Features

- **Unique mapping function** let you calibrate temperature (300 °C) or voltage (220V) directly (instead of 4 to 20mA indirectly).
- iCal is a **multifunction calibrator** and an **arbitrary function generator**.
- **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.
- **Measure** : Current (mA), Voltage (V, mV) and temperature in ºC or ºF.
- **Programmable cold junction compensation** allows users to fine tune temperature output and measurement.
- Programmable 0% and 100% value for easy **25% step function**.
- **Output error warning** when output is shorted or open.
- **Short circuit protection** for voltage output.
- **Clear and easy user interface** (Numerical key pad, sliding switch and dot matrix LCM with backlight).
- Voltage, frequency, PWM duty-cycle (square wave and triangular wave), and offset are programmable in the **Hz function**.
- **Frequency range (0.3Hz to 20KHz)** covers application of audio band (speaker, MP3, MD etc.)
- **DTMF** (Dual Tone Multi-Frequency) can perform professional testing for telephone line and audio product (MP3 or MD).
- **Auto-step and auto-ramp functions** can quickly perform linear test.
- **PC** can program calibrator through USB port.
- iCal can perform **data logging** with programmable sampling time (0-255 seconds) and memory of 4000 records.
- **Rechargeable Lithium battery** (1600mAH) with built-in charging circuit.
- **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.
- To **distinguish calibration data** at different locations, data can be saved under different file names.
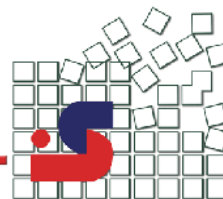
PROVA iCal
Documenting Multifunction Calibrator
and Arbitrary Function Generator

iCal changes the way of thinking in process calibration.

Applications

- **Calibration of 4 to 20mA** transmitters and panel meters.
- **Temperature calibration** of panel meters or instruments for 11 types of thermocouples.
- **Calibration of valve opening** by changing duty cycle of a PWM signal.
- **Generation** of selected test **frequency and waveform** for electronic device.
- **Pre-stored** 1/3 octave audition, white noise, and pink noise for MP3, MD, speaker and audio driver tests.
- **Audio Frequency Synthesizer** : Programmable frequency and phase synthesis of single tone, DTMF(Double Tone, Multi-Frequency) for audio products such as MP3, MD and telephone line.
- **Function generation** for transistor DC bias characteristics test, amplifier overload and transient characteristics.
- **Function generation** for vibration testing.
- **Calibration of a chart recorder** with different waveforms (sine, square, or triangular wave).
- Simulation of **PLC**.

شرکت صائن
WWW.SAENCO.COM
021 88936611

Specification (23 +/- 5 degree C)

mA (source, Vopen > 15V)

Range	Resolution	Accuracy of Reading
-4mA to -0.005mA	1uA	+/-0.03% +/- 5dgts
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
-3V to -0.005V	0.001V	+/-0.03% +/-5dgts
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% +/- 5dgts
0.005mA to 4mA	1uA	+/-0.03% +/- 5dgts
4mA to 20mA	1uA	+/-0.03% +/-3dgts
20mA to 24mA	1uA	+/-0.03% +/-5dgts

V (measure)

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

If reading of mA (measure) and 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 0999.9	0.1Hz	0.2Hz
10000 to 20000	1Hz	2Hz

Voltage Peak to Peak (Vpp, 0.3 to 20 KHz, 50% duty cycle, sine wave, triangular wave, truncated sine wave, 0Voffset)

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

Voltage Peak to Peak (Vpp, 0.3 to 20 KHz, 50% duty cycle, square wave, 0Voffset)

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

Voltage of Offset (Maximum Vpp < 20V)

Range	Resolution	Accuracy of Reading
-5V to 5V	0.001V	5% +/-0.3V

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

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

Temperature, Thermocouples

(source and measure, 0.1°C, 0.1°F Resolution, Internal Cold Junction Compensation, thermocouple accuracy not included)

