

Калибраторы сигналов Nagman, MFC, PRC

Технические характеристики

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Technical Datasheet

Thermocouple Calibrator

Portable/Handheld

Portable, Handy, Easy to carry & Sturdy Case with grip
Basic Accuracy : $\pm 0.05\%$ Reading

Typical Photo.
Final Product Look May Vary.

SALIENT FEATURES

Capability to Measure & Simulate Voltage & Thermocouple Readings

- Compact, Light Weight Unit with Holster
- Selectable Temperature Output Readings (in $^{\circ}\text{C}$ / $^{\circ}\text{F}$)
- Measurement & Simulation of Thermocouple types R, S, B, E, K, J, T & N and Voltage - 1 V Simulation, 100 mV Measurement

SPECIFICATIONS

INPUT FUNCTIONS (Measurement)

Input	Range	Input range	Resolution	Accuracy	Remarks
DC Voltage DC mV	100 mV	-10 to 110 mV	0.01mV	$\pm 0.05\% + 3$	Input Resistance $1\text{M}\Omega$
Thermocouple TC	R	-40 to 1760°C	1°C	0.05%+3 (less than or equals to 100°C) 0.05%+2 (more than 100°C)	Input Resistance $1\text{M}\Omega$ Employs ITS-90 temperature standard. The accuracy does not include the error of interior temperature compensation sensor. The Accuracy does not include the impact of interior thermoelectric force
	S	-200 to 1760°C		0.05%+3 (less than or equals to 600°C) 0.05%+2 (more than 600°C)	
	B	400 to 1800°C		0.05%+2 (less than or equals to -100°C) 0.05%+1 (more than -100°C)	
	K	-200 to 1370°C	0.1°C	0.05%+2 (less than or equals to -100°C) 0.05%+1 (more than -100°C)	
	E	-200 to 1000°C			
	J	-200 to 1200°C			
	T	-200 to 400°C			
	N	-200 to 1300°C			

OUTPUT FUNCTIONS (Simulation)

Output	Range	Output range	Resolution	Accuracy	Remarks
DCV	100mV	-10 to 110mV	0.01 mV	0.05% +30 μV	Max. output current $\pm 2\text{mA}$
	1V	-0.1 to 1.1V	0.1 mV	0.05% +0.3mV	
TC	R	-40 to 1760°C	1°C	0.05% +0.3 (less than or equals to 100°C) 0.05% +2 (more than 100°C)	Employs ITS-90 temperature standard. The accuracy does not include the error of interior temperature compensation sensor. The accuracy does not include the impact of interior thermoelectric force.
	S	-20 to 1760°C		0.05% +3 (less than or equals to 600°C) 0.05% +2 (more than 600°C)	
	B	-400 to 1800°C			
	E	-200 to 1000°C	0.1°C	0.05% +2 (less than or equals to -100°C) 0.05% +1 (more than -100°C)	
	K	-200 to 1370°C			
	J	-200 to 1200°C			
	T	-200 to 400°C			
	N	-200 to 1300°C			

STANDARD INCLUSIONS

- Thermocouple Calibrator – Model : Nagman 02+
- 1.5V AA Batteries – 2 Nos.
- Operation Manual
- Test Leads
- Traceable Calibration Certificate

OPTIONAL (ADD-ON) ITEMS

- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards

Nagman 02+



RTD Calibrator

Portable/Handheld

Nagman 03+

Portable, Handy, Easy to carry & Sturdy Case with grip. Capability to Measure & Simulate Resistance & RTD Readings

Basic Accuracy : $\pm 0.05\%$ Reading

SALIENT FEATURES

Compact, Light Weight Unit with Holster

Selectable Temperature Output Readings (in $^{\circ}\text{C}$ / $^{\circ}\text{F}$)

Measurement of :

Resistance	0 - 5000 Ω
RTD Types	
Cu50	: -50 to 150 $^{\circ}\text{C}$
Pt100	: -200 to 850 $^{\circ}\text{C}$
Pt200	: -200 to 630 $^{\circ}\text{C}$
Pt500	: -200 to 630 $^{\circ}\text{C}$
Pt1000	: -200 to 630 $^{\circ}\text{C}$
Simulation of :	
Resistance	0 - 4000 Ω
RTD Types	
Cu50	: -50 to 150 $^{\circ}\text{C}$
Pt100	: -200 to 850 $^{\circ}\text{C}$
Pt200	: -200 to 630 $^{\circ}\text{C}$
Pt500	: -200 to 630 $^{\circ}\text{C}$
Pt1000	: -200 to 630 $^{\circ}\text{C}$



Typical Photo. Final Product Look May Vary.

SPECIFICATIONS

INPUT FUNCTIONS (Measurement)

Output function	Range	Output Range	Resolution	Accuracy	Illustration
Resistance OHM	500 Ω	0 to 500 Ω	0.1 Ω	0.05%+2	Measurement current : about 1mA Open circuit voltage : about 2.5V The accuracy does not include lead resistance.
	5000 Ω	0 to 5000 Ω	1 Ω		
Thermal Resistance RTD	Cu50	-50 to 150 $^{\circ}\text{C}$	0.1 $^{\circ}\text{C}$	0.05%+0.6 $^{\circ}\text{C}$	The incentive current is set as : ± 0.5 to $\pm 3\text{mA}$ When the incentive current is set as ± 0.1 to 0.5 mA, add an extra 0.5 $^{\circ}\text{C}$ to additional error. Incentive current is set as ± 0.05 to $\pm 0.3\text{mA}$
	Pt100 385	-200 to 850 $^{\circ}\text{C}$			
	Pt200 385	-200 to 630 $^{\circ}\text{C}$			
	Pt500 385	-200 to 630 $^{\circ}\text{C}$			
	Pt1000 385	-200 to 630 $^{\circ}\text{C}$			

OUTPUT FUNCTIONS (Simulation)

Output function	Range	Output Range	Resolution	Accuracy	Illustration
Simulate Resistance OHM	400 Ω	0 to 400 Ω	0.1 Ω	0.05%+2	Incentive current is set as ± 0.5 to $\pm 3\text{mA}$ When the incentive current is set as ± 0.1 to 0.5 mA, add an extra 0.1 Ω to additional error. The accuracy does not include lead resistance.
	4000 Ω	0 to 4000 Ω	1 Ω	0.05%+2	
Thermal Resistance RTD	Cu50	-50 to 150 $^{\circ}\text{C}$	0.1 $^{\circ}\text{C}$	0.05%+6	The incentive current is set as : ± 0.5 to $\pm 3\text{mA}$ When the incentive current is set as ± 0.1 to 0.5 mA, add an extra 0.5 $^{\circ}\text{C}$ to additional error. Incentive current is set as ± 0.05 to $\pm 0.3\text{mA}$
	Pt100 385	-200 to 850 $^{\circ}\text{C}$			
	Pt200 385	-200 to 630 $^{\circ}\text{C}$			
	Pt500 385	-200 to 630 $^{\circ}\text{C}$			
	Pt1000 385	-200 to 630 $^{\circ}\text{C}$			

Employs Pt(385) standard temperature
The accuracy does not include lead resistance

