Simulator

Application
- Measuring current and voltage signals
- Output of current and voltage signals
- Current sink mode (electr. load) for simulation of sensors

Application Examples
- Adjustment of indicators or converters
- Checking complete measurement circuits
- Checking a 2-wire sensors
- Adjustment and checking of evaluation units

Features
- Simple menu prompting
- Supply with long-living NiMH battery
- 24 V sensor supply with HSG-3
- Intelligent charge electronic integrated
- Two languages German / English

Options / Accessoirs
- Factory calibration certificate
- Certificate of German DKD
- Carrier bag HTT-SG3

- Fast battery recharger
- Ex-factory cables for simulation or measurement
- Cable loom with test pins

Power supply for **HSG-3**   *Simulator* **HSG-3**

Specification

Inputs	V (DC)	0...50 V, Ri=100 kΩ
	mV (DC)	0...250 mV, Ri=100 kΩ
	mA (DC)	0...45 mA, Ri=50 Ω
	Pt100 (with HPT)	-200...600 °C
Outputs	V	-15...15V, max. 10 mA
	mV	0...250mV, max. 10 mA
	mA	0...25 mA
		burden max. 500 Ω
	current sink	4...25 mA
	sensor supply	24 VDC, 50 mA max.
Accuracy input		< 0,2 % of f. s. ± 1 digit
Accuracy output		< 0,2 % of full scale
Acc. temp. measurem.	(-200...+200 °C)	0,2 % of meas. value
with adapter HPT-2	(+200...+600 °C)	0,5 % of meas. value
Temperature coefficient	for range 10...20 °C and 25...40 °C	±75 ppm per °C
Resolution	voltage mV	0,1 mV
	voltage V	10 mV
	current mA	10 µA
	temperature °C	0,1 °C
Indicator	LCD	
	max. height	12,7mm

Style	casting housing	83 x 190 x 55 mm
Protection class		IP54
Ambient	working temperature	+10...40 °C
	storage temperature	-20...70 °C
	humidity	0...95 %
		(no condensate)
Supply	4x batteries NiMH	1,2 V 1200 mAh
Operating time	about 3 h (full load)	i.e. output 25 mA
Charge state	"low bat" will be shown if battery capacity is going down	
Charge drive		charge switch off trickle charge
Deep discharge	autom. switch off if battery voltage < 4 V	
Power supply	for supply and charge 9...18 VDC / 2 VA	
Controls	keypad	4 buttons handling
Measurement conn.	3x 4 mm plugs	
Supply conn.	2,1 mm plug	

Order Code

Type	Model	Certificate*	
HSG-3	Simulator incl. battery and power supply	DKD certificate	* only for HSG-3 and HPT-2
HSG-3-KABEL	Cable loom with test pins 1m	Factory calibration certificate	
HSG-3-AKKU	Replace battery		
HSG-3-SL	Fast battery recharger for HSG-3-Akku		
HSG-M12-TEST	Adapter cable 4 mm plug-/M12-connector 2 m		
HSG-M12-SIMU	Adapter cable 4 mm plug-/M12-plug 2 m		
HTT-SG-3	Carrier bag for HSG-3		
Order example	**HSG-3 / DKD**		

Manual HSG-3

Basic functions

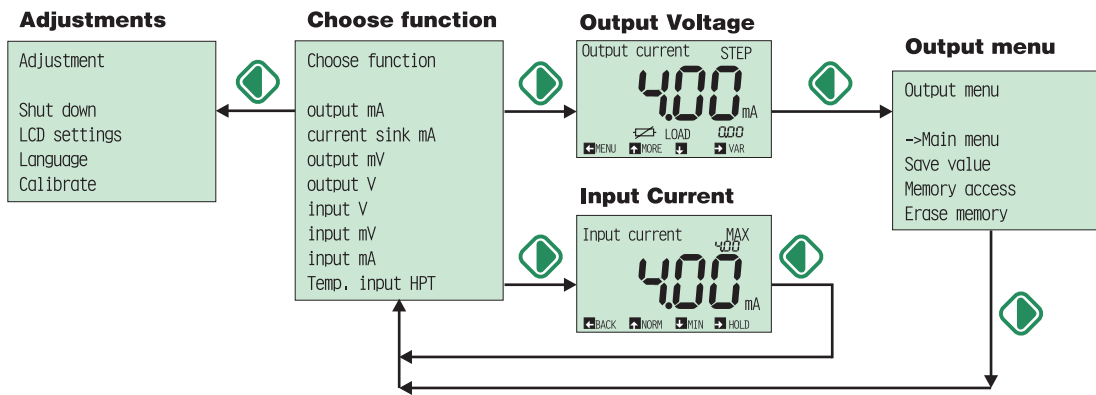For switching on please press any button.

