

masibus
A Sonepar Company



Calibrators & Calibration



Masibus Designed India' First Digital Calibrator in 1979

INTRODUCTION

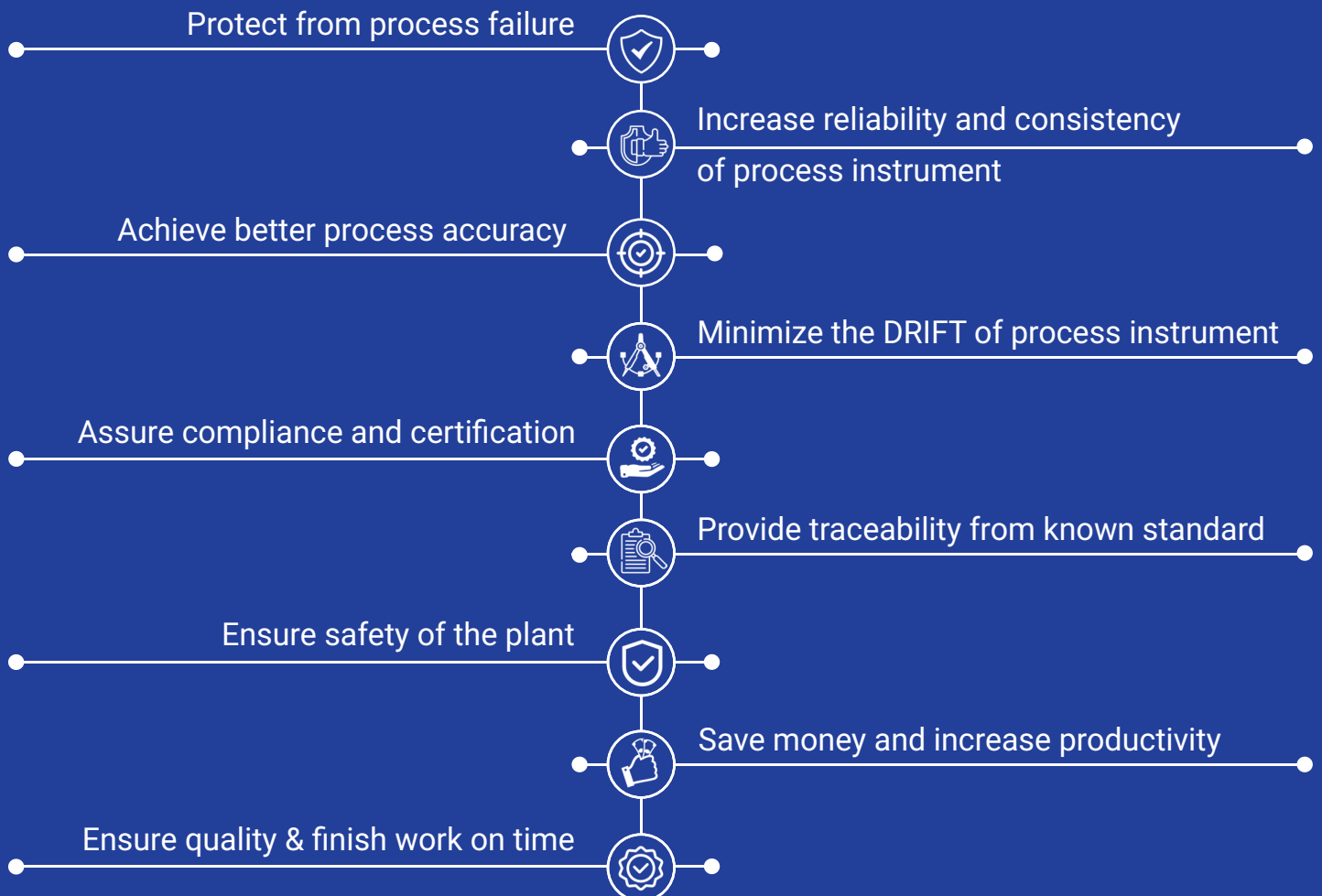
WHAT IS CALIBRATION?

Calibration refers to the process of adjusting or measuring an instrument or system to ensure that it produces accurate and reliable results.

In other words, it involves comparing the readings or output of a device to a standard or known value to determine its accuracy and correct any discrepancies.



CALIBRATION IS REQUIRED FOR





THE COSTS AND RISKS OF NOT CALIBRATING

Neglecting calibration can lead to production downtime, quality problems and product recalls.

Risking employee safety.

Risking customer/ consumer safety.

Loosing licence to operate due to not meeting regulatory requirements.

Direct economical losses in businesses where invoicing is based on process measurements.

uCAL

UC12 Universal Calibrator



Portable multifunction calibrator with high accuracy in all modes of operation.

Graphical user interface for precise measuring and sourcing of electrical and physical parameters.

Designed to give maximum battery life in one full charge, the backlight is adjustable for power saving.