STANDARD INCLUSIONS

- RTD Calibrator – Model : Nagman 03+
- 1.5V AA Batteries – 2 Nos.
- Operation Manual
- Test Leads
- Traceable Calibration Certificate

OPTIONAL (ADD-ON) ITEMS

- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards

Technical Datasheet

Loop Calibrator

Portable/Handheld

Nagman 05+

Capability to Measure & Simulate Voltage & Current Readings

Typical Photo.
Final Product Look.
May Vary

SALIENT FEATURES

Compact, Light Weight Unit with Holster

Capability to provide Loop Supply (24V) for Transmitters

Basic Accuracy : $\pm 0.05\%$ Reading



SPECIFICATIONS

INPUT FUNCTIONS (Measurement)

Input	Range	Input Range	Resolution	Accuracy	Remarks
Voltage	28 V	-0.2 to 28 V	1 mV	$\pm 0.02\%$ reading ± 2 mV	Input Resistance about $1M\Omega$
Current	20 mA	-1 to 22 mA	0.001 mA	$\pm 0.02\%$ reading ± 4 μ A	Input Resistance about 20Ω
Loop Current	20 mA	0 to 22 mA	0.001 mA	$\pm 0.02\%$ reading ± 4 μ A	Providing Supply 24V Loop Power

OUTPUT FUNCTIONS (Simulation)

Output	Range	Output Range	Resolution	Accuracy	Remarks
Current (DC)	20 mA	0 to 22 mA	0.001 mA	$\pm 0.05\%$ set value ± 4 μ A	Maximum overload is $1k\Omega$ at 20 mA
Simulator Transmitter	-20 mA	0 to -22 mA	0.001 mA	$\pm 0.05\%$ set value ± 4 μ A	Maximum overload is $1k\Omega$ at 20 mA
Loop Power	24 V	---	---	$\pm 10\%$	Maximum output current upto 25 mA

STANDARD INCLUSIONS

- Process Meter – Model : Nagman 05+
- 1.5V 'AA' Alkaline Batteries (2 Nos.)
- Operation Manual
- Test Leads
- Traceable Calibration Certificate

OPTIONAL (ADD-ON) ITEMS

- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards

Loop Calibrator with Hart

Portable / Handheld

Nagman® 43H

Hart communicators provide the tool for communicating with process instruments. Relying on an open communications protocol, Hart communicators interface with Hart enabled 'master' and 'field' devices making it much easier to configure and calibrate instruments as well as diagnose issues before they collapse.

Support Hart general instructions and general application instructions. Able to read the device basic information, perform diagnostic testing and calibration to fine tune the most Hart transmitter, can store up to 20 Hart device configuration file.

SALIENT FEATURES

Protection grade : IP65
Colour Display with Backlight
Brightness Adjustment
Automatic Ramp & Step
Auto Power off
Battery Low Display

SPECIFICATIONS

Display	3.2 inch TFT color display
Power supply	4×1.5V AA Alkaline battery / adapter
Size (LxBxH)	206 × 97 × 60 mm
Weight (approx.)	600g



Parameters			
Source Mode	DC current (DC mA)	Ranges	0.000 ~ 22.000mA
		Accuracy ±(% of the set value +% of range)	0.01% + 0.015%
		Resolution	1μA
	Analog Transmitter (Simulate)	Ranges	0.000 ~ 22.000mA
		Accuracy ±(% of the set value +% of range)	0.01% + 0.015%
		Resolution	1μA
		External power supply	5 ~ 28V
Measurement Mode	DC voltage (DC V)	Ranges	-2.000~28.000V
		Accuracy ±(% of Reading+ % of Range)	0.01%+0.01%
		Resolution	1mV
	DC current (DC mA)	Ranges	-4.000 ~ 33.000mA
		Accuracy ±(% of Reading+ % of Range)	0.01% + 0.01%
		Resolution	1μA
	Loop power supply (Loop)	Range	24V
		Maximum current	22mA
		Driving ability	No HART resistance of 1KΩ. HART resistance is 750 Ω.

P.T.O.

STANDARD INCLUSIONS

- Basic Instrument
- Test Lead
- Crocodile Clip
- Alkaline Battery 4 Nos.
- Traceable Calibration Certificates
- Instruction Manual

OPTIONAL (ADD-ON) ITEMS

- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards

Temperature Calibrator

Portable/Handheld

Nagman 14+

Capability to Measure & Simulate DC Voltages, Resistances, Thermocouples & RTD

Basic Accuracy : $\pm 0.02\%$ Reading

SALIENT FEATURES

Compact, Light Weight Unit with Holster

Capability to Measure & Simulate DC Voltages, Resistances, Thermocouples and RTD

5 digits display of Measurement & 6 digits display for Simulation

Dual LCD with white LED for backlight

Measurement & Simulation of :

Thermocouple types	R, S, B, E, K, J, T, N, L & U
RTD Types	PT100, Pt200, Pt500, Pt1000, Cu10 & Cu50
Resistances	500 Ω & 5 K Ω in Measurement Mode 400 Ω & 4 K Ω in Simulation Mode
DC Voltages	50 mV & 500 mV in Measurement Mode 100 mV & 1000 mV in Simulation Mode



Typical Photo.
Final Product Look
May Vary.

SPECIFICATIONS

Measuring Functions

Functions	Reference	Ranges	Resolution	Accuracy	Remarks
DC Voltage	50 mV	-5 to 55 mV	1 μV	0.02 + 0.02	Input Resistance 100 MΩ
	500 mV	- 50 to 550 mV	10 μV	0.02 + 0.01	
Resistance (Ohm)	500 Ω	0 to 550 Ω	0.01 Ω	0.05 + 0.02	500 Ω : Excitation current : Approx. 1 mA
	5 KΩ	0 KΩ to 5.5 KΩ	0.1 Ω	0.05 + 0.02	5 KΩ : Excitation current : Approx. 0.1 mA Open Circuit Voltage : about 2.5V; Does not include lead resistance.
Thermocouple	R	0 to 1767°C	1°C	0 to 500°C : 1.8°C	By using ITS-90 temperature scale; The accuracy does not include the error of internal temperature compensation caused by a sensor.
	S	0 to 1767°C		500 to 1767°C : 1.5°C	
	K	-100 to 1372°C	0.1°C	-100 to 0°C : 1.2°C	
	E	-50 to 850°C		0 to 1372°C : 0.8°C	
				-50 to 0°C : 0.9°C	
	J	-60 to 1120°C		0 to 850°C : 1.5°C	
				-60 to 0°C : 1°C	
	T	-100 to 400°C		0 to 1120°C : 0.7°C	
				-100 to 0°C : 1°C	
	N	-200 to 1300°C		0 to 400°C : 0.7°C	
				-200 to 0°C : 1.5°C	
	B	600 to 1820°C	1°C	0 to 1300°C : 0.9°C	
				600 to 800°C : 2.2°C	
				800 to 1000°C : 1.8°C	
	L	-60 to 900°C	0.1°C	1000 to 1820°C : 1.4°C	
				-60 to 0°C : 0.7°C	
U	-100 to 600°C	0.1°C	0 to 900°C : 0.5°C		
			-100 to 0°C : 0.7°C		
				0 to 600°C : 0.5°C	

