

ConST 316 Multifunction Temperature Calibrator



DESCRIPTION

An innovative multifunctional calibrator, the ConST316 multifunction temperature calibrators contains powerful task management function. The ConST316 series multifunction calibrators are customized for the calibration of thermodynamic instruments, DCS system. The calibrator can not only source current, voltage, resistance, frequency, and pulse, but also simulate the electrical signal output of thermocouple and thermal resistor. The calibrator let you measure current, voltage, resistance, frequency, pulse and On-Off. When connected to thermocouple and thermal resistor, high precision temperature measurement is available.

APPLICATIONS

ConST 316 thermocouple/RTD calibrator is a process tool for measuring, sourcing and simulating mA, mV, V, RTDs, thermocouples, ohms, frequency and pulse, captures switch values and provides 24 V loop power.

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|---|--|
| > Electrical <ul style="list-style-type: none">• Resistance measurement / simulation• Voltage measurement / generation• Current measurement / generation• Frequency measurement / generation• Pulse counting/generation• 24 VDC loop supply• Switch sensing | > Temperature <ul style="list-style-type: none">• RTD measurement /simulation• TC measurement /simulation |
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FEATURES

- > Sourcing, simulating and measuring temperature and electrical signals
 - Source and measure mV, mA, ohms, RTDs, TCs, Hz, and pulses
 - Simulate and measure 8 TCs, 4RTDs, and pressure to calibrate transmitters
 - 24V loop power supply
 - Simultaneous dual reading capability
 - Automatic switch test and pressure leak test
 - Support square root transmitter
 - Pulse frequency output for the calibration of flow totalizer

- > Calibrated cold junction compensation (Patented)
 - Cold junction equivalent block in the calibrator
 - A calibrated PRT element with flexible leads is installed in the equivalent block for thermocouple cold junction compensation
 - This PRT element can be pulled out from the calibrator and re-calibrated and corrected at ice point easily
- > Built-in temperature readout
CVD coefficients of a calibrated PRT can be input into the calibrator for accurate temperature measurement.
- > Documenting and automated procedure capability
 - Manage the information of the device under test
 - Set up automated calibration procedures, and CONST316A performs the test, calculates the errors, displays and/or stores the results in the memory, and highlights the tolerance points.
 - Create as-found/as-left procedures, record and document results for quality control.
 - Download tasks and upload the results
 - Capture and save a screenshot
- > Display
3.5 inch TFT color screen
- > Rugged design for harsh environments,
passed a 1-meter drop test.
- > Misuse protection
Up to 30V voltage on any two sockets and up to 1A current on current sockets will not damage the calibrator, and the calibrator will return to normal condition as soon as the voltage or current is removed.
- > Rechargeable and replaceable battery
 - Rechargeable Li-ion battery for 15 hours uninterrupted use.
 - Battery life will be reduced when 24V is applied.
 - The rechargeable battery is replaceable.

SPECIFICATION

- > Working environment
Operating Temperature: (-10~50) °C;
Storage Temperature: (-20~60) °C;
Relative humidity: < 90%, non-condensation;
- > Battery
Power: Polymer Li-ion rechargeable battery, or 10V AC adapter
Battery: Polymer Li-ion rechargeable battery (included)
Battery Life: 15 hours (it will be reduced when 24v is applied)
Battery Charge: 110V/220V external power adapter (included)
- > Mechanical parameter
Display: 3.5 high resolutions TFT color screen.
Electrical connection: 4mm sockets and flat mini-jack TC socket.
RS232 interface: standard RS232-DB9 socket;
Size: 192mm x 100mm x52mm; Weight: 0.7kg.