Shortcut keys to operate easily for input selection for measure and source/ measure respectively.

Comes with a mini USB connector for charging, logged data retrieval and firmware upgrade.

Sourcing and measurement capabilities with independent parameter and range selection.

It has mA/ V/ mV/ mA (2W)/ switch- test / RTD/ TC/ measurement capability & also has mA/ V/ mV/ mA(2W)/ Resistance/ RTD/ TC/ Frequency/ Pulse source capability.

TECHNICAL SPECIFICATIONS

Electrical Measurement Parameters and Accuracy				Frequency Generation	
Parameter	Range	Resolution	Accuracy	Range	Resolution
V	0 to 30.00 VDC	0.001 V	±0.02% of reading ± 2 count	0.0005 to 0.5Hz	0.00001 Hz
mA	0 to 24.000 mA	0.001 mA	±0.02% of reading ± 2 count	0.5 to 50 Hz	0.0001 Hz
Electrical Simulation Parameters and Accuracy				50 to 500 Hz	0.001 Hz
Parameter	Range	Resolution	Accuracy	500 to 5000 Hz	0.01 Hz
V	0 to 12.000 VDC	0.001 V	±0.02% of reading ± 2 count	5000 to 10000 Hz	0.1 Hz
mA	0 to 24.000 mA	0.001 mA	±0.02% of reading ± 2 count	Frequency Measurement	
Thermocouple/mV Measurement /Simulation Resolution and Accuracy				Range	Resolution
TC Type	Range	Resolution	Accuracy	0.0143 to 9.9999	0.0001 Hz
E	-200.0 to 1000.0 °C	0.1 °C	0.3 °C	10 to 99.999Hz	0.001 Hz
J	-200.0 to 1200.0 °C	0.1 °C	0.3 °C	100 to 999.99Hz	0.01 Hz
K	-200.0 to 1372.0 °C	0.1 °C	0.3 °C	1000 to 9999.9 Hz	0.1 Hz
T	-200.0 to 400.0 °C	0.1 °C	0.3 °C	10000 to 50000 Hz	1 Hz
B	450.0 to 1800.0 °C	0.1 °C	0.5 °C	Feature	Specification
R	0.0 to 1750.0 °C	0.1 °C	0.5 °C	Trigger Level	0 to 12V in 1 V Steps
S	0 to 1750.0 °C	0.1 °C	0.5 °C	Accuracy	±0.01% of Reading ± 1 count
N	-200.0 to 1300.0 °C	0.1 °C	0.3 °C	Supported Units	Hz, kHz, cph, cpm, sec., msec., usec.
mV	-10.000 to 80.000 mV	0.001 mV	±0.02% of reading ± 4uV		
	-10.00 to 250.00 mV	0.01mV	±0.02% of reading ± 0.02mV		

Note: Temperature standard ITS-90

Measurement & Simulation Range			
Parameters	Range	Resolution	Accuracy
Resistance (Ohms)	0 to 400 Ω	0.01Ω	4 wire measurement ±0.02% of reading ±0.01Ω Simulation: ±0.02% of reading ±0.02Ω
	400 to 4000Ω [#]	0.1Ω	4 Wire measurement: ±0.02% of reading ±0.1Ω, Simulation: ±0.02% of reading ±0.15Ω
Pt10 to Pt1000	-200 to 200 °C	Pt10 to Pt400: 0.01°C Pt500, Pt1000: 0.1 °C	4 wire measurement: ±0.15 °C Simulation*: ±0.15 °C
	200 to 600 °C		4 wire measurement: ±0.2 °C Simulation*: ±0.25 °C
	600 to 850 °C		4 wire measurement: ±0.3 °C Simulation*: ±0.35 °C
Ni100	-60 to 180 °C	0.01 °C	4 wire measurement: ±0.1 °C
Ni120	-80 to 260 °C	0.01 °C	Simulation*: ±0.15 °C
Cu10 to Cu100	-200 to 260 °C	0.01 °C	4 wire measurement: ±0.2 °C Simulation*: ±0.8°C

