

CONST 318 Intelligent Process Calibrator



DESCRIPTION

A highly integrated multifunction calibrator featuring several patented technologies, CONST318 is an ultra-compact, rugged, and ease-to-use hand-held device for sourcing, simulating and measuring pressure, temperature, and electrical signals. Its smartphone-like menu and interface make the operation simpler and easier. With HART communication capability, CONST318 is ideal for calibrating, maintaining, and troubleshooting HART instrumentation. Automation and documentation capabilities make the CONST318 a turnkey solution.

APPLICATIONS

CONST318 multifunction calibrator is a process tool for measuring, sourcing and simulating mA, mV, V, RTDs, thermocouples, ohms, frequency, pulses and pressure, captures switch values and provides 24 V loop power.

- Electrical
 - Resistance measurement / simulation
 - Voltage measurement / generation
 - Current measurement /generation
 - Frequency measurement / generation
 - Pulse counting/generation
 - 24 VDC loop supply
 - Switch sensing
- Temperature
 - RTD measurement /simulation
 - TC measurement /simulation
- Pressure
 - Gauge pressure measurement
 - Absolute pressure measurement

FEATURES

- Sourcing, simulating and measuring pressure, temperature and electrical signals
 - Source and measure mV, mA, ohms, RTDs, TCs, Hz, and pulses
 - Simulate and measure 8 TCs, 4 RTDs, and pressure to calibrate transmitters
 - Measure and source pressure using Pressure Modules from -1 bar to 700 bar
 - 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
- Built-in temperature readout
 - CVD coefficients of a calibrated PRT can be input into the calibrator for accurate temperature measurement.

- 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
- Documenting and automated procedure capability
 - Manage the information of the device under test
 - Set up automated calibration procedures, and CONST318 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
- Hart Communication capability: Support HART® instrumentation
- Display: 3.5 inch TFT color screen
- Rugged design for harsh environments, passed a 1-meter drop test
- 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.
- 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.

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.
 - Pressure connection: external pressure module connection
 - RS232 interface: standard RS232-DB9 socket;
 - Size: 192mm x 100mm x52mm; Weight: 0.7kg.
- Pressure Specification
 - CDP series Intelligent Digital Pressure Modules are available for gauge, vacuum and absolute pressure from -15 psi to 10,000 psi (-1 bar to 700 bar). Accuracy from 0.025% FS includes operation over 14°F to 122°F (-10°C to 50°C), one year stability and calibration uncertainty. For detail specification refer to pressure modules datasheet.

ConST 318 Intelligent Process Calibrator Model

> 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)



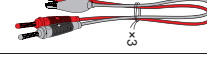

Type	Standard	Temperature Range(°C)	Accuracy (°C)		
			Measure	Source	
S	IEC584	-50 ~1768	-50~400	1.0	1.1
			400~1000	0.6	0.6
			1000~1768	0.7	0.8
R	IEC584	-50 ~1768	-50~200	1.4	1.4
			200~500	0.6	0.6
			500~1768.1	0.6	0.7
B	IEC584	0 ~1820	50~450	3.8	3.8
			450~800	0.9	0.9
			800~1820	0.7	0.7
K	IEC584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

> RTD Measurement and Source Accuracy


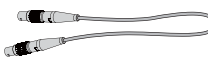
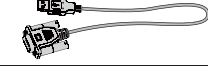
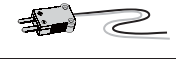



Measure/Simulate	Standard	Temperature Range(°C)	Accuracy (°C)			
			Measure. 2W/ 3W	Measure. 4W	Source	
Pt10(385)	IEC 751	-200~850	-100~200	0.65	0.60	0.65
			200~600	0.82	0.72	0.82
			600~850	0.96	0.82	0.96
Pt100 (385)	IEC 751	-200~850	-100~200	0.15	0.1	0.15
			200~600	0.26	0.16	0.26
			600~850	0.34	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
CDP	External Pressure Module	
9060	Pressure connection Cable	
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	