Functions	Reference	Ranges	Resolution	Accuracy	Remarks
RTD	Pt100 385	-200 to 800°C	0.1°C	-200 to 0°C : 0.5°C	By using temperature scale ITS-90. Does not include lead resistance. Assuming all three RTD leads are matched for 3-w input.
				0 to 400°C : 0.7°C	
				400 to 800°C : 0.8°C	
	Pt1000 385	-200 to 630°C		-200 to 100°C : 0.8°C	
				100 to 300°C : 0.9°C	
				300 to 630°C : 1.0°C	
	Pt200 385	-200 to 630°C		-200 to 100°C : 0.8°C	
				100 to 300°C : 0.9°C	
				300 to 630°C : 1°C	
	Pt500 385	-200 to 630°C			
Cu10	-100 to 260°C	1.8°C			
Cu50	-50 to 150°C	0.7°C			
Continuity	500 Ω	≤50 Ω round	0.01 Ω		Excitation Current approx. 1 mA

Output Functions

Functions	Reference	Ranges	Resolution	Accuracy	Remarks	
DC Voltage	100 mV	-10 to 110 mV	1 μV	0.02 + 0.01	Maximum Output : 0.5 mA	
	1000 mV	-100 to 1100 mV	10 μV	0.02 + 0.01	Maximum Output : 2 mA	
Resistance	400 Ω	0 to 400 Ω	0.01 Ω	0.02 + 0.02	Excitation current : ±0.5 – 3 mA; if ±0.1 – 0.5, add 0.1 Ω; Accuracy does not include lead resistance.	
	4 KΩ	0 KΩ to 4 KΩ	0.1 Ω	0.05 + 0.025	Excitation current : ±0.05 – 0.3 mA; Does not include lead resistance.	
Thermocouple	R	0 to 1767°C	1°C	0 to 100°C : 1.5°C	By using ITS-90 temperature scale; The accuracy does not include the error of internal temperature compensation caused by a sensor.	
	S	0 to 1767°C		100 to 1767°C : 1.2°C		
				0 to 100°C : 1.5°C		
				100 to 1767°C : 1.2°C		
	K	-200 to 1372°C	0.1°C	-200 to -100°C : 0.6°C		
				-100 to 400°C : 0.5°C		
				400 to 1200°C : 0.7°C		
				1200 to 1372°C : 0.9°C		
	E	-200 to 1000°C		-200 to 100°C : 0.6°C		
				-100 to 600°C : 0.5°C		
				600 to 1000°C : 0.4°C		
	J	-200 to 1200°C		-200 to -100°C : 0.6°C		
				-100 to 800°C : 0.5°C		
				800 to 1200°C : 0.7°C		
	T	-250 to 400°C		-250 to 400°C : 0.6°C		
				-200 to -100°C : 1.0°C		
	N	-200 to 1300°C		-100 to 900°C : 0.7°C		
				900 to 1300°C : 0.8°C		
	B	600 to 1820°C	1°C	600 to 800°C : 1.5°C		
				800 to 1820°C : 1.1°C		
	L	-200 to 900°C	0.1°C	-200 to 0°C : 0.7°C		
				0 to 900°C : 0.5°C		
	U	-200 to 600°C	0.1°C	-200 to 0°C : 0.7°C		
				0 to 600°C : 0.5°C		

Functions	Reference	Ranges	Resolution	Accuracy	Remarks
RTD	Pt100 385	-200 to 800°C	0.1°C	-200 to 0°C : 0.3°C	By using temperature scale ITS-90 Excitation current: ±0.5 ~ ±3mA for Pt100. Cu10, Cu50 and 0.5°C when excitation current is ±0.1 mA – 0.5 mA; Excitation current : ±0.05 mA ~ ±0.3 mA for Pt200, Pt500, Pt1000; Does not include lead resistance.
				0 to 400°C : 0.5°C	
				400 to 800°C : 0.8°C	
	Pt200 385	-200 to 630°C		-200 to 100°C : 0.8°C	
				100 to 300°C : 0.9°C	
				300 to 630°C : 1.0°C	
	Pt500 385	-200 to 630°C		-200 to 100°C : 0.4°C	
				100 to 300°C : 0.5°C	
				300 to 630°C : 0.7°C	
	Pt1000 385	-200 to 630°C		-200 to 100°C : 0.2°C	
				100 to 300°C : 0.5°C	
				300 to 630°C : 0.7°C	
	Cu10	-100 to 260°C		1.8°C	
	Cu50	-50 to 150°C		0.6°C	

* Accuracy expressed as $\pm$ (percentage of reading + percentage of range)

STANDARD INCLUSIONS

- Temperature Calibrator – Model : Nagman 14+
- 1.5V 'AAA' Alkaline Batteries (4 Nos.)
- Operation Manual
- Test Leads
- Traceable Calibration Certificate

OPTIONAL (ADD-ON) ITEMS

- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards

V/mA Pressure Calibrator

Portable/Handheld

Nagman 15+

Capability to Measure & Simulate DC Voltages, DC Current, Frequency, Pulse & Loop

Basic Accuracy : $\pm 0.02\%$ Reading

SALIENT FEATURES

Compact, Light Weight Unit with Holster	
Capability to Measure & Simulate DC Voltages, DC Current & Frequency	
5 digits display of Measurement & 6 digits display for Simulation	
Dual LCD with white LED for backlight	
Measurement & Simulation of :	
DC Voltages	200 mV, 5 V & 50 V in Measurement Mode 1000 mV & 10 V in Simulation Mode
DC Current	50 mA in Measurement Mode 20 mA in Simulation Mode
Frequency	50 Hz, 5 KHz & 50 KHz in Measurement Mode 100 KHz, 1 KHz & 10 KHz in Simulation Mode
Capability to perform Continuity Test & provide Loop Supply (24 V) for Transmitters	



Typical Photo.
Final Product Look May Vary.

SPECIFICATIONS

Input Functions (Measurement)

Functions	Reference	Ranges	Resolution	Accuracy	Remarks
DC Voltage	200 mV	-20 to 220 mV	10 μ V	0.02 + 0.02	Impedance approximately 100 M Ω
	5 V	-0.5 to 5.5 V	0.1 mV	0.02 + 0.01	Impedance approximately 1 M Ω
	50V	-5 to 55 V	1 mV	0.03 + 0.01	
DC mA	50 mA	-4 to 55 mA	1 μ A	0.02 + 0.01	Impedance : 5 Ω
Frequency	500 Hz	3 to 500 Hz	0.01 Hz	± 2 digit	Impedance : 100 k Ω Min.
	5 KHz	3 Hz to 5 KHz	0.1 Hz		Sensitivity : 3 Vp-p min.
	50 KHz	3 Hz to 50 KHz	1 Hz		Duty Cycle : 50%
Continuity	<250 Ω	Close / open	---	---	Open Circuit Voltage : about 2.5 V

Output Functions (Simulation)