General Specifications		Power Supply	
Supported Units for RTD/ TC Type	°C/ °F/ °K	Battery Type	Rechargeable Li-ion battery pack, 3000mAh 3.7V
RTD Measurement Current	300 uA	Charging Time	<5 hours max.
Maximum Resistance Excitation Current (Simulation-resistance/ RTD Mode)	3 mA (0...650 Ω measure/source with I exec 2.0V/ rsim (650...4000Ω))	Charger Supply	100-240 VAC, 50/60 Hz; Output 5V DC@1A
Settling Time (Pulsed Currents RTD Simulation)	>1 ms	Battery Life on Full Charge	>17 hours for RTD/Ω/TC/V/mV measure/source with minimum backlight. >9 hours for mA generation with minimum backlight. (24VDC @12mA)
CJC Error (For Thermocouple Internal Reference Junction)	≤± 0.5 °C	Display & Keys	
CJC Selection	Manual/ internal/ external*	Display	3.2" TFT LCD, 262K color, graphical, 48.6 mm x 64.8 mm, 240x320 pixels, white LED backlight
Temperature Coefficient	≤30 ppm	Keys	9 Membrane keys
Input Impedance	TC/ mV/ V/ frequency/ pulse >1MΩ mA =10 Ω	Special Features	
Response Time	Input <100ms, output <100ms	Loop Power Output	24V DC, ±10% (24mA maximum)
Load Impedance	>4.7KΩ for TC/mV/V/pulse/frequency O/P <750Ω for mA O/P	HART mA Loop Resistor	250 Ω ± 20%
Isolation	500VDC between measure section & source/ measure section	Automatic Wire Detection	Automatic detection RTD measure wire connection. (2-wire, 3-wire or 4-wire)
Data Logging	Logged data is stored in a user defined file in internal memory Periodic logging: 150000 readings max.	Switch Test	<ul style="list-style-type: none"> Potential free contacts Trigger level : 24V, 24mA (2V) Voltage level detection Trigger level : 0 to 30V in 1V steps
Communication Interface	USB 2.0		

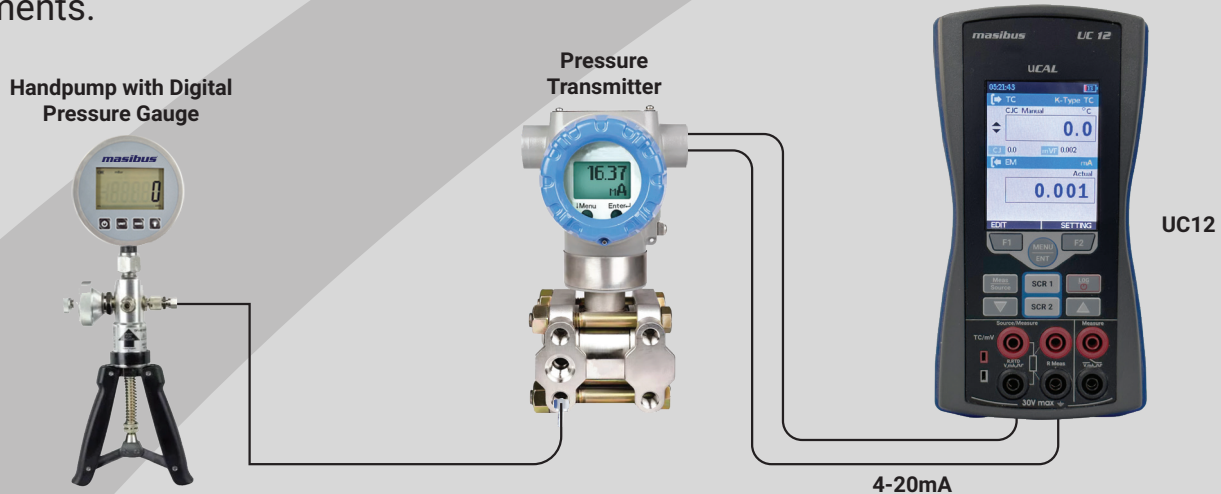
APPLICATIONS

- Calibrating and checking temperature indicators & controllers, recorders, temperature transmitters, signal conditioners, etc.
- Laboratory and site calibration purpose of process instruments
- DRIFT test of transmitters and transducers
- Simulation of resistance for position indicators
- As a sourcing device for mV signals for load cell amplifiers
- Check flow measurement instruments vide frequency/ pulse parameters

UC12 AS MULTIFUNCTION CALIBRATOR

Calibrate Pressure Transmitter using UC12

This calibration kit is designed to make multifunction calibration, pneumatic testing, and calibration of mechanical and electronic pressure measuring instruments for a fast and reliable process. This is a cost effective, high-quality, handy, and robust kit which is essential for those who need to perform service and maintenance on pressure & electrical instruments.



The kit includes a pneumatic hand test pump, which allows you to generate a defined test pressure, and a highly accurate digital pressure gauge that serves as a reference instrument and process calibrator for measurement and calibration of process parameters. All the components of the kit are carefully stored in the case, providing protection during transport. The case is compact and easy to carry, making it convenient to take with you wherever you need to go.

