



RP2

Universal trip amplifier

ELECTRONIC EQUIPMENT

ACOUSTIC

WEIGHING

ANTI-TILTING

VALVES

TEMPERATURE

DETECT A FIRE®

FLOW/RATE

DENSITY

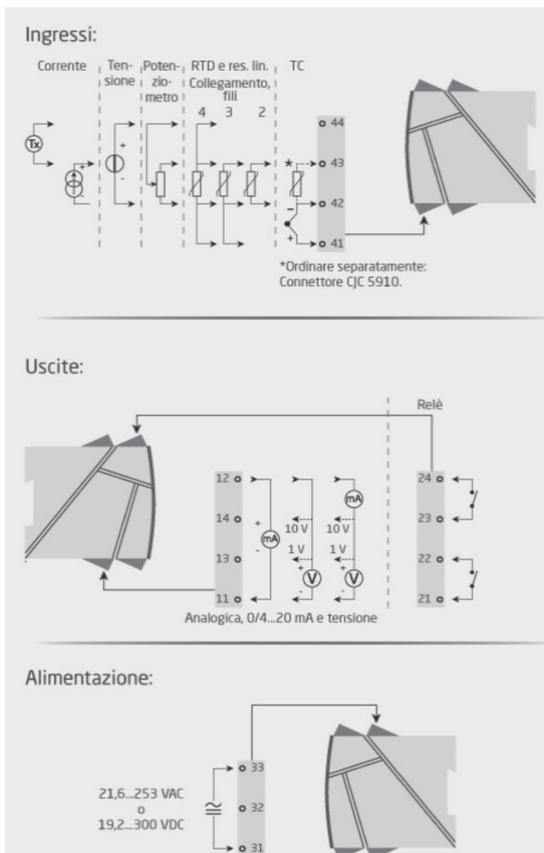
INTERFACE

PRESSURE

LEVEL



- Input for RTD, TC, Ohm, potentiometer, mA and V
- 2-wire supply > 16 V
- Output for current, voltage and 2 relays
- Universal AC or DC supply
- Retransmission of the signal in 4/20mA upon request



Advanced features

Programmable via detachable display front (RPOF series), process calibration, relay simulation, password protection, error diagnostics and selection of help text in several languages.

Application

- Process control with 2 pairs of potential-free relay contacts which can be configured to suit any application.
- Trip amplifier with window function defined by a high and a low setpoint. The relay changes state outside the window.
- Relay latch function, where the relay is activated and can only be reset manually.
- Sophisticated sensor error surveillance, where one relay holds the state immediately prior to the sensor error, while allowing the process to continue. The other relay can be set for sensor error alarm so that the defect sensor can be replaced immediately.

Technical characteristics

- When RPOF is used with the display series, all operational parameters can be modified to suit any application. As the RP2 is designed with electronic hardware switches, it is not necessary to open the device for setting of DIP-switches.
- A green front LED indicates normal operation and malfunction. A yellow LED is ON for each active output relay.
- Continuous check of vital stored data for safety reasons.
- 3-port 2.3 kVAC galvanic isolation.

Mounting / installation / programming

- Very low power consumption means units can be mounted side by side without an air gap - even at 60°C ambient temperature.
- Configuration, monitoring, 2-point process calibration and more are accomplished using RPOF series of detachable displays.
- All programming can be password-protected.

Model

| | |
|---------------|---|
| RP2S | alarm threshold without front panel |
| RP2SRS | alarm threshold without front panel and re-transmission of the signal in 4-20mA |
| RPOF | extractable display and programming front panel |
| RPOFBT | removable display and programming front panel with Bluetooth |
| RPOFMB | removable display and programming front panel with ModBus RTU |

Specifications

| INPUT | TRASMETTITORE | SOGLIA DI ALLARME |
|--------------------------------------|----------------------|----------------------|
| mA measurement range / min. span | 0...23 mA / 16 mA | 0...23 mA / 16 mA |
| V measurement range / min. span | 0...12 VDC / 0,8 V | 0...12 VDC / 0,8 V |
| RTD measurement range / min. span | -200...+850°C / - | -200...+850°C / - |
| Lin. R measurement range / min. span | 0...10000 Ω / - | 0...10000 W / - |
| Potentiometer | 10 W...100 kW | 10 W...100 kW |
| Sensor connection wires | 2-3-4 | 2-3-4 |
| TC types | BEJKLNRSTUW3W5Lr | BEJKLNRSTUW3W5Lr |
| Cold junction compensation | Internal / external | Internal / external |
| Reference voltage / 2-wire supply | - / 16 VDC | - / 16 VDC |
| OUTPUT | | |
| mA signal range / min. span | 0...23 mA / 16 mA | |
| Load (@ current output) | ≤ 800 W | |
| V signal range / min. span | 0...10 VDC / 0,8 VDC | |
| Load (@ voltage output) | | |
| Relays | 2 x SPST, AC: 500 VA | 2 x SPST, AC: 500 VA |

