

HART-protocol OEM Transmitter Module SE62HU



Features

- Popular sensors acceptable
- Self stability and filter setup
- Backup and restore data
- Excellent EMC performance

Application areas

The SE62HU may be used for a wide variety of measure sensor:

- pressure sensors
- differential sensors
- load cells
- magnetic field sensors
- strain gauge
- resistor of 2/3/4 wires

The SE62HU with HART-protocol is suitable for various sensors and converts input signals into 4 to 20 mA analogue output signal. Standard installation of the SE62HU is for 3051 housing. Further versions are possible on request.

The SE62HU can be programmed via three buttons. Following parameters can be adjusted: zero, span, decimal point, damping, display mode, restore data and so on. For parameter setting and visualization of measured value an optional liquid crystal displays is available.

The module is protected against miswiring and transient overvoltages.

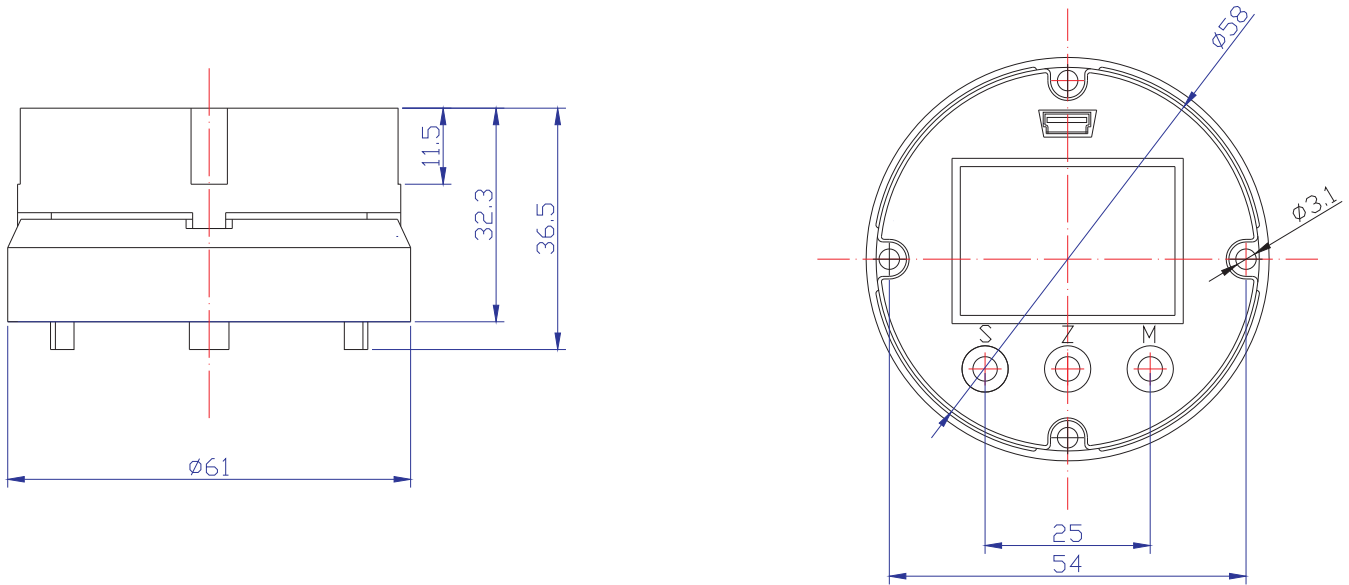
Performance

Very small size	Only 18.5X34.5
Wide voltage supply range	12-45VDC
Self stability and filter setup	Improve transmitter stability
Freely linearity and temperature compensation	Min. 2 points, max 11 points
Self-learning function	Acceptability 1.5mV-4.8V signal input
Popular sensors acceptable	E.g. Pressure, differential, load cell, magnetic float ball, strain gauge etc.
Backup and restore data	Convenient for using on the locale
Excellent EMC performance	Suitable for harsh conditions

