MS4202 Signal simulator

Datasheet

MS4202 is a flexible tool for service or commissioning of plants.

MS4202 is used for calibration, control and troubleshooting on analogue measuring circuits.
Simulation or measurement of current and voltage signals.
Simulates sensors and signal converters. both as 'active' and 'passive'.

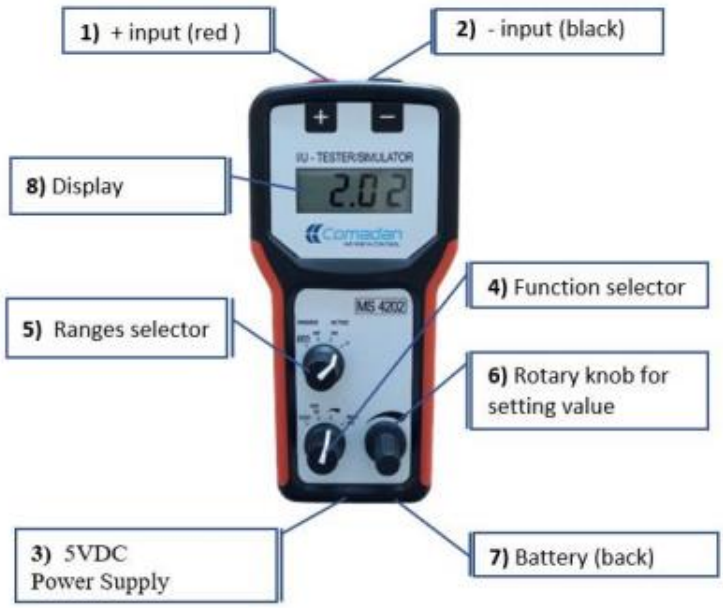
- 6 functions in the same device
- LCD display
- Battery powered – very low power consumption.
- "Power Down" function
- Simulates process signals from transmitters.
- Measuring range current and voltage – 0-22 mA and 0-20 V
- Rotary knob for adjusting value.
- Adjustable and fixed output signals
- Dimensions 165mm * 80mm * 30mm

Description:

MS4202 is designed for commissioning, control, and troubleshooting at 0/4-20 mA or 0/2-10 V DC measuring circuit.
MS4202 simulates 0/4-20 mA or 0/2-10 V DC with variable setting.
There are 2 fixed settings for 2 V/4 mA and 10 V/20 mA respectively.
There is also a position 'passive' for simulating 2-wire transmitters.
Finally, it is possible to use MS4202 to measure 0-22 mA or 0-20 V DC.

The MS4202 is built into a handy plastic enclosure with LCD display and rotary knob that make it easy to set the desired output signal.
The tool is powered by 4 standard AAA/LR03 batteries.
If the MS4202 has not been operated for approx. 20 min. it goes into 'Power Down' mode, where power consumption is minimal. When connecting external 5VDC power supply, the Power Down function is disabled.

The MS4202 is thus a flexible tool in connection with service or commissioning of plants.