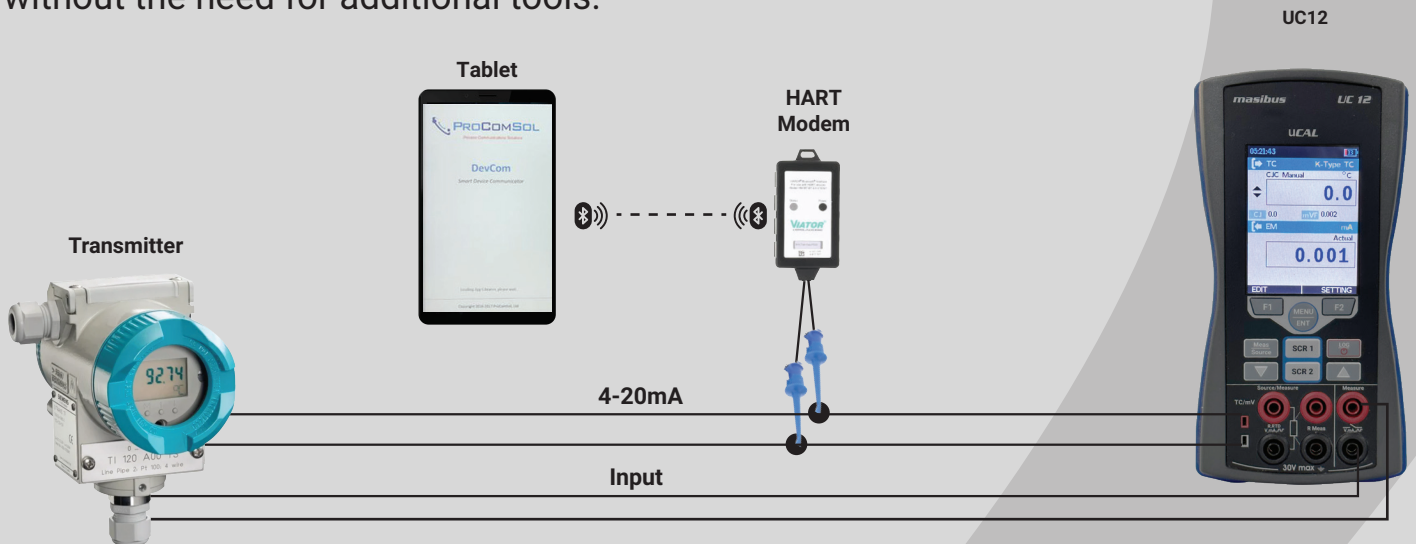
Special Features

- Economical and simple operation for multifunction calibration
- Testing and adjustment of pressure gauges, pressure sensors, pressure switches, safety valves and electrical parameters
- Pressure accuracy with 0.05 % & 0.025% FS
- Pneumatic version from vacuum to 40 bar
- Hydraulic version from 0 to 700 bar



HART calibration using UC12

HART Communicator is a device used in the process control industry to configure, monitor, and diagnose field instruments. With a HART Communicator that includes a UC12 process calibrator option, users can calibrate and verify their field instruments quickly and easily, without the need for additional tools.



The process calibrator option allows users to apply a known input signal to the instrument and compare its output to the expected value. This enables accurate calibration and verification of the instrument's accuracy.

In addition, a HART Communicator with a process calibrator option typically includes additional features such as measurement and simulation of electrical signals, allowing users to test and diagnose a wider range of instruments.

Special Features

- Full HART Device Description (DD) support of all HART devices with process calibrator
- Perform HART trim on HART devices
- Convenient wireless connectivity to HART modem
- Easy to use, fast connect and view HART data
- Connectivity through bluetooth and USB
- Use mobile and laptop HART communicator



tCAL

TC12+

Temperature Calibrator



Portable multifunction temperature calibrator with high accuracy in all modes of operation.

Graphical user interface for precise measuring and sourcing of electrical and physical parameters.

Designed to give maximum battery life in one full charge, the backlight is adjustable for power saving.

Shortcut keys to operate easily for input selection for measure and source/ measure respectively.

Comes with a mini USB connector for charging, logged data retrieval and firmware upgrade.

Sourcing and measurement capabilities with independent parameter and range selection.

It has mA/ V/ mV/ mA (2W)/ switch- test / RTD/ TC/ measurement capability & also has resistance/ RTD/ TC source capability.

TECHNICAL SPECIFICATIONS

Measurement & Simulation Range

Parameters	Range	Resolution	Accuracy
Resistance (Ohms)	0 to 400 Ω	0.01Ω	4 Wire measurement ±0.02% of reading ±0.01Ω Simulation: ±0.02% of reading ±0.02Ω
	400 to 4000Ω [#]	0.1Ω	4 Wire measurement: ±0.02% of reading ±0.1Ω Simulation: ±0.02% of reading ± 0.15Ω
Pt10 to Pt1000	-200 to 200 °C	Pt10 to Pt400: 0.01°C Pt500, Pt1000: 0.1°C	4 Wire measurement: ±0.15 °C, Simulation*: ±0.15 °C
	200 to 600 °C		4 Wire measurement: ±0.2 °C, Simulation*: ±0.25 °C
	600 to 850 °C	4 Wire measurement: ±0.3 °C, Simulation*: ±0.35 °C	
Ni100	-60 to 180 °C	0.01 °C	4 Wire measurement: ±0.1 °C
Ni120	-80 to 260 °C	0.01 °C	Simulation*: ±0.15 °C
Cu10 to Cu100	-200 to 260 °C	0 to 0.01 °C	4 Wire measurement: ±0.2 °C, Simulation*: ±0.8 °C

