

OPTO3

Galvanically isolated pulse signal splitter



- The input pulse signal splits into three mutually separated outputs A, B and C
- Output-A: open collector (U_{max} : 28 VDC, I_{max} : 0.2 A)
- Output-B, Output-C: galvanically isolated outputs, bidirectional solid-state relay (U_{max} : 28 V, I_{max} : 50 mA, R_{max} : 10 Ω)
- Outputs with shaping and short pulse extension function, input signal oscillation suppression
- Input adjustable for both open-collector and current/voltage output sensors
- Selectable supply voltage of the connected sensor (U_{supply} or 3.3V)
- Surge protection of inputs and outputs
- Very low quiescent current consumption for battery-powered applications ($I_q < 10 \mu A$ after switching off signal LEDs)
- Supply voltage range 3.5 to 28 VDC
- DIN rail mounting 35 mm, width 17.5 mm
- Compatible with FIEDLER AMS

Basic description

The OPTO3 galvanically isolated pulse splitter has one pulse input for connecting a signal from a water meter or electricity meter sensor and three galvanically isolated pulse outputs.

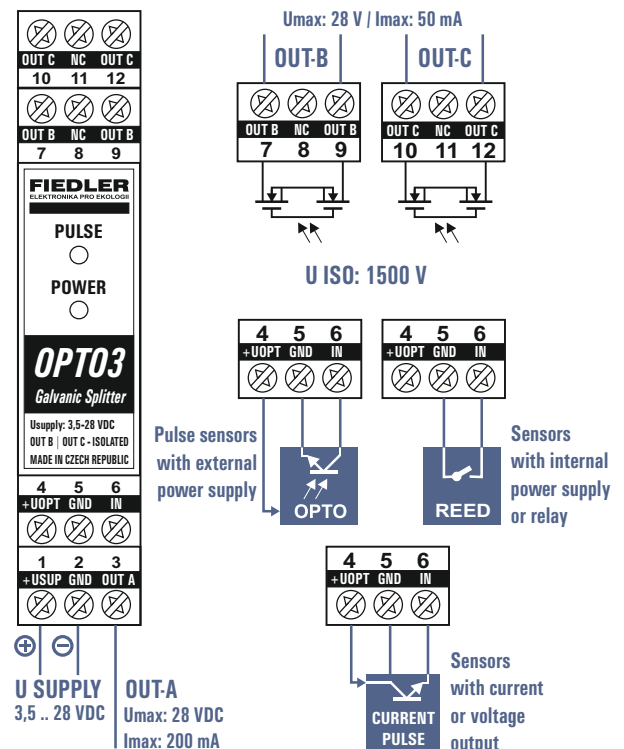
INPUT:

Both open-collector pulse transducers (OPTO) and transducers with mechanical or solid-state switching contacts (REED) can be connected to the IN input. By rebuilding the PR2 jumper, accessible by removing the top cover of the instrument, transducers with current or voltage output can also be connected to the IN input and powered from the instrument.

OUT-A, OUT-B and OUT-C outputs:

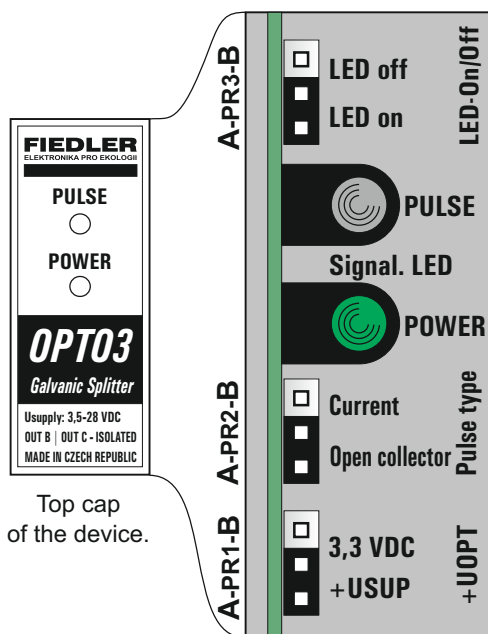
The three pulse outputs OUT-A, OUT-B and OUT-C can be used for technology control (dosing pumps) or data acquisition (data loggers, telemetry). In order to suppress ground loops and to increase reliable operation, the pulse outputs OUT-B and OUT-C are galvanically isolated from each other and from the supply voltage of the hub and the pulse output OUT-A. The OUT-A output is an open collector type and consists of a switching transistor connected to the negative pole of the supply voltage. The OUT-B and OUT-C outputs contain a semiconductor switching element with no polarity.