Functions	Reference	Ranges	Resolution	Accuracy	Remarks
DC Voltage	1000 mV	-100 to 1100 mV	10 μ V	0.02 + 0.01	Maximum output : 2 mA
	10 V	-1 to 11 V	0.1 mV	0.02 + 0.01	Maximum output : 5 mA
DC Current	20 mA	0 to 22 mA	1 μ A	0.02 + 0.02	Simulator Transmitter : 5 to 28 V Power Supply outside; 1 K Ω at 20 mA
Frequency	100 Hz	1 to 110 Hz	0.01 Hz	± 2 count	Output voltage : 1 to 11 V _{p-p} (zero base waveform); Amplitude Accuracy : $\pm 10\%$ + 0.5 V; Maximum load : >100 K Ω Duty Cycle : 50%
	1 KHz	0.1 to 1.1 KHz	1 Hz		
	10 KHz	1 to 11 KHz	0.1 KHz		
Pulse	100 Hz	1 to 100000 cycles	1 cycle	---	Maximum load : >100 K Ω Duty Cycle : 50%
	1 KHz				
	10 KHz				
Loop	24 V	---	---	$\pm 10\%$	Maximum output current : 25 mA Short circuit protected

* Accuracy is expressed as $\pm(\text{percentage of Reading} + \text{percentage of Range})$

STANDARD INCLUSIONS

- Voltage / Milliamp Calibrator - Model Nagman 15+
- 1.5V x 4 Nos. AAA Alkaline Batteries
- Operation Manual
- Test Leads
- Traceable Calibration Certificate

OPTIONAL (ADD-ON) ITEMS

- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards

Signal Generator

Portable/Handheld

Nagman 71

Portable, Handy, Easy to carry & Sturdy Case with grip

SALIENT FEATURES

- V/mA calibrator
- 24V loop power supply
- Simulate transmitter output
- 8 Thermocouple (R, S, B, K, E, J, T and N) output
- Measure and source 20mA current
- Output 10V DC voltage
- Flash light function

SPECIFICATIONS

Accuracy	0.2%
Thermocouple output	R, S, B, K, E, J, T and N
Measure and source current	20mA
Resolution	1°C
Accuracy	±0.5%+3°C
Backlight	Yes
Display area	45mm x 26mm
Power Supply	1 x 9 V Alkaline Battery
Weight	Approx. 500 G (including Batteries)
Battery	3 x 1.5V battery
Dimensions (with jacket)	147×75 ×42 mm

INPUT FUNCTIONS (Measurement)

	Range	Resolution	Accuracy
DC mV	-10~100mV	100uV	±(0.2%+4)
DCV	-5~30V	10mV	±(0.2%+4)
DC mA	0~22mA	0.01mA	±(0.2%+4)
Loop supply	24V	Max current 25mA	10%
Thermocouple (R, S, B, K, E, J, T and N)	0-1350°C (K)	1°C	

OUTPUT FUNCTIONS (Simulation)

	Range	Resolution	Accuracy
DC mV output	0~110.0mV	100uV	±(0.2%+4)
DCV output	0~10.00V	10mV	±(0.2%+4)
DCA output	0~22.00mA	0.01mA	±(0.2%+4)
Simulate	0~22.00mA	0.001mA	±(0.2%+4)
Thermocouple output	R: 0-1760°C, S: 0-1760°C, B: 400-1800°C, K: 0-1350°C, E: 0-700°C, J: 0-950°C, T: 0-400°C, N: 0-1300°C.	1°C	±0.5%+3°C
Backlight	Yes		
Display area	45mm x 26mm		

STANDARD INCLUSIONS

- Signal Generator Model Nagman 71
- 1.5V AA Batteries – 3 Nos.
- User Manual
- Test Leads
- Traceable Calibration Certificate

OPTIONAL (ADD-ON) ITEMS

- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards

Typical Photo.
Final Product Look
May Vary



Process Meter / Multimeter

Handheld

Nagman 79A

SALIENT FEATURES

Compact, Light Weight Unit with Holster

Measurement & Simulation of DC Voltage, DC Current, Resistance, Thermometer, RTD & Frequency.

Auto Ramp & Step Function

24V Loop Parameter function

SPECIFICATIONS

INPUT FUNCTIONS (Measurement)

DC voltage	Range	±1000V
	resolution	0.01mV
	Basic accuracy	0.1%
AC voltage	Range	750V
	resolution	0.1mV
	Basic accuracy	0.5%
Resistance	Range	50MΩ
	resolution	0.1Ω
	Basic accuracy	0.1%
DC current	Range	±500mA
	resolution	1uA
	Basic accuracy	0.1%
AC current	Range	500mA
	resolution	1uA
	Basic accuracy	0.5%
Thermocouple	Range	R, S, B, E, K, J, T, N
	resolution	1°C
	Basic accuracy	0.5%
RTD	Range	Cu50, Pt100
	resolution	1°C
	Basic accuracy	0.5%
CAP	Range	100mF
	resolution	0.01nF
	Basic accuracy	5%
Frequency		10Hz ~ 100kHz
Diode test		✓
Continuity beeper		✓
Data hold		✓
Relative value measurement		✓

STANDARD INCLUSIONS

- Process Meter/Multimeter
- Test Leads & Fuse
- 1.5V 'AA' Alkaline Batteries (4 Nos.)
- Operation Manual
- Traceable Calibration Certificate

OUTPUT FUNCTIONS (Source)

DC voltage	Range	-10.00mV ~ 110.00mV -100.0mV ~ 1100.0mV -1.000V ~ 11.00V
	Resolution	0.001mV, 0.01mV, 0.1mV
	Basic accuracy	0.2%
Resistance	Range	0 ~ 400.0Ω
	Resolution	0.1Ω
	Basic accuracy	0.2%
DC current	Range	33mA
	Resolution	0.001mA
	Basic accuracy	0.2%
Simulating transmitter		✓
25%, 100% Step output		✓
Automatic ramp		✓
Automatic step		✓
Display current and % of span		✓
Loop power		24V
Frequency		1.0Hz ~ 11.0kHz
Thermocouple		R, S, B, E, K, J, T, N
RTD		Cu50, Pt100

Power Supply	1.5V AA Alkaline battery
Auto Power-off	✓
Backlight	✓
Safety	CAT III 600V, Pollution degree 2
Size	206 × 97 × 60
Weight	About 500g
Accessories	Test line, manual, fuse

OPTIONAL (ADD-ON) ITEM

- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards



Technical Datasheet

Multifunction Calibrator

Portable/Handheld

Nagman 25

Portable, Handy & Sturdy case with grip

Capability to Measure & Simulate DC Voltages, DC Current, Frequency, Resistance, Thermocouples & RTD

Basic Accuracy : $\pm 0.02\%$ Reading

SALIENT FEATURES

Compact, Light Weight Unit with Holster

Capability to Measure & Simulate DC Voltages, DC Current, Frequency, Resistance, Thermocouples & RTDs

5 digits display of Measurement & 6 digits display for Simulation

Dual LCD with white LED for backlight

Measurement & Simulation of :

DC Voltages : 50 mV & 500 mV & 5 V in Measurement Mode 100 mV, 1V & 10V in Simulation Mode

DC Current : 50 mA in Measurement Mode; 20 mA in Simulation Mode

Resistance : 500 Ω & 5 K Ω in Measurement Mode; 400 Ω , 4 K Ω & 40 K Ω in Simulation Mode

Thermocouples : R, S, B, E, K, J, T & N

RTDs : Pt100, Pt1000 & Cu50

Frequency : 500 Hz, 5 KHz & 50 KHz in Measurement Mode; 100 Hz, 1 KHz, 10 KHz & 100 KHz in Simulation Mode

Capability to perform Switch Test & Continuity Test



Typical Photo.

