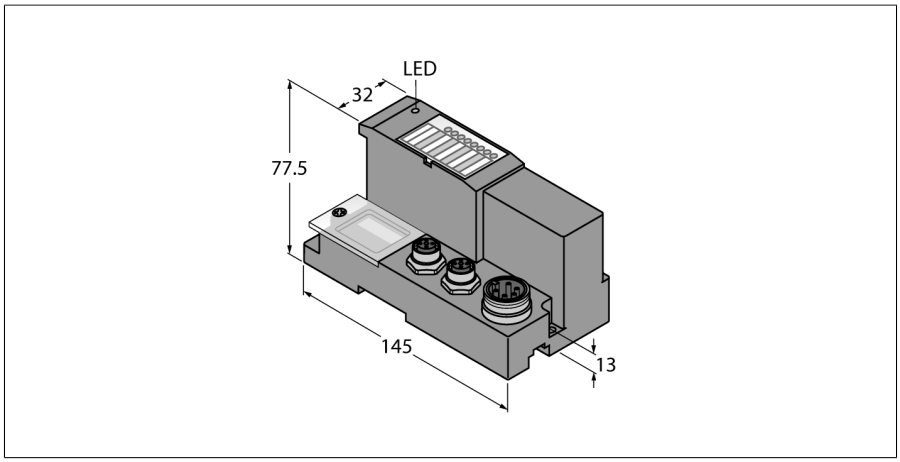
# CODESYS 3 Programmable Gateway for the BL67 I/O System Multiprotocol Ethernet Gateway for PROFINET, EtherNet/IP and Modbus TCP
# BL67-PG-EN-V3




- CODESYS V3 PLC Runtime
- CODESYS OPC UA server/client
- IIoT gateway for Turck Cloud
- PROFINET device
- EtherNet/IP device
- Modbus TCP master/slave
- Protection class IP67
- LEDs for display of PLC status, supply voltage, group and bus faults
- 2 × M12 Ethernet, 4-pin, D-coded
- Switched or dual MAC mode
- 10 Mbps/100 Mbps
- 7/8″ male connector for power supply, 5-pin

| | |
|---|---|
| Type | BL67-PG-EN-V3 |
| ID | 6827394 |
| | |
| Supply voltage | 24 VDC |
| System power supply | 24 VDC / 5 VDC |
| Field supply | 24 VDC |
| Admissible range | 18…30 VDC |
| Nominal current from module bus | ≤ 100 mA |
| Max. sensor supply $I_{sens}$ | 4 A short circuit fuse |
| max. load current $I_{o}$ | 10 A |
| Max. field supply current | 10 A |
| Max. system supply current | 1.2 A |
| Voltage supply connection | 7/8″, 5-pin |
| | |
| Fieldbus transmission rate | 10/100 Mbps, Full/Half Duplex, Auto Negotiation, Auto Crossing |
| Fieldbus addressing | Rotary switch, PGM, DHCP |
| Fieldbus connection technology | 2 × M12, 4-pin, D-coded |
| | |
| PLC data | |
| Programming | CODESYS V3 |
| Released for CODESYS version | V 3.5.8.10 |
| Programming languages | IEC 61131-3 (IL, LD, FBD, SFC, ST) |
| Application tasks | 5 |
| Programming interface | Ethernet, USB |
| Processor | ARM, 32 Bit |
| Cycle time | < 1 ms for 1000 IL commands (without I/O cycle) |
| Real time clock | yes |
| Program memory | 1024 kByte |
| Data memory | 512 kByte |
| Input data | 4 kByte |
| Output data | 4 kByte |
| Non-volatile memory | 16 kByte |
| | |
| Web server | 192.168.1.254 (default) |
| Service interface | Ethernet, mini USB |

**Functional principle**

The programmable BL67 gateways can be used as autonomous PLCs or as decentral PLCs in a network interconnection for a fast preprocessing of signals.

