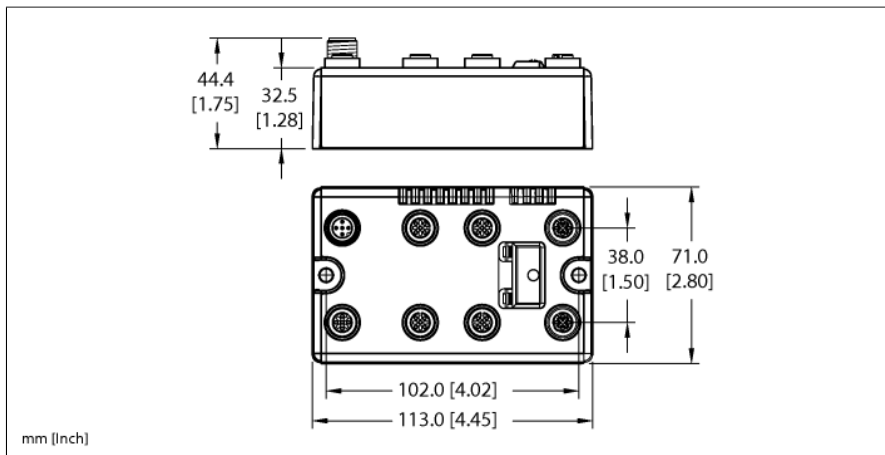


BL Compact Fieldbus Station for EtherCAT

4 Analog Inputs for Current or Voltage and 4 Analog Outputs for Voltage

BLCEC-4M12MT-4AI4AO-VI

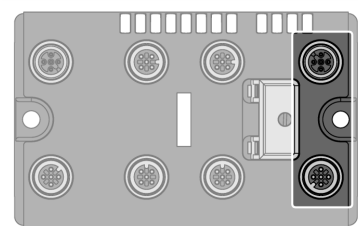
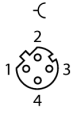
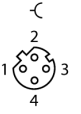
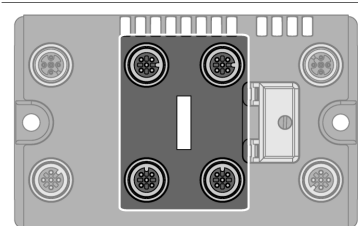
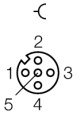
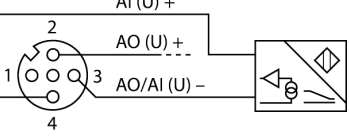
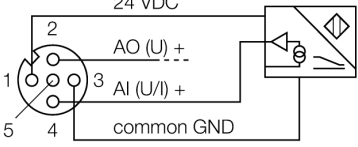
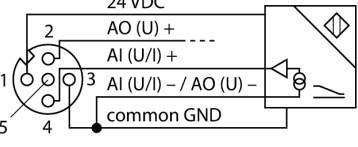
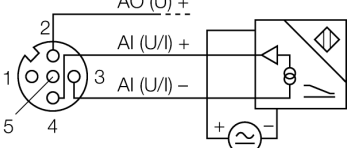
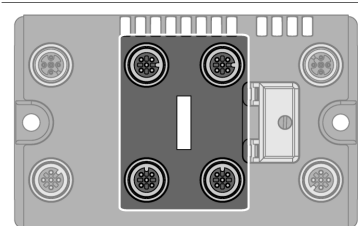
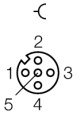
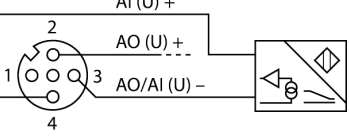
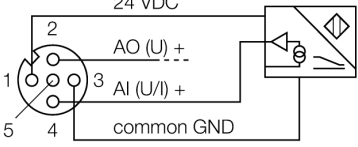
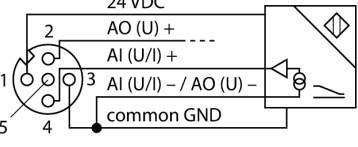
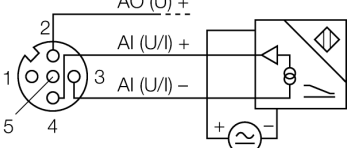
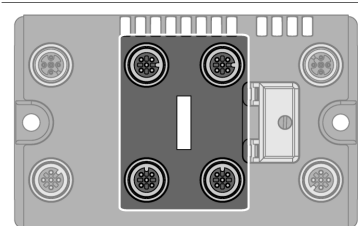
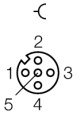
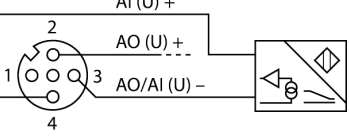
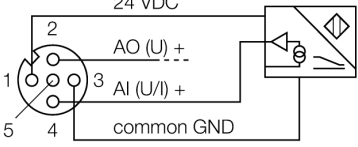
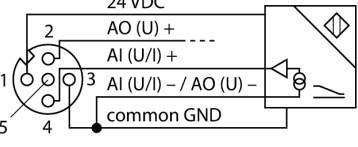
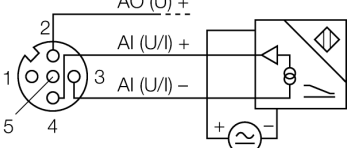


