FLUKE®

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Fluke Temperature Calibrators

Technical Data

Fluke 724 Temperature Calibrator

Test temperature sensors and transmitters and gauges with one tool

Now you can carry one tool to test all temperature sensors and transmitters in your plant. The Fluke 724 can measure and source 12 thermocouple types and seven RTD types, plus volts and ohms. The 724 even handles high-speed pulsed RTD circuits and provides loop power.

The dual display lets you source temperature and view loop current at the same time. With its simple, "no menus" controls, it is easy to operate, too.

- Easy to read dual display lets you view input and output simultaneously
- Measure RTDs, thermocouples, ohms, and volts to test sensors and transmitters
- Source/simulate thermocouples, RTDs, volts, and ohms to calibrate transmitters
- Perform fast linearity tests with 25 % and 100 % steps
- Execute remote tests with auto step and auto ramp
- Power transmitters during test using loop power supply with simultaneous mA measurement
- Store frequently-used test setups for later use
- Backlight lets you work in poor light
- Large battery capacity of four AA cells
- Battery door for easy changes

Mechanical and General Specifications

Size: 96 mm x 200 mm x 47 mm
Weight: 650 g
Batteries: Four AA alkaline batteries
Warranty: Three-years
Battery life: 25 hours typical
Shock & Vibration: Random, 2G, 5 Hz to 500 Hz

Functional specifications

Measurement Accuracy		
Voltage dc	30.000 V	0.02 % + 2 counts (upper display)
	20.000 V	0.02 % + 2 counts (lower display)
	100.00 mV	0.02 % + 2 counts
	-10.00 mV to 75.00 mV	0.025 % + 1 count (via TC connector)
Current dc	24.000 mA	0.02 % + 2 counts
Resistance	0.0 Ω to 400.0 Ω	0.1 Ω (4-wire) 0.15 Ω (2- and 3-wire)
	401 Ω to 1500 Ω	0.5 Ω (4-wire) 1 Ω (2- and 3-wire)
	1500 Ω to 3200 Ω	1 Ω (4-wire) 1.5 Ω (2- and 3-wire)
Source Accuracy		
Voltage DC	100.00 mV	0.02 % +2 counts
	10.000 V	0.02 % +2 counts
	−10.00 mV to 75.00 mV	0.025 % + 1 count (via TC connector)
Resistance	15.0 Ω to 400.0 Ω	0.15 Ω (exc. current 0.15 mA to 0.5 mA), 0.1 Ω (exc. current 0.5 mA to 2 mA)
	401 Ω to 1500 Ω	0.5 Ω (excitation current 0.05 mA to 0.8 mA)
	1500 Ω to 3200 Ω	1 Ω (excitation current 0.05 mA to 0.4 mA)
Specifications		
Ramp functions	Source functions: Voltage, current, resistance, frequency, temperature Ramps: Slow ramp, Fast ramp, 25 % step-ramp	
Loop power function	Voltage: 24 V Accuracy: 10 % Maximum current: 22 mA, short circuit protected	
Step functions	Source functions: voltage, resistance, temperature Steps: 25 % of range, 100 % of range	
Environmental Specifications		
Operating temperature	−10 °C to 55 °C	
Storage temperature	−20 °C to 71 °C	
Humidity (Without Condensation)	90 %	10 °C to 30 °C
	75 %	30 °C to 40 °C
	45 %	40 °C to 50 °C
	35 %	50 °C to 55 °C
Safety Specifications		
Safety rating	CSA C22.2 No. 1010.1:1992	
EMC	EN50082-1:1992 and EN55022:1994 Class B	