Final Product Look May Vary.

SPECIFICATIONS

Input Functions

Functions	Reference	Ranges	Resolution	Accuracy	Remarks
DC Voltage	50 mV	-5 to 55 mV	1 μ V	0.02 + 0.02	Input Resistance : 100M Ω
	500 mV	-50 to 550 mV	10 μ V	0.02 + 0.01	
	5 V	-0.5 to 5.5 V	0.1 mV	0.02 + 0.01	Input Resistance : 1 M Ω
	50 V	-5 to 55 V	1 mV	0.03 + 0.01	
DC Current (mA)	50 mA	-5 to 55 mA	1 μ A	0.02% + 0.01	Shunt Resistance : 10 Ω
Resistance (Ohm)	500 Ω Test current : approx. 1 mA	0 to 550 Ω	0.01 Ω	0.05% + 0.02	Open circuit voltage about 2.5 V Does not include lead resistance
	5 K Ω test current; approx.. 0.1mA	0 to 5.50 K Ω	0.1 Ω	0.05% + 0.02 Ω	
Frequency	500 Hz	3 Hz to 500 Hz	0.01 Hz	± 2 digit	Input Impedance 100K Ω atleast; Sensitivity : 3Vp-p minimum; duty cycle : 50%
	5 KHz	3 Hz to 5 KHz	0.1 Hz		
	50 KHz	3 Hz to 50 KHz	1 Hz		
Thermocouples	R	0 to 1767 $^{\circ}$ C	1 $^{\circ}$ C	0 to 500 $^{\circ}$ C : 1.8 $^{\circ}$ C	By using ITS-90 temperature scale, the Accuracy does not include the error of internal temperature compensation caused by a sensor.
	S	0 to 1767 $^{\circ}$ C		500 to 1767 $^{\circ}$ C : 1.5 $^{\circ}$ C	
	K	-100 to 1372 $^{\circ}$ C	0.1 $^{\circ}$ C	-100 to 0 $^{\circ}$ C : 1.2 $^{\circ}$ C	
				0 to 1372 $^{\circ}$ C : 0.8 $^{\circ}$ C	
	E	-50 to 1000 $^{\circ}$ C		-50 to 0 $^{\circ}$ C : 0.9 $^{\circ}$ C	
				0 to 1000 $^{\circ}$ C : 1.5 $^{\circ}$ C	
	J	-60 to 1200 $^{\circ}$ C		-60 to 0 $^{\circ}$ C : 1 $^{\circ}$ C	
				0 to 1200 $^{\circ}$ C : 0.7 $^{\circ}$ C	
	T	-100 to 400 $^{\circ}$ C		-100 to 0 $^{\circ}$ C : 1 $^{\circ}$ C	
				0 to 400 $^{\circ}$ C : 0.7 $^{\circ}$ C	
	N	-200 to 1300 $^{\circ}$ C	1 $^{\circ}$ C	-200 to 0 $^{\circ}$ C : 1.5 $^{\circ}$ C	
				0 to 1300 $^{\circ}$ C : 0.9 $^{\circ}$ C	
	B	600 to 1820 $^{\circ}$ C	1 $^{\circ}$ C	600 to 800 $^{\circ}$ C : 2.2 $^{\circ}$ C	
				800 to 1000 $^{\circ}$ C : 1.8 $^{\circ}$ C	

Functions	Reference	Ranges	Resolution	Accuracy	Remarks
				1000 to 1820°C : 1.4°C	
RTD	Pt100 385	-200 to 800°C	0.1°C	-200 to 0°C : 0.5°C	By using Pt100-385 does not include lead resistance.
				0 to 400°C : 0.7°C	
				400 to 800°C : 0.8°C	
	Pt1000 385	-200 to 100°C : 0.3°C			
		100 to 300°C : 0.5°C			
		300 to 630°C : 0.7°C			
	Pt200 385	-200 to 630°C		-200 to 100°C : 0.8°C	
				100 to 300°C : 0.9°C	
				300 to 630°C : 1.0°C	
	Pt500 385	-200 to 630°C		-200 to 100°C : 0.4°C	
100 to 300°C : 0.5°C					
300 to 630°C : 0.7°C					
Cu10	-100 to 260°C	1.8°C			
Cu50	-50 to 150°C	0.7°C			
Switch		Close / open			Approx.. 1 mA test current. Short circuit display “Close Open” : OPEN Threshold value about 200 to 300Ω
Continuity	500Ω	<50Ω sound			Approx. 1 mA test current

* Accuracy expressed as Percentage of Reading + Percentage of Range

Output Functions

Functions	Reference	Ranges	Resolution	Accuracy	Remarks
DC Voltage	100 mV	-10 to 110 mV	1 μV	0.02 + 0.01	Max output current 0.5 mA
	1 V	-0.1 to 1.10 V	10 μV	0.02 + 0.01	Max output current 2 mA
	10 V	-1 to 11 V	0.1 mV	0.02 + 0.01	Max output current 5 mA
DC Current	20 mA	0 to 22 mA	1 μA	0.02 + 0.02	External supply for simulate mA : 5V – 28V. Max. load 1KΩ at 20mA
Resistance	400Ω	0 to 400Ω	0.01Ω	0.02 + 0.02	Excitation current : ±0.5 – 3mA; if ±0.1 – 0.5 add 0.1Ω Accuracy does not include lead resistance
	4KΩ	0 to 4KΩ	0.1Ω	0.05 + 0.025	Excitation current : ±0.05 – 0.3mA; does not include lead resistance.
	40KΩ	0 to 40KΩ	1Ω	0.1 + 0.1	Excitation current : ±0.01mA; does not include lead resistance.
Thermocouple	R	0 to 1767°C	1°C	0 to 100°C:1.5°C	By using ITS-90 temperature scale, the accuracy does not include the error internal temperature compensation caused by a sensor.
	S	0 to 1767°C		100 to 1767°C : 1.2°C	
				0 to 100°C : 1.5°C	
	K	-200 to 1372°C		100 to 1767°C : 1.2°C	
				-200 to -100°C : 0.6°C	
				-100 to 400°C : 0.5°C	
				400 to 1200°C : 0.7°C	
				1200 to 1372°C : 0.9°C	
	E	-200 to 1000°C		-200 to -100°C : 0.6°C	
				-100 to 600°C : 0.5°C	
	J	-200 to 1200°C		600 to 1000°C : 0.4°C	
				-200 to -100°C : 0.6°C	
	T	-250 to 400°C		-100 to 800°C : 0.5°C	
				800 to 1200°C : 0.7°C	
N	-200 to 1300°C	-250 to 400°C : 0.6°C			
		-200 to -100°C : 1°C			
B	600 to 1820°C	-100 to 900°C : 0.7°C			
		900 to 1300°C : 0.8°C			
		600 to 800°C : 1.5°C			

