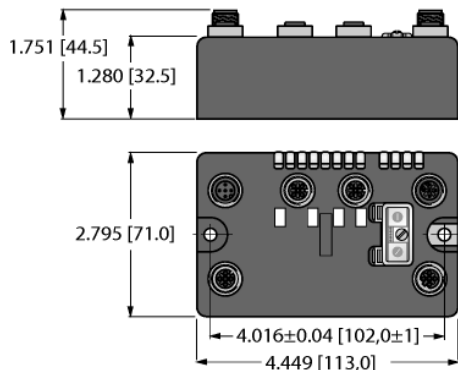


**BL compact™ multiprotocol fieldbus station for Industrial Ethernet
2 Analog Inputs for Pt and Ni Sensors
BLCEN-2M12MT-2AI-PT**

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

Type code	BLCEN-2M12MT-2AI-PT
Ident-No.	6811464
Ident-No (TUSA)	F6811464
Nominal system voltage	24 VDC
System power supply	via auxiliary power
Voltage supply connection	2 x M12, 5-pin
Admissible range Vi	11...30VDC
Nominal current Vi	170 mA
Max. current Vi	1 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...99 (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	11464
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. 4 register
Input register start address	0 (0x0000 hex)
EtherNet/IP™	
Addressing	acc. to EtherNet/IP™ specification
Device Level Ring (DLR)	supported
Number of CIP connections	6
Input Assembly Instance	103
Input Data Size	4 INT
Output Assembly Instance	104
Output Data Size	1 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. 4 BYTE

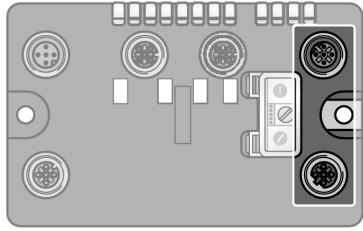
Analog inputs

Operating modes	from 2AI-PT
Type of input diagnostics	Pt100, 200, 500, 1000 & NI100, 1000
Sensor supply	channel diagnostics
Basic fault limit at 23 °C	24 VDC, 1 amp max.
Repeatability	< 0.2 %
Temperature coefficient	< 0.05 %
Resolution	< 300 ppm / °C of full scale
Measurement display	16 bit
	16 bit signed integer
	12 bit full range left-justified

Dimensions

Operating temperature	113 x 71 x 32.5 mm
Storage temperature	-40...+70 °C
Relative humidity	-40...+85 °C
Vibration test	15 to 95% (non-condensing)
Extended vibration resistance	according to IEC 61131-2
- up to 20 g (at 10 up to 150 Hz)	
Shock test	For mounting on base plate or machinery
Electro-magnetic compatibility	according to IEC 61131-2
Protection class	according to IEC 61131-2
	IP67
	IP69K
Housing material	Glass-filled nylon, nickel plated brass connectors
Housing color	black
Window material	Lexan
Screw material	nickel-plated brass
Label material	Polyester with Polycarbonate overlay
Ground tab material	Nickel plated brass
Weight	360 ± 20 g
Approvals and certificates	CE, cULus

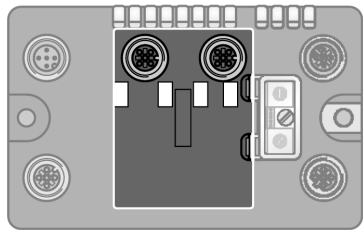
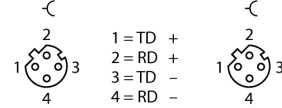
Pinning and wiring diagram



Ethernet

Fieldbus cable (example): RSSD RSSD 441-2M ident-no. U-02482
 or RSSD-RSSD-441-2M/S2174 ident-no. 6914218

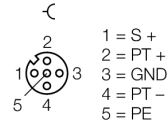
Pin Assignment (M12, D-code)



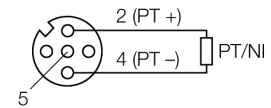
RTD Inputs

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.

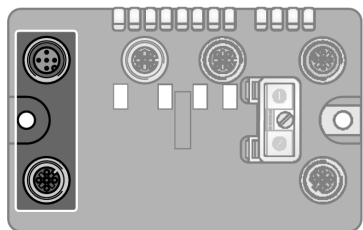
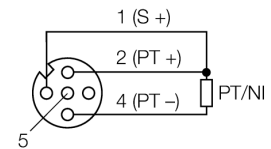
Pin Assignment



2-wire Technology



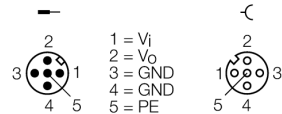
3-wire Technology



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



BL compact™ multiprotocol fieldbus station for Industrial Ethernet
2 Analog Inputs for Pt and Ni Sensors
BLCEN-2M12MT-2AI-PT**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
	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
AI channel 0 / 1			Not connected

* D LED also indicates gateway diagnostics

BL compact™ multiprotocol fieldbus station for Industrial Ethernet
2 Analog Inputs for Pt and Ni Sensors
BLCEN-2M12MT-2AI-PT

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
AI 1 ₀	0	AI 1 ₀ LSB							
	1	AI 1 ₀ MSB							
AI 1 ₁	2	AI 1 ₁ LSB							
	3	AI 1 ₁ MSB							
Diagnostics	4	Module number reporting diagnostic data							
	5	Replace Station	-	Diagnostics Active	-	-	-	-	-
Slot 1 (ref. Byte 4)	6	-	-	-	-	-	Short Circuit AI 1 ₀	Open Circuit AI 1 ₀	Range Error AI 1 ₀
	7	-	-	-	-	-	Short Circuit AI 1 ₁	Open Circuit AI 1 ₁	Range Error AI 1 ₁

Key:

AI	Analog Input	MR	Measurement Value Range Error
CFG	Configuration Error	OC	Open Circuit
COM	Communication Failure	S1	Slot 1
DIA	Diagnostics Active	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															
Status (RO)	0x0002	-	FCE	-	-	CFG	COM	VI low	-	VO low	-	-	-	-	-	-	DIA
Diag. (RO)	0x0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	S1 DIA
I/O Diag. (RO)	0xA000	-	-	-	-	-	SCAI 1 ₁	OCAI 1 ₁	MRAI 1 ₁	-	-	-	-	-	SCAI 1 ₀	OCAI 1 ₀	MRAI 1 ₀

PROFINET® Process Data

	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Inputs	0	AI 1 ₀ LSB							
	1	AI 1 ₀ MSB							
	2	AI 1 ₁ LSB							
	3	AI 1 ₁ MSB							