



LABOR – ASTER

INDUSTRIAL AUTOMATION



Certyfikat nr QS/14/07



AC 083
QMS

SEPARATOR and SUPPLIER-SEPARATOR type S2-HART to operate with programmable two-wire 4÷20mA transmitters. Transparent for protocol transmissions including HART.

PURPOSE

Separator S2-HART is designed to supply programmable two-wire 4÷20mA transmitters (type SMART) and convert this signal through galvanic separation to standard 4÷20mA signal which is sent to DCS (Digital Communication System).

Conditions for proper transmission of digital communication signal

Proper transmission for HART communication (also for a communicator connected from object side or on output) is assured when: $0\Omega \leq R_1 \leq 450\Omega$ and $R_{load} \geq 250\Omega$

Connection lines resistance should be taken into consideration ($Cu, L=300m, S=1,5mm^2 \Rightarrow R_L \approx 10\Omega$).

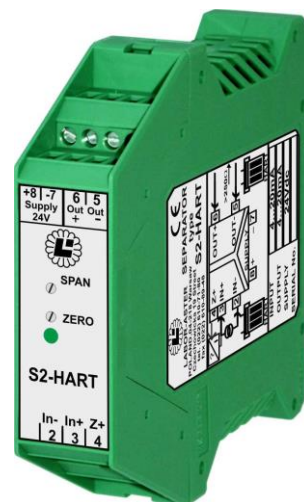
TECHNICAL PARAMETERS

- Input**
- terminals 4-3: two-wire 4÷20mA current loop supplied from voltage 21V (18V @ 20mA),
 - terminals 3-2: passive input 4÷20mA.
 - input resistance 45Ω

- Output signal**
- 4÷20 mA
 - load resistance
 - 0 ÷ 600 Ω
 - of active output:
 - load resistance
 - $R = (U_z - 4V) / 20mA$ [kΩ]
 - U_z – external supply
 - of passive output
 - 21 ÷ 28 V_{DC} / 90 mA
- Galvanic separation of the circuits**
- all circuits mutually separated from each other
- Isolation test voltage**
- 2,5 kV / 50 Hz
- Class**
- 0.1%
- Nonlinearity**
- ± 0.05%
- Error due to load resistance changes**
- ± 0.02 %
- Error due to ambient temperature changes**
- ± 0.01% / °C
- Time constant**
- < 0.2 sec,
 - after agreement 0.05÷3 sec

Rail housing IP20 with dimensions:

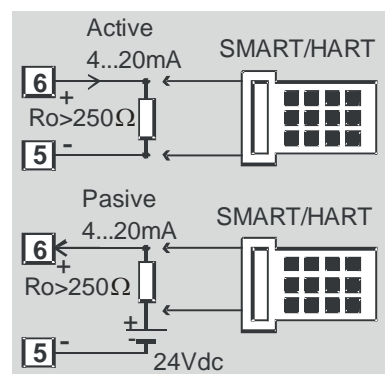
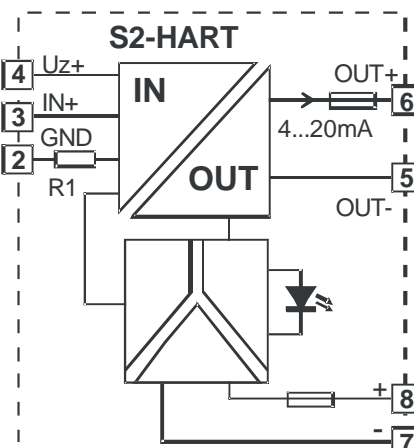
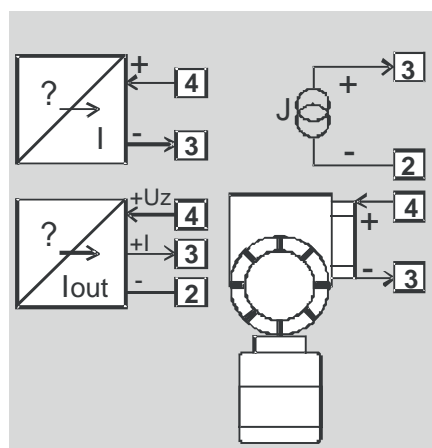
width x height x depth
22,5 mm x 79 mm x 74 mm



Separator S2-HART provides for controlling object driver as follows:

