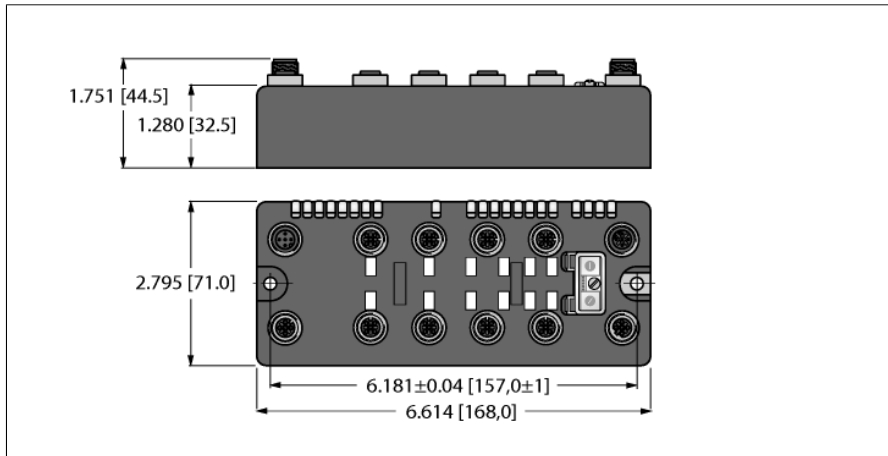


BL compact™ multiprotocol fieldbus station for Industrial Ethernet
8 IO-Link Channels
BLCEN-8M12LT-4IOL-4IOL



- 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
- FLC/ARGEED programmable

Type designation	BLCEN-8M12LT-4IOL-4IOL
Ident-No.	6811500
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	11500
Field Logic Controller (FLC)	
Supported from firmware version	3.3.2.0
Released from ARGEE version	2.0.17.0
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. 18 register
Input register start address	0 (0x0000 hex)
Output Data Size	max. 16 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	21 INT
Output Data Size	16 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. 32 BYTE
Output Data Size	max. 32 BYTE

Digital inputs

Input type	from 4IOL
Input type	PNP
Low level signal voltage	< 5 V
High level signal voltage	> 11 V
Low level signal current	< 1.5 mA DI / < 5mA SIO
High level signal current	2.1 ... 3.7 mA DI / 5 ... 11 mA SIO

Digital outputs

Output type	from 4IOL
Output type	PNP
Output voltage	24 VDC
Output current per channel	0.5 A
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

IO-Link

IO-Link specification	Pin 4 in IOL mode
IO-Link port type	version 1.1
IO-Link port type	Class A
Frame type	supports all specified frame types
Supported devices	max. 14 byte input / 14 byte output
Transmission rate	4.8 kbps (COM 1) / 38.4 kbps (COM 2) / 230 kbps (COM 3)

Vibration test

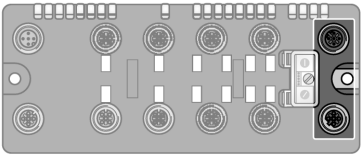
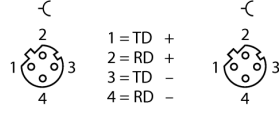
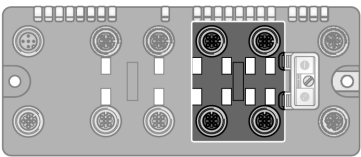
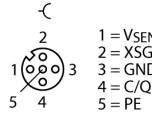
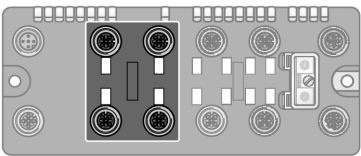
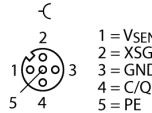
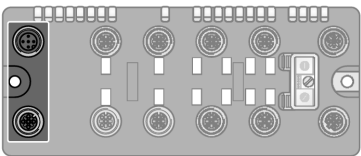
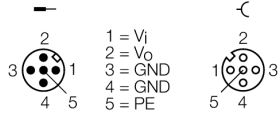
Extended vibration resistance	according to IEC 61131-2
- up to 20 g (at 10 up to 150 Hz)	For mounting on base plate or machinery
Shock test	according to IEC 61131-2
Electromagnetic compatibility	according to IEC 61131-2
Approvals and certificates	CE, cULus, Class I Div.2

Dimensions (W x L x H)

Operating temperature	71 x 168 x 32.5mm
Storage temperature	-40...+70 °C
Relative humidity	-40...+85 °C
Protection class	15 to 95% (non-condensing)
MTTF	IP67
Housing material	IP69K
Housing color	92 years acc. to SN 29500 (Ed. 99) 20 °C
Window material	Glass-filled nylon, nickel plated brass connectors
Material screw	Black
Material label	Lexan
Ground label material	Nickel-plated brass
Weight	Polyester with polycarbonate overlay
Mounting	Nickel plated brass
	620 ± 20 g
	2 × 5.4 mm diameter holes, 1.7 Nm torque

