Datasheet

RS PRO Documenting Multifunction Calibrator & Arbitrary Function Generator

Stock number: 174-9556

EN

FEATURES

1. **Unique mapping function** let you calibrate temperature (300 °C) or voltage (220V) directly (instead of 4 to 20mA indirectly).
2. A **multifunction calibrator** and an **arbitrary function generator**.
3. **Simulate** a current **transmitter**.
4. 4~20mA (open voltage 24V) **direct source** mode.

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7. **Simulate** a current **transmitter**.
8. 4~20mA (open voltage 24V) **direct source** mode.
9. Make a measurement and **output loop power** 24V (LOOP+) simultaneously.
10. User selectable HART™ resistor to facilitate use with **HART™ communication** devices.
11. **Electronic load** (max. 30V, 24mA).
12. **Source**: mA (4 to 20mA), V (0 to 15V, 0 to 70mV), Hz, sine wave, square wave, triangular wave, truncated sine wave, user programmable waveform and temperature for 11 types of thermocouples.
13. **Measure:** Current (mA), Voltage (V, mV) and temperature in ℃ or ℉.
14. **Programmable cold junction compensation** allows users to fine tune temperature output and measurement.
15. Programmable 0% and 100% value for easy **25% step function**.
16. **Output error warning** when output is shorted or open.
17. **Short circuit protection** for voltage output.
18. **Clear and easy user interface** (Numerical key pad, sliding switch and dot matrix LCM with backlight).
19. Voltage, frequency, PWM duty-cycle (square wave and triangular wave), and offset are programmable in the **Hz function**.
20. **Frequency range (0.3Hz to 20KHz)** covers application of audio band (speaker, MP3, MD etc.)
21. **DTMF** (Dual Tone Multi-Frequency) can perform professional testing for telephone line and audio product (MP3 or MD).
22. **Auto-step and auto-ramp functions** can quickly perform linear test.
23. **PC** can program calibrator through USB port.
24. Perform **data logging** with programmable sampling time (0-255 seconds) and memory of 4000 records.
25. **Rechargeable Lithium battery** (1600mAH) with built-in charging circuit.
26. **Calibration results** (source and measure) can be **saved in memory** (2000 records). Then users download them to a PC for documentation. No needs to transcribe calibration data manually.
27. To **distinguish calibration data** at different locations, data can be saved under different file names.

SPECIFICATIONS

I. ELECTRICAL SPECIFICATIONS (23+/- 5℃, 10 minutes after turning on the power)

mA (source) (Vopen > 15V)

Range	Resolution	Accuracy of Reading
0.005mA to 4mA	1uA	+/-0.03% +/- 5dgts
4mA to 20mA	1uA	+/-0.03% +/-3dgts
20mA to 24mA	1uA	+/-0.03% +/-5dgts

V (source) (maximum load 1mA, short circuit protection < 100mA)

Range	Resolution	Accuracy of Reading
0.005V to 10V	0.001V	+/-0.03% +/-5dgts
10V to 15V	0.001V	+/-0.03% +/-5dgts

mA (measure)

Range	Resolution	Accuracy of Reading
-4mA to -0.005mA	1uA	+/-0.03% +/- 10dgts
0.005mA to 4mA	1uA	+/-0.03% +/- 5dgts
4mA to 20mA	1uA	+/-0.03% +/-3dgts
20mA to 24mA	1uA	+/-0.03% +/-5dgts

If reading of mA (measure) is less than 5 digits, it is displayed as 0.

V (measure)

Range	Resolution	Accuracy of Reading
-3V to -0.005V	0.001V	+/-0.03% +/-10dgts
0.005V to 10V	0.001V	+/-0.03% +/-5dgts
10V to 24V	0.001V	+/-0.03% +/-5dgts

If reading of V (measure) is less than 5 digits, it is displayed as 0.

Frequency (source, 10 Vpp, 0V offset, square wave, duty cycle = 50%)

Range (Hz)	Input Resolution	Accuracy
0.3 to 99.999	0.1Hz	0.002Hz
10.00 to 999.99	0.1Hz	0.02Hz
1000.0 to 9999.9	0.1Hz	0.2Hz
10000 to 20000	1Hz	2Hz

Voltage Peak to Peak for Sine Wave

(Vpp, 0.3~20KHz, 50% duty cycle, sine wave, 0V offset)

Range(V)	Resolution	Accuracy of Reading
0.1 to 20V	0.001V	5% +/- 0.3V

Voltage Peak to Peak for Non-Sine Wave (Vpp, 0.3~20KHz, 0V offset)

Range(V)	Resolution	Accuracy of Reading
0.1 to 20V	0.001V	6% +/- 0.4V

Voltage Peak to Peak

(Vpp, 0.3~20KHz, 50% duty cycle, square wave, 0V offset)

