SPI-94

- flow meter, batcher, totalizer
- 1 pulse counting input + 3 control inputs
- 0, 2 or 4 REL / OC outputs
- analogue output: active or passive, power supply output: 24V DC
- RS-485 / Modbus RTU
- display of instantaneous and the total flow values
- batching and counting of doses
- free configuration software S-Config

The **SPI-94** flow counters are designed to work together with flow transducers equipped with contact or electronic inputs. The purpose of flow counters is to measure the instantaneous flow value and to record the total flow of media like liquids, gases or loose materials. A wide range of total flow indication (up to 16 digits) allows controlling the flow value for a long operation time. Thanks to the built-in batcher function the **SPI-94** counters can be used in many industries like: food, pharmaceutical or paint and varnish industry. The REL / OC control outputs can be programmed depending on the instantaneous flow value, batcher or total flow value. Additionally the counter may be equipped with analogue outputs, according to the customer selection: active current output, passive isolated current output or active voltage output. The counter can be configured with the local keyboard or free S-Config software via the RS-485 communication port.

TECHNICAL DATA

Power supply **Power consumption**	19V ÷ 50V DC; 16V ÷ 35V AC or 85 ÷ 260V AC/DC, all separated for 85 ÷ 260V AC/DC and 16V ÷ 35V AC power supply: max. 6,5 VA; for 19V ÷ 50V DC power supply: max. 6,5 W
Display	LED, 6 x 13 mm high, red
Displayed values range	0 ÷ 999999 + decimal point
Inputs	pulse, fully isolated: - counting input with debouncing filter and pulse width control, max. input frequency 10.0 kHz - zeroing of batcher counter, active edge or level - zeroing of total counter, active edge or level - counting blockade, active edge or level
Input levels	<u>low level</u>: 0 V ÷ 1 V; <u>high level</u>: 10 V ÷ 30 V (about 12 mA @ 24V)
Accuracy	<u>frequency</u>: ± 0.02% (full temperature range); <u>flow</u>: equivalent to used flow sensor precision
Counter capacity	<u>total flow</u>: over 4×10^9 m^3 (max. 16 significant digits); <u>batcher</u>: up to 65536 m^3
Readout precision	<u>instantaneous flow values</u>: selected in the 0 ÷ 0.00000 of unit; <u>total flow and batcher</u>: selected in the 0 ÷ 0.000 of unit
Units	<u>instantaneous flow values</u>: l or m^3 per second, minute or hour; <u>total flow and batcher</u>: l or m^3
Pulse waiting time	settable from 0,1 to 39,9 seconds
Binary outputs	0, 2 or 4 x REL I_{max}=1A, U_{max}=30VDC/250VAC (cosø=1) or OC I_{max}=30mA, U_{max}=30VDC, P_{max}=100mW
Analogue output (available with 2 x REL or OC, see ordering)	<u>active current</u>: operating range 0/4-20 mA (max. 0-24 mA), load resistance 700 Ω max., resolution 13 bit <u>passive current</u>: isolated, operating range 4-20 mA (max. 2,8-24 mA), load resistance 600 Ω@24VDC, resolution 13 bit <u>active voltage</u>: operating range 0/1-5V, 0/2-10V (max. 0-11V), load resistance min. 2000 Ω, resolution 13 bit
Power supply output	24V DC +5%, -10% / max. 100 mA, stabilized
Communication interface	RS-485, 8N1 and 8N2, 1200 bit/s ÷ 115200 bit/s, Modbus RTU (not galvanically isolated)
Operating temperature	0°C ÷ +50°C (standard), -20°C ÷ +50°C (option)
Storage temperature	-10°C ÷ +70°C (standard), -20°C ÷ +70°C (depending on option)
Protection class	IP 65 (front side when an optional seal is installed); IP 40 (front side); IP 20 (case and connection clips)
Case	panel mounting; material: NORYL - GFN2S E1
Dimensions	<u>case (WxHxD)</u>: 96 x 48 x 100 mm <u>panel cut-out</u>: 90,5 x 43 mm <u>installation depth</u>: min. 102 mm <u>board thickness</u>: standard 7 mm or other depending on used board thickness brackets (see Accessories)
Weight	230 g max.