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> Electrical signals measurement

Signals	Range	Resolution	Accuracy
mV	(-75.0000~75.0000)mV	0.1 μ V	0.01%RD+0.005%FS
V	(-30.0000~30.0000)V	0.1 mV	0.01%RD+0.005%FS
mA	(-30.0000~30.0000)mA	0.1 μ A	0.01%RD+0.005%FS
R-2W	(0~400.000) Ω	1 m Ω	0.02%RD+0.005%FS
R-3W	(0~400.000) Ω	1 m Ω	0.02%RD+0.005%FS
R-4W	(0~400.000) Ω	1 m Ω	0.01%RD+0.005%FS
Hz	(1~50000.0)Hz	0.1Hz	0.005%RD+0.002%FS
Pulse	0~999999	1	N/A
Switch	The switch detective voltage range is from +3V to +24V		

> Electrical signals sourcing

Signals	Range	Resolution	Accuracy
mV	(-10.000~75.000)mV	1 μ V	0.02%RD+0.005%FS
V	(0~12.0000)V	0.1 mV	0.02%RD+0.005%FS
mA	(0~22.000)mA	1 μ A	0.02%RD+0.005%FS
R	(1~400.00) Ω	10 m Ω	0.02%RD+0.005%FS
Hz	(0~50000.0)Hz	0.1 Hz	0.005%RD+0.002%FS
Pulse	0~999999	1	N/A
DC24V	N/A	N/A	0.5V

> The Accuracy of Thermal Couple (TC)





Type	Standard	Temperature Range(°C)	Accuracy (°C)		
			Measure	Source	
S	IEC584	-50 ~1768	-50~400	1.0	1.1
			400~1000	0.6	0.6
			1000~1768	0.7	0.8
R	IEC584	-50 ~1768	-50~200	1.4	1.4
			200~500	0.6	0.6
			500~1768.1	0.6	0.7
B	IEC584	0 ~1820	50~450	3.8	3.8
			450~800	0.9	0.9
			800~1820	0.7	0.7
K	IEC584	-270 ~1372	-250 ~ -200	1.0	1.1
			-200 ~ -100	0.4	0.5
			-100~600	0.3	0.3
			600~1372	0.4	0.5
N	IEC584	-270 ~1300	-250~-200	1.5	1.6
			-200 ~ -100	0.5	0.6
			-100~1300	0.4	0.5
E	IEC584	-270 ~1000	-250~-200	0.6	0.7
			-200~-100	0.3	0.3
			-100~0	0.2	0.2
			0~700	0.2	0.3
J	IEC584	-270 ~1200	700~1000	0.2	0.4
			-210~ -100	0.3	0.3
			-100~1200	0.3	0.4
T	IEC584	-270 ~400	-250~-200	0.8	0.9
			-200~-0	0.4	0.4
			0~400	0.2	0.2

> RTD Measurement and Source Accuracy

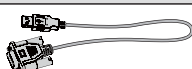


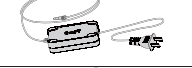

Measure/ Simulate	Standard	Temperature Range(°C)		Accuracy (°C)		
				Measure. 2W/ 3W	Measure. 4W	Source
Pt10(385)	IEC 751	-200~850	-100~200	0.65	0.60	0.65
			200~600	0.82	0.72	0.82
			600~850	0.96	0.82	0.96
Pt100 (385)	IEC 751	-200~850	-100~200	0.15	0.1	0.15
			200~600	0.26	0.16	0.26
			600~850	0.34	0.20	0.34
Cu50 (385)	IEC 751	-50~150	-50~150	0.17	0.13	0.17
Cu100 (385)	IEC 751	-50~150	-50~150	0.12	0.09	0.12

ORDERING INFORMATION

> Standard Accessories (Included)

10V/220v external power adapter	1pc	
Chargeable Li-ion Battery	1pc	
Test Leads	6pcs	
Short Circuit Cable	2pcs	

> Optional Accessories (1pc)

Model #	Description	Picture
9050	USB to RS232 (DB-9 Male) adapter	
9080	Cold junction compensation kits	
9712	Spare chargeable Li-ion battery for multifunction calibrator	
9816	110V/220V external power adapter for multifunction calibrator	
9906	Carrying case for multifunction calibrator	
9816	Task Management Software for MF	