	Range (°C)	Accuracy (°C)	Range (°F)	Accuracy (°F)
K	-200 to 0	1.2	-328 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 0	1.0	-328 to 32	1.8
	0 to 1050	0.7	32 to 1922	1.2
E	-200 to 0	0.9	-328 to 32	1.6
	0 to 850	0.7	32 to 1562	1.2
T	-200 to 0	1.2	-328 to 32	2.1
	0 to 400	0.8	32 to 752	1.4
R	-20 to 0	2.5	-4 to 32	4.5
	0 to 500	1.8	32 to 932	3.2
	500 to 1760	1.5	932 to 3200	2.7
S	-20 to 0	2.5	-4 to 32	4.5
	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

General Specifications

|	
AC Adaptor	AC 110V or 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°C ~ 50°C, 85% RH
Storage Environment	-20°C ~ 60°C, 75% RH
Accessories	Carrying case x 1 User manual x 1 AC adaptor x 1 Rechargeable lithium battery (11.1V/ 1600mAh) 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)

PROVA iCal
Documenting Multifunction Calibrator
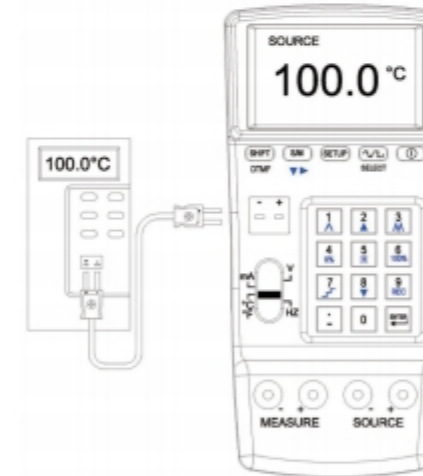### and Arbitrary Function Generator

Source/Measure: mA, V

Source/Measure: °C or °F

Arbitrary Function Generator
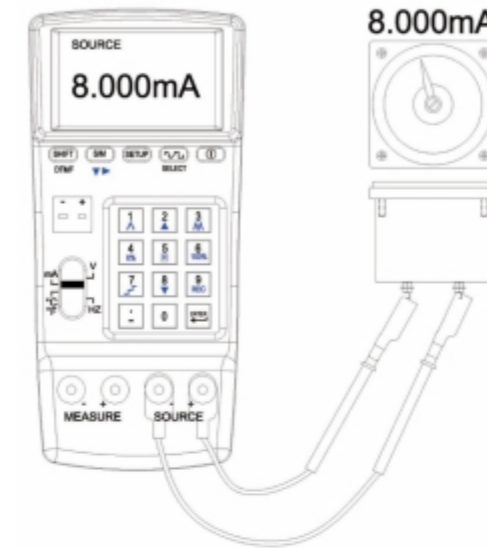
Easy setup with mapping function

mA 0%:	4.000mA
mA 100%:	20.000mA
4mA →	0.0000KW
20mA →	100.00KW
MAPPING	YES
V1 press SELECT	

Programmable Cold Junction Compensation

TC 0%:	100.0 °C
TC 100%:	1000.0°C
C.J.COMP.:	0.0 °C
TC TYPE:	K
UNIT:	°C
V1 press DIGITS	

Record/data logging and file management

V 0%:	4.000V
V 100%:	15.000V
SAMPLE:	1 SEC
FILE NAME:	MAIN0001
V1 press DIGITS	
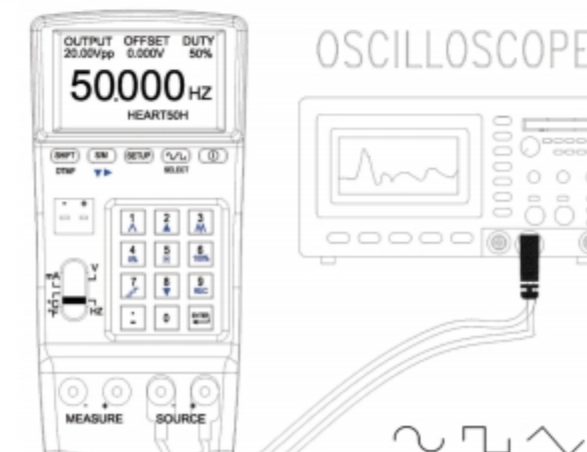
Dual Tone Multi-Frequency (DTMF)

DTMF	F1	F2
HZ:	50.0Hz	2000.0Hz
%:	67%	33%
Phase:	60°	120°
Vpp:	20.000V	
Offset:	0.000V	