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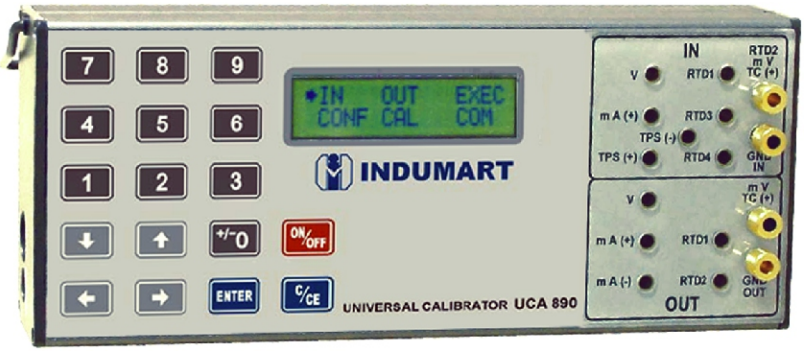
Universal Calibrator

Model: UCA890



- HIGH ACCURACY
- LONG-TERM STABILITY
- HIGH-SIZE MEMORY
- DUAL 6-DIGIT CRYSTAL DISPLAY
- RS-232 SERIAL COMMUNICATION
- MEASURES mA, mV, VOLT, T/C, RTD & OHM
- GENERATES mA, mV, Volts, T/C, RTD & OHM
- SIMULTANEOUS INPUT & OUTPUT OPERATIONS
- INPUTS ARE FULLY ISOLATED FROM OUTPUTS
- EXTERNAL AND INTERNAL 24 VDC POWER SUPPLY
- INPUTS & OUTPUTS CAN BE SCALED IN ENGINEERING UNITS
- AUTOMATIC OR MANUAL CJ COMPENSATION
- RAMP PROGRAMMING
- PROGRAMMABLE SIGNAL CONVERTER FUNCTION
- STEP PROGRAMMING TO PRODUCE 11 FIXED OUTPUTS FOR QUICK CALIBRATION
- SOFTWARE TO PROVIDE COMPUTER AIDED CALIBRATION SYSTEM (OPTION)
- RECHARGEABLE BATTERY & A CHARGER
- CARRYING CASE

0.02% ACCURACY

INTRODUCTION

The UCA890 Universal Calibrator is the ideal tool for instrument calibrations. High accuracy, excellent stability over a long-term use and having consistency in temperature changes make the UCA890 a very reliable instrument for calibration applications.

The UCA890 provides simultaneous input and output operations by enabling independent measurement and simulation of most common process signals. It provides both internal and external 24 VDC supply of power; essential for calibration of loop-powerd transmitters. Ramp and step programming features of the UCA890 allow fixed outputs for quick calibration. A high-size memory along with RS-232 serial communication are designed to store and later upload the obtained values to a computer.

The optional SCA850 software maybe ordered for the management all calibration information and for producing statistical analysis of the data and calibration reports. It allows data handling through report and certificate issuing, automatic management of tasks, registration of process instrument, organization and storage of data for an overall coverage of quality procedure requirements, especially those related to ISO 9000.

With a high contrast and adjustable liquid crystal display, viewing in poor lighting condition is not a problem any more. The UCA890 is built for on-field applications, as well as laboratory usage. Rechargeable batteries are built into the calibrator, and the unit is supplied with a charger, a carrying case and connection cables.

