	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 In- fo.	Trans. Info.	Reset
	0x0807	Address															
	0x0808 ... 0x080B	Write Data (4 Words)															
I/O Diag. (RO)	0xA000	-	-	-	-	PS RFID 1 <sub>0</sub>	-	-	HW RFID 1 <sub>0</sub>	-	-	-	-	-	SCO RFID 1 <sub>0</sub>	-	-
	0xA001	-	-	-	-	PS RFID 1 <sub>1</sub>	-	-	HW RFID 1 <sub>1</sub>	-	-	-	-	-	SCO RFID 1 <sub>1</sub>	-	-

**PROFINET® Process Data**

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

**Accessories**

Type code	Ident-No.	Description	
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	