BL67 gateways are the head component of a BL67 station. The BL67 electronic modules communicate over the internal module bus with the gateway and can be configured independently of the bus system.

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| | |
|---|---|
| Modbus TCP | |
| Addressing | Static IP, DHCP |
| Supported function codes | FC1, FC2, FC3, FC4, FC5, FC6, FC15, FC16, FC23 |
| Input Data Size | max. 1024 register |
| Input register start address | 0 (0x0000 hex) |
| Output Data Size | max. 1024 register |
| Output register start address | 0 (0x0000 hex) |

| | |
|---|---|
| Ethernet/IP | |
| Addressing | acc. to EtherNet/IP specification |
| Device Level Ring (DLR) | not supported |
| Input Data Size | 248 INT |
| Output Data Size | 248 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) | not supported |
| Input Data Size | max. 512 BYTE |
| Output Data Size | max. 512 BYTE |

| | |
|---|---|
| Dimensions (W x L x H) | 74 x 145 x 77.5 mm |
| Approvals | CE |
| Ambient temperature | -25…+70 °C |
| Temperature derating | |
| > 55 °C Circulating air (Ventilation) | Derating: Max. power consumption = 5 A |
| > 55 °C Steady ambient air | Derating: Max. power consumption = 5 A |
| Storage temperature | -40…+85 °C |
| Relative humidity | 15…95 % (internal), level RH-2, no condensation (when stored at 45 °C) |
| Vibration test | Acc. to EN 61131 |
| - up to 5 g (at 10 to 150 Hz) | for mounting on DIN rail no drilling according to EN 60715, with end bracket |
| - up to 20 g (at 10 up to 150 Hz) | for mounting on base plate or machinery Therefore every second module has to be mounted with two screws each. |
| Shock test | Acc. to IEC 60068-2-27 |
| Drop and topple | acc. to IEC 68-2-31 and free fall to IEC 68-2-32 |
| Electromagnetic compatibility | Acc. to IEC 61131-2 |
| Protection class | IP67 |
| MTTF | 116 years acc. to SN 29500 (Ed. 99) 20 °C |
| DIN rail mounting | yes, Attention: Offset |
| Direct mounting | Two mounting holes, Ø 6 mm |

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|---|---|
| Included in delivery | 1 x end plate BL67 |

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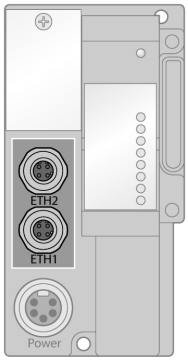
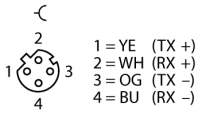
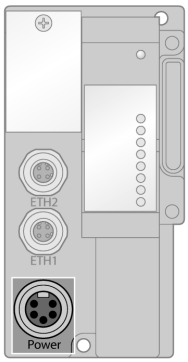
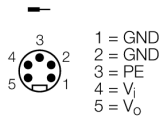
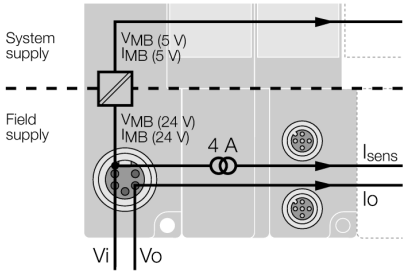
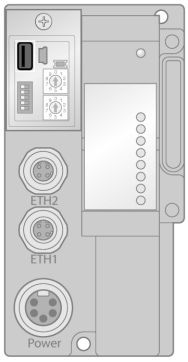
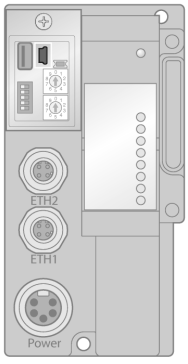
|---|---|---|
|  | **Ethernet**<br>The M12-D coded Ethernet ports are used as interface for programming, configuration and fieldbus communication. The gateway can be operated as a slave at PLCs or PC based systems with PROFINET, EtherNet/IP™ or Modbus TCP master as well as with a driver software.<br><br>**Ethernet Cable** (Example):<br>M12 - M12: RSSD-RSSD-441-2M/S2174 (ident no. 6914218)<br>M12 – RJ45: RSSD-RSSD-441-2M/S2174 (ident no. 6915781) | Pin Assignment<br>  |
|  | **Power Supply**<br>Double-tuned power supply of the BL67 system.<br><br>System power supply $V_i$<br>$V_i$ is for the internal system supply at the backplane bus($V_{MB(5V)}$) and for the 4A short-circuit limited sensor supply ($V_{sens}$).<br><br>Load voltage $V_o$<br>$V_o$ for output supply, limited to max.10A.<br>**Power Cable** (Example):<br>7/8“ – 7/8“: RKM52-2-RSM52 (Ident no. 6914150)<br>7/8“ – open: RKM52-2M (Ident no. 6604711) | Pin Assignment<br>  <br>Power supply<br>  |
|  | **USB Host Port**<br>Storage media can be connected to the USB host port, please observe the instructions in the user manual. | Pin Assignment<br> |
|  | **USB Device Port**<br>The USB device port can be used as a programming and service interface. | Pin Assignment<br> |

