

# IN-GEN Hand Held Generator Rev.1

DC V, mV, mA  
and Ohm Signal  
Simulator

## Features.

- Simulates: RTD's  
mA  
T/C's  
mV  
V
- Compact.
- Battery Powered.
- Low Cost.

## Description.

The IN-GEN is a battery powered, hand held, multifunction, generator used in conjunction with a multimeter to simulate RTD's, thermocouples, mA, mV, and V signals.



Z495

## Specifications.

Output	-Resistance	50~150Ω.. Simulating DIN, Pt100, -100~100C.
	-Milliamps	0~20mA. 320Ω Max. Simulating 0~20mA and 4~20mA Signals.
	-Millivolts	0~100mV. 20mA max. Load.
	-Volts	0~8V. 20mA Max. Load. Simulating all Thermocouple Signals.
		Simulating 0~5V and 1~5V Signals.
Power Supply		9V Battery
EMC Compliances		Emissions EN 55022-A. Immunity EN 50082-1, <1% Effect FSO Typical.
Operating Temperature & Humidity		0~50C. (Storage Temp. -10~70C.) 5~85% RH Max. Non-Condensing.
Dimensions		L=128, W=67, H=58mm.

**Product Liability.** This information describes our products. It does not constitute guaranteed properties and is not intended to affirm the suitability of a product for a particular application. Due to ongoing research and development, designs, specifications, and documentation are subject to change without notification. Regrettably, omissions and exceptions cannot be completely ruled out. No liability will be accepted for errors, omissions or amendments to this specification. Technical data are always specified by their average values and are based on Standard Calibration Units at 25C, unless otherwise specified. Each product is subject to the 'Conditions of Sale'.

**Warning: These products are not designed for use in, and should not be used for patient connected applications. In any critical installation an independent fail-safe back-up system must always be implemented.**

## RTD Resistance Table.

DIN Pt100 RTD Resistance Table			
Temperature(C)	Resistance(Ω)	Temperature(C)	Resistance(Ω)
-100	60.3	0	100.0
-75	70.3	10	103.9
-50	80.3	20	107.8
-40	84.3	25	109.7
-30	88.2	30	111.7
-25	90.3	40	115.5
-20	92.2	50	119.4
-10	96.1	75	129.0
0	100.0	100	138.5

## Quality Assurance Programme.

The modern technology and strict procedures of that ISO9001 Quality Assurance Programme applied during design, development, production and final inspection grant long term reliability of the instrument.

**mA % Output Table.**

mA Table		
% Output	0~20mA	4~20mA
0%	0	4
25%	5	8
50%	10	12
75%	15	16
100%	20	20

**Thermocouple mV Table.**

Thermocouple Table mV (See notes below.)				
% Output	Type K	Type J	Type R	Type T
-200	-5.89	-7.89	-	-5.603
-100	-3.55	-4.63	-	-3.378
0	0.00	0.00	0.000	0.000
5	0.20	0.25	0.027	0.196
10	0.40	0.51	0.054	0.391
15	0.60	0.76	0.083	0.590
20	0.80	1.02	0.111	0.789
25	1.00	1.28	0.141	0.993
30	1.20	1.54	0.171	1.196
50	2.02	2.59	0.296	2.035
100	4.10	5.27	0.647	4.277
200	8.14	10.78	1.468	9.286
400	16.40	21.85	3.407	-
600	24.90	33.10	5.582	-
800	33.28	45.50	7.949	-
1000	41.27	57.94	10.503	-
1200	48.83	-	13.224	-
1700	-	-	20.215	-

Note: To simulate a thermocouple input into an instrument go through the following steps:

1. For the appropriate T/C select the mV based on the temperature at the input terminals of the instrument to be checked.
2. From the same table obtain the mV based upon the temperature you want to simulate.
3. Subtract the mV obtained in step 1 from the mV obtained in step 2 and set up the IN-GEN to simulate this mV. (This subtraction is for cold junction compensation).
4. To simulate negative mV reverse the leads going into the IN-GEN.

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