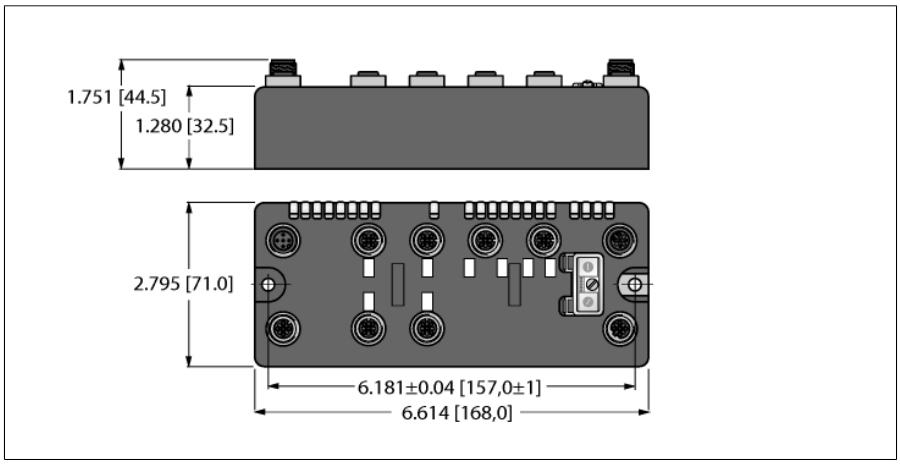
BL compact™ multiprotocol fieldbus station for Industrial Ethernet 2 Analog Inputs for Pt and Ni Sensors and 8 Configurable Digital PNP Channels
BLCEN-6M12LT-2AI-PT-8XSG-P



- **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**
- **2 analog inputs for RTDs**
- **Pt100, Pt200, Pt500, Pt1000, Ni100, Ni1000, 0…100Ω, 0…200Ω, 0…400Ω, or 0…1000Ω (selectable per channel)**

Type designation	BLCEN-6M12LT-2AI-PT-8XSG-P
Ident-No.	6811515
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.
Fieldbus transmission rate	10/100 Mbps
Adjustment transmission rate	Automatic detection
Fieldbus connection technology	2 × M12, 4-pole, D-coded
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
Protocol detection	automatic
Web server	Integrated
Service interface	Ethernet
Vendor ID	48
Product type	12
Product code	11515
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. 3 register
Input register start address	0 (0x0000 hex)
Output Data Size	max. 1 register
Output register start address	2048 (0x0800 hex)
EtherNet/IP™	
Addressing	acc. to EtherNet/IP™ specification
Device Level Ring (DLR)	supported
Class 1 connections	6
Input Data Size	5 INT
Output Data Size	1 INT

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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. 5 BYTE
Output Data Size	max. 2 BYTE

Analog inputs	from 2AI-PT
Operating modes	Pt100, 200, 500, 1000 & NI100, 1000
Resolution	16 bit
Repeatability	< 0.05 %
Temperature coefficient	< 300 ppm / °C of full scale

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
Electromagnetic compatibility	according to IEC 61131-2
Approvals and certificates	CE, cULus

Dimensions (W x L x H)	71 x 168 x 32.5mm
Operating temperature	-40...+70 °C
Storage temperature	-40...+85 °C
Relative humidity	15 to 95% (non-condensing)
Protection class	IP67 IP69K
Housing material	Glass-filled nylon, nickel plated brass connectors
Housing color	Black
Window material	Lexan
Material screw	Nickel-plated brass
Material label	Polyester with polycarbonate overlay
Ground label material	Nickel plated brass
Weight	600 ± 20 g
Mounting	2 × 5.4 mm diameter holes, 1.7 Nm torque

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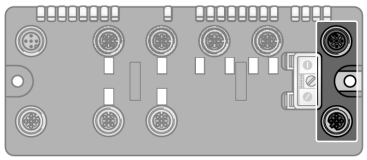
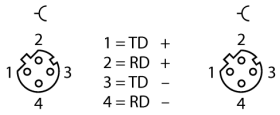
Pinning and wiring diagram

<table>
<tr>
<td>  </td>
<td>Ethernet
Fieldbus cable (IP67 example): RSSD RSSD 441-2M ID number U-02482 or RSSD-RSSD-441-2M/S2174 ID number 6914218</td>
<td>Pin Assignment (M12, D-code)
 