Note: #For 4 wire Resistance measurement 0.01Ω resolution available in 0 to1600 Ω range

*Accuracy is valid with an excitation current >0.2mA (0..400 ohm), >0.1mA (400..4000 ohm)

**Read accuracy is based on 4-wire input. For 3-wire RTD measurements, assuming all three RTD leads are matched, add 1.0°C

Pt10 and Cu10), 0.6°C (Pt50 and Cu50), and 0.4°C (other RTD types) to the specifications

Electrical Measurement Parameters & Accuracy				Compatible RTD Types			
Parameter	Range	Resolution	Accuracy	Pt10 (385)	Pt400 (385)	Ni100 (672)	Cu10 (427)
V	0 to 30.00 VDC	0.001 V	±0.02% of reading ± 2 count	Pt50 (385)	Pt500 (385)	Ni100 (618)	Cu50 (427)
mA	0 to 24.000 mA	0.001 mA	±0.02% of reading ± 2 count	Pt100 (385)	Pt1000 (385)	Ni120 (672)	Cu100 (427)
				Pt200 (385)	Pt100 (3926)		
Thermocouple/mV Measurement/Simulation Resolution & Accuracy@20-30°C				General Specifications			
TC Type	Range	Resolution	Accuracy [▲]	Display Mode	Measure: mA/ V/ mV/ mA(2W)/ switch-test / RTD/ TC Source: Resistance/ RTD/ TC		
E	-200.0 to 1000.0 °C	0.1 °C	0.3 °C± 4uV	Supported Units for RTD/ TC Type	°C/ °F/ °K		
J	-200.0 to 1200.0 °C	0.1 °C	0.3 °C± 4uV	RTD Measurement Current	300 uA		
K	-200.0 to 1372.0 °C	0.1 °C	0.3 °C± 4uV	Maximum Resistance Excitation Current (Simulation-Resistance/ RTD mode)	3 mA (0..650 Ω) Iexc 2.0V/ Rsim (650...4000Ω)		
T	-200.0 to 400.0 °C	0.1 °C	0.3 °C± 4uV	Settling Time (Pulsed Currents RTD Simulation)	>1 ms		
B	450.0 to 1800.0 °C	0.1 °C	0.5 °C± 4uV	CJC Error (For Thermocouple) Internal Reference Junction	≤± 0.5 °C		
R	0.0 to 1750.0 °C	0.1 °C	0.5 °C± 4uV	CJC selection	Manual/ internal/ external(1)		
S	0 to 1750.0 °C	0.1 °C	0.5 °C± 4uV	Max. Input Voltage (EM Terminal)	30 VDC		
N	-200.0 to 1300.0°C	0.1 °C	0.3 °C± 4uV	Temperature Coefficient	≤30 ppm		
mV	-10.000 to 80.000 mV	0.001 mV	±0.02% of reading ± 4uV	Input Impedance	TC/ mV/ V >1MΩ mA: 10 Ω		
	-10.00 to 250.00 mV	0.01mV	±0.02% of reading ± 0.02mV	Response Time	Input <100ms, output <100ms		
Note: Temperature standard ITS-90				Load Impedance	>4.7KΩ for TC/mV		
▲ Degree equivalent to 4uV against respective readings to be added to above mentioned accuracy for TC input.				Display Update Rate	10 readings / sec.		
Power Supply				Isolation	500VDC between mA/V measure and RTD /Ω /TC/mV		
Battery Type	Rechargeable Li-ion battery pack, 2300mAh 3.7V			Data logging	Logged data is stored in a user defined file in internal memory Periodic logging: 150000 readings max.		
Charging Time	<5 hours max.			Communication Interface	USB 2.0		
Charger Supply	100-240 VAC, 50/60 Hz; Output 5V DC@1A			①with RTD sensor at RTD terminal for External CJC			
Battery Life on Full Charge	Continuous operation (measure or source)						
	>17 hours						
Battery Status Indication	Continuous operation (12mA (24V) measure)						
	>9 hours						
	Battery symbol displayed with % power remaining						

APPLICATIONS

- Calibrating and checking temperature indicator/ controllers, recorders, temperature transmitters, signal conditioners, etc.
- Laboratory and site calibration purpose
- Measure and simulate thermocouple signals
- Calibration of transmitters and transducers
- DRIFT test of transmitters and transducers

Calibration Test Bench Offerings

Calibration Test Benches are workstations for the maintenance and calibration of process instruments. Masibus Test Bench configurations are developed with intelligence of versatile & modular design, keeping in mind the instrument testing & calibration procedures.