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Pinning and wiring diagram

	<p>Ethernet 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>1 = TD + 2 = RD + 3 = TD - 4 = RD -</p>
	<p>Slot 1: IO-Link channels Extension cable (example): RK 4.4T-2-RS 4.4T ident-no. U2445 or RKC4.4T-2-RSC4.4T/TEL ident-no. 6625208</p>	<p>Pin Assignment</p>  <p>1 = VSSENS 2 = XSG 3 = GND 4 = C/Q 5 = PE</p>
	<p>Slot 2: IO-Link channels See slot 1</p>	<p>Pin Assignment</p>  <p>1 = VSSENS 2 = XSG 3 = GND 4 = C/Q 5 = PE</p>
	<p>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</p>	<p>Pin Assignment</p>  <p>1 = Vi 2 = Vo 3 = GND 4 = GND 5 = PE</p>

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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)
IO-Link Mode Channels 1 _{0...1₃}		OFF	Channel Status x = "0" (OFF), no diagnostics active
	GREEN	Flashing	IO-Link communication, Process data valid
	RED	ON	No IO-Link communication
		Flashing	Process Data Invalid
DI Mode Channels 1 _{0...1₃}		OFF	Channel Status x = "0" (OFF)
	GREEN	ON	Channel Status x = "1" (ON)
XSG 1 _{0...1₇}		OFF	Channel Status x = "0" (OFF)
	GREEN	ON	Channel Status x = "1" (ON)

* 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)
IO-Link Mode Channels 2 _{0...2₃}		OFF	Channel Status x = "0" (OFF), no diagnostics active
	GREEN	Flashing	IO-Link communication, Process data valid
	RED	ON	No IO-Link communication
		Flashing	Process Data Invalid
DI Mode Channels 2 _{0...2₃}		OFF	Channel Status x = "0" (OFF)
	GREEN	ON	Channel Status x = "1" (ON)
XSG 2 _{0...2₇}		OFF	Channel Status x = "0" (OFF)
	GREEN	ON	Channel Status x = "1" (ON)

* D2 LED also indicates gateway diagnostics

BL compact™ multiprotocol fieldbus station for Industrial Ethernet
8 IO-Link Channels
BLCEN-8M12LT-4IOL-4IOL

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
Digital	0	DI 1 ₇	DI 1 ₆	DI 1 ₅	DI 1 ₄	DI 1 ₃	DI 1 ₂	DI 1 ₁	DI 1 ₀
	1	OCDO 1 ₇	OCDO 1 ₆	OCDO 1 ₅	OCDO 1 ₄	DVS 1 ₃	DVS 1 ₂	DVS 1 ₁	DVS 1 ₀
	2...15	IO-Link Read Data (depends on parameter settings)							
	16	DI 2 ₇	DI 2 ₆	DI 2 ₅	DI 2 ₄	DI 2 ₃	DI 2 ₂	DI 2 ₁	DI 2 ₀
	17	OCDO 2 ₇	OCDO 2 ₆	OCDO 2 ₅	OCDO 2 ₄	DVS 2 ₃	DVS 2 ₂	DVS 2 ₁	DVS 2 ₀
18...31	IO-Link Read Data (depends on parameter settings)								
Diagnostics	32	Module number reporting diagnostic data							
	33	Replace Station	-	Diagnostics Active	-	-	-	-	-
Slot X (ref. Byte 32)	34	IOL X ₀ EVT2	IOL X ₀ EVTX	IOL X ₀ PDINV	IOL X ₀ HWER	IOL X ₀ DSER	IOL X ₀ CFGER	-	OCDO X ₀
	35	IOL X ₀ GENER	IOL X ₀ OVL	IOL X ₀ VHIGH	IOL X ₀ VLOW	IOL X ₀ ULVE	IOL X ₀ LLVU	IOL X ₀ OTMP	IOL X ₀ PRMER
	36	IOL X ₁ EVT2	IOL X ₁ EVT1	IOL X ₁ PDINV	IOL X ₁ HWER	IOL X ₁ DSER	IOL X ₁ CFGER	-	OCDO X ₁
	37	IOL X ₁ GENER	IOL X ₁ OVL	IOL X ₁ VHIGH	IOL X ₁ VLOW	IOL X ₁ ULVE	IOL X ₁ LLVU	IOL X ₁ OTMP	IOL X ₁ PRMER
	38	IOL X ₂ EVT2	IOL X ₂ EVTX	IOL X ₂ PDINV	IOL X ₂ HWER	IOL X ₂ DSER	IOL X ₂ CFGER	-	OCDO X ₂
	39	IOL X ₂ GENER	IOL X ₂ OVL	IOL X ₂ VHIGH	IOL X ₂ VLOW	IOL X ₂ ULVE	IOL X ₂ LLVU	IOL X ₂ OTMP	IOL X ₂ PRMER
	40	IOL X ₃ EVT2	IOL X ₃ EVTX	IOL X ₃ PDINV	IOL X ₃ HWER	IOL X ₃ DSER	IOL X ₃ CFGER	-	OCDO X ₃
	41	IOL X ₃ GENER	IOL X ₃ OVL	IOL X ₃ VHIGH	IOL X ₃ VLOW	IOL X ₃ ULVE	IOL X ₃ LLVU	IOL X ₃ OTMP	IOL X ₃ PRMER
OUTPUT	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Digital	0	DO 1 ₇	DO 1 ₆	DO 1 ₅	DO 1 ₄	-	-	-	-
	1	-	-	-	-	-	-	-	-
	2...15	IO-Link Write Data (depends on parameter settings)							
	16	DO 2 ₇	DO 2 ₆	DO 2 ₅	DO 2 ₄	-	-	-	-
	17	-	-	-	-	-	-	-	-
18...31	IO-Link Write Data (depends on parameter settings)								