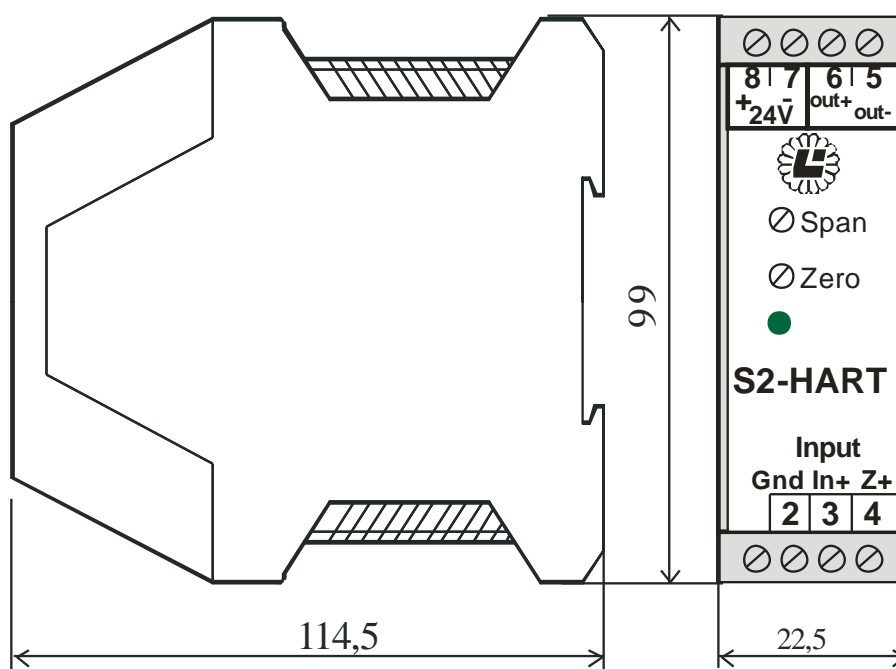
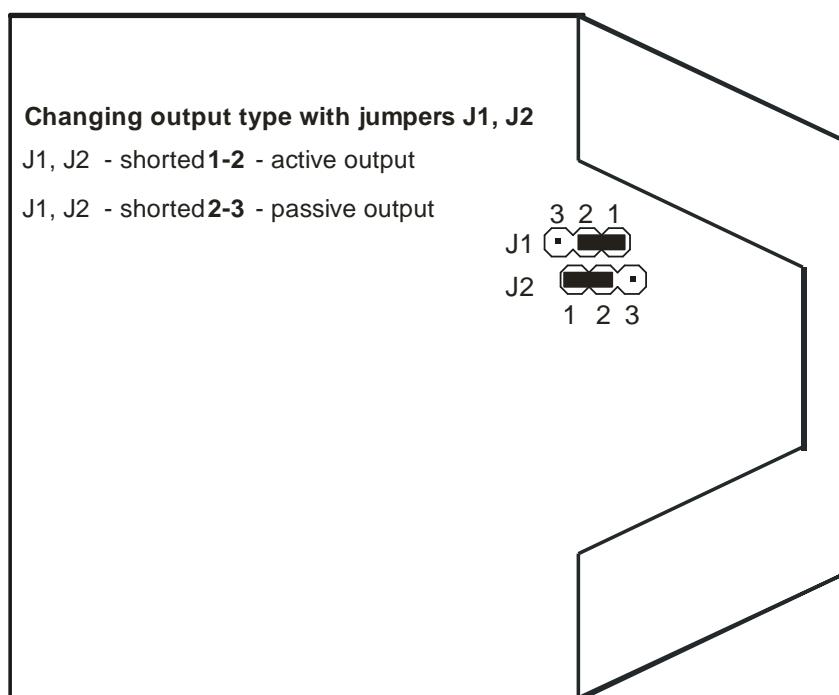
- full, bidirectional digital communication with a transmitter (modulation BELL 202 – e.g. in programmable transmitters of Rosemount with © HART protocol),
- safety connected with galvanic separating – protection against effects of lightning, accidentally transferring of destructive voltages e.g. energetic,
- elimination of influences of the interferences connected with direct long distance cable routing as well as common ground issues.

Digital data transmission signals sending between a transmitter and a controller are together with the analog current signal 4÷20mA. These data are used to program, calibration and diagnostic of measurement channel e.g. pressure, temperature etc. The current 4÷20mA output (depending on the user needs) can be configured as an active current source or as a passive current source which controls current in current loop 4÷20mA line supplied e.g. from a driver. Configuration is done by jumpers accessible after removing the housing.



Operation conditions:

Ambient temperature – storage	- $-30 \div +70^{\circ}\text{C}$
Ambient temperature - operating	- $-30 \div +50^{\circ}\text{C}$
Relative humidity	- max 90%
Operation position	- any



On the front panel are two potentiometers Span and Zero, which can be used for precise calibration of the beginning (4mA) and the end (20mA) of the range. Tuning range is about $\pm 3\%$.

Order example:

Supplier-separator with HART, transmitter supply voltage 24V, output signal active 4÷20mA: type S2-HART