The modular concept gives it the ease and makes it possible for a wide range of configurations & performance capabilities. All calibration benches are custom-built and engineered, meeting industry applications & standards of maintenance & calibrations of various devices used in the plant. It helps industry to maintain calibration data & healthiness of all field devices to give optimum performance.

Key Differentiators

- Made of heavy grade, high quality CRCA and aluminium fabrications
- Complete aluminium profile based option availability
- Accurately fabricated, welded & powder coated structure
- Smooth surface & ultra simple to clean
- Load capacity: 200kg modular design, easy change of arrangement
- Proper electrical earthing provided on test bench
- Manual/ automatic pressure & temperature calibration choice
- Superior quality & sleek look
- Flexible maintenance - Device modular structure
- Documenting version available with PC connectivity
- Options for HART, PA, FF communication available
- Table top: Laminated chip board of 25 mm thickness

Types of Test Bench



Multi Function Test Bench

- Calibration facility for pressure, temperature & electrical instruments
- Flexible maintenance - Device modules structure
- Option for (HART, PA, FF) communication
- Documenting version available with PC connectivity



Pressure Test Bench

- Highly accurate pressure calibration for range from vacuum to high pressure upto 1000 bar
- Manual/ automatic pressure calibration choice
- Pneumatic or hydraulic versions
- Precise pressure controller source from vacuum to 210 bar



Temperature Test Bench

- Manual/ fully automatic temperature calibration choice
- Provision of inserts of standard and customized size of holes for temperature dry blocks
- Option for (HART, PA, FF) communication



Electrical Test Bench

- ESD protection enables safe handling of delicate components
- Isolation transformers, fault current & overload protections & emergency stop switch

iCAL

LC12

The Ultimate Loop Calibrator



It is designed to provide base accuracy of 0.02% of reading in all modes of operation.

2W simulator transmitter, mA simulator, voltage simulator and read/ power are unique features for loop testing

It has automatic switch test feature.

Shortcut keys to operate easily for input selection for measure and source/ measure respectively.

Comes with a mini USB connector for charging, logged data retrieval and firmware upgrade.

Automatic step/ ramp output with auto/ man selection, data logging, max./ min./ average values, scaling to engineering units & filter settings enhances the use of LC 12.

Standard accessories provided patch cables, charger, USB cable, instruction manual, logged data retrieval software CD and calibration certificate, all in an attractive carrying case.

TECHNICAL SPECIFICATIONS

Measurement Range				Power supply	
Parameter	Range	Resolution	Accuracy	Battery Type	Rechargeable Li-ion battery pack, 2300mAh 3.7V
mV	0-250.00 mV	0.01 mV	±0.02% of reading ± 2 counts	Charging Time	<5 hours max.
V	0-30.000 VDC	0.001 V	±0.02% of reading ± 2 counts	Charger Supply	100-240 VAC, 50/60 Hz; Output 5V DC@1A
mA	0-24.000 mA	0.001 mA	±0.02% of reading ± 2 counts	Battery Life on Full Charge	>18 hours max. for mA, mV, V measurement with minimum backlight brightness. > 8 hours max. for 12mA generation with minimum backlight brightness
Source Range				Battery Status Indication	Battery symbol displayed with % power remaining
Parameter	Range	Resolution	Accuracy	Physical	
mV	0-250.00 mV	0.01 mV	±0.02% of reading± 2 counts	Dimensions (in mm)	161.7 (L) x 82.1 (W) x 39.5 (H)
V	0-12.000 VDC	0.001 V	±0.02% of reading ± 2 counts	Housing Material	ABS plastic
mA	0-24.000 mA	0.001 mA	±0.02% of reading ± 2 counts	Electrical Terminals	Four nos., 2 mm safety sockets
General Specifications				Weight	<300 grams
Display Mode	Measure + Source, Measure only, Source only, Switch test + Source			Protection	IP20
Max. Input Voltage	30 ppm			Environmental	
Input Impedance Measure	V, mV >1MΩ mA =10 Ω			Operating Temperature	0 to 55 °C
Response Time	Input <100ms Output <100ms			Operating Temperature While Charging Batteries	0 to 45 °C
Load Impedance	>10 KΩ for mV/V <750 Ω for mA			Storage Temperature	-20° to 60 °C
Display Update Rate	10 readings / sec.			Relative Humidity	30% to 90% non-condensing
Isolation	500VDC between measure & source			Warm-up Time	15 minutes
Data logging	Logged data is stored in a user defined file in internal memory Periodic logging: 150000 readings max.			Accessories	
Communication Interface	USB 2.0			Calibration Certificate	
				User guide	
Display and Keys				2 Sets of 2mm to 2mm Banana Cable	
Display	2.4" TFT LCD, 262K Color, Graphical, 42.72 mm x 60.26 mm, 240x320 pixels, White LED backlight			2 Sets of 2mm Crocodile Cable	
Keys	6 Membrane keys			2 Sets of connecting plug 4mm to 2mm	
Special Features				USB A Male to USB mini B Male Cable for PC Communication and Charging	
Loop Power Output	24V DC, ±10% (24mA maximum)			5 VDC Charging Adapter	
HART mA Loop Resistor	250 Ω ±20%			Carrying Bag	
Special Function	Step/Ramp functions: Automatic/manual, √X, X²: for measure & source			Data Logging Software CD-mCAL	
Switch Test	<ul style="list-style-type: none"> Potential free contacts Trigger level : 24V, 24mA (2V) Voltage level detection Trigger level : 0 to 30V in 1V steps Input impedance : >1 MΩ 			Directive Conformity*	
				Electromagnetic Compatibility Directive 2014/30/EU	EN 61326-1:2013
				Low Voltage Directive 2014/68/EU	EN 61010-1:2010
				*(Applicable only for CE marked)	