Functions	Reference	Ranges	Resolution	Accuracy	Remarks
RTD				800 to 1820°C : 1.1°C	By using Pt100-385 Excitation Current : ±0.5 to ±3 mA for Pt100, Cu10, Cu50; Excitation Current : ±0.05 to ±0.3mA for Pt200, Pt500, Pt1000; does not include lead resistance
	Pt100 385	-200 to 800°C	0.1°C	-200 to 0°C : 0.3°C	
				0 to 400°C : 0.5°C	
				400 to 800°C : 0.8°C	
	Pt200 385	-200 to 630°C		-200 to 100°C : 0.8°C	
				100 to 300°C : 0.9°C	
				300 to 630°C : 1.0°C	
	Pt500 385	-200 to 630°C		-200 to 100°C : 0.4°C	
				100 to 300°C : 0.5°C	
				300 to 630°C : 0.7°C	
	Pt1000 385	-200 to 630°C		-200 to 100°C : 0.2°C	
100 to 300°C : 0.5°C					
300 to 630°C : 0.7°C					
Cu10	-100 to 260°C	1.8°C			
Cu50	-50 to 150°C	0.6°C			
Frequency	100 Hz	1 to 110 Hz	0.01 Hz	±2 count	Output voltage : +1 to 11 Vp-p (zero base waveform); Amplitude Accuracy : ±(5% +0.5V); Maximum load : >100KΩ; Duty cycle : 50%
	1 KHz	0.100 to 1.100 KHz	1 Hz		
	10 KHz	1 to 11 KHz	0.1 KHz		
	100 KHz	1 to 110 KHz	2 KHz	±5 count	
Pulse	100 Hz	1 to 100000 cycles	1 cycle	±2 count	
	1 KHz				
	10 KHz				
Switch	100 Hz	1 Hz to 110 Hz	0.01 Hz	±2 count	FET Switch maximum open/close Voltage : +28V Max. open/close Current : 50mA
	1 KHz	0.100 KHz to 1.100 KHz	1 Hz		
	10 KHz	1 KHz to 11 KHz	0.1 KHz		
	100 KHz	10 KHz to 110 KHz	2 KHz	±5 count	
Loop	24V			±10%	Maximum Current 22 mA Short Circuit Protected

STANDARD INCLUSIONS

- Multifunction Process Calibrator - Nagman 25
- 1.5V x 4 Nos. AAA Alkaline Batteries
- Operation Manual
- Test Leads
- Traceable Calibration Certificate

OPTIONAL (ADD-ON) ITEMS

- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards

Multifunction Process Calibrator

Portable

MFC 40

Portable Instrument in a Hard / Sturdy Carry Case

Basic Accuracy: $\pm 0.025\%$ reading

Capability to Measure & Simulate Voltages, Current, Resistance, Frequency, Thermocouples & RTDs

SALIENT FEATURES

Compact & Portable

Capability to Measure & Simulate DC Voltages, DC Current, Resistance, Thermocouples & RTDs

128 x 64 Graphic Display with backlight

Measurement & Simulation of:

DC Voltages 200 mV, 2000 mV, 20 V

DC Current mA (In) 100 mA & mA (Out) 50 mA

Resistance 500 Ω & 5 K Ω

Thermocouples J, K, T, R, S, B, N

RTDs Pt100, Pt200, Pt500, Pt1000

Frequency 10000 Hz

Reference Junction Compensation :

Internal Automatic : From 0°C to 50°C

External Adjustable : From 0°C to 60°C

In/Out Data Memory : 20 Values can be stored manually

USB Computer Interface : Provided

CE Certified Product

Conforming to EN61010-1, EN61326-1, EN60529

Environment Testing Standards : JSS 5555 : 2000 REV NO. 2

Ingress Protection Rating : IP 55



IP 55
RATED

Typical Photo. Final Product Look May Vary.

SPECIFICATIONS

Table IN-OUT Range

Parameters	Range	Resolution	Accuracy (% reading)
mV (L)	-20 to +200 mV	0.001	$\pm(0.025\% + 3 \mu\text{V})$
mV (H)	-0.200 to +2000 mV	0.01	$\pm(0.025\% + 10 \mu\text{V})$
Volt	-2 to +20V	0.0001	$\pm(0.025\% + 0.1 \text{ mV})$
mA (In)	0 to 25 mA (Passive Loop), 0 to 100mA (Active)	0.0001	$\pm(0.025\% + 0.4 \mu\text{A})$
mA (Out)	4 to 20 mA (Passive Loop), 0 to 20mA (Passive Loop) 0 to 50mA (Active)	0.0001	$\pm(0.025\% + 0.4 \mu\text{A})$
Ohms	1 to 500 Ω	0.001	$\pm(0.025\% + 20 \text{ m}\Omega)$
Kilo Ohms	0.01 to 5K Ω	0.0001	$\pm(0.025\% + 200 \text{ m}\Omega)$
Frequency	100 to 10000Hz	0.1	$\pm(0.025\% + 0.1 \text{ Hz})$
RTD, Pt100	-100 to 850°C	0.01	$\pm(0.025\% + 0.01^\circ\text{C})$
RTD, Pt200	-100 to 850°C	0.1	$\pm(0.025\% + 0.15^\circ\text{C})$
RTD, Pt500	-100 to 530°C	0.1	$\pm(0.025\% + 0.1^\circ\text{C})$
RTD, Pt1000	-100 to 850°C	0.01	$\pm(0.025\% + 0.1^\circ\text{C})$
Thermocouple, J Type	-190 to 1200°C	0.1	$\pm(0.025\% + 0.1^\circ\text{C})$
Thermocouple, K Type	-160 to 1260°C	0.1	$\pm(0.025\% + 0.1^\circ\text{C})$
Thermocouple, T Type	0 to 400°C	0.1	$\pm(0.025\% + 0.1^\circ\text{C})$
Thermocouple, R Type	150 to 1700°C	0.1	$\pm(0.025\% + 0.2^\circ\text{C})$
Thermocouple, S Type	170 to 1700°C	0.1	$\pm(0.025\% + 0.2^\circ\text{C})$
Thermocouple, B Type	920 to 1820°C	0.1	$\pm(0.025\% + 0.3^\circ\text{C})$
Thermocouple, N Type	0 to 1200°C	0.1	$\pm(0.025\% + 0.1^\circ\text{C})$

STANDARD INCLUSIONS

- Multifunction Process Calibrator
- Rechargeable Battery with Power Adaptor
- Operation Manual
- Test Leads
- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards

Instrument Dimension (L x B x H) : 330 x 235 x 125 mm

Instrument Weight : 2.5 Kg. (approx.)

Multifunction Process Calibrator

Portable

PRC 2X

Suitable for Calibration of Thermocouples, RTDs, Thermometers, Transmitters, Indicators, Controllers, Receivers, mA, V, mV, Ohms, Frequency Measuring Instruments etc.