Technical specifications

| INPUT | TRANSMITTER | ALARM THRESHOLD |
|-------------------------------------|----------------------------------|----------------------------------|
| Ambient temperature | -20...+60°C | -20...+60°C |
| Supply voltage, universal AC / DC | 21,6...253 V / 19,2...300 V | 21,6...253 V / 19,2...300 V |
| Max. required power | 2,5 W | 2,0 W |
| Isolation voltage, test / operation | 2,3 kVAC / 250 VAC | 2,3 kVAC / 250 VAC |
| Response time | < 400 ms | < 400 ms |
| Signal dynamics input / output | 24 bit / 16 bit | 24 bit / - |
| Accuracy | < ±0,1% of span | < ±0,1% of span |
| Temperature coefficient | < ±0,01% of span / °C | < ±0,01% of span / °C |
| NAMUR | NE21, NE43 | NE21, NE43 |
| Channels | 1 | 1 |
| Programming | Display / programming front RPOF | Display / programming front RPOF |

RPOF removable display and programming front panel



Applications

- Communications interface for programming and modification of operational parameters.
- The easily readable display can be used to monitor the process signal, simulate the output signal, indicate sensor errors and internal device errors.
- The product can be moved from one device to another. The individual system RP2 device configuration of a transmitter can be saved and downloaded to subsequent transmitters.

- **Programming display for all past and present RP2 series devices**
- **Monitor process value and status from the built-in display**
- **Scrolling help text in 7 languages**

Technical characteristics

- Easy-to-read dot matrix LCD display.
- Backup memory for loading and saving of device configuration. Programming access can be blocked by assigning a password.
- The password is saved in the device in order to ensure a high degree of protection against unauthorized modifications to the configuration.

Mounting / installation / programming

- Mounting in Zone 2 / Div 2.
- When mounted on devices that are installed upside down, a menu item allows the display to be rotated 180° and the up/down buttons to switch function.

| ENVIRONMENTAL CONDITIONS | |
|--------------------------|--|
| Operating temperature | -20°C to +60°C |
| Storage temperature | -20°C to +85°C |
| Relative humidity | < 95% RH (non-cond.) |
| Protection degree | IP20 |
| Installation in | Pollution degree 2 & meas. / overvoltage cat. II |

| MECHANICAL SPECIFICATIONS | |
|--------------------------------------|-------------------------------------|
| Dimensions (HxWxD) | 73,2 x 23,3 x 26,5 mm |
| Dimensions (HxWxD) w/ 4000/9000 unit | 109 x 23,5 x 131 mm |
| Weight approx | 20 g |
| COMMON SPECIFICATIONS SUPPLY | |
| Supply voltage | 6.5...20 V supplied from RP2 device |
| Max. required power | 0,15 W |

RPOFBT removable display and programming front panel with Bluetooth



- Bluetooth communication iOS/Android devices
- Live monitoring of process values and diagnostics on compatible smart devices
- Advanced data logging and event logging using the built-in real-time clock

Applications

- Programming devices via Bluetooth using an iOS/Android device.
- All logged data can be exported in .csv format, for advanced data analysis off-site.
- On-site analysis of real-time process data on an iOS/Android compatible device.
- Off-site analysis of historic process data on a PC.

Technical characteristics

- It runs Bluetooth 4.2, and requires a smart device with 4.0 or newer.
- RPOFBT automatically detects the device setting on the connected device.
- An internal battery energizes the RPOFBT real-time clock for at least 2 years, should the RPOFBT remain de-energized.
- Typical data logging capacity is more than 30 days at 1 second intervals.
- Easy to read dot matrix LCD display.
- Fast pairing or safe pairing via two-factor authentication.