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

Legend

GENER	Common error	EVT1	Maintenance events
VHIGH	Overvoltage	HWER	Hardware error
ULVE	Upper limit value exceeded	CFGER	Wrong or missing device
OTMP	Overtemperature	DVS	Data Valid Signal
EVT2	Out of specification error	OC	Over Current
PDINV	Process input data invalid	DIAG	Diagnostics
DSER	Data storage error	DO	Digital Output
OVL	Overload	DI	Digital Input
VLOW	Undervoltage	COM	Communication Lost Bit
LLVU	Lower limit value underrun	CFG	Configuration Error
PRMER	Parameterization error		

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	OCDO 1 ₇	OCDO 1 ₆	OCDO 1 ₅	OCDO 1 ₄	DVS 1 ₃	DVS 1 ₂	DVS 1 ₁	DVS 1 ₀	DI 1 ₇	DI 1 ₆	DI 1 ₅	DI 1 ₄	DI 1 ₃	DI 1 ₂	DI 1 ₁	DI 1 ₀
	0x0001... 0x0007	IO-Link Read Data (depends on parameter settings)															
	0x0008	OCDO 2 ₇	OCDO 2 ₆	OCDO 2 ₅	OCDO 2 ₄	DVS 2 ₃	DVS 2 ₂	DVS 2 ₁	DVS 2 ₀	DI 2 ₇	DI 2 ₆	DI 2 ₅	DI 2 ₄	DI 2 ₃	DI 2 ₂	DI 2 ₁	DI 2 ₀
	0x0009... 0x000F	IO-Link Read Data (depends on parameter settings)															
Status (RO)	0x0010	-	FCE	-	-	CFG	COM	VI low	VI high	VO low	VO high	OCVI	-	-	-	-	DIAG