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DIMENSIONS

Side view

Case dimensions

Panel cut-out dimensions
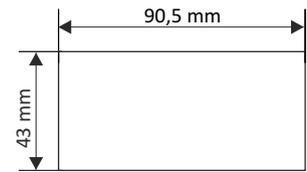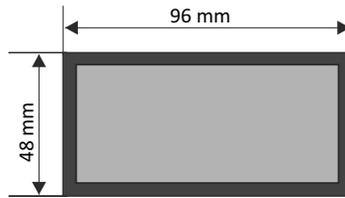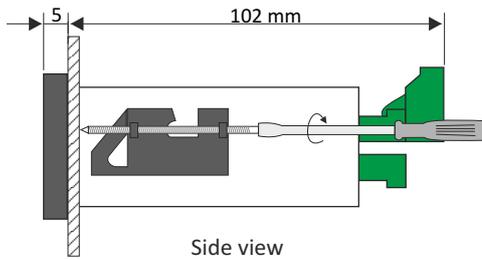
EXAMPLARY PIN ASSIGNMENTS

version with 2 x REL and 1 x AO 0/4-20 mA, active

version with 2 x OC and 1 x AO 4-20 mA, passive

version with 2 x REL and 1 x AO 0/1-5V, 0/2-10V, active

version with 4 x OC

A: pulse input
B: counting inhibition
C: balance counter clearing
D: batching counter clearing
com: common input
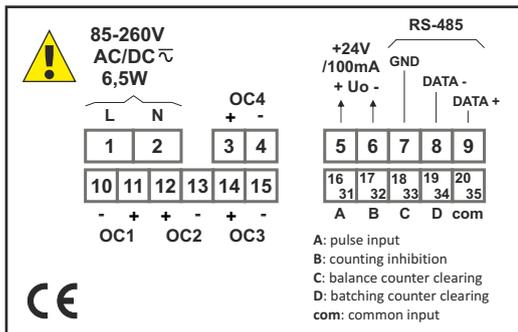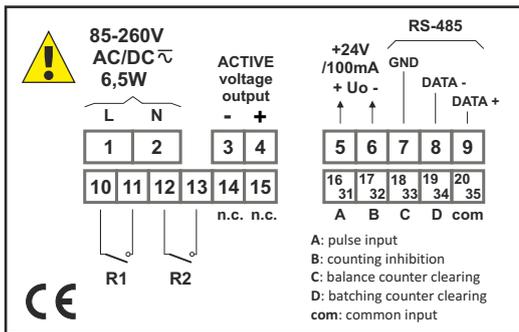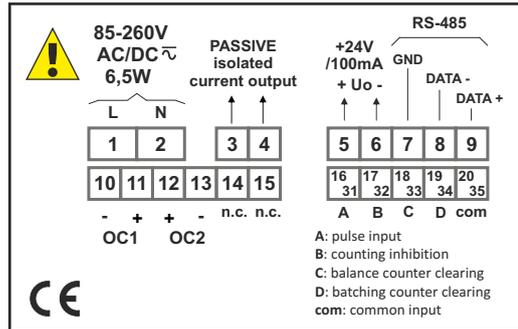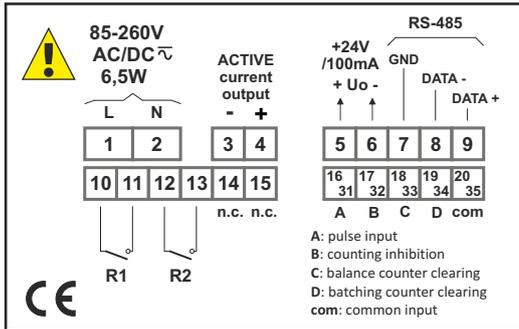
ORDERING

