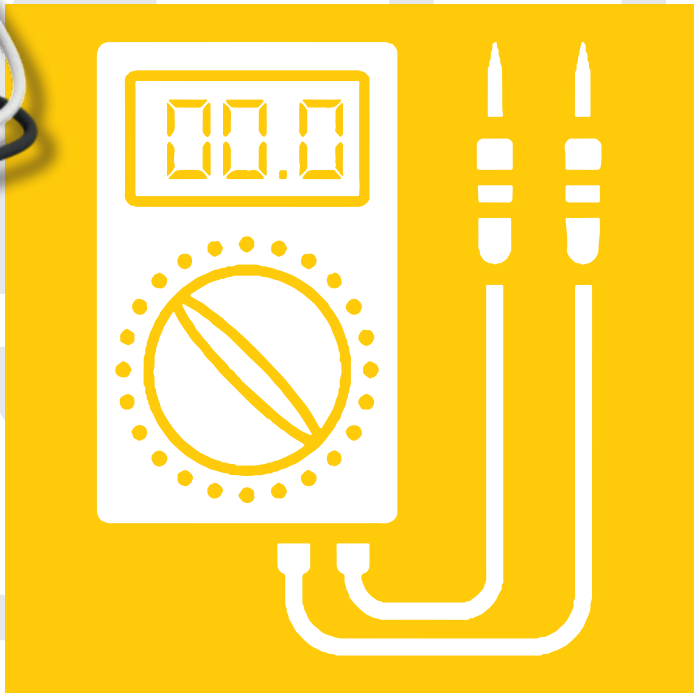
100% Made & Designed in Italy

MSC

MULTIFUNCTION SMART CALIBRATOR



- MULTI-SIGNAL
- MULTI-FUNCTION
- UNIVERSAL APPLICATIONS

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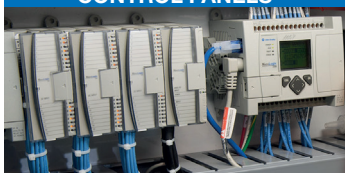
MSC - MULTIFUNCTION SMART CALIBRATOR

HANDHELD UNIVERSAL CALIBRATOR

MSC (Multifunction Smart Calibrator) is a flexible device for maintenance and testing of sensors and process meters. With best-in-class accuracy at 0.05% for each type of input / output, MSC offers measurement, generation and simulation of analog and digital signals, temperature sensors and load cells. Data visualization and parameters setting are provided by multilanguage Windows PC software (MSC) with USB cable or Bluetooth 4.1 connection through the mobile app (MSC by SENECA) available for iOS and Android devices.
MSC includes programmable ramp generation functions, datalogging with data export in .csv format, application as Automatic Testing System through LabVIEW libraries and the management of many calibrators PC. Equipped with a rechargeable lithium polymer battery, MSC can power external devices and sensors and can be used without continuous power supply with 20 hours battery life.
The calibrator, with a archiving capacity up to 100,000 measurements, is suitable for professional and industrial use for PLC programmers, maintenance technicians, technical assistance, measurement laboratories, control -and calibration, industry (laboratories, workshops and production), quality control.

APPLICATION FIELDS

ONBOARD INSTALLATIONS / CONTROL PANELS

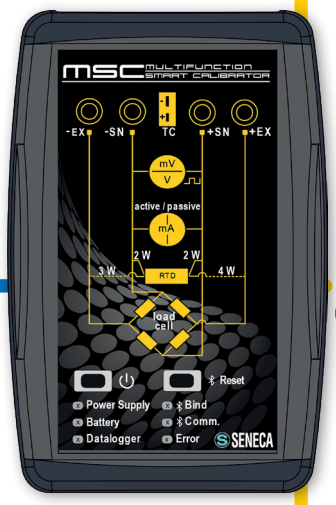


SENSORS AND PROCESS INSTRUMENTATION

LABORATORIES

PRODUCTION / QUALITY CONTROL

TEST BENCHES / ROOMS



Bluetooth Low Energy

METHODS OF USE

WINDOWS PC WORKSTATIONS

- Calibrator full management
- Multiple configurations
- Editing and export log data
- Firmware update
- Typical application for laboratories

IOS / ANDROID MOBILE DEVICES

- Calibrator full management
- Editing and export log data
- Machine on-board and field instrumens test and calibration

LABVIEW LIBRARIES

- Integration with LabVIEW systems
- Automatic test systems and equipments

FUNCTIONS

SIGNAL MEASUREMENT

SIGNAL GENERATOR / SIMULATOR

RAMP FUNCTION

Single / loop, max 9 segments

DATALOGGER

csv data format

SIGNALS

ANALOG SIGNALS

Current (mA), Voltage (V, mV)