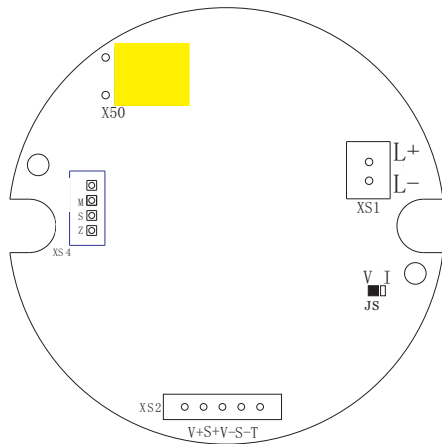
Technical data

Power supply (polarity protected)		
Supply voltage	12-45 VDC	
Input		
2-wire sensor	Such as: 2-wire resistor, magnetic float ball, magnetic rotating pole, etc	
3-wire sensor	Such as: 3-wire resistor, E+H Ceracore II, E+H Ceracore M, etc	
4-wire sensor	Such as: 4-wire resistor, all bridge sensor, etc	
mV	Such as: external voltage, etc	
Sensor supply	Constant voltage: 5 V, Constant Current: 0.2...2.0 mA	
Output signal		
2-wire-system	4...20 mA with superimposed communication signal for HART protocol	
Underranging	Linear drop to 3.6 mA	
OVERRANGING	Linear rise to 20.8 mA	
Load	max. $(V_{\text{power supply}} - 12 \text{ V}) / 0.002 \text{ A}$ max. $(V_{\text{power supply}} - 15 \text{ V}) / 0.022 \text{ A}$ (with backlight)	
Performance		
Accuracy	10:1	<0.05%
	20:1	<0.075%
	40:1	<0.1%
	100:1	<0.25%
Long term stability	$\leq 0.05\%/\text{year}$	
Switch on delay	$\leq 5\text{s}$	
Response time	$\leq 200 \text{ ms}$ (setting damping time 0)	
Load influence	Negligible	
Power supply influence	Negligible	
Self stability configuration	0 to 2%	
Filter configuring	0 to 160 μA	
Application conditions		
Ambient, operation and storage	-40-85 °C (without display), -20-70 °C (with display) / -40-85 °C	
Ingress protection	IP 00	
Temperature influence	< 0.05%/10 °C	
Short-circuit protection	Permanent	
Reverse polarity protection	No damage, but also no function	
Option Ex-protection	EEx ia IIC T4	
Electromagnetic compatibility(EMC)	Interference immunity and interference emission according to GB/T17626.2-1998), compliance with IEC 61000-4-3:1995.	
Others		
Weight	Approx. 5.25 g	
Display Type	5-digit, 52 bars meter	
Display Range	-19999-99999	
Materials	Housing: ABS	
Weight	Approx. 55 g (with display)	

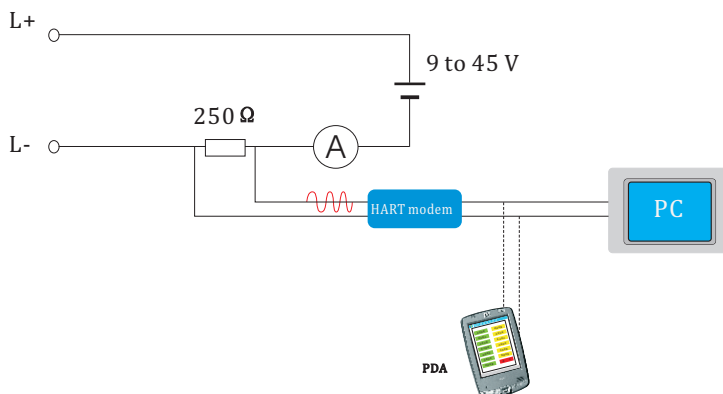
Dimensions



Electrical Connection



A. Power supply: XS1



B: Sensor connection: XS2

- V+ sensor power
- S+ signal output
- V- sensor power
- S- signal output
- T temperature signal

C: External keys of connection

- M: Function Key
- S: Span Key
- Z: Zero Key

D: Sensor power select: JS



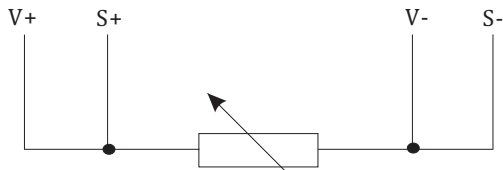
Constant voltage: left close right open



Constant current: left open right close

How to connect a Sensor^[1]