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**LED display**

| LED | Color | Status | Meaning |
|---|---|---|---|
| IO | | OFF | No or too low power supply |
| | RED | ON | Hardware failure, the firmware is not running |
| | RED | FLASHING (1Hz) | Incorrect module configuration, actual module configuration does not match the projected configuration |
| | RED | FLASHING (4 Hz) | No communication to the local I/Os (backplane bus) |
| | RED/GREEN | FLASHING | Actual module configuration differs from the configured, but can be run |
| | GREEN | ON | Module bus without errors, actual station configuration matches the configured |
| | GREEN | FLASHING (1Hz) | DTM force mode active |
| GW | | OFF | No or too low power supply |
| | RED | FLASHING (1Hz) | Wink command |
| | GREEN | ON | Gateway without error |
| BUS | | OFF | No or too low power supply |
| | RED | ON | IP-address conflict or Restore Mode / F_Reset Mode |
| | RED/GREEN | FLASHING | Autonegotiation and/or DHCP/ BootP waiting for assignment of IP address |
| | GREEN | ON | Connection established to PLC |
| | GREEN | FLASHING | Ready |
| ERR | | OFF | No diagnosis |
| | RED | ON | Diagnosis of the gateway or an I/O module |
| RUN | | OFF | No or too low power supply |
| | RED | ON | PLC program stopped |
| | RED | FLASHING | No PLC program available |
| | GREEN | ON | PLC program running |
| APPL | RED/GREEN | | This LED is controlled user-defined from the CODESYS program |
| LNK1/LNK2 | | OFF | No Ethernet link |
| | YELLOW | ON | Ethernet Link (10 Mbps) |
| | YELLOW | FLASHING | Ethernet communication (10 Mbps) |
| | GREEN | ON | Ethernet Link (100 Mbps) |
| | GREEN | FLASHING | Ethernet communication (100 Mbps) |
| VI/VO | | OFF | No or too low power supply |
| | GREEN | ON | VI and VO are applied |
| | GREEN | FLASHING (1Hz) | VI voltage too low |
| | GREEN | FLASHING (4Hz) | VO voltage too low |
| | RED | ON | Overcurrent Isens |

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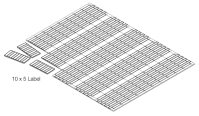
## Function accessories

| Type code | Ident no. | | Dimension drawing |
|---|---|---|---|
| BL67-LABEL-DIN-A4-50STCK. | 6827196 | Labels for electronic modules and gateways, DIN A5 sheets, perforated, laser printing, 50 pcs. |  |

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