PULSES / FREQUENCY SIGNALS

Max 1.000 Hz

TEMPERATURE SENSORS

TC J,K,T,E,N,R,S,B,L - RTD 2,3,4 wires

LOAD CELLS

Ohm – mV/V

10 REASONS TO CONNECT YOUR EQUIPMENT WITH MSC

1 MULTIFUNCTION CALIBRATOR

- Signal Measurement
- Signal Generator / Simulator
- Single / Loop Ramps function
- Datalogger (up to 100.000 reading, csv format data exporting, real-time data visualization on mobile devices and PCs)

2 UNIVERSAL SIGNAL MANAGEMENT

- Analog: V, mV, mA
- TC (J,K,T,E,N,R,S,B type) CEI EN 60584-1
- RTD (Pt100, Pt500, Pt1000, Ni100, Ni120, Cu50, Cu100 CEI EN 60751-1)
- Loadcell
- Pulse / Frequency signals (0,1..1.000 Hz)

3 WIRELESS / WIRED MULTI-DEVICE APPLICATION

- Calibrator management by PC software «MSC» and USB connection also for multiple settings
- Calibrator management by mobile APP «MSC» for iOS and Android terminals with Bluetooth 4.1 connection
- LabVIEW systems integration

4 HIGH ACCURACY CLASS

- Better than 0,05% for each type of input/output

5 FLEXBILE POWER SUPPLY

- 230 Vac network power or battery powered (up to 20h lifetime)
- Power supply @24V for external devices and sensors

6 REMOTE CALIBRATION HARDWARE INDEPENDENT

- Remote diagnostic, Signal Simulation and calibration for each kind of PLC, sensor, recorder, valve and industrial equipment
- Calibrator connection by Bluetooth Low Energy 4.1 or Micro USB

7 TEST & MAINTENANCE COST SAVING

- All-in-one and universal instrument for test & maintenance process measurement and industrial equipment
- Optimizing PLC calibration
- Fast reading/ writing/ transmission measurements, parameters, reports

8 MAIN PROFESSIONAL AND INDUSTRIAL APPLICATIONS

- PLC programmers
- Industrial Maintenance Technician
- Help / Tech Support
- Testing and calibration laboratories
- Industrial Departments (laboratory, workshop, productions)
- Quality Control

9 ALWAYS AVAILABLE DATA ON PC...

- Windows multi-language PC software for full test & measurement management
- Trend, graph, data, local events visualization
- Real-time data, log data creation and export sharing
- Security, backup, controlled access, automatic updates
- Multiple series / parallel setting

10 OR ON MOBILE DEVICE (SMARTPHONE, TABLET...)

- Multi-language mobile App for Android /iOS available on App Store or Google Play;
- Trend, graph, data, local events visualization
- Real-time data, log data creation sharing
- Security, backup, controlled access, automatic updates

MSC - Multifunction Smart Calibrator

TECHNICAL DATA

GENERAL DATA	
Power supply	From electricity network 230 Vac through USB standard battery charge
Battery power	1 batterie Lithium Polymer (LiPo) 3400 mAh; lifetime 8 hours (min @ max load), 20 hours (max)
Protection degree	IP20
Operating temperature	-20..50°C (non charging), 0..45°C (during charging)
Warehouse temperature	0..35°C
Humidity	30..90 % non condensing
Isolation	Battery powered device, intrinsically isolated. No isolation towards USB port.
Overvoltage protection	230 Vac max without permanent damage
Rejection	50/60 Hz
Sampling frequency	10 Hz
Operating mode	Signal Meter, Signal Generator, Datalogger
Dimension	147 x 88 x 25 mm
Weight	330 g
Bundle	Connection cables (4 pcs), battery charger
Calibration certificate	Provided
Approval	CE
Norms	EN61326-1; EN61010-1
SIGNAL MEASUREMENT ACCURACY	
Accuracy	0,03% (basic), 0,04% (current)
Resolution	1 µA; 1 mV; 5 µV; 0,1°C; 0,1uV/V
SIGNAL GENERATION ACCURACY	
Accuracy	0,03% (basic), 0,04% (current)
Resolution	1 µA; 1 mV; 5µV; 0,1°C; 0,02 Ohm; 0,1 uV/V;
INTERFACES AND SIGNALING	
Buttons	On / Off - Pairing
LED	Power Communication Error Pairing BT Datalogger on Battery status
Buzzer	Overload signaling / impossible simulating
Standard input socket	Nr.4 4mm input sockets
Thermocouple socket	Mini plug (7,9 mm) for TC measurement and simulation
Power Supply	Micro USB
Micro USB	Firmware update or ModBUS communication (Virtual COM)
Wireless communication	Bluetooth Low Energy 4.1 for Android / iOS smartphone and tablet
SIGNAL MEASUREMENT FUNCTIONS	
Current	0..24 mA active / passive; protection ± 28 V
Voltage (V)	0..27 V
Voltage (mV)	-10..+90 mV
Thermocouple	Type J,K ,T, E, N, R, S, B, L
Thermoresistance (2,3,4 wires)	Pt100, Pt500, Pt1000, Cu50, Cu100, Ni100, Ni120
Load cell	350 Ohm; -0,2..+2,4mV/V
Pulse	Max counting 1.000 Hz
Frequency	0,1..1.000 Hz
SIGNAL GENERATION FUNCTIONS	
Current	0,1..24 mA active / passive; protection ± 28 V
Voltage (V)	0,1..26 V
Voltage (mV)	-10..90 mV
Thermocouple	Type J,K ,T, E, N, R,S, B, L
Thermoresistance (2 wires)	Pt100, Pt500, Pt1000, Cu50, Cu100, Ni100, Ni120
Load cell	350 Ohm; -0,2..+2,4mV/V
Pulse	Min 0,5 ms (1..24V) settable number of pulses
Frequency	0,1..1.000 Hz
DATALOGGER	
Datalogger	Yes
Sampling time	>500 ms
RAMP FUNCTION	
Signal	Current / Voltage / TC / RTD / Load cell
Functions	Single / Loop
Type	Max 9 segments, ramp resolution 100ms, min ramp duration 1 s
CALIBRATOR MANAGEMENT APP	
Available language	Italian, English, German, French, Spanish
O.S / Store	IoS 10.3 or later (App Store) / Android 4.0.3 or later (Play Store)
Functions menu	General setup (operating mode, signal type, language selection) Signal measurement (Voltage / current / passive current / thermocouple / thermoresistance / load cell / pulse; average-min-max value, reset counter, meter pause; value sharing; change of scale selection) Signal generation (Voltage / current / passive current / thermocouple / thermoresistance / load cell / pulse; on-off; change fo scale selection)
Error signaling	Out of scale - Overload generation Low battery - Internal error