A) 2-wire connection

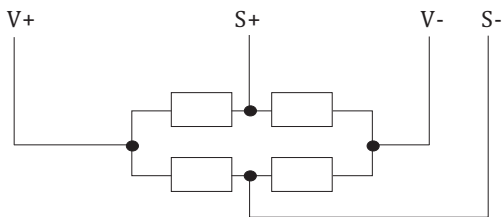


For 2-wire resistor, magnetic rotating pole and magnetic float ball, etc.
For example:

Type	Sensor supply	Max. Resistance	Sensor power	Recommend
Magnetic float ball 2-wire resistor	Constant current	10 Ω to 22.5 K Ω	$I \times R_{max} \leq 4.5 \text{ V}$	$I \times R_{max} \leq 2 \text{ V}$

Application: max. Sensor Resistance 5 K Ω, may choose 0.2 to 0.8 mA (Sensor power), 0.2 to 0.4 mA is recommended.

C) 4-wire connection



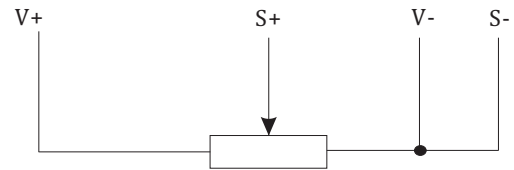
For 4-wire resistor, all of bridge sensors, etc.
For example:

Type	Sensor supply	Max. Input Resistance	Sensor power
4-wire resistor	Constant current Constant voltage	10 Ω to 22.5 K Ω	—
Silicon	Constant current constant voltage	$\leq 5.6 \text{ K } \Omega$ $\geq 5.6 \text{ K } \Omega$	0.8 mA 5 V
ME501/ME505/ ME 651 thick film	Constant voltage	—	5 V
Load cell Strain gauge	Constant current	1 K Ω or 2 K Ω	1.6 mA
Silicon on sapphire	Constant current Constant voltage	2.2 K Ω 10 K Ω	0.8 mA 5 V

Application: Load cell and Strain gauge, max. Input resistance 350 Ω, 700 to 1000 Ω, 1.6 mA or 2.0 mA (sensor power) is chosen.;

[1]SENSE may provide solutions for sensor application. Further versions are possible on request.

B) 3-wire connection

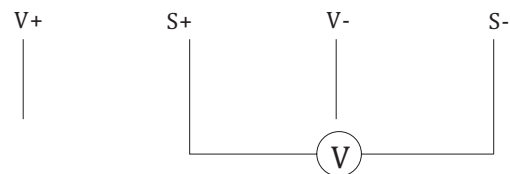


For 3-wire resistor, E+H Ceracore II, E+H Ceracore M, etc.
For example:

Type	Sensor supply	Max. Resistance	Sensor power	Recommend
3-wire resistor	Constant current Constant voltage	10 Ω to 22.5 K Ω		
E+H Ceracore II E+H Ceracore M	Constant voltage		5 V	5 V

Application: 3-wire resistor: 10 K Ω, 5 V (constant voltage) is chosen; 2 K Ω choose 1.6 mA (constant current).

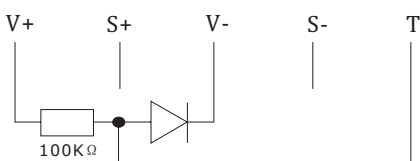
D) connection of external voltage



Type	Sensor supply	Input Range	Max. Input range
Mv	Constant current Constant voltage	-4500 mV to 4500 mV	4800 mV

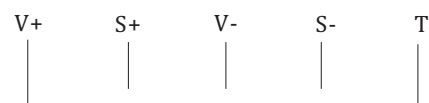
How to do temperature compensation

A) Constant voltage (or current) for sensors



Use an external temperature sensor when you need temperature compensation.
The recommended temperature sensor is an ordinary Si-diode (e.g. 1N4148)

B) Constant current for sensors



V+ and T is short circuit for sensors of constant current.