SPI-94-14XX-1-X-XX1

number of outputs:
0
2
3
4

options:
00 : no options
01 : IP 65 frame
08 : operating temp. -20°C ÷ +50°C
0P : IP 65 frame + operating temp. -20°C ÷ +50°C

type of outputs:
0 : no output
1 : REL *(for 2 and 4 outputs)*
2 : OC *(for 2 and 4 outputs)*
3 : 2 x REL + 1 x AO *(0/4-20 mA, active, non-isolated)*
4 : 2 x OC + 1 x AO *(0/4-20 mA, active, non-isolated)*
9 : 2 x REL + 1 x AO *(4-20 mA, passive, isolated)*
A : 2 x OC + 1 x AO *(4-20 mA, passive, isolated)*
B : 2 x REL + 1 x AO *(0/1-5V, 0/2-10V, active, non-isolated)*
C : 2 x OC + 1 x AO *(0/1-5V, 0/2-10V, active, non-isolated)*

power supply:
3 : 24V AC/DC
4 : 85V - 260V AC/DC

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SPI-94.2

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MOUNTING PLATES
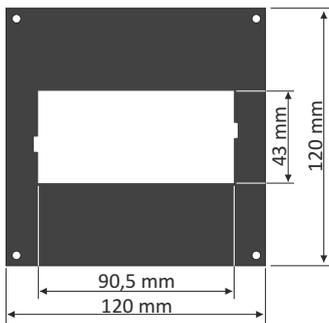
SMP-99/94
to mount 96 x 48 mm
size unit in place
of 96 x 96 mm cut-out

43 mm
120 mm
90,5 mm
120 mm
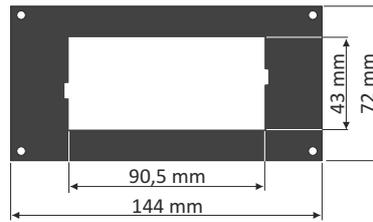
SMP-147/94
to mount 96 x 48 mm
size unit in place
of 144 x 72 mm cut-out

43 mm
72 mm
90,5 mm
144 mm

BOARD THICKNESS BRACKETS / ADAPTORS

SPH-07
1 ÷ 7 mm board thickness
brackets (2 pcs)
standard included with device

SPH-45
1 ÷ 45 mm board thickness
brackets (2 pcs)

SPH-05
1 ÷ 5 mm board thickness
brackets (2 pcs)

SRH-94
brackets for mounting devices
on DIN 35/7.5 or 15 rail (2 pcs)

SOFTWARE
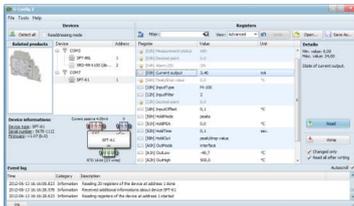
S-Config 2 is used for the simultaneous detection of devices in multiple Modbus RTU networks and allows user to change the configuration of most of them. For each detected device a list of its registers, which the user can modify, is displayed and also additional informations about device parameters (type, address in the network, etc.).
S-Config software can be downloaded from SIMEX website at **www.simex.pl**
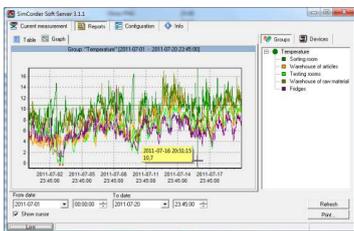
SimCorder Soft is a visualisation application created to facilitate work with advanced networks of the SIMEX devices, for acquisition, visualisation, reporting, archiving, exporting and printing of measurement data from all network devices. You can download measurements from the devices automatically or on demand. There is a possibility of immediate notification about emergency states via SMS or e-mail, which will often allow to quickly resolve an arising problem while avoiding long and expensive stoppages. You can view the measurement data, emergency states and configuration via the internet at every time.

CONVERTERS

The **SRS-U4** module is designed to connect a USB host to slave devices equipped with RS-485 interface. The PC with special software can be used as a host. The **SRS-U4** unit guarantees full galvanic isolation between USB and RS-485 circuits. The converter can work with any devices equipped with RS-485 interface and contains integrated circuit which supports USB 1.1 and USB 2.0 standards. The main purpose is connection of PC host computer with industrial data acquisition and visualisation systems based on RS-485 interface.
The **SRS-U4** can be also manufactured with DIN mounting adaptor.

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