

Modbus converter - BSL-330

AutoSafe interactive fire detection system
Product datasheet

Features

- Gives full status from all detectors, outputs and fire alarm devices
- Variants for master and slave are available
- Several converters can be used to cover large installations
- Redundant communication is possible
- Available as RS232, RS422 and RS485 interface

Description

The Modbus converter BSL-330 is an RS232/422/485 interface converter used to interface various PLC equipment (Programmable logic controllers) to the AutoSafe interactive fire detection system. The converter is both a physical and a logic protocol converter. At the physical connection level, it transforms an RS232 connection to an RS485 or RS422 connection. This is convenient as this type of connection is safer in noisy environments. RS-232 is available as an option.

The converter is connected to the AutoSafe via the AutoCom protocol. It communicates with both protocols by means of the conversion software.

A master Modbus device polls the BSL-330 converter for reading its registers. It expects a response within a defined time period. Communication can be over various serial mediums. The one used here is the Modbus RTU protocol over an RS485 link (RS232).

BSL-330 allows:

- Detector statuses and FPE and FAD outputs on the AutoSafe to be made available to a Modbus PLC
- Users to send basic commands to the AutoSafe from a Modbus PLC
- Protocol: Modbus RTU over an RS485 link

Connection and termination

| Port 1 – RS232 | | Port 2 RS485 | | Port 2 RS232 |
|----------------|--------|--------------|--------|--------------|
| Terminal no. | Signal | Terminal no. | Signal | Signal |
| 1 | TX | 1 | TXA | TX |
| 2 | n.c. | 2 | TXB | n.c. |
| 3 | RX | 3 | RXA | RX |
| 4 | n.c. | 4 | RXB | n.c. |
| 5 | RTS_IN | 5 | 5 VDC | 5 VDC |
| 6 | P1.GND | 6 | P2.GND | P2.GND |
| 7 | 24 VDC | | | |
| 8 | 0V | | | |

Limitations

| Item | Value/range |
|---------------------------------------|-------------|
| Maximum numbers of AutoSafe detectors | 4096 |
| Maximum numbers of FPEs | 512 |
| Maximum numbers of FADs | 512 |



Available information from AutoSafe

| Available statuses for fire detectors / gas detectors |
|---|
| Alarm/high gas alarm |
| Prewarning/early warning/low gas alarm |
| Fault |
| Disabled |
| Inhibit |

| Available statuses for digital outputs and sounders |
|---|
| Activation State |
| Fault |
| Disabled |
| Operation State (Current state) |

Available commands to AutoSafe

| Command |
|-------------------------|
| Silence Bell |
| Reset |
| Set System Time/Date |
| Detector Disable |
| Detector Enable |
| Detector Inhibit |
| Detector Cancel Inhibit |
| FPE Activate |
| FPE Deactivate |
| FPE Disable |
| FPE Enable |

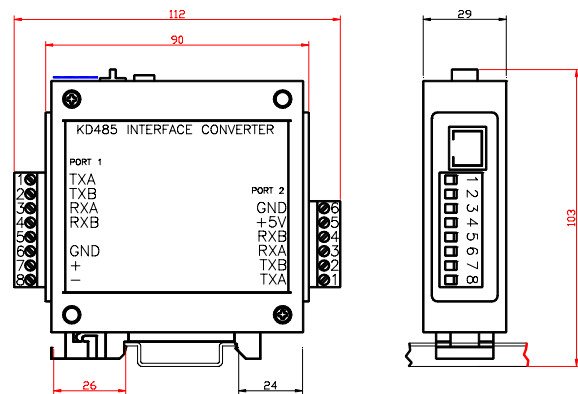


| Technical specifications | |
|--------------------------|--|
| Ports | Two asynchronous ports, TX & RX signals only |
| Interface options | Port 1 is RS232; Port 2 is RS422/485 or RS232 |
| RS232 | Receiver threshold + 1.5V typ. Receiver Rin 5kΩ typ. TX o/p ±8V typ (3k load) |
| RS422/485 | Receiver threshold 200mV typ (differential). Receiver Rin 12kΩ min. TX o/p 0 to + 5V (no DC load); + 2 to + 3V (120Ω ohm load) |
| Modbus interface | Port 2. Modbus RTU protocol Baud rate selectable 4800/9600/19200/38400 baud Odd/Even/No parity, 1 or 2 stop bits. 8 databit |
| AutoSafe communication | 9600 baud, 8 data bits, 1 stop bits and no parity |
| Mounting | Mounting on DIN rail. DIN-rail enclosure with removable screw terminal; fits 35mm symmetrical rails |
| Power supply | + 7V to + 35 VDC. + 12 VDC Input power approx. constant at 1-2 watts (startup current 300-600mA) depending on model. At startup, the supply voltage must reach 7V in <1 sec. |
| Isolation | 64V PK, tested at >1000V AC RMS, 1 second |
| Environmental | Operating temperature 0 to +50C. Storage temperature -25C to + 70C. Relative humidity (operating and storage) 0 to 90%, non condensing |
| Ventilation | Rail mounted KD485 must have a 50mm gap above and below |

| Part number | Description |
|---------------------|--|
| 116-BSL-330/1 | Modbus converter slave RS485 |
| 116-BSL-330/2 | Modbus converter master RS485 |
| 116-BSL-330/3 | Modbus converter slave RS232 |
| 116-BSL-330/4 | Modbus converter master RS232 |
| 116-AS-MODBUSCD | Modbus converter service CD |
| 116-AS-MODBUSSERVPK | Modbus converter service pack, CD and cables |

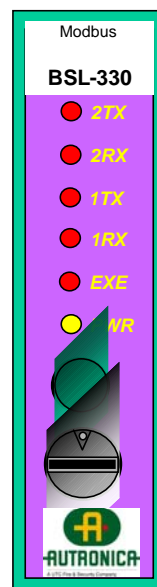
- Two serial ports: Port 1 and Port 2; isolated from each other and from the power supply
- Port 1 is RS-232; Port 2 is RS-422/485 or RS232
- DIN-rail enclosure with removable screw terminals; fits 35mm symmetric rails
- DC power input in the range +7V to +35V; uses a high efficiency switching power supply
- Controlled slew rate drivers on RS-422/485 ports - no terminators needed for cables shorter than 300m
- Internal pull-up/pull-down resistors on RS-422/485 ports ensure that RS485 bus floats to a valid state when not driven

Dimensions (mm)



Indicators and buttons

BSL-330 has the following indicators and buttons:



- 2TX: Red LED - Send (TX) Port 2 (to external PLC equipment). Blinking light (2 seconds intervals) indicates that signals are being sent
- 2RX: Red LED - Receive (RX) Port 2 (to external PLC equipment). Blinking light (2 seconds intervals) indicates that signals are being received
- 1TX: Red LED - Send (TX) Port 1 (to EAU-321 – AutoSafe). Blinking light (2 seconds intervals) indicates that signals are being sent
- 1RX: Red LED - Receive (RX) Port 1 (to EAU-321 – AutoSafe). Blinking light (2 seconds intervals) indicates that signals are being received
- EXE: Red LED – Operation: Indication of traffic:
- Switched on when an AutoSafe event occurs, switched off when sent to Modbus
- Normal operation: EXE lights steady while a message is sent to the PLC equipment. Blinking light (0.5 second intervals) when green button has been pressed
- PWR: Yellow LED – Steady light indicates Power ON
- Green executive mode button. Used to enter Executive mode (when setting parameters)
- Grey rotary switch (default factory settings - 0)

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