

DIGITAL T/C SIMULATOR DIGISIM 38527

The DigiSim 38527 is a portable, battery-operated, precision 4 digit simulator for mV & T/C input instruments. It is designed to source mV signals as well as simulate upto three specified T/Cs in international standards. In addition to simulation, it can also be used as a precision mV and Temperature Indicator. A self-check facility monitors its performance and assures its dependability.

The 38527 is designed with field-proven circuit blocks using low-power integrated circuits. It can operate on one 9V Jerry-can dry cell or one Jerry-can rechargeable Ni-Cd cell or an external Battery Eliminator. The battery voltage is monitored to provide low battery indication. The 38527 uses two ten-turn potentiometers for setting the mV or T/C outputs and one for setting the CJ Temperature in its Manual CJ compensation mode. A 12 bit precision A/D converter provides binary output for addressing a ROM look-up table containing the mV and linearised temperature values which are presented on a 4 digit display. A self-check facility is provided to establish correct functioning of all the circuit blocks. With the 38527 in **Simulation** mode, the mV output or the temperature of the simulated T/C can be set directly on the display by varying the COARSE & FINE potentiometers.



For T/C simulation, the output is cold-junction compensated according to the characteristics of the simulated T/C. In the **Measurement** mode, mV or temperature of the connected T/C can be directly read on the display.

OUTPUT SPECIFICATIONS

The 38527 sources mV & T/C signals with the following specifications

Millivolts 80mV with a resolution of 0.02mV into 100 Ω load

Thermo-couples T/C types J, K, T, E, R, S, B or their combinations as follows

I/O Code	T/C Type	Display Range	Res °C	Self-Chk Display	Factory Calibration
J	Fe / Const	- 50 to 600	1	555 \pm 1	ISA/ANSI
K	Cr / Alumel	- 50 to 1200	1	1111 \pm 1	ISA/ANSI
T	Cu / Const	-50 to 400	1	333 \pm 1	ISA/ANSI
E	Cr / Const	-50 to 800	1	777 \pm 1	ISA/ANSI
S	Pt / Pt-Rh(10%)	0 to 1700	1	1555 \pm 1	ISA/ANSI
R	Pt / Pt-Rh(13%)	0 to 1700	1	1666 \pm 1	ISA/ANSI
B	Pt-Rh(6%) / Pt-Rh(30%)	400 to 1800	1	1777 \pm 1	ISA/ANSI

Standards Options Any of the Individual standards as below for each T/C in the ordered option

Option N ISA/ANSI Standard	Option D : DIN Standard
Option I Indian Standard	Option J : Japanese Standard
Option B British Standard	Option R : Russian Standard

I/O Options

YV(YV=JN Etc)	Simulation of Millivolts & a Single T/C J or K or T or E or R or S Etc
XX	Simulation of Millivolts & T/Cs JN, KN, TN as per above Table
YY	Simulation of Millivolts & T/Cs RN, SN, BN as per above Table
UN	Simulation of Millivolts & T/Cs JN, KN, RN as per above Table
VN	Simulation of Millivolts & T/Cs JN, KN, SN as per above Table
WN	Simulation of Millivolts & T/Cs JN, KN, BN as per above Table
GG	Simulation of Millivolts & any three (To be Specified) T/Cs as per above Table This is a custom combination which must be completely specified by the user.

CJ Compensation Automatic or Manual

Output Impedance < 0.05 ohm

INPUT SPECIFICATIONS

The 38527 measures mV & T/C signals with following specifications

Millivolts	80 mV with resolution of 0.02 mV
Optional T/Cs	Combinations of 3 T/Cs ordered as per above Table for output
I/P Impedance	> 1 Megohm for mV & T/C input
I/P Protection	Input/Output Terminals are protected for 24V DC

INDICATOR SPECIFICATIONS

Display	4 Digit 7 - segment 8mm LCD
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INSTRUMENT ACCURACY

Accuracy at operating temperature between 22-32 °C, valid within a **one year Calibration Cycle**

Basic Accuracy	±0.05% of rdg ±0.05% of f.s. ±1dgt
CJ Error	1°C for Ambient Temperature of 5-55 °C
Lead-Error	1 °C for lead resistance of 100ohm per lead
Self-Check	Displays 66.66 ±2 for mV & a figure for T/Cs as per above Table

POWER SUPPLY SPECIFICATIONS

Power Supply Options

Option A:	One Jerry-can type dry cell giving 9V
Option B:	One Jerry-can type rechargeable cell giving 8.4V
Battery Life	Dry Cells: 4~6 Hrs of continuous use Ni-Cd Cells: 10~12 Hrs of continuous use
Low Battery	Indicated by lighting all decimals or "LO BAT" indicator
Mains Operation	A connector is provided for a battery eliminator

ENVIRONMENTAL SPECIFICATIONS

Rated Temp	5 to 55 °C
Humidity	Less than 90% RH (Non-Condensing)
Zero Drift	Less than 1dgt for every 10°C beyond the specified ambient of 22 - 32 °C
Span Drift	Less than 0.0015% of rdg / °C
Storage Temp	0 to 70 °C (Without Batteries & Accessories)

MECHANICAL SPECIFICATIONS

Enclosure Size	125(W) x 150(H) x 60(D) mm
Enclosure Finish	Powder coated
Enclosure Weight	0.7 Kg (Without Batteries)

STANDARD ACCESSORIES

Battery Eliminator, Probe Set, Leather Case, Wooden Case, Instruction Manual, Warranty Certificate, Calibration Certificate Traceable to NPL. Charger for Ni-Cd Cells if Power Supply Option B is selected.

ORDERING INFORMATION

While ordering please specify the various options as per the following ordering code

Model No.	Sensor Option Code	Standards Option Code	P.S. Option Code
38527	X	X	X

Example

Specify 38527GGA (GG = RD, KN, BD) to order the T/C Simulator with 8mm LCD display for simulating 80mV and T/Cs R in DIN Std, K in ANSI Std and B in DIN Std with individual ranges of 0 to 1700° for R, -50 to 1360°C for K and 0 -1700° for S, operating on one Jerry-can type dry cell.