Mounting / installation / programming

- Mounting in Zone 2 / Div. 2.
- The RPOFBT can be moved from one device to another. The individual system 4000/9000 device configuration of a transmitter can be saved and downloaded to subsequent transmitters.
- Programmed parameters can be protected by a user-defined password.
- When mounted on devices that are installed upside down, a menu selection rotates the RPOFBT display 180 degrees and reverses the up/down button functions.

| ENVIRONMENTAL CONDITIONS | |
|---|--|
| Operating temperature | -20°C to +60°C |
| Storage temperature | -20°C to +85°C |
| Relative humidity | < 95% RH (non-cond.) |
| Protection degree | IP20 |
| Installation in | Pollution degree 2 & meas. / overvoltage cat. II |
| MECHANICAL SPECIFICATIONS | |
| Dimensions (HxWxD) | 73,2 x 23,3 x 26,5 mm |
| Dimensions (HxWxD) w/ 4000/9000 unit | 109 x 23,5 x 131 mm |
| Weight approx | 30 g |
| COMMON SPECIFICATIONS | |
| Supply voltage | 6.5...20 V supplied from host device |
| Max. required power | 0,15 W |
| DATA LOGGING | |
| Memory | 100 MB |
| Capacity | > 2.75 million data points (depending on the connected device) |
| Data retention, without power | ~ 10 years |
| Extended EMC immunity: NAMUR NE21, A criterion, burst | No loss of communication |
| Internal battery back-up (for real-time clock) | 2 years (@ 25°C) |
| Calibrated clock accuracy | <±60 s/year @ 25°C |
| Bluetooth communication | BLE 4.2 |
| Bluetooth radio | Class 2 |

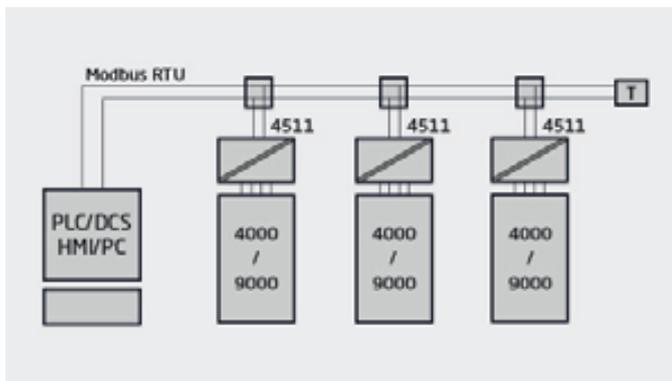
RPOFMB removable display and programming front panel with ModBus communication interface



- Programming display with Modbus RTU protocol interface via RS-485
- Monitor process value from the built-in display
- High 2.5 kV isolation to host unit
- Shielded RJ45 connector on top

Applications

- The unit converts numerous sensor and analogue signals measured as unipolar and bipolar mA and voltage signals, from potentiometers, Lin. R, RTD and TC, into a Modbus communication signal.
- All individual unit operating parameters can easily and quickly be configured by using the Modbus communication or by using the front display menu.
- The easily readable RPOFMB display can be used to read the process signal, simulate the output signal, indicate sensor errors and internal device errors.
- The RPOFMB can be moved from one device to another. The individual configuration of a transmitter can be saved and downloaded to subsequent transmitters.



Technical characteristics

- The RPOFMB display has full functionality for unit programming, process signal monitoring and diagnostics handling.
- Multidrop half-duplex connection via shielded RJ45 connector.
- High safe galvanic isolation, 2.5 kVAC, between serial wiring and connected system units.
- Modbus parameters such as address, transmission speed, stop bits and parity bits are configured on the display, which also allows them to be stored.

| ENVIRONMENTAL CONDITIONS | |
|---|--|
| Operating temperature | -20°C to +60°C |
| Storage temperature | -20°C to +85°C |
| Relative humidity | < 95% RH (non-cond.) |
| Protection degree | IP20 |
| Installation in | Pollution degree 2 & meas. / overvoltage cat. II |
| MECHANICAL SPECIFICATIONS | |
| Dimensions (HxWxD) | 73,2 x 23,3 x 26,5 mm |
| Dimensions (HxWxD) w/ 4000/9000 unit | 109 x 23,5 x 131 mm |
| Weight approx | 30 g |
| Connection | RJ45 - schermato |
| COMMON SPECIFICATIONS | |
| Max. required power | 0,15 W |
| Isolation voltage, test/working | 2,5 kVAC / 250 VAC reinforced isolation |
| Response time | < 20 ms |
| Signal/noise ratio | > 60 dB |
| Update rate | > 50 Hz |
| Extended EMC immunity: NAMUR NE21, A criterion, burst | No loss of communication |
| Signal type | RS-485 half duplex |
| Serial protocol | Modbus RTU |
| Modbus mode | RTU - slave |
| Devices on an RS485 line | Up to 32 (w/o a repeater) |
| Data rates, baud | 2400, 4800, 9600, 19200, 38400, 57600, 115200 |
| Automatic baudrate detection | Yes - can be configured ON or OFF |
| Parity | Even, Odd, None |
| Stop bit(s) | 1 or 2 |
| Digital addressing | 1...247 |
| Response delay | 0...1000 ms |