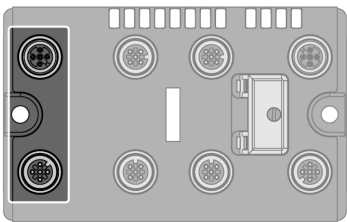
ID	6811627
Nominal system voltage	24 VDC
System power supply	Via auxiliary power
Voltage supply connection	2 x M12, 5-pin
Admissible range Vi	11...30 VDC
Nominal current Vi	150 mA
Max. current Vi	1 A
Admissible range Vo	11...30 VDC
Nominal current Vo	50 mA
Max. current Vo	4 A
Fieldbus transmission rate	100 Mbps
Fieldbus address range	0 x 00 (automatic assignment) 0 x 01...0 x FF (fixed assignment)
Fieldbus addressing	2 hexadecimally coded rotary switches
Fieldbus connection technology	2 x M12 4-pole, D-coded
Service interface	Ethernet
Analog inputs	from 4AI4AO-VI
Operating modes	0/4 ... 20 mA or -10/0 ... 10 VDC
Type of input diagnostics	Channel diagnostics
Sensor supply	24 VDC, 1 amp max.
Input resistance	Current: < 0.065 KΩ, Voltage: < 225 KΩ
Maximum limiting frequency analog	< 20 Hz
Basic fault limit at 23 °C	< 0.3 %
Repeatability	< 0.05 %
Temperature coefficient	< 300 ppm / °C of full scale
Resolution	16 Bit
Measuring principle	Sigma Delta
Measurement display	16 bit signed integer 12 bit full range left-justified

- On-machine Compact fieldbus I/O block
- EtherCAT™ slave
- Integrated Ethernet Switch
- Two 4-pole M12, D-coded, connectors for fieldbus connection
- Auto and Fixed addressing
- IP67, IP69K
- M12 I/O connectors
- LEDs indicating status and diagnostics
- Electronics galvanically separated from the field level via optocouplers
- 4 analog inputs for current or voltage
- 0/4...20 mA or -10/0...+10 VDC (selectable per channel)
- 4 analog voltage outputs
- -10/0...+10 VDC

Analog outputs	from 4AI4AO-VI
Operating modes	-10/0 ... 10 V
Type of output diagnostics	Channel diagnostics
Sensor supply	24 VDC, 250 mA per channel
Load resistance, resistive	> 1 k Ω
Load resistance, capacitive	< 1 μ F
Transmission frequency	< 100 Hz
Basic fault limit at 23 °C	< 0.3 %
Repeat accuracy	< 0.05 %
Temperature coefficient	< 300 ppm/°C of full scale
Resolution	16 bit
Measured-value display	16 bit signed integer
	12 bit full range left-justified
Dimensions	113 x 71 x 32.5 mm
Mounting	2 x 5.4 mm diameter holes, 1.7 Nm torque
Weight	390 $\pm$ 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	110 years
MTTF note	acc. to SN 29500 (Ed. 99) 20 °C
Approvals and certificates	CE, cULus

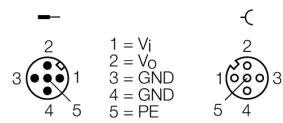
Pinning and wiring diagram

	EtherCAT 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)   <tr><td data-bbox="113 640 491 1901"></td><td data-bbox="491 640 1051 1901"> Analog Inputs and Outputs Extension cable (example): RK 4.5T-2-RS 4.5T/S653 ident-no. U2187-09 or RKC4.5T-2-RSC4.5T/TEL ident-no. 6625212 </td><td data-bbox="1051 640 1498 1901"> Pin Assignment   2-wire Technology (Current)  2-wire connection (voltage)  3-wire connection  4-wire Technology  4-wire connection (external voltage supply)  </td></tr>		Analog Inputs and Outputs Extension cable (example): RK 4.5T-2-RS 4.5T/S653 ident-no. U2187-09 or RKC4.5T-2-RSC4.5T/TEL ident-no. 6625212	Pin Assignment   2-wire Technology (Current)  2-wire connection (voltage)  3-wire connection  4-wire Technology  4-wire connection (external voltage supply) 
	Analog Inputs and Outputs Extension cable (example): RK 4.5T-2-RS 4.5T/S653 ident-no. U2187-09 or RKC4.5T-2-RSC4.5T/TEL ident-no. 6625212	Pin Assignment   2-wire Technology (Current)  2-wire connection (voltage)  3-wire connection  4-wire Technology  4-wire connection (external voltage supply) 			



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



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
LNK/ACT		OFF	Port Closed, No Link, No Activity
	GREEN	ON	Port Open, Link Established, No Activity
	GREEN	FLICKERING	Port Open, Link Established, Activity Present
RUN		OFF	Device is in state INIT
	GREEN	BLINKING	Device is in state PRE-OPERATIONAL
	GREEN	SINGLE FLASH	Device is in state SAFE-OPERATIONAL
	GREEN	ON	Device is in state OPERATIONAL
	GREEN	FLICKERING	Device is in state BOOTSTRAP
ERR	RED	ON	Application controller not responding
	RED	DOUBLE FLASH	Sync Manager Watchdog timeout
	RED	SINGLE FLASH	State changes from Op to SafeOpError (synchronization error)
	RED	BLINKING	State change not possible (invalid register/object settings/hardware config.)
	RED	OFF	No EtherCAT comm errors

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 channels 0...3		OFF	Channel inactive
	GREEN	ON	Channel active
	GREEN	FLASHING (0.5 Hz)	Underflow diagnostics
	GREEN	FLASHING (4 Hz)	Overflow diagnostics
AO channels 4...7			Not connected (The analog outputs do not have a LED)

* D LED also indicates gateway diagnostics

I/O Data Map

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