INPUT & OUTPUT SPECIFICATIONS

Input	Range	Resolution	Accuracy	Remarks
mV	-150...150 mV	0.001 mV	0.01% FS	R_{input} 10MΩ
	-500...-150 mV	0.01 mV	0.02% FS	auto-ranging
	150...2450 mV	0.01 mV	0.02% FS	
Volt	-10...11 V	0.0001 V	0.02% FS	R_{input} 1MΩ
	11...45 V	0.0001 V	0.02% FS	
mA	-5...24.5 mA	0.0001 mA	0.02% FS	R_{input} = 100 R
Resistance	0...2500 Ω	0.01Ω	0.008% FS	0.9 mA Excitation
Pt-100	-200...850°C/-328...1562°F	0.01°C or °F	0.2°C/0.4°F	IEC 751
Pt-1000	-200...400°C/-328...752°F	0.1°C or °F	0.1°C/0.2°F	IEC 751
Cu-10	-200...260°C/-328...500°F	0.1°C or °F	2.0°C/4.0°F	Minco 16-9
Ni-100	-60...250°C/-76...482°F	0.1C or °F	0.2°C/0.4°F	DIN 43760
TC-J	-210...1200°C/-346...2192°F	0.1°C or °F	0.2°C/0.4°F	IEC 584
TC-K	-270...-150°C/-454...-238°F	0.1°C or °F	0.5°C/1.0°F	IEC 584
	-150...1370°C/-238...2498°F	0.1°C or °F	0.2°C/0.4°F	IEC 584
TC-T	-260...-200°C/-436...-328°F	0.1°C or °F	0.6°C/1.2°F	IEC 584
	-200...-75°C/-328...-103°F	0.1°C or °F	0.4°C/0.8°F	IEC 584
	-75...400°C/-103...752°F	0.1°C or °F	0.2°C/0.4°F	IEC 584
TC-B	50...250°C/122...482°F	0.1°C or °F	2.5°C/ 5.0°F	IEC 584
	250...500°C/482...932°F	0.1°C or °F	1.5°C/ 3.0°F	IEC 584
	500...1200°C/932...2192°F	0.1°C or °F	1.0°C/ 2.0°F	IEC 584
	1200...1820°C/2192...3308°F	0.1°C or °F	0.7°C/1.4°F	IEC 584
TC-R	-50...300°C/-58...572°F	0.1°C or °F	1.0°C/2.0°F	IEC 584
	300...1760°C/572...3200°F	0.1°C or °F	0.7°C/1.4°F	IEC 584
TC-S	-50...300°C/-58...572°F	0.1°C or °F	1.0°C/2.0°F	IEC 584
	300...1760°C/572...3200°F	0.1°C or °F	0.7°C/1.4°F	IEC 584
TC-E	-270...-150°C/-454...-238°F	0.1°C or °F	0.3°C/0.6°F	IEC 584
	-150...1000°C/-238...1832°F	0.1°C or °F	0.1°C/0.2°F	IEC 584
TC-N	-260...-200°C/-436...-328°F	0.1°C or °F	1.0°C/2.0°F	IEC 584
	-200...-20°C/-328...-4°F	0.1°C or °F	0.4°C/0.8°F	IEC584
	-20...1300°C/-4...2372°F	0.1°C or °F	0.2°C/0.4°F	IEC 584
TC-L	-200...900°C/-328...1652°F	0.1°C or °F	0.2°C/0.4°F	DIN 43710
TC-C	0...1500°C/32...2732°F	0.1°C or °F	0.5°C/1.0°F	W5Re/W26Re
	1500...2320°C/2732...4208°F	0.1°C or °F	0.7°C/1.4°F	W5Re/W26Re