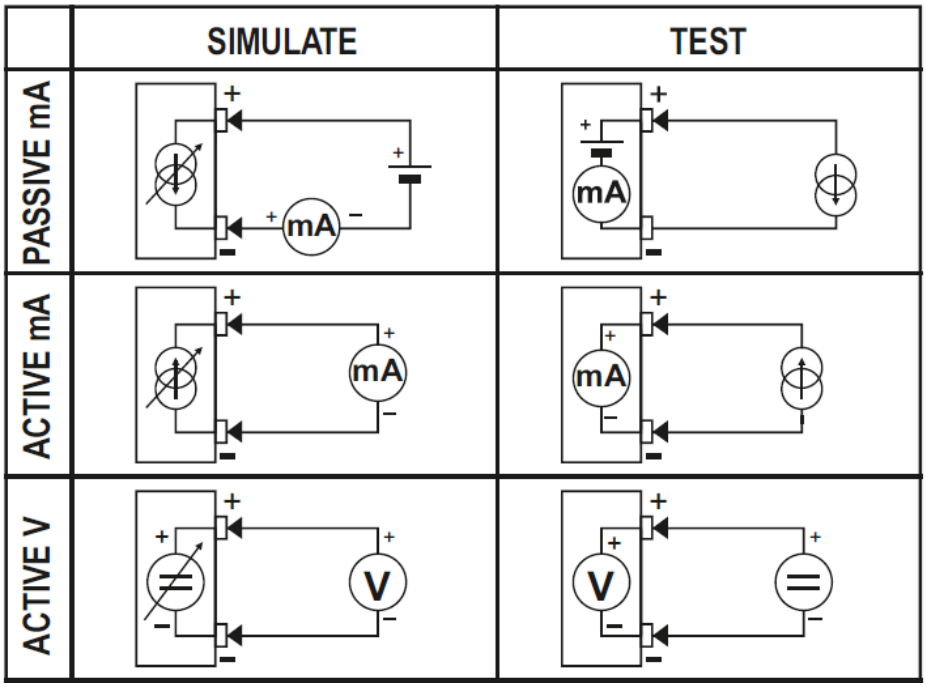


Overview and operation

1) + test lead
2) - test lead
3) 5 VDC – external supply

   2,1mm, 5,5mm, center positiv
4) Mode selector
   a. OFF
   b. Passive mA
   c. Active mA
   d. Voltage
5) Range selector
   a. Test
   b. 4mA/2V – fixed output signal depending on 4) mode selection.
   c. Adjustable – here the output signal can be set by the 6) rotary knob for adjusting value.
   d. 20mA/10V - fixed output signal depending on 4) mode selection.
6) Value adjusting knob.
7) Battery compartment for 4 pcs. 1.5VDC AAA/LR03 batteries
8) 4-digit LCD Display

Connection:



Applications:

a. Active current transmitter (constant current source)

- Adjustable: 0 - 22 mA
- Fixed settings: 20% - 4 mA
  100% - 20 mA

Max. load mode: 500 Ω

b. Voltage transmitter

- Adjustable: 0..11 V
- Fixed settings: 20% - 2 V
  100% - 10 V

Max load current: 10 mA/ 1000 Ω Min.

c. Passive current transmitter (constant current load)

- Adjustable: 0...22 mA
- Fixed settings: 20% - 4 mA
  100% - 20 mA
- Min. voltage drop: < 9 VDC
- Max. voltage drop: type. 30 VDC

d. Amperemeter in passive position (test)

- Range: 0..22 mA
- Voltage drop: <3.5V

e. Voltage meter (test)

- Range: 0..20 V
- Input resistance > 1 MΩ

Accuracy:

Simulation – Fixed settings (@23°C)

Active passive current transmitter – 4 mA and 20 mA.

- Accuracy: +/- 0.2% FS (+/- 0.04 mA)
- Temperature dependency: type. +/- 0.02% FS/°C

voltage transmitter 2 V and 10 V.

- Accuracy: +/- 0,2% FS (+/- 0,02 V)
- Temperature dependency: type. +/- 0.02% FS/°C

Measurement - mA and V (@23°C)

Applies to both simulation and testing.

- Accuracy: +/- 0,2 % FS (+/- 0,04 mA and +/- 0,02 V)
- Resolution: 0.01 mA and 0.01 V
- Temperature dependency type. +/- 0.02% FS/°C

Technical data:

Ambient temperature:	-10..+50°C
Batteriforsyning:	4 stk. AAA/LR03
Display:	10mm LCD (display 99,99)
Power consumption (at 9 VDC):	<30 mA at voltage and passive mode
	<90 mA in Active current mode

Connection:

-Simulation/test:	2 pcs. 4 mm safety banana sockets

All terminals are protected from overvoltage, incorrect polarity and short circuit.

Dimensions in mm:	L=165 * B=80 * H=30
EMC – immunity (CE mark):	EN50081-1, EN5082-2

Desired function	Adjust the knobs to the following	How to connect the test leads	Notes	Illustration
Milliamp meter	Active current Test	MS4202 is connected in series with current loop of interest, so that the current goes from plus to minus		
Voltmeter	Active voltage Test	MS4202 is connected in parallel with circuit that is going to be measured. Plus, on positive and minus on negative.		
Testing a passive current transmitter	Passive current Test	Connect plus on MS4202 to positive on the transmitter, and minus on the negative.	MS4202 is supplying 12V in this mode, so an external power supply is not needed for most sensors.	
Simulating an active current transmitter / supplying a constant current	Active current 4mA / Adjustable / 20mA	Connect MS4202 to the current input on your control circuit.	The desired current is selected by choosing 4mA or 20mA. If a current in between is desired, turn the knob to adjustable and adjust the value with the knob on the right-hand side.	
Simulating a passive current transmitter / impel a constant current in a loop	Active current 4mA / Adjustable / 20mA	MS4202 is connected in series with current loop of interest, so that the current can travel from plus to minus.	The desired current is selected by choosing 4mA or 20mA. If a current in between is desired, turn the knob to adjustable and adjust the value with the knob on the right-hand side.	
Simulating a voltage transmitter / assert a voltage on a signal	Active voltage 2V / Adjustable / 10V	MS4202 is connected to plus on voltage input on your control circuit, and minus on ground.	The desired voltage is selected by choosing 2V or 10V. If a voltage in between is desired, turn the knob to adjustable and adjust the value with the knob on the right-hand side.	
Disable the Power down feature	Off Test		Turn on MS4202 by rotating the upper most knob, while keeping the lower knos on test. The display will show -Pd to indicate that power down is disabled	