Range(V)	Resolution	Accuracy of Reading
1 to 20V	0.001V	6% +/- 0.4V

Voltage of Offset (Maximum Vpp < 20V)

Range	Resolution	Accuracy of Reading
-5V to 5V	0.001V	5% +/-0.5V +/-5%xVpp

Duty Cycle (%, square wave, 10 Vpp, 0.3~20KHz)

Range	Resolution	Rise Time of Vpp	Fall Time of Vpp
0 to 100%	1%	10µS max, 5µS typical	15µS max, 7.5µS typical

Pulse (square wave, 10 Vpp, Offset -5V~+5V)

Range	Resolution	Rise Time	Fall Time
3.0**µS** to 9999.9**µS**	0.1**µS**	**10 µ S max,** **5 µ S typical**	**15 µ S max,** **7.5 µ S typical**
10.000**mS** to 99.999**mS**	0.001**mS**		
100.00**mS** to 999.99**mS**	0.01**mS**		

DTMF (Hz)

Range (Hz)	Resolution	Accuracy of Reading
0.3 to 99.999	0.1Hz	0.002Hz
10.00 to 999.99	0.1Hz	0.02Hz
1000.0 to 9999.9	0.1Hz	0.2Hz
10000 to 20000	1Hz	2Hz

DTMF (%)

Range (%)	Resolution	Accuracy of Reading
0% ~ 100%	1%	5%

DTMF (Phase Angle)

Range (°)	Resolution	Accuracy of Reading
0 ~ 360	1°	100**µS**+1°

DTMF (**Vpp**, F1=F2, <1 KHz, %1=%2, Phase1=Phase2)

Range	Resolution	Accuracy of Reading
5V ~ 20V	0.001V	10% +/-0.6V

DTMF (**Offset**, F1=F2, <1 KHz, %1=%2, Phase1=Phase2)

Range	Resolution	Accuracy of Reading
-5V ~ 5V	0.001V	10% +/-0.6V +/-5%xVpp

Temperature, Thermocouples

(source and measure, 0.1◦C & 0.1◦F Resolution, Internal Cold Junction Compensation, thermocouple accuracy not included, 3 minutes after plugging in thermocouples.)

	°C		°F	
	Range	Accuracy	Range	Accuracy
K	-200 to -150	2.0	-382 to -238	3.6
	-150 to 0	1.2	-238 to 32	2.1
	0 to 1000	0.8	32 to 1832	1.4
	1000 to 1370	1.2	1832 to 2498	2.1
J	-200 to -150	2.0	-382 to -238	3.6
	-150 to 0	1.0	-238 to 32	1.8
	0 to 1050	0.7	32 to 1922	1.2
E	-200 to -150	1.5	-382 to -238	2.7
	-150 to 0	0.9	-238 to 32	1.6
	0 to 850	0.7	32 to 1562	1.2

T	-200 to -150	1.5	-382 to -238	2.7
	-150 to 0	1.2	-238 to 32	2.1
	0 to 400	0.8	32 to 752	1.4
R	0 to 500	1.8	32 to 932	3.2
	500 to 1760	1.5	932 to 3200	2.7
S	0 to 500	1.8	32 to 932	3.2
	500 to 1760	1.5	932 to 3200	2.7
N	-200 to 0	1.5	-328 to 32	2.7
	0 to 1300	0.9	32 to 2372	1.6
L	-200 to 0	0.9	-328 to 32	1.6
	0 to 900	0.7	32 to 1652	1.2
U	-200 to 0	1.1	-328 to 32	1.9
	0 to 600	0.7	32 to 1112	1.2
B	600 to 800	2.2	1112 to 1472	3.9
	800 to 1000	1.8	1472 to 1832	3.2
	1000 to 1820	1.4	1832 to 3308	2.5
C	0 to 1800	1.0	32 to 3272	1.8
	1800 to 2310	1.5	3272 to 4190	2.7
mV	-10mV to 70mV	0.05mV	-10mV to 70mV	0.05mV

II. GENERAL SPECIFICATIONS

AC Power Adaptor:	AC 110V or AC 220V, 50/60Hz input. DC 15V / 0.5A output.
Dimension:	214.0(L) x 98.7(W) x 56.0(H) mm 8.4" (L) x 3.9" (W) x 2.2" (H)
Weight:	650g / 22.9oz (Batteries included)
Operation Environment:	0℃ ~ 50℃, < 85% RH
Storage Environment:	-20℃ ~ 60℃, < 75% RH
Accessories:	Carrying case x 1 User manual x 1 AC power adaptor x 1 USB cable x 1 Software CD x 1 Software manual x 1 K-type thermocouple (dual plugs) x 1 Alligator clips x 2 (black and red) Test leads x 2 (black and red) Rechargeable lithium battery (11.1V / 1600mAh) x 1