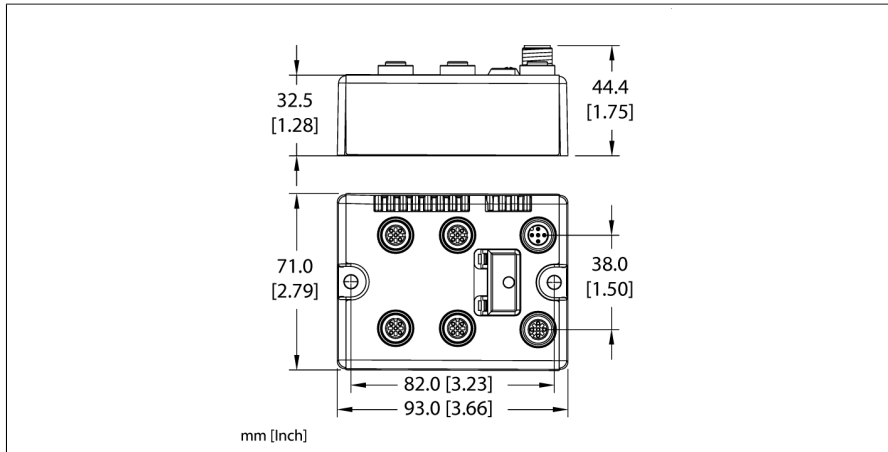


# BL compact™ fieldbus station for DeviceNet™

## 2 Analog Inputs for Current or Voltage and 2 Analog Outputs for Voltage

### BLCDN-4M12S-2AI2AO-VI

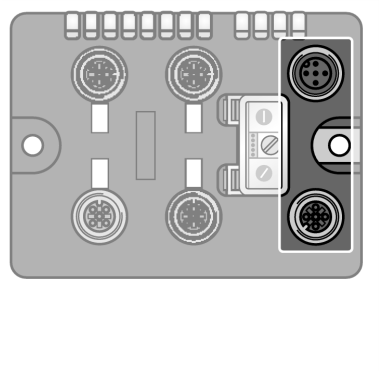
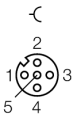
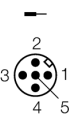
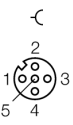
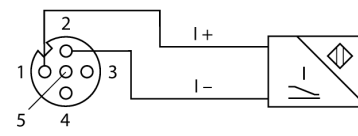
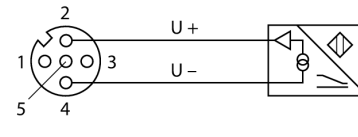
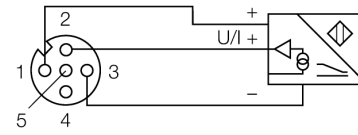
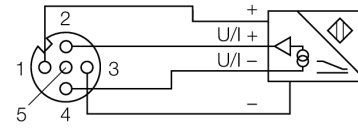
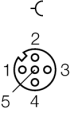


|                                   |                                                                           |
|-----------------------------------|---------------------------------------------------------------------------|
| ID                                | 6811058                                                                   |
| Nominal system voltage            | 24 VDC                                                                    |
| System power supply               | Via DeviceNet                                                             |
| Admissible range V+               | 11...30 VDC                                                               |
| Nominal current V+                | 130 mA                                                                    |
| Max. current V+                   | 4 A                                                                       |
| Fieldbus transmission rate        | 125/250/500 kbps                                                          |
| Adjustment transmission rate      | Automatic detection                                                       |
| Fieldbus address range            | 0...63<br>64...80 (MacID programmable)<br>81...99 (manufacturer specific) |
| Fieldbus addressing               | 2 decimally coded rotary switches                                         |
| Fieldbus connection technology    | 2 × M12                                                                   |
| Fieldbus termination              | 5-pole<br>external                                                        |
| Service interface                 | RS232 interface                                                           |
| Vendor ID                         | 48                                                                        |
| Product type                      | 12                                                                        |
| Product code                      | 11058                                                                     |
| Analog inputs                     | from 2AI2AO-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<br>12 bit full range left-justified                 |

- On-machine Compact fieldbus I/O block
- DeviceNet™ slave
- 125 / 250 / 500 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 inputs for current or voltage
- 0/4...20 mA or -10/0...+10 VDC (selectable per channel)
- 2 analog voltage outputs
- -10/0...+10 VDC

|                                   |                                                    |
|-----------------------------------|----------------------------------------------------|
| Analog outputs                    | from 2AI2AO-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 $\Omega$                                     |
| Load resistance, capacitive       | < 1 $\mu$ 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                        | 93 x 71 x 32.5 mm                                  |
| Mounting                          | 2 x 5.4 mm diameter holes, 1.7 Nm torque           |
| Weight                            | 320 $\pm$ 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<br>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                                |
| Approvals and certificates        | CE, cULus                                          |