For switching off: press ◆ -button longer than 2 seconds.

◆ = **Prev:**　previous menu point

◆ = **Next:**　next menu point

◆ = **OK:**　enter

◆ = **Back:**　previous page

◆ = **SET:**　to page "Adjustments":
- shut down
- LCD settings
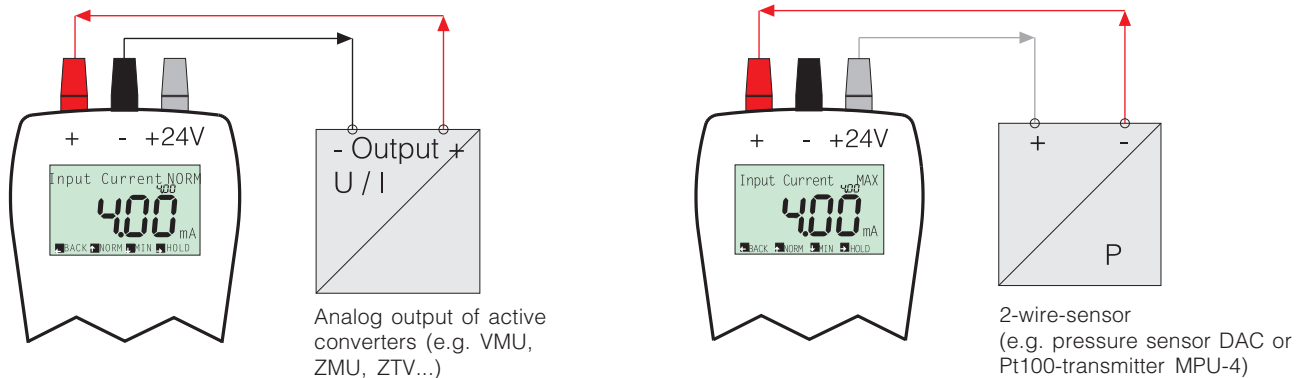- change language (German / English)

HSG-3 power supply

▭ = battery mode / status

⊏ = power supply mode + charge mode

Menu Schema

Adjustments

```
Adjustment

Shut down
LCD settings
Language
Calibrate
```

Choose function

```
Choose function

output mA
current sink mA
output mV
output V
input V
input mV
input mA
Temp. input HPT
```

Output Voltage

```
Output current    STEP
  4.00 mA
⇄ LOAD        0.00
▸MENU ▸MORE ▸ ▸VAR
```

Input Current

```
Input current    MAX
               4.00
  4.00 mA
▸BACK ▸NORM ▸MIN ▸HOLD
```

Output menu

```
Output menu

->Main menu
Save value
Memory access
Erase memory
```

Examples for connecting

Measurement mode

Analog output of active converters (e.g. VMU, ZMU, ZTV...)

2-wire-sensor
(e.g. pressure sensor DAC or Pt100-transmitter MPU-4)

Instrument:

HSG-3 replace e.g. a digital indicator with norm input and display the actual current or voltage signal.

Instrument + supply for 2-/3-wire sensor:

HSG-3 replace e.g. a digital indicator with sensor supply (+24 V DC) and norm input (0/4...20 mA / 0...10 V) and display the actual current or voltage signal.

Display in mode "Measurement"

- current mode
- current status
- current value
- measurement value (MIN/MAX)
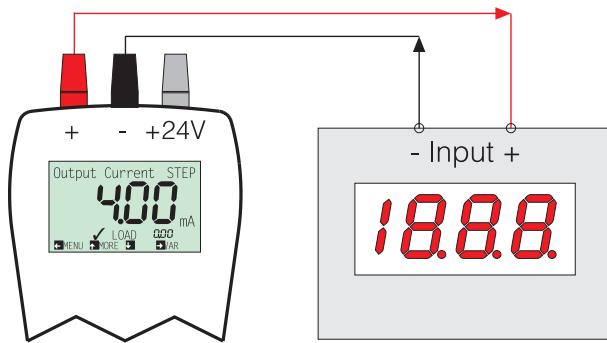- unit
- manual
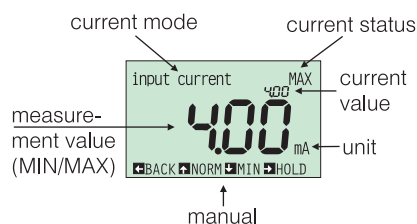
Mode "input" (V, mV, mA)

◆ = relative measurement to actual input signal

◆ = maximal- / minimal value display

◆ = store the actual value

◆ = back to menu

Examples for connecting

Mode Simulation
(output of V, mV, mA)

Output Current STEP
4.00 mA
MENU MORE LOAD VAR

- Input +
18.8.8.

