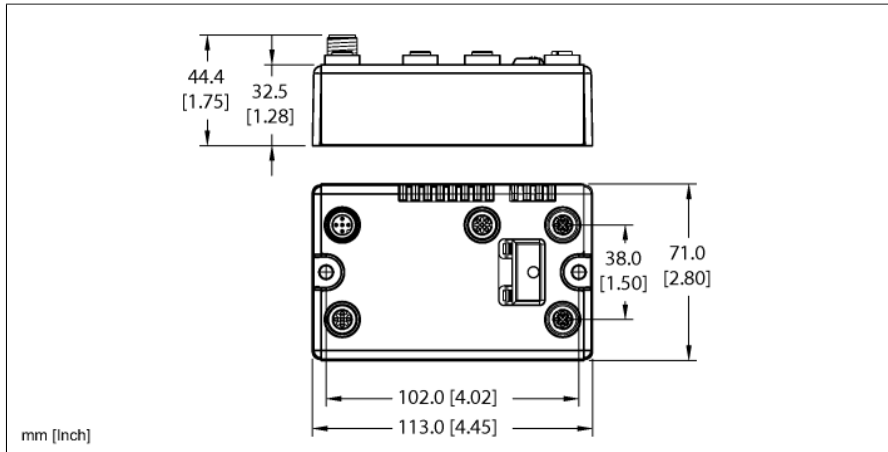


BL compact™ multiprotocol fieldbus station for Industrial Ethernet

RS485/RS422 Interface

BLCEN-1M12MT-1RS485-422



| | |
|--------------------------------|--|
| ID | 6811462 |
| Nominal system voltage | 24 VDC |
| System power supply | Via auxiliary power |
| Voltage supply connection | 2 x M12, 5-pin |
| Admissible range Vi | 18...30 VDC |
| Nominal current Vi | 150 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...98 (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 | 11462 |
| 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. 6 register |
| Input register start address | 0 (0x0000 hex) |
| Output Data Size | max. 4 register |
| Output register start address | 2048 (0x0800 hex) |

- 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
- Transmission of serial data via RS485/422 interface
- For connection of devices such as: printers, scanners, or bar code readers

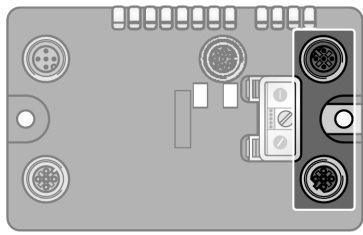
| Ethernet/IP | |
|---------------------------------|-----------------------------------|
| Addressing | acc. to EtherNet/IP specification |
| Device Level Ring (DLR) | supported |
| Class 1 connections (CIP) | 6 |
| Input Assembly Instance | 103 |
| Input Data Size | 6 INT |
| Output Assembly Instance | 104 |
| Output Data Size | 4 INT |
| Configuration Assembly Instance | 106 |
| Configuration Size | 0 |
| Comm Format | Data - INT |

| 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. 8 BYTE |
| Output Data Size | max. 8 BYTE |

| Technology | |
|----------------------|--|
| Signal type | RS485 / 422 |
| Number of channels | 1 |
| Transmission signals | TxD, RxD |
| Connection type | 2-wire half duplex or 4-wire full duplex |
| Cable length | 1000 m |
| Line impedance | 120 Ω |
| Terminating resistor | external |
| Parameters | RS485/422, transmission rate, diagnostics, data bits, stop bits, XON-character, XOFF-character, parity, flow control |
| Electrical isolation | isolation of electronics and field level via optocouplers |

| | |
|-----------------------------------|--|
| Dimensions | 113 x 71 x 32.5 mm |
| Mounting | 2 × 5.4 mm diameter holes, 1.7 Nm torque |
| Weight | 330 ± 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 |
| Approvals and certificates | CE, cULus |

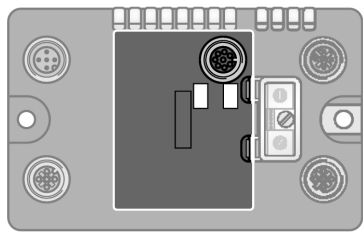
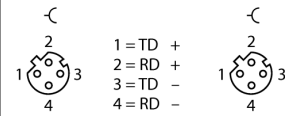
Pinning and wiring diagram



Ethernet

Fieldbus cable (IP67 example): RSSD RSSD 441-2M ID number U-02482 or RSSD-RSSD-441-2M/S2174 ID number 6914218

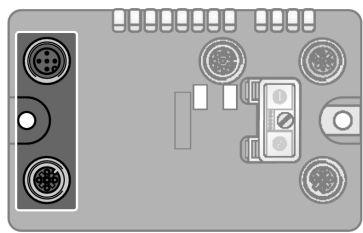
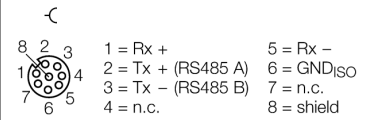
Pin Assignment (M12, D-code)