Pinning and wiring diagram

|                                                                                    |                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <p><b>DeviceNet</b></p> <p>Fieldbus cable (example): RSC RKC 572-2M ident-no. U0323 or RSC-RKC572-2M ident-no. 6603629</p>                                     | <p><b>Pin Assignment</b></p> <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  | <p><b>Analog Inputs and Outputs</b></p> <p>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</p> | <p><b>Pin Assignment (Ports 0 to 1)</b></p> <div></div> <p><b>2-wire Technology (Current)</b></p>  <p><b>2-wire Technology (Voltage)</b></p>  <p><b>3-wire Technology</b></p>  <p><b>4-wire Technology</b></p>  <p><b>Pin Assignment (Ports 2 to 3)</b></p> <div></div> |

#### 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                    |
| MNS |       | OFF             | No connection                        |
|     | GREEN | ON              | Connection established               |
|     | GREEN | FLASHING (1 Hz) | No connection established, device OK |
|     | RED   | ON              | Duplicate MAC-ID                     |
|     | RED   | FLASHING        | Connection time out                  |
| IO  | GREEN | ON              | I/O active                           |
|     | GREEN | FLASHING (1 Hz) | One or more I/O in Idle State        |
|     | RED   | ON              | One or more I/O error                |
|     | RED   | FLASHING        | One or more I/O in Faulted State     |

#### 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<br>0...1 |       | OFF               | Channel inactive                                        |
|                      | GREEN | ON                | Channel active                                          |
|                      | GREEN | FLASHING (0.5 Hz) | Underflow diagnostics                                   |
|                      | GREEN | FLASHING (4 Hz)   | Overflow diagnostics                                    |
| AO channels<br>2...3 |       |                   | Not connected<br>(The analog outputs do not have a LED) |

\* D LED also indicates gateway diagnostics

# I/O & Diagnostic Data Map

| INPUT                | BYTE | Bit 7                                   | Bit 6 | Bit 5              | Bit 4 | Bit 3                                | Bit 2 | Bit 1                                               | Bit 0                         |
|----------------------|------|-----------------------------------------|-------|--------------------|-------|--------------------------------------|-------|-----------------------------------------------------|-------------------------------|
| AI 1 <sub>0</sub>    | 0    | AI 1 <sub>0</sub> LSB                   |       |                    |       |                                      |       |                                                     |                               |
|                      | 1    | AI 1 <sub>0</sub> MSB                   |       |                    |       |                                      |       |                                                     |                               |
| AI 1 <sub>1</sub>    | 2    | AI 1 <sub>1</sub> LSB                   |       |                    |       |                                      |       |                                                     |                               |
|                      | 3    | AI 1 <sub>1</sub> MSB                   |       |                    |       |                                      |       |                                                     |                               |
| Diagnostics          | 4    | Module number reporting diagnostic data |       |                    |       |                                      |       |                                                     |                               |
|                      | 5    | Replace Station                         | -     | Diagnostics Active | -     | -                                    | -     | -                                                   | -                             |
| Slot 1 (ref. Byte 4) | 6    | Hardware Failure                        | -     | -                  | -     | AI 1 <sub>0</sub> Overflow/Underflow | -     | Wire Break AI 1 <sub>0</sub> (4...20 mA range only) | Range Error AI 1 <sub>0</sub> |
|                      | 7    | Hardware Failure                        | -     | -                  | -     | AO 1 <sub>2</sub> Overflow/Underflow | -     | -                                                   | Range Error AO 1 <sub>2</sub> |
|                      | 8    | Hardware Failure                        | -     | -                  | -     | AI 1 <sub>1</sub> Overflow/Underflow | -     | Wire Break AI 1 <sub>1</sub> (4...20 mA range only) | Range Error AI 1 <sub>1</sub> |
|                      | 9    | Hardware Failure                        | -     | -                  | -     | AO 1 <sub>3</sub> Overflow/Underflow | -     | -                                                   | Range Error AO 1 <sub>3</sub> |
| OUTPUT               | BYTE | Bit 7                                   | Bit 6 | Bit 5              | Bit 4 | Bit 3                                | Bit 2 | Bit 1                                               | Bit 0                         |
| AO 1 <sub>2</sub>    | 0    | AO 1 <sub>2</sub> LSB                   |       |                    |       |                                      |       |                                                     |                               |
|                      | 1    | AO 1 <sub>2</sub> MSB                   |       |                    |       |                                      |       |                                                     |                               |
| AO 1 <sub>3</sub>    | 2    | AO 1 <sub>3</sub> LSB                   |       |                    |       |                                      |       |                                                     |                               |
|                      | 3    | AO 1 <sub>3</sub> MSB                   |       |                    |       |                                      |       |                                                     |                               |