FEATURE DIAGRAM

1. Thermocouple measurement / generation socket
2. Measurement / Generation bushing -EX
3. Measurement / Generation bushing -SN
4. Measurement / generating bushing + SN
5. Measuremet / generating bushing + EX
6. Power on / off button
7. Bluetooth RESET button
8. Power On Led
9. Bind connection on Led
10. Battery status indicator Led
11. Bluetooth / USB communication Led
12. Recording data Led
13. Error signal Led
14. Micro USB connector for power / communication
15. RESET button
16. Battery charge warning Led

EQUIPMENT

1) Transport case
2) MSC calibrator (battery included)
3) Power plug
4) USB charging / data cable
5) User manuals
6) Seneca calibration report
7) Test cable, 4 mm plug

SIGNAL RANGE

SIGNAL TYPE	U.M.	SIGNAL GENERATION	SIGNAL MEASUREMENT
Voltage (hi range)	[dc V]	0..26 V	0..26 V
Voltage (low range)	[dc mV]	-10..+90 mV	-10..+90 mV
Active current	[dc mA]	0,1..+24 mA	0..+24 mA
Passive current	[dc mA]	0,1..+24 mA (3..29 V)	0..+24 mA
Pt100	[°C]	-200..+859°C	-200..+850°C
Pt500	[°C]	-200..+859°C	-200..+850°C
PT1000	[°C]	-200..+859°C	-200..+850°C
Cu50 / Cu100	[°C]	-180..+200°C	-180..+200°C
Ni100 / Ni120	[°C]	-80..+260°C	-60..+250°C
Thermocouple J	[°C]	-210..+1200°C	-210..+1200°C
Thermocouple K	[°C]	-270..+1372°C	-200..+1372°C
Thermocouple T	[°C]	-270..+400°C	-200..+400°C
Thermocouple E	[°C]	-270..+1000°C	-200..+1000°C
Thermocouple N	[°C]	-270..+1300°C	-200..+1300°C
Thermocouple R	[°C]	-50..+1768°C	-50..+1768°C
Thermocouple S	[°C]	-50..+1768°C	-50..+1768°C
Thermocouple B	[°C]	0..+1820°C	250..+1820°C
Thermocouple L	[°C]	-200..+800°C	-200..+800°C
Load Cell 350 Ohm	[mV/V]	-0,2..+2,4 mV/V	-0,2..+2,4 mV/V
Pulse / Frequency	[Hz]	0,1..1000 Hz (1..24 V)	0,1..1000 Hz (3..24 Vdc)

ORDER CODES

Code	Description
MSC	Multifunction Smart Calibrator - Signal meter / generator, Bluetooth / USB connection
MSC TOOL	PC Windows software or firmware updating and csv files data export
ISO-USB	PC-USB port isolator (accessory)
ALIM-MSC	Power supply unit 1A / 5 V (spare part)
MSC-T	MSC calibration report

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Value in Weigh Tech
Hodnota ve vážicí technice

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