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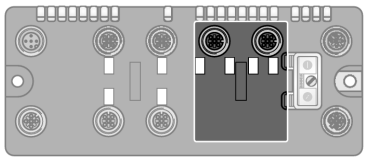
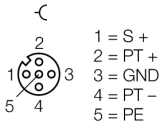
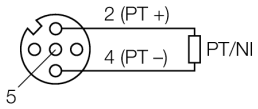
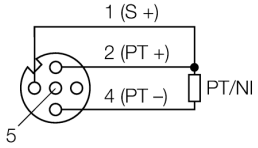
<td>  </td>
<td>Slot 1: RTD Inputs
Extension cable (example): RK 4T-2-RS 4T/S3041 ident-no. U-1666 or RKC4.5T-2-RSC4.5/TEL ident-no. 6625212
NOTE: Do not connect Pin 3. Use only sensor cables without pin 3 or field-wireable connectors.</td>
<td>Pin Assignment
 

2-wire Technology
 

3-wire Technology
 
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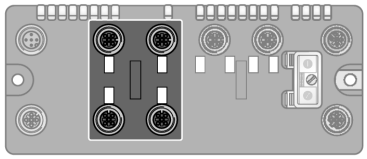
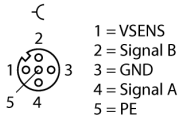
<td>  </td>
<td>Slot 2: Digital Inputs and Outputs
Extension cable (example): RK 4.4T-2-RS 4.4T ident-no. U2445 or RKC4.4T-2-RSC4.4T/TEL ident-no. 6625208</td>
<td>Pin Assignment
 
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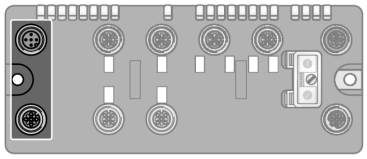
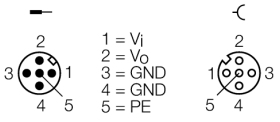
<td>  </td>
<td>Auxiliary Power
Extension cable (example): RKC 4.4T-2-RSC 4.4T ident-no. U5264 or RKC4.4T-2-RSC4.4T/TEL ident-no. 6625208</td>
<td>Pin Assignment
 
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Station LED status

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)
AI channels 0 / 1			Not connected

* 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
	0	AI 1_0 LSB							
	1	AI 1_0 MSB							
	2	AI 1_1 LSB							
	3	AI 1_1 MSB							
	4	DI 2_7	DI 2_6	DI 2_5	DI 2_4	DI 2_3	DI 2_2	DI 2_1	DI 2_0
	5	-	-	-	-	-	-	-	-
Diagnostics	6	Module number reporting diagnostic data							
	7	Replace Station	-	Diagnostics Active	-	-	-	-	-
Slot 1 (ref. Byte 6)	8	-	-	-	-	-	Short Circuit AI 1_0	Open Circuit AI 1_0	Range Error AI 1_0
	9	-	-	-	-	-	Short Circuit AI 1_1	Open Circuit AI 1_1	Range Error AI 1_1
	10	Reserved							
	11	Reserved							
OUTPUT	**BYTE**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
	0	DO 1_7	DO 1_6	DO 1_5	DO 1_4	DO 1_3	DO 1_2	DO 1_1	DO 1_0
	1	-	-	-	-	-	-	-	-

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

Legend:

AI	Analog Input	MR	Measurement Value Range Error
CFG	Configuration Error	OC	Open Circuit
COM	Communication Failure	S1	Slot 1
DIA	Diagnostics Active	S2	Slot 2
DI	Digital Input	SC	Short Circuit/Overcurrent
DO	Digital Output	VI Low	VI Voltage
FCE	Force Mode Active	VO Low	VO Voltage

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	AI 1_0															
	0x0001	AI 1_1															
	0x0002									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)	0x0003	-	FCE	-	-	CFG	COM	VI low	-	VO low	-	-	-	-	-	-	DIA
Diag. (RO)	0x0004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	S2 DIA	S1 DIA
Outputs (RW)	0x0800	-	-	-	-	-	-	-	-	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	-	-	-	-	-	SCAI 1_1	OCAI 1_1	MRAI 1_1	-	-	-	-	-	SCAI 1_0	OCAI 1_0	MRAI 1_0
	0xA001	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

Inputs	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	AI 1_0 LSB							
	1	AI 1_0 MSB							
	2	AI 1_1 LSB							
	3	AI 1_1 MSB							
	4	DI 2_7	DI 2_6	DI 2_5	DI 2_4	DI 2_3	DI 2_2	DI 2_1	DI 2_0
	5	-	-	-	-	-	-	-	-
Outputs	0	DO 1_7	DO 1_6	DO 1_5	DO 1_4	DO 1_3	DO 1_2	DO 1_1	DO 1_0
	1	-	-	-	-	-	-	-	-

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