APPLICATIONS

- Loop check and calibration
- Calibration of transmitters and transducers
- Switch test and calibration
- Drift test of transmitters and transducers

iCAL

LC11

The Ultimate Loop Calibrator



It has either measure only or source only feature, designed to provide base accuracy of 0.02% of reading

2W simulator transmitter, mA simulator, voltage simulator and read/ power are unique features for loop testing

Designed to give maximum battery life in one full charge, the backlight is adjustable for power saving.

Shortcut keys to operate easily for input selection for measure and source/ measure respectively.

Comes with a mini USB connector for charging, logged data retrieval and firmware upgrade.

It is used as a current loop calibrator, digital loop calibrator, current & voltage calibrator, current source, voltage source, current measure, voltage measure.

It is the precision current & voltage calibrator for sourcing or measuring & simulating loop current, mV & V. It is compact & easy to use hand held calibrator with graphical user interface.

TECHNICAL SPECIFICATIONS

Measurement Range				Power supply			
Parameter	Range	Resolution	Accuracy	Battery Type	Rechargeable Li-ion battery pack, 2300mAh 3.7V		
mV	0-250.00 mV	0.01 mV	±0.02% of reading ± 2 counts	Charging Time	<5 hours max.		
V	0-30.000 VDC	0.001 V	±0.02% of reading ± 2 counts	Charger Supply	100-240 VAC, 50/60 Hz; Output 5V DC@1A		
mA	0-24.000 mA	0.001 mA	±0.02% of reading ± 2 counts	Battery Life on Full Charge	>20 hours max. for mA, mV, V measurement with minimum backlight brightness. > 10 hours max. for 12mA generation with minimum backlight brightness		
Source Range				Battery Status Indication	Battery symbol displayed with % power remaining		
Parameter	Range	Resolution	Accuracy	General Specifications			
mV	0-250.00 mV	0.01 mV	±0.02% of reading ± 2 counts	Display Mode	Measure only or source only		
V	0-12.000 VDC	0.001 V	±0.02% of reading ± 2 counts	Max. Input Voltage	30 V DC		
mA	0-24.000 mA	0.001 mA	±0.02% of reading ± 2 counts	Temperature Coefficient	30 ppm		
General Specifications				Input Impedance Measure	V, mV >1MΩ mA =10 Ω		
Display Mode	Measure only or source only						
Max. Input Voltage	30 V DC						
Temperature Coefficient	30 ppm						
Input Impedance Measure	V, mV >1MΩ mA =10 Ω						
Response Time	Input <100ms Output <100ms						
Load Impedance	>10 KΩ for mV/V <750 Ω for mA						
Display Update Rate	10 readings / sec.						
Data logging	Logged data is stored in a user defined file in internal memory Periodic logging: 150000 readings max.						
Communication Interface	USB 2.0						
Display and Keys				Physical			
Display	2.4" TFT LCD, 262K Color, Graphical, 42.72 mm x 60.26 mm, 240x320 pixels, White LED backlight					Dimensions (in mm)	161.7 (L) x 82.1 (W) x 39.5 (H)
Keys	6 Membrane keys					Housing Material	ABS Plastic
Special Features				Electrical Terminals	Two nos., 2 mm safety sockets		
Loop Power Output	24V DC, ±10% (24mA maximum)					Weight	<300 grams
HART mA Loop Resistor	250 Ω ±20%					Protection	IP20
Special Function	Step/Ramp functions: Automatic/Manual, \sqrt{x} , x^2 : for measure & source					Environmental	
				Operating Temperature	0 to 55 °C		
				Operating Temperature While Charging Batteries	0 to 45 °C		
				Storage Temperature	-20° to 60 °C		
				Relative Humidity	30% to 90% non-condensing		
				Warm-up Time	15 Minutes		
				Accessories			
				Calibration Certificate			
				User Guide			
				1 Set of 2mm to 2mm Banana Cable			
				1 Set of 2mm Crocodile Cable			
				2 Sets of connecting plug 4mm to 2mm			
				USB A Male to USB mini B Male cable for PC Communication and Charging			
				5 VDC Charging Adapter			
				Carrying Bag			
				Data Logging Software CD-mCAL			

APPLICATIONS

- Loop check and calibration
- Calibration of transmitters and transducers
- Switch test and calibration
- Drift test of transmitters and transducers

RS-12 Pt100 - Simulator



High precision simulator for the simulation of Pt100 resistance thermometers.