SALIENT FEATURES

Compact, Light Weight Unit with Holster

Capability to Measure & Simulate DC Voltages, DC Current, Frequency, Resistance, Thermocouples & RTDs

Dual Display with White LED Back Light

Capability to Provide 24V Loop supply (24V) & Continuity Test

Simulate Two Wire Transmitter



SPECIFICATIONS

DC VOLTAGE / DC CURRENT/ FREQUENCY MEASURE & SOURCE

Functions	Range	Maximum measurement range	Resolution	Accuracy (% of reading + counts)	Remarks
DC Voltage (Measure)	28V (upper display)	-33V ~ 33V	0.001V	0.025 + 2	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, $\pm 0.005\%FS$ / °C. Input resistance : >1M Ω .
	200mV (upper display)	-80mV ~ 80mV	0.001mV	0.025 + 20	
		-200mV ~ 200mV	0.01mV	0.025 + 2	
	50V (lower display)	-1V ~ 60V	0.001V	0.02 + 2	
	100mV (lower display)	-15mV ~ 80mV	0.001mV	0.02 + 20	
		80mV ~ 125mV	0.01mV	0.02 + 2	
DC Voltage (Source)		-15mV ~ 99.999mV	0.001mV	0.02 + 20	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, $\pm 0.005\%FS$ / °C. Maximum load : 1mA or 1k Ω (It should be based on the lower load.)
	100 mV	100mV ~ 125mV	0.01mV	0.02 + 2	
	10V	0 ~ 11V	0.001V	0.02 + 2	
DC Current mA (Measure)	20mA (upper display)	-24mA ~ 24mA	0.001mA	0.025 + 2	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, $\pm 0.005\%FS$ / °C. Input resistance : <100 Ω .
	20mA (loop of upper display)	0 ~ 24mA	0.001mA	0.025 + 2	
	20mA (lower display)	0 ~ 24mA	0.001mA	0.02 + 2	
DC Current mA (Source)	20mA	0 ~ 24mA	0.001mA	0.02 + 2	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, $\pm 0.005\%FS$ / °C. Maximum load voltage : 20V, equivalent to voltage of 20mA on 1000 Ω load resistance.
	20mA (Transducer simulation)	0 ~ 24mA	0.001mA	0.02 + 2	
Frequency (Measure)	100Hz	1 ~ 99.999Hz	0.001Hz	0.01 + 1	Sensitivity : 10Hz ~ 10kHz, Vp-p $\geq$ 1V; rest : Vp-p $\geq$ 2V. Wave form : Square wave. 5 counting points should be added to errors of other wave forms. Commercial frequency can be measured directly.
	1000Hz	100 ~ 999.99Hz	0.01Hz	0.01 + 1	
	10kHz	1k ~ 9.9999kHz	0.1Hz	0.01 + 1	
	100kHz	10k ~ 99.999kHz	1Hz	0.01 + 1	
Frequency (Source)	200Hz	0 ~ 200Hz	0.01Hz	0.01 + 1	Output amplitude : $\geq$ 4.5Vp-p; Wave form : Square wave
	2000Hz	0 ~ 2000Hz	0.1Hz	0.01 + 1	
	20kHz	0 ~ 20kHz	1Hz	0.01 + 1	

Technical Datasheet

RESISTANCE MEASURE & SOURCE

Functions	Range	Maximum measurement range	Resolution	Accuracy	Remarks
Resistance (Ohm) - UPPER display (Measure)	400Ω	0 ~ 440Ω	0.1Ω	0.05%rdg + 2 count	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, ±0.005%FS / °C. Maximum load voltage : 20V, equivalent to voltage of 20mA on 1000Ω load resistance.
	3200Ω	420Ω ~ 3300Ω	1Ω	0.05%rdg + 2 count	
	On-off test	0 ~ 200Ω	1Ω	0.05%rdg + 1 count	
Resistance (Ohm) - Lower display (Measure)	400Ω	0 ~ 440Ω	0.01Ω	0.15 Ω (2 wire & 0.10 Ω (4 wire)	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, ±0.005%FS / °C. Exciting current during measurement : 400Ω : 0.4mA±10%; 3200Ω : 0.2mA±10%. Two wire : Does not include lead resistance. Three wire : Assumes matched leads with a total resistance not exceeding 25Ω.
	3200Ω	420Ω ~ 3600Ω	0.1Ω	1.0 Ω (2 wire & 0.5 Ω (4 wire)	
Resistance (Source)	400Ω (External exciting current : 0.40mA ~ 3.30mA)	0 ~ 440Ω	0.01Ω	0.15 Ω	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, ±0.005%FS / °C.
	3200Ω (External exciting current : 0.1mA ~ 0.6mA)	400 ~ 3600Ω	0.1Ω	0.50 Ω	

THERMOCOUPLE & RTD - MEASURE & SOURCE

Functions	Range	Resolution	Accuracy °C	Remarks
J	-200°C ~ 0°C 0°C ~ 1200°C	0.1°C	1.0°C 0.7°C	Errors of cold-junction compensation are not included in the table. Accuracy of cold-junction compensation : 1.5°C
K	-200°C ~ 0°C 0°C ~ 1370°C	0.1°C	1.2°C 0.8°C	
T	-200°C ~ 0°C 0°C ~ 400°C	0.1°C	1.2°C 0.8°C	
E	-200°C ~ 0°C 0°C ~ 950°C	0.1°C	0.9°C 0.7°C	
R	-20°C ~ 0°C 0°C ~ 500°C 500°C ~ 1750°C	0.1°C	2.5°C 1.8°C 1.4°C	
S	-20°C ~ 0°C 0°C ~ 500°C 500°C ~ 1750°C	0.1°C	2.5°C 1.8°C 1.5°C	
B	600°C ~ 800°C 800°C ~ 1000°C 1000°C ~ 1800°C	0.1°C	2.2°C 1.8°C 1.4°C	
N	-200°C ~ 0°C 0°C ~ 1300°C	0.1°C	1.5°C 0.9°C	
Pt100	-200°C ~ 850°C	0.1°C	2 / 3 wire : 0.4 4 wire : 0.3 Output : 0.3	As for exciting current during measurement, please refer to resistance measurement function. As for allowable external exciting current during output, please refer to resistance output function. 2 wire : Does not include lead resistance. 3 wire : Assumes matched leads with a total resistance not exceeding 25Ω.
Pt1000	-200°C ~ 650°C	0.1°C	2 / 3 wire : 0.3 4 wire : 0.15 Output : 0.15	
Cu50	-50°C ~ 150°C	0.1°C	2 / 3 wire : 0.8 4 wire : 0.5 Output : 0.5	
Cu100	-50°C ~ 150°C	0.1°C	2 / 3 wire : 0.4 4 wire : 0.25 Output : 0.25	

Technical Datasheet

STANDARD INCLUSIONS

- Multifunction Process Calibrator
- 1.2Vdc "AAA" Rechargeable Battery (6 Nos.) with Power Adaptor (12V / 1A)
- Operation Manual
- Test Leads & Alligator Clips – 2sets
- Carrying Case
- Traceable Calibration Certificate

OPTIONAL

- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards

Multifunction Process Calibrator

Portable

PRC 5X

Suitable for Calibration of Thermocouples, RTDs, Thermometers, Transmitters, Indicators, Controllers, Receivers, mA, V, mV, Ohms, Frequency Measuring Instruments etc.