Operation

The HART module can be adjusted via three push buttons on display module, PC with HARTTran software or PDA.

Display and push buttons

The indication of the measured value as well as the configuration of the individual parameters occurs through a menu via the LCD. The individual functions can be set with the help of three push buttons. Besides in the display a bargraph is shown, which indicates the current pressure input in per cent to the specified pressure range.

Following parameters can be adjusted:

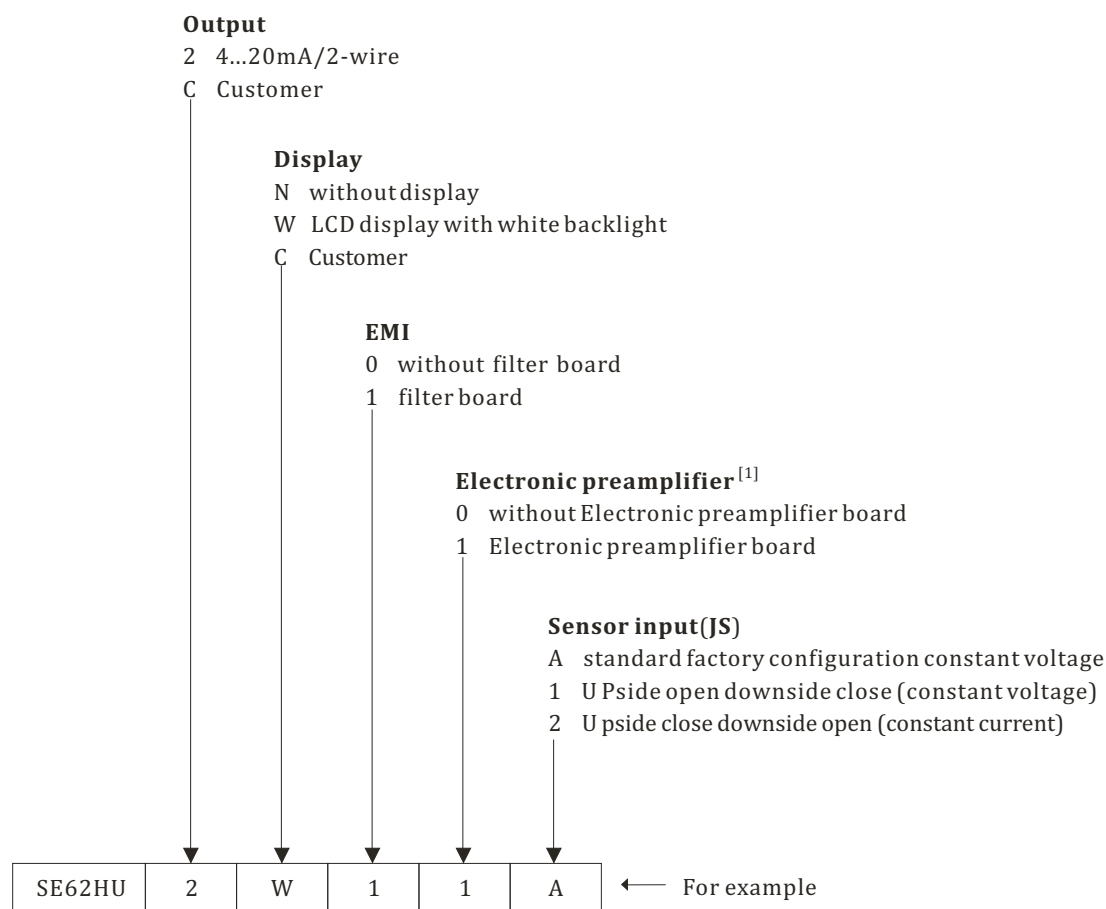
unlock
 PV=0
 4 mA rerange
 20 mA rerange

configuration scaling
 damping
 display mode
 fixed output
 restore

HARTTalker and software

All parameters can be adjusted, monitored with HARTTalker and HartTran (software) via PC, notebook or PDA.

Ordering code SE62HU



1. With optional Metal Capacitive sensors, the electronic preamplifier board is necessary.