Digital indicator
(z.B. PEM-PS, DPM...)

Modus Simulation
(current sink)

Current sink STEP
4.00 mA
MENU MORE LOAD VAR

4...20 mA

PLC AI

24V =
AC

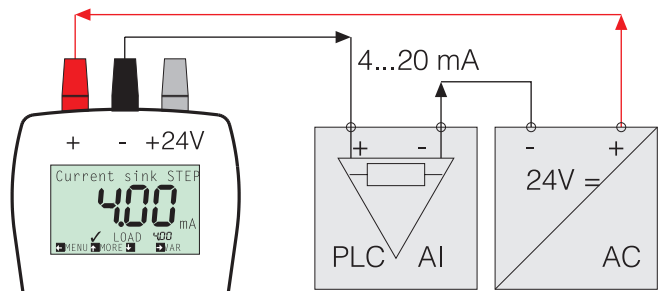Analog input of a PLC
with 24 V supply

Simulator:

HSG-3 replace e.g. an input converter with norm output. The selected values are independent of the burden.
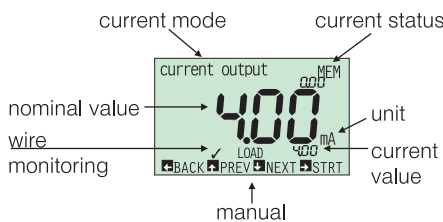*Example: Checking a digital indicator*

Simulate a   2-wire-transmitter (4...20 mA):
The device simulates a sensor with 2-wire transmitter (e.g. DAN-..., MPU-...) and applys the selected current value to the measurement circuit. In mode "current sink", the HSG-3 works as electronic load. The current load is controlled electronically by the HSG-3 and can be adjusted from 4...25 mA.
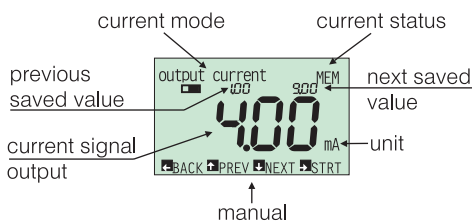*Example: Checking of complete measurement circuits.*

Display in mode "output"

current mode   current status
current output   MEM
nominal value   4.00
wire   LOAD   mA
monitoring   BACK PREV NEXT STRT
                  current value
manual

LOAD = wire control in mode output
✓   = burden < 500Ohm (in mode current output)
✓   = load OK (in mode voltage output)
⌀   = burden is to high or wire is broken
          (in mode current output)
⌀   = overload in mode voltage output

Display in mode "memory access"
(V, mV, mA, current sink)

current mode   current status
previous   output current   MEM   next saved
saved value   value
current signal   4.00   mA   unit
output   BACK PREV NEXT STRT
manual

Mode "output" (V, mV, mA, current sink)

= decrease the value of +1

= increase the value of -1

= switch: change continuously / step by step
     mode: VAR / STEP

= go to output menu:
  • save value: save the acual value
  • memory access: access and output the saved value
                               (max. memory 10 values)
                               mode: MEM
  • erase memory: delete memory completely

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Negele Messtechnik GmbH • Raiffeisenweg 7 • D-87743 Egg a.d. Günz • Tel. +49 (0) 8333 / 9204-0 • Fax +49 (0) 8333 / 9204-49 • www.negele.net

Accessoirs

Carrier bag for HSG-3
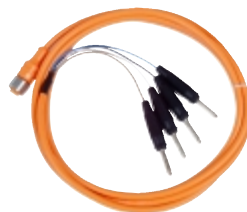**HTT-SG-3**
(without content)

Fast battery recharger
HSG-3-SL

Replace battery for HSG-3
HSG-3-AKKU

Adapter cable 4mm plug / M12-plug in
for HSG-3 for simulating, length 2 m
HSG-M12-SIMU

Adapter cable 4mm plug / M12-
connector for sensor test, length 2 m
HSG-M12-TEST

Cable loom with test pins
for HSG-3
HSG-KABEL