SALIENT FEATURES

Compact, Light Weight Unit with Holster

Capability to Measure & Simulate DC Voltages, DC Current, Frequency, Resistance, Thermocouples & RTDs

Dual Display with White LED Back Light

Capability to Provide 24V Loop supply (24V) & Continuity Test

Simulate Two Wire Transmitter



SPECIFICATIONS

DC VOLTAGE / DC CURRENT/ FREQUENCY MEASURE & SOURCE

Functions	Range	Maximum measurement range	Resolution	Accuracy (% of reading + counts)	Remarks
DC Voltage (Measure)	28V (upper display)	-33V ~ 33V	0.001V	0.05 + 2	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, $\pm 0.005\%FS / ^\circ C$. Input resistance : $>1M\Omega$.
	200mV (upper display)	-80mV ~ 80mV	0.001mV	0.05 + 20	
		-200mV ~ 200mV	0.01mV	0.05 + 2	
	50V (lower display)	-1V ~ 60V	0.001V	0.05 + 2	
	100mV (lower display)	-15mV ~ 80mV	0.001mV	0.05 + 20	
DC Voltage (Source)		80mV ~ 125mV	0.01mV	0.05 + 2	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, $\pm 0.005\%FS / ^\circ C$. Maximum load : 1mA or 1k Ω (It should be based on the lower load.)
	100 mV	-15mV ~ 99.999mV	0.001mV	0.05 + 20	
	10V	100mV ~ 125mV	0.01mV	0.05 + 2	
DC Current mA (Measure)	20mA (upper display)	0 ~ 11V	0.001V	0.05 + 2	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, $\pm 0.005\%FS / ^\circ C$. Input resistance : $<100\Omega$.
	20mA (loop of upper display)	0 ~ 24mA	0.001mA	0.05 + 2	
	20mA (lower display)	0 ~ 24mA	0.001mA	0.05 + 2	
DC Current mA (Source)	20mA	0 ~ 24mA	0.001mA	0.05 + 2	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, $\pm 0.005\%FS / ^\circ C$. Maximum load voltage : 20V, equivalent to voltage of 20mA on 1000 Ω load resistance.
	20mA (Transducer simulation)	0 ~ 24mA	0.001mA	0.05 + 2	
Frequency (Measure)	100Hz	1 ~ 99.999Hz	0.001Hz	0.02 + 1	Sensitivity : 10Hz ~ 10kHz, $V_p-p \geq 1V$; rest : $V_p-p \geq 2V$. Wave form : Square wave. 5 counting points should be added to errors of other wave forms. Commercial frequency can be measured directly.
	1000Hz	100 ~ 999.99Hz	0.01Hz	0.02 + 1	
	10kHz	1k ~ 9.9999kHz	0.1Hz	0.02 + 1	
	100kHz	10k ~ 99.999kHz	1Hz	0.02 + 1	
Frequency (Source)	200Hz	0 ~ 200Hz	0.01Hz	0.02 + 1	Output amplitude : $\geq 4.5V_p-p$; Wave form : Square wave
	2000Hz	0 ~ 2000Hz	0.1Hz	0.02 + 1	
	20kHz	0 ~ 20kHz	1Hz	0.02 + 1	

Technical Datasheet

RESISTANCE MEASURE & SOURCE

Functions	Range	Maximum measurement range	Resolution	Accuracy	Remarks
Resistance (Ohm) - UPPER display (Measure)	400Ω	0 ~ 440Ω	0.1Ω	0.05%rdg + 2 count	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, ±0.005%FS / °C. Maximum load voltage : 20V, equivalent to voltage of 20mA on 1000Ω load resistance.
	3200Ω	420Ω ~ 3300Ω	1Ω	0.05%rdg + 2 count	
	On-off test	0 ~ 200Ω	1Ω	0.05%rdg + 1 count	
Resistance (Ohm) - Lower display (Measure)	400Ω	0 ~ 440Ω	0.01Ω	0.25 Ω (2 wire & 0.15 Ω (4 wire)	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, ±0.005%FS / °C. Exciting current during measurement : 400Ω : 0.4mA±10%; 3200Ω : 0.2mA±10%. Two wire : Does not include lead resistance. Three wire : Assumes matched leads with a total resistance not exceeding 25Ω.
	3200Ω	420Ω ~ 3600Ω	0.1Ω	1.5 Ω (2 wire & 1.0 Ω (4 wire)	
Resistance (Source)	400Ω (External exciting current : 0.40mA ~ 3.30mA)	0 ~ 440Ω	0.01Ω	0.25 Ω	-10°C ~ 18°C, + 28°C ~ 55°C temperature coefficient, ±0.005%FS / °C.
	3200Ω (External exciting current : 0.1mA ~ 0.6mA)	400 ~ 3600Ω	0.1Ω	1.0 Ω	

THERMOCOUPLE & RTD - MEASURE & SOURCE

Functions	Range	Resolution	Accuracy °C	Remarks
J	-200°C ~ 0°C 0°C ~ 1200°C	0.1°C	1.5°C 1.0°C	Errors of cold-junction compensation are not included in the table. Accuracy of cold-junction compensation : 1.5°C
K	-200°C ~ 0°C 0°C ~ 1370°C	0.1°C	1.8°C 1.2°C	
T	-200°C ~ 0°C 0°C ~ 400°C	0.1°C	1.8°C 1.2°C	
E	-200°C ~ 0°C 0°C ~ 950°C	0.1°C	1.5°C 1.0°C	
R	-20°C ~ 0°C 0°C ~ 500°C 500°C ~ 1750°C	0.1°C	4°C 2.5°C 2°C	
S	-20°C ~ 0°C 0°C ~ 500°C 500°C ~ 1750°C	0.1°C	4°C 2.5°C 2°C	
B	600°C ~ 800°C 800°C ~ 1000°C 1000°C ~ 1800°C	0.1°C	3.5°C 2.5°C 2°C	
N	-200°C ~ 0°C 0°C ~ 1300°C	0.1°C	2.0°C 1.2°C	
Pt100	-200°C ~ 850°C	0.1°C	2 / 3 wire : 0.7 4 wire : 0.4 Output : 0.7	As for exciting current during measurement, please refer to resistance measurement function. As for allowable external exciting current during output, please refer to resistance output function. 2 wire : Does not include lead resistance. 3 wire : Assumes matched leads with a total resistance not exceeding 25Ω.
Pt1000	-200°C ~ 650°C	0.1°C	2 / 3 wire : 0.4 4 wire : 0.3 Output : 0.3	
Cu50	-50°C ~ 150°C	0.1°C	2 / 3 wire : 1.2 4 wire : 0.8 Output : 0.8	
Cu100	-50°C ~ 150°C	0.1°C	2 / 3 wire : 0.7 4 wire : 0.4 Output : 0.4	

Technical Datasheet

STANDARD INCLUSIONS

- Multifunction Process Calibrator
- 1.2Vdc "AAA" Rechargeable Battery (6 Nos.) with Power Adaptor (12V / 1A)
- Operation Manual
- Test Leads & Alligator Clips – 2sets
- Carrying Case
- Traceable Calibration Certificate

OPTIONAL

- Calibration Certificates are issued in Accordance with our Scope as granted by NABL per ISO/IEC 17025:2017 Standards

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