RTDs and Thermocouples		
Measure accuracy	NI-120	0.2 °C
	PT-100 (385)	0.33 °C
	PT-100 (393)	0.3 °C
	PT-100 (JIS)	0.3 °C
	PT-200 (385)	0.2 °C
	PT-500 (385)	0.3 °C
	PT-1000 (385)	0.2 °C
	Resolution	0.1 °C
	J	0.7 °C
	K	0.8 °C
	T	0.8 °C
	E	0.7 °C
	R	1.8 °C
	S	1.5 °C
	B	1.4 °C
	L	0.7 °C
	U	0.75 °C
	N	0.9 °C
	Resolution	J, K, T, E, L, N, U: 0.1 °C, 0.1 °F B, R, S: 1 °C, 1 °F
	XK	0.6°C
	BP	1.2 °C
Source accuracy	NI-120	0.2 °C
	PT-100 (385)	0.33 °C
	PT-100 (393)	0.3 °C
	PT-100 (JIS)	0.3 °C
	PT-200 (385)	0.2 °C
	PT-500 (385)	0.3 °C
	PT-1000 (385)	0.2 °C
	Resolution	0.1 °C
	Note	Accuracy stated for 4-wire measurement.
	J	0.7 °C
	K	0.8 °C
	T	0.8 °C
	E	0.7 °C
	R	1.4 °C
	S	1.5 °C
	B	1.4 °C
	L	0.7 °C
	U	0.75 °C
	N	0.9 °C
	Resolution	J, K, T, E, L, N, U: 0.1 °C, B, R, S: 1 °C
	XK	0.6 °C
	BP	1.2 °C

Fluke 712 and 714 Temperature Calibrators

The Fluke 712 and 714 temperature calibrators deliver outstanding performance, durability and reliability. These calibrators are compact, lightweight and easy to carry and with a push-button interface and are easy to use. Each calibrator is EMI tolerant, dust- and splash-resistant and features a removable battery door for quick battery changes.
Auto-step and auto-ramp features support remote testing.

Fluke 714 Thermocouple Calibrator

- Measure temperature from TC probes
- Simulate TC output
- Operable with nine types of thermocouples
- Calibrate linear TC transmitter with mV source function
- Selectable °F or °C
- Thermocouple mini-jack termination
- Available as accessories: Fluke 700TC1 and TC2 Thermocouple Mini-plug Kits

Fluke 712 RTD Calibrator

- Compatible with pulsed current transmitters
- Measure temperature from an RTD probe
- Simulate RTD output
- Operates with seven types of RTD
- Measure additional RTDs using Ohms measurement function
- Simulate additional RTDs using Ohms source function
- °F or °C selectable
- Four shrouded banana jacks

General Specifications

Maximum voltage: 30 V
Non-operating temperature: –40 °C to 60 °C
Operating temperature: –10 °C to 55 °C
Relative humidity: 95 % (10 °C to 30 °C); 75 % (30 °C to 40 °C);
45 % (40 °C to 50 °C); 35 % (50 °C to 55 °C)
Operating altitude: 3,000 m max
Shock: 1 m drop test
Vibration: Random, 2 g, 5 Hz to 500 Hz
Safety: CSA C22.2 No. 1010.1:1992 EMC: EN50082-1:1992 and EN55022:1994 Class B
Size/weight (HxWxD): 187 mm x 87 mm x 32 mm (7.35 in x 3.41 in x 1.25 in)
330 g (12 oz)
Size/weight (HxWxD) (with holster and FlexStand™): 201 mm x 98 mm x 52 mm (7.93 in x 3.86 in x 2.06 in) 600 g (21 oz) 992 g (35 oz)
Power: 9 V battery ANSI/NEDA 1604A or IEC 6LR619V alkaline; two batteries in 718
Battery life: 4 to 20 hours, typical, depending on functions used. Battery timeout (configurable) extends battery life.
Warranty: Three-years

Functional Specifications

		Range	Resolution	Accuracy	Types
Fluke 712	Measure/simulate RTD	-200 °C to 800 °C (Pt 100-385)	0.1 °C, 0.1 °F	0.2 °C, 0.4 °F (Pt 100-385)	Pt; 100 200 500 1000 (385); Pt 100 (392); Pt 100 (392) JIS; Ni 120 (672)
	Measure/simulate resistance	0 Ω to 3200 Ω	0.1 Ω	.025 % + 0.1 % to 0.55 %	
Fluke 714	Measure/simulate thermocouple	–200 °C to 1800 °C, depending on type (K, –200 °C to 1370 °C)	0.1 °C or °F (1 °C or °F; BRS)	0.5 °C, 0.8 °F	9 TC types; J K T E R S B per NIST 175 and ITS-90 L U per DIN 43710 and IPTS-68
	Measure/simulate mV	–10 mV to 75 mV	0.01 mV	0.025 % + 1 count	

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