Connecting the terminals



Configuration jumpers

Configuration jumpers PR1 to PR3 are accessible by removing the top cover of the instrument box. A small flat head screwdriver can be used to remove the lid. The factory default setting of the deployment jumpers is shown by the black highlighted position in the figure.



Top cap of the device.

Layout of jumpers under the top cap of the device.

PR3: Switching off/on the PULSE and POWER LEDs. In the default factory setting of the PR3-A, both LEDs are on. The red LED indicates the duration of the pulse, the green POWER LED indicates the presence of external supply voltage at the +USUP and GND terminals. In the case of a battery-powered hub, the signaling LEDs can be switched off (PR3-B) and thus significantly reduce the mainly quiescent current consumption (time between input pulses) of the device - see section "Technical parameters".

PR2: Setting the type of input pulse signal. The factory default setting of the PR2-A jumper allows an open-collector or potential-free switch to be connected to the IN input. By resetting the jumper to the PR2-B position, a sensor with a current or voltage pulse output can also be connected to the OPTO3 hub. The detection level of the input is 1.5 mA.

PR1: Selecting the UOPT voltage magnitude to power the connected pulse sensor. Uopto can be equal to the supply voltage of the OPTO3 hub (default setting of the PR1-A jumper) or it can be set to a fixed voltage of UOPT = 3.3 V (setting of the PR1-B jumper).

Technical parameters

Input IN, PR2-A: active state = switching of IN input with GND terminal; Rmax: 1000 Ω; Imax: 1.5 mA

PR2-B: active state = input current > 1.5 mA; Umin: 3.0 VDC; Umax: 28 VDC; hysteresis: 0.2 mA

Frequency of pulses: max 25 Hz; minimum pulse duration 20 ms (shorter pulses are suppressed)

Output OUT-A: transistor output switch to the negative terminal of the GND supply voltage for datalogger connection, telemetry or signaling circuit; Umax: 28 VDC; Imax: 200 mA; Rmax: 100 mΩ

Output OUT-B: solid-state bidirectional relay; Rmax: 10 Ω; Umax 28 VDC; Imax: 50 mA
galvanic isolation of OUT-B output from supply voltage and OUT-C output, isolation voltage 1500 V

Output OUT-C: solid-state bidirectional relay; Rmax: 10 Ω; Umax 28 VDC; Imax: 50 mA
galvanic isolation of OUT-C output from supply voltage and OUT-B output, isolation voltage 1500 V

External power supply Usupply: 3.5 to 28 VDC, positive supply terminal: +USUP, negative supply terminal: GND

Current consumption: PR3-A (signal LEDs on), idle state: max 3 mA; pulse duration: max 5 mA

PR3-B (signal diodes off), idle state: max 10 μA; pulse duration: max 2 mA

Supply voltage UOPT (power supply for the external pulse sensor): **PR1-A:** UOPT= USUP

PR1-B: UOPT= 3,3 VDC / Imax: 25 mA

Connection clamps: screw-in for conductors 0,15 to 2,5 mm²

Mechanical dimensions (l x w x h): 90 mm x 17,5 mm x 56,4 mm

Mounting method: DIN rail 35 mm

Weight: 75 g

Operating and storage temperature: -30 °C až +80 °C

Degree of Protection: IP20

