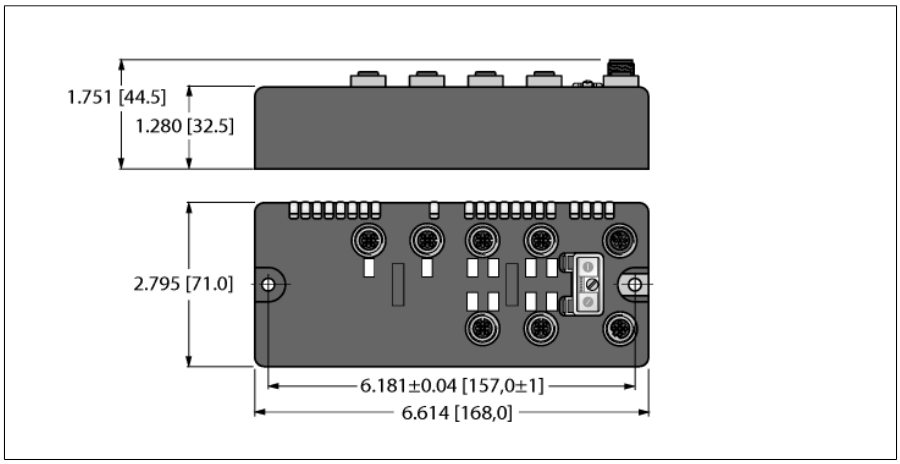
BL compact™ fieldbus station for CANopen
4 Analog Inputs for Current or Voltage, 4 Analog Outputs for Voltage, and 2 Analog Outputs for Current
BLCCO-6M12L-4AI4AO-VI-2AO-I



- **On-machine Compact fieldbus I/O block**
- **CANopen slave**
- **10, 20, 50, 125, 250, 500, 800, or 1000 kbps**
- **Two 5-pole M12 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 current outputs**
- **0/4…20 mA**
- **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**

Type code	BLCCO-6M12L-4AI4AO-VI-2AO-I
Ident-No.	6811328
Ident-No (TUSA)	F6811328

Nominal system voltage	24 VDC
System power supply	via CANopen
Admissible range V+	18…30VDC
Nominal current V+	180 mA
Max. current V+	4 A

Fieldbus transmission rate	10 kbps … 1 Mbps
Adjustment transmission rate	auto detection
Fieldbus address range	1…99
Fieldbus addressing	2 decimally coded rotary switches
Fieldbus connection technology	2 x M12 5-pole
Fieldbus connection	external
Service interface	RS232 interface

Analog inputs	from 4AI4AO-VI
Input type	0/4 … 20 mA or -10/0 … 10 VDC
Type of input diagnostics	channel diagnostics
Sensor supply	24 VDC
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
Measured-value displayed	16 bit signed integer 12 bit full range left-justified

Analog outputs	from 4AI4AO-VI
Output type	-10/0 … 10 V
Type of output diagnostics	Channel diagnostics
Sensor supply	24 VDC, 250 mA per channel
Load resistance, resistive	> 1 kΩ
Load resistance, capacitive	< 1 µF
Transmission frequency	< 100 Hz
Basic fault limit at 23 °C	< 0.3 %
Repeatability	< 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

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Analog outputs	from 2AO-I
Output type	0/4 … 20 mA
Type of output diagnostics	Channel diagnostics
Sensor supply	24 VDC
Load resistance, resistive	< 0.45
Load resistance, inductive	< 1 mH
Transmission frequency	< 200 Hz
Basic fault limit at 23 °C	< 0.2 %
Repeatability	< 0.05 %
Temperature coefficient	< 150 ppm/ºC of full scale
Resolution	16 bit
Measured-value display	16 Bit Signed Integer
	12 bit full range left justified

Dimensions	1680 x 710 x 325 mm
Operating temperature	-40...+70 ºC
Storage temperature	-40...+85 ºC
Relative humidity	15 to 95% (non-condensing)
Vibration test	according to IEC 61131-2
Extended vibration resistance	
- up to 20 g (at 10 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
Protection class	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	540 ± 20 g
Approvals and certificates	CE, cULus

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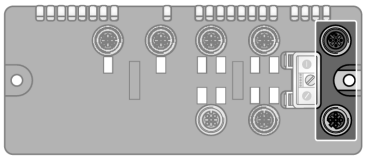
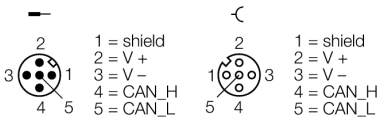
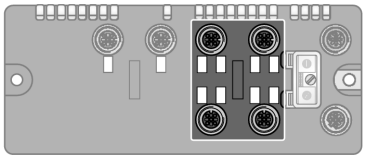
Pinning and wiring diagram



CANopen
Fieldbus cable (example): RSC RKC 572-2M ident-no. U0323 or RSC-RKC572-2M ident-no. 6603629

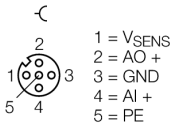
Pin Assignment



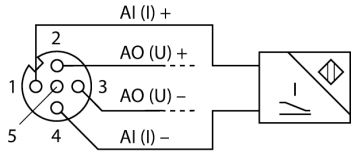


Slot 1: Analog inputs and outputs
Extension cable (example): RK 4.5T-2-RS 4.5T/S653 ident-no. U2187-09 or RKC4.5T-2-RSC4.5T/TEL ident-no. 6625212

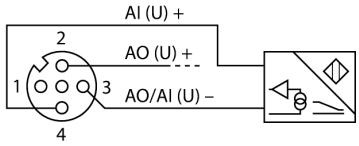
Pin Assignment



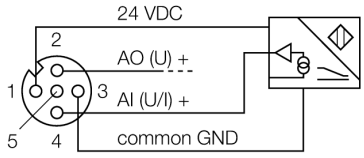
2-wire Technology (Current)



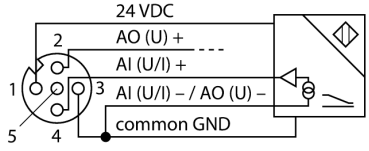
2-wire Technology (Voltage)



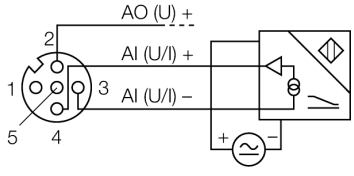
3-wire Technology



4-wire Technology



4-wire Technology (External Power)



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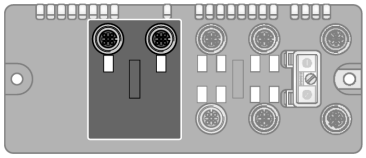
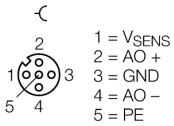


Slot 2: Analog outputs

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



1 = V_{SENS}
2 = AO +
3 = GND
4 = AO –
5 = PE

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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
ERR	-	OFF	No communication error
	RED	ON	CAN bus communication error
BUS	GREEN	ON	NMT-slave state is „Operational”
	ORANGE	ON	NMT-slave state is „Pre-Operational“
	RED	ON	NMT-slave state is „Stopped“
ERR & BUS	RED (ERR) & GREEN (BUS)	FLASHING (4 Hz)	Searching for the baud rate

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...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)

* 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)
AO channels 0 / 1			Not connected

* D2 LED also indicates gateway diagnostics

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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							
AO 2_0	8	AO 2_0 LSB							
	9	AO 2_0 MSB							
AO 2_1	10	AO 2_1 LSB							
	11	AO 2_1 MSB							

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