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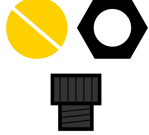
Diag. (RO)	0x0011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	S2 DIAG	S1 DIAG
Outputs (RW)	0x0800	-	-	-	-	-	-	-	-	-	DO 1 ₇	DO 1 ₆	DO 1 ₅	DO 1 ₄	-	-	-	
	0x0801... 0x0807	IO-Link Write Data (depends on parameter settings)																
	0x0808	-	-	-	-	-	-	-	-	-	DO 2 ₇	DO 2 ₆	DO 2 ₅	DO 2 ₄	-	-	-	
	0x0809... 0x080F	IO-Link Write Data (depends on parameter settings)																
I/O Diag. (RO)	0xA000	IOL 1 ₀ GEN- ER	IOL 1 ₀ OVL	IOL 1 ₀ VHIGH	IOL 1 ₀ VLOW	IOL 1 ₀ ULVE	IOL 1 ₀ LLVU	IOL 1 ₀ OTMP	IOL 1 ₀ PRMEREVT2	IOL 1 ₀ EVT1	IOL 1 ₀ PDINV	IOL 1 ₀ HWER	IOL 1 ₀ DSER	IOL 1 ₀ CFGGER	-	OC DO 1 ₄		
	0xA001	IOL 1 ₁ GEN- ER	IOL 1 ₁ OVL	IOL 1 ₁ VHIGH	IOL 1 ₁ VLOW	IOL 1 ₁ ULVE	IOL 1 ₁ LLVU	IOL 1 ₁ OTMP	IOL 1 ₁ PRMEREVT2	IOL 1 ₁ EVT1	IOL 1 ₁ PDINV	IOL 1 ₁ HWER	IOL 1 ₁ DSER	IOL 1 ₁ CFGGER	-	OC DO 1 ₅		
	0xA002	IOL 1 ₂ GEN- ER	IOL 1 ₂ OVL	IOL 1 ₂ VHIGH	IOL 1 ₂ VLOW	IOL 1 ₂ ULVE	IOL 1 ₂ LLVU	IOL 1 ₂ OTMP	IOL 1 ₂ PRMEREVT2	IOL 1 ₂ EVT1	IOL 1 ₂ PDINV	IOL 1 ₂ HWER	IOL 1 ₂ DSER	IOL 1 ₂ CFGGER	-	OC DO 1 ₆		
	0xA003	IOL 1 ₃ GEN- ER	IOL 1 ₃ OVL	IOL 1 ₃ VHIGH	IOL 1 ₃ VLOW	IOL 1 ₃ ULVE	IOL 1 ₃ LLVU	IOL 1 ₃ OTMP	IOL 1 ₃ PRMEREVT2	IOL 1 ₃ EVT1	IOL 1 ₃ PDINV	IOL 1 ₃ HWER	IOL 1 ₃ DSER	IOL 1 ₃ CFGGER	-	OC DO 1 ₇		
	0xA004	IOL 2 ₀ GEN- ER	IOL 2 ₀ OVL	IOL 2 ₀ VHIGH	IOL 2 ₀ VLOW	IOL 2 ₀ ULVE	IOL 2 ₀ LLVU	IOL 2 ₀ OTMP	IOL 2 ₀ PRMEREVT2	IOL 2 ₀ EVT1	IOL 2 ₀ PDINV	IOL 2 ₀ HWER	IOL 2 ₀ DSER	IOL 2 ₀ CFGGER	-	OC DO 2 ₄		
	0xA005	IOL 2 ₁ GEN- ER	IOL 2 ₁ OVL	IOL 2 ₁ VHIGH	IOL 2 ₁ VLOW	IOL 2 ₁ ULVE	IOL 2 ₁ LLVU	IOL 2 ₁ OTMP	IOL 2 ₁ PRMEREVT2	IOL 2 ₁ EVT1	IOL 2 ₁ PDINV	IOL 2 ₁ HWER	IOL 2 ₁ DSER	IOL 2 ₁ CFGGER	-	OC DO 2 ₅		
	0xA006	IOL 2 ₂ GEN- ER	IOL 2 ₂ OVL	IOL 2 ₂ VHIGH	IOL 2 ₂ VLOW	IOL 2 ₂ ULVE	IOL 2 ₂ LLVU	IOL 2 ₂ OTMP	IOL 2 ₂ PRMEREVT2	IOL 2 ₂ EVT1	IOL 2 ₂ PDINV	IOL 2 ₂ HWER	IOL 2 ₂ DSER	IOL 2 ₂ CFGGER	-	OC DO 2 ₆		
	0xA007	IOL 2 ₃ GEN- ER	IOL 2 ₃ OVL	IOL 2 ₃ VHIGH	IOL 2 ₃ VLOW	IOL 2 ₃ ULVE	IOL 2 ₃ LLVU	IOL 2 ₃ OTMP	IOL 2 ₃ PRMEREVT2	IOL 2 ₃ EVT1	IOL 2 ₃ PDINV	IOL 2 ₃ HWER	IOL 2 ₃ DSER	IOL 2 ₃ CFGGER	-	OC DO 2 ₇		

PROFINET® Process Data

Inputs	0	DI 1 ₇	DI 1 ₆	DI 1 ₅	DI 1 ₄	DI 1 ₃	DI 1 ₂	DI 1 ₁	DI 1 ₀	
	1	OCDO 1 ₇	OCDO 1 ₆	OCDO 1 ₅	OCDO 1 ₄	DVS 1 ₃	DVS 1 ₂	DVS 1 ₁	DVS 1 ₀	
	2...15	IO-Link Read Data (depends on parameter settings)								
	16	DI 2 ₇	DI 2 ₆	DI 2 ₅	DI 2 ₄	DI 2 ₃	DI 2 ₂	DI 2 ₁	DI 2 ₀	
	17	OCDO 2 ₇	OCDO 2 ₆	OCDO 2 ₅	OCDO 2 ₄	DVS 2 ₃	DVS 2 ₂	DVS 2 ₁	DVS 2 ₀	
	18...31	IO-Link Read Data (depends on parameter settings)								
Outputs	0	DO 1 ₇	DO 1 ₆	DO 1 ₅	DO 1 ₄	-	-	-	-	
	1	-	-	-	-	-	-	-	-	
	2...15	IO-Link Write Data (depends on parameter settings)								
	16	DO 2 ₇	DO 2 ₆	DO 2 ₅	DO 2 ₄	-	-	-	-	
	17	-	-	-	-	-	-	-	-	
	18...31	IO-Link Write Data (depends on parameter settings)								

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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	