

Combination Calibrator

Nagman Combination Calibrators

Suitable for Lab / Field Use

Basic Accuracy : ±0.05%

**Capability to Measure & Simulate
Thermocouples, RTDs, Resistance, mA & V Readings**

Model : Combical 235

- Combination of Thermocouple, RTD & Loop Calibrators in a sleek leather carrying case with shoulder strap for easy Transportation
- Selectable Temperature Output Readings (in °C / °F)
- Measurement & Simulation of
 - Thermocouple Types R, S, B, E, K, J, T & N
 - RTD Types : Pt 100 : -200 to 850°C
Cu 50 : -50 to 150°C
 - Resistance : 400 Ω
 - Voltage (100 mV) & Current (20 mA)
- Capability to provide Loop Supply (24V) for Transmitters



STANDARD DELIVERY

- Combination Calibrators – Combical 235
- Alkaline Batteries
- Operation Manual
- Test Leads
- Leather Carry Case
- Test Certificate

OPTIONAL

- NABL Traceable Calibration Certificate

Product of

NAGMAN INSTRUMENTS & ELECTRONICS (P) LTD.

- Comprehensive Calibration Solutions (Standards / Systems / Packages / Software / Services)
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PHYSICAL SPECIFICATIONS

Thermocouple

OUTPUT FUNCTIONS

Output	Ranges / Types	Output Range	Resolution	Accuracy	Remarks
Voltage	100 mV	-10.00 to 110.00 mV	0.01 mV	$\pm 0.05\%$ setting value + 30 μ V	Max. output current ± 5 mA
	1000 mV	-100.00 to 1100.0 mV	0.1 mV	$\pm 0.05\%$ setting value + 0.3 mV	
Thermocouple	R	-40 to 1760°C	1°C	$\pm 0.05\%$ setting value $\pm 3^\circ\text{C}$ ($\leq 100^\circ\text{C}$)	ITS-90
	S	-20 to 1760°C	1°C	$\pm 0.05\%$ setting value $\pm 2^\circ\text{C}$ ($> 100^\circ\text{C}$)	
	B	400 to 1800°C	1°C	$\pm 0.05\%$ setting value $\pm 3^\circ\text{C}$ (400 to 600°C) $\pm 0.05\%$ setting value $\pm 2^\circ\text{C}$ ($> 600^\circ\text{C}$)	
	E	-200 to 1000°C	0.1°C	$\pm 0.05\%$ setting value $\pm 2^\circ\text{C}$ ($\leq 100^\circ\text{C}$) $\pm 0.05\%$ setting value $\pm 1^\circ\text{C}$ ($> -100^\circ\text{C}$)	
	K	-200 to 1370°C	0.1°C		
	J	-200 to 1200°C	0.1°C		
	T	-200 to 400°C	0.1°C		
	N	-200 to 1300°C	0.1°C		

MEASURING FUNCTIONS

Input	Ranges / Types	Input Range	Resolution	Accuracy	Remarks
Voltage	100 mV	-10.00 to 110.00 mV	0.10 μ V	$\pm 0.05\%$ setting value + 30 μ V	Input Impedance 1M Ω
Thermocouple	R	-40 to 1760°C	1°C	$\pm 0.05\%$ Measuring value $\pm 3^\circ\text{C}$ ($\leq 100^\circ\text{C}$)	Input Impedance 1M Ω ITS-90
	S	-20 to 1760°C	1°C	$\pm 0.05\%$ Measuring value $\pm 2^\circ\text{C}$ ($> 100^\circ\text{C}$)	
	B	400 to 1800°C	1°C	$\pm 0.05\%$ Measuring value $\pm 3^\circ\text{C}$ (400 to 600°C) $\pm 0.05\%$ Setting value $\pm 2^\circ\text{C}$ ($> 600^\circ\text{C}$)	
	E	-200 to 1000°C	0.1°C	$\pm 0.05\%$ Measuring value $\pm 2^\circ\text{C}$ ($\leq -100^\circ\text{C}$) $\pm 0.05\%$ Measuring value $\pm 1^\circ\text{C}$ ($> -100^\circ\text{C}$)	
	K	-200 to 1370°C	0.1°C		
	J	-200 to 1200°C	0.1°C		
	T	-200 to 400°C	0.1°C		
	N	-200 to 1300°C	0.1°C		

RTD

MEASURING FUNCTIONS

Input	Ranges / Types	Input Range	Resolution	Accuracy	Remarks
Resistance	400Ω	0 to 450Ω	0.1 Ω	±0.05% Setting value ±0.2Ω	Measuring Current 1 mA
RTD	Pt100	-200 to 850°C	0.1°C	±0.05% Setting value ±0.6°C	1 mA exciting Current use Pt 100–385
	Cu50	-50 to 150°C	0.1°C		Measuring current 1 mA
					1 mA exciting Current

OUTPUT FUNCTIONS

Output	Ranges / Types	Output Range	Resolution	Accuracy	Remarks
Resistance	400Ω	0 to 400Ω	0.1Ω	±0.05% Setting Value ±0.2Ω	±1 mA exciting Current
RTD	Pt100	-200 to 850°C	0.1°C	%0.05% Setting value ±0.6°C	±1mA exciting Current use Pt100- 385
	Cu50	-50 to 150°C	0.1°C		±1 mA exciting Current

mA & V

MEASURING FUNCTIONS

Input	Ranges / Types	Input Range	Resolution	Accuracy	Remarks
Voltage	28 V	-0.2 to 28 V	1 mV	±0.02% reading ±2 mV	Input Impedance 2 MΩ
Current	20 mA	-1 to 22 mA	0.001 mA	±0.02% reading ±4 μA	Input Impedance 20 MΩ
Loop Current	20 mA	0 to 22 mA	0.001 mA	±0.02% reading ±4 μA	Supply 24 V Loop Power

OUTPUT FUNCTIONS

Output	Ranges / Types	Output Range	Resolution	Accuracy	Remarks
Current	20 mA	0 to 22 mA	0.001 mA	±0.05% Setting value ±4 μA	20 mA, maximum overload is 1 kΩ
Analog Transducer	-20 mA	0 to 22 mA	0.001 mA	±0.05% Setting value ±4 μA	20 mA, maximum overload is 1 kΩ
Loop Power	24 V			±10%	Maximum Output Current 25 mA