RS485/422 interface

Extension cable (example): RKC 8T-2-RSC 8T/S1555 ident-no. U0933-01 or BS8181-0 ident-no. 6901004

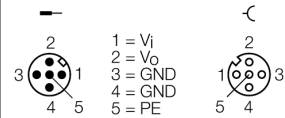
Pin Assignment



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 |
| 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 |

* D LED also indicates gateway diagnostics

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 |
|----------------------|------|---|------------|--------------------|-----------------|-------------|--------------------------------------|------------------|------------------------|
| Status Bytes | 0 | STAT | TX_CNT_ACK | | RX_CNT | | RX_BYTE_CNT | | |
| | 1 | BUF_OVFL | FRAME_ERR | HNDSH_ERR | HW_FAILURE | PRM_ERR | - | - | - |
| User Data | 2 | Data Byte 0 | | | | | | | |
| | 3 | Data Byte 1 | | | | | | | |
| | 4 | Data Byte 2 | | | | | | | |
| | 5 | Data Byte 3 | | | | | | | |
| | 6 | Data Byte 4 | | | | | | | |
| Diagnostics | 7 | Data Byte 5 | | | | | | | |
| | 8 | Module number reporting diagnostic data | | | | | | | |
| | 9 | Replace Station | - | Diagnostics Active | - | - | - | - | - |
| Slot 1 (ref. Byte 8) | 10 | - | - | - | Buffer Overflow | Frame Error | Data Flow Control Error (RS422 Only) | Hardware Failure | Parameterization Error |
| | 11 | - | - | - | - | - | - | - | - |
| OUTPUT | BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
| Control Bytes | 0 | STAT_RES | RX_CNT_ACK | | TCX_CNT | | TX_BYTE_CNT | | |
| | 1 | - | - | - | - | - | - | RXBUF_FLUSH | TXBUF_FLUSH |
| User Data | 2 | Data Byte 0 | | | | | | | |
| | 3 | Data Byte 1 | | | | | | | |
| | 4 | Data Byte 2 | | | | | | | |
| | 5 | Data Byte 3 | | | | | | | |
| | 6 | Data Byte 4 | | | | | | | |
| | 7 | Data Byte 5 | | | | | | | |

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 | BUF_OVFL | FRM | HNDSH_ERR | HW | PRM | - | - | - | STAT | TX_CNT_ACK | RX_CNT | | | RX_BYTE_CNT | | |
| | 0x0001 ... 0x0003 | Read Data (3 Words) | | | | | | | | | | | | | | | |
| Status (RO) | 0x0004 | - | FCE | - | - | CFG | COM | VI low | - | VO low | - | - | - | - | - | - | DIA |
| Diag. (RO) | 0x0005 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | S1 DIA |
| Outputs (RW) | 0x0800 | - | - | - | - | - | - | RXBUF_FLUSH | TXBUF_FLUSH | STAT_RES | RX_CNT_ACK | TCX_CNT | | | TX_BYTE_CNT | | |
| | 0x0801 ... 0x0803 | Write Data (3 Words) | | | | | | | | | | | | | | | |
| I/O Diag. (RO) | 0xA000 | - | - | - | - | - | - | - | - | OF | FRM | DFC | HW | PRM | - | - | - |

PROFINET® Process Data

| | BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|---------|------|-------------|------------|-----------|------------|---------|-------------|-------------|-------------|
| Inputs | 0 | STAT | TX_CNT_ACK | | RX_CNT | | RX_BYTE_CNT | | |
| | 1 | BUF_OVFL | FRAME_ERR | HNDSH_ERR | HW_FAILURE | PRM_ERR | - | - | - |
| | 2 | Data Byte 0 | | | | | | | |
| | 3 | Data Byte 1 | | | | | | | |
| | 4 | Data Byte 2 | | | | | | | |
| | 5 | Data Byte 3 | | | | | | | |
| | 6 | Data Byte 4 | | | | | | | |
| Outputs | 7 | Data Byte 5 | | | | | | | |
| | 0 | STAT_RES | RX_CNT_ACK | | TCX_CNT | | TX_BYTE_CNT | | |
| | 1 | - | - | - | - | - | - | RXBUF_FLUSH | TXBUF_FLUSH |
| | 2 | Data Byte 0 | | | | | | | |
| | 3 | Data Byte 1 | | | | | | | |
| | 4 | Data Byte 2 | | | | | | | |
| | 5 | Data Byte 3 | | | | | | | |
| | 6 | Data Byte 4 | | | | | | | |
| | 7 | Data Byte 5 | | | | | | | |