Output	Range	Resolution	Accuracy	Remarks
mV	-15...75 mV	0.001 mV	0.02% FS	R_{out} < 0.3Ω
Volt	-1...11V	0.0001 V	0.02% FS	R_{out} < 0.3Ω
mA	0...24mA	0.0001 mA	0.02% FS	R_{max} = 700Ω
2-wire Trans.	4...24mA	0.0001 mA	0.02% FS	V_{max} = 60V
Resistance	0...2,500Ω	0.01Ω	0.008% FS	Ext. excit.1.0 mA
Pt-100	-200...850°C/-328...1562°F	0.01°C or °F	0.2°C/0.4°F	IEC 751
P1-000	-200...400°C/-328...752°F	0.1°C or °F	0.1°C/0.2°F	IEC 751
Cu-10	-200...260°C/-328...500°F	0.1°C or °F	2.0°C/4.0°F	Minco 16-9
Ni-100	-60...250°C/-76...482°F	0.1°C or °F	0.2°C/0.4°F	DIN 43760
TC-J	-210...1200°C/-346...2192°F	0.1°C or °F	0.4°C/0.8°F	IEC 584
TC-K	-270...-150°C/-454...-238°F	0.1°C or °F	1.0°C/2.0°F	IEC 584
	-150...1370°C/-238...2498°F	0.1°C or °F	0.4°C/0.8°F	IEC 584
TC-T	-260...-200°C/-436...-328°F	0.1°C or °F	1.2°C/2.4°F	IEC 584
	-200...-75°C/-328...-103°F	0.1°C or °F	0.8°C/1.6°F	IEC 584
	-75...400°C/-103...752°F	0.1°C or °F	0.4°C/0.8°F	IEC 584
TC-B	50...250°C/122...482°F	0.1°C or °F	5.0°C/10.0°F	IEC 584
	250...500°C/482...932°F	0.1°C or °F	3.0°C/6.0°F	IEC 584
	500...1200°C/932...2192°F	0.1°C or °F	2.0°C/4.0°F	IEC 584
	1200...1820°C/2192...3308°F	0.1°C or °F	1.4°C/2.8°F	IEC 584
TC-R	-50...300°C/-58...572°F	0.1°C or °F	2.0°C/4.0°F	IEC 584
	300...1760°C/572...3200°F	0.1°C or °F	1.4°C/2.8°F	IEC 584
TC-S	-50...300°C/-58...572°F	0.1°C or °F	2.0°C/4.0°F	IEC 584
	300...1760°C/572...3200°F	0.1°C or °F	1.4°C/2.8°F	IEC 584
TC-E	-270...-150°C/-454...-238°F	0.1°C or °F	0.6°C/1.2°F	IEC 584
	-150...1000°C/-238...1832°F	0.1°C or °F	0.2°C/0.4°F	IEC 584
TC-N	-260...-200°C/-436...-328°F	0.1°C or °F	2.0°C/4.0°F	IEC 584
	-200...-20°C/-328...-4°F	0.1°C or °F	0.8°C/1.6°F	IEC 584
	-20...1300°C/-4...2372°F	0.1°C or °F	0.4°C/0.8°F	IEC 584
TC-L	-200...900°C/-328...1652°F	0.1°C or °F	0.4°C/0.8°F	DIN 43710
TC-C	0...1500°C/32...2732°F	0.1°C or °F	1.0°C/2.0°F	W5Re/W26Re
	1500...2320°C/2732...4208°F	0.1°C or °F	1.4°C/2.8°F	W5Re/W26Re

Thermal stability is 0.001% FS/°C. Reference temperature is 23°C.
For the thermocouples, cold junction compensation error is ±0.2°C.

GENERAL SPECIFICATIONS

- Measures 2, 3 and 4-wire RTDs, types J, K, T, B, R, S, E, N & L thermocouples in °C and °F, ohm, mA, mV, volt and frequency.
- Dual 6-digit Liquid Crystal Display (LCD).
- Transmitter Power Supply: 24 VDC, 22 mA.
- 50 VDC In/Out Isolation.
- Operating Temperature Range: 0 to 50°C. Humidity: 0 to 90% RH.
- Nickel-Metal Hydride (Ni-MH) Rechargeable Batteries; for 2 to 10 hours of operation, depending on the function used.
- RS-232 Serial Communication.
- Includes Carrying Case, Test Leads, Banana Plugs, Battery Charger, Spare Fuse, both quick and detailed Instruction Manuals.
- Optional Certificate of Calibration.
- Dimensions: 91 mm (H), 213 mm (W), 44 mm (D).
- Weight: 1.0 kg.

Programmable Output

1) Step: 10%, 20%, 25% or up to 11 programmable set-points via key or adjustable time.

2) Ramp: up and down with programmable travel and dwell time.

Special Functions

1) Cal: scales the input in the same unit of output (easy to compare errors at the input and output).

2) Conv: converts any input into any output, galvanically isolated (acts as a real transmitter).

MEM Command

Stores up to 8 types of configurations chosen by the user.

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