RS-12 covers general operating range of Pt100 with 12 calibration points.

Small in size, rugged and easy to use and it has been specially designed for field use.

It is used wherever measuring instruments or controlling systems have to be tested or calibrated with great precision.

The resistance values required for simulation are directly set in °C.

Accuracy of < 0.3 °C, quick check switch box and allows 2, 3 or 4 wire connections.

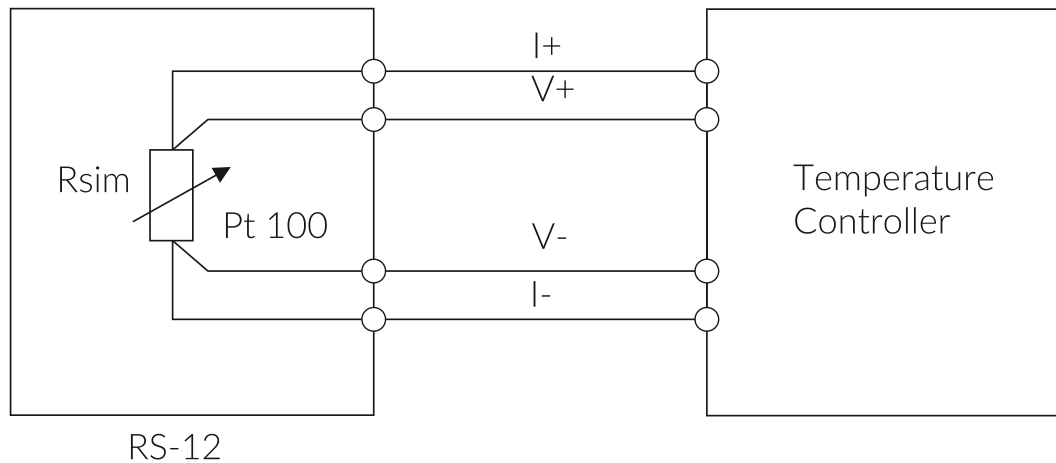
The output is a purely passive resistance, it can operate with all types of Pt100 measuring equipments, including the live systems using pulsed, or interrupted excitation current.

TECHNICAL SPECIFICATIONS

Specification		Table-1 (ITS 90)			
Temperature Range	12 Set temperature values	Adjustable Temperature Values			
Accuracy	< 0.3 °C	-150°C	- 50°C	0°C	50°C
Temperature Coefficient	20 ppm / °C	100°C	200°C	300°C	400°C
Allowable Excitation Current	0 to 15 milliamps steady or intermittent	500°C	600°C	700°C	800°C
Physical					
Dimension (in mm)	50 (H) x135.4 (W) x 66.5(D)				
Enclosure Material	Extruded aluminum				
Protection	IP40				
Weight	<400 grams				
Terminals	4 nos, 4mm safety sockets				
Environment					
Operating Temperature	0 to 55 °C				
Storage Temperature	-20 to 70 °C				
Humidity	30 to 90 % RH				

Connection Details

Example of application: Calibration of a controller



Ordering Code

Model
RS-12

- Comes with factory calibration certificate along with supply (Traceable to national/ International standard)
- Calibration certificate from NABL certified Lab (ISO: 17025) can be provided upon request - Please contact factory

Accessories (Standard)

- Patch cords RED (1 end crocodile pin other end 4mm pin) - 2 nos.
- Patch cords BLACK (1 end crocodile pin other end 4mm pin) - 2 nos.
- Patch cords (PC-3 RED) (Both end 4mm pin) - 2 nos.
- Patch cords (PC-3 BLACK) (Both end 4mm pin) - 2 nos.

APPLICATIONS

- To simulate RTD signal in all types of instruments, such as transmitters, controllers and data acquisition, process control, lab equipment etc.
- To simulate RTD signal in automation (PLC, DCS), data acquisition panels
- For maintenance & trouble shooting

CALIBRATION TRAINING FOR THE PROFESSIONAL

We provide customized Workshop and Training on Calibration for Industrial Professionals (Technicians and Engineers)

Masibus Calibration Training/Workshop is Structured to Enhance your Engineering Expertise and will Include:-

- ON Site & OFF Site Calibration Workshop, Online Training for Professional Outside India
- General Calibration Measurement and Understanding of Calibration Terms
- Training on Measurement of Temperature and Pressure Parameters
- Hands-On Supervised Training with ISO 9001:2015 Calibration Requirement
- Training Certificate after the Workshop is Completed



Multi Function
Test Bench



Pressure
Test Bench



Temperature
Test Bench



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