



- Measure (3 ranges) up to 40V, 400mA, 40kΩ
- Output voltage (3 ranges) to 10V, 1μV resolution
- Output current (3 ranges) to 20mA, 1μA resolution
- Output resistance: 0 to 400Ω, 0.01Ω resolution
- Thermocouple measure/simulate: J, K, T, E, R, S, B, N
- RTD measure and simulate: PT100
- Ramp function

### DESCRIPTION

The 7061 process calibrator module combines the essential functions of measurement and simulation of volts, millivolts, milliamps, and ohms with the direct readout simulation of thermocouples and RTD's in °C or °F units. Input and output functions are displayed simultaneously and the switch controls allow for easy and precise operation.

Five calibration points are instantaneously accessible through a preset percentage selector and all functions may be generated in a fully programmable ramp format.

In addition to the standard calibration facilities the module may be used as a signal converter. Any electronic input signal can be converted and output as a proportional signal of 4-20mA, 0-5V or sq. root 4-20mA.

The 7061 is highly adaptable, IPT 68 and ITS 90 curves are accommodated and non-standard thermocouples and RTD's may be programmed on request.

### Specifications – Voltage / Current / Resistance Generation and Measure

#### INPUT

##### Voltage

Range	Resolution	Accuracy
40V	1mV	0.03%
4V	100μV	0.03%
400mV	10μV	0.03%
40mV	1μV	0.03%

##### Current

Range	Resolution	Accuracy
400mA	10μA	0.03%
40mA	1μA	0.03%
4-20mA/0-100%	0.01%	0.06%

##### Resistance

Range	Resolution	Accuracy
40000Ω	1Ω	0.03%
4000Ω	0.1Ω	0.03%
400Ω	0.01Ω	0.06%

### Other

Loop drive supply: Nominal 24V, current limit set to 30mA

#### OUTPUT

##### Voltage

Range	Resolution	Accuracy
-2 to +10V	1mV	0.06%
-100mV to +400mV	10μV	0.03%
-10mV to +40mV	1μV	0.03%
Output Impedance: < 10Ω		

##### Current

Range	Resolution	Accuracy
0 to 20mA	10μA	0.03%
4 to 20mA	1μA	0.03%
TX Sim (4 to 20mA)	0.01%	0.03%
Max Load Resistance: 900Ω at 20mA, Open circuit voltage 18- 27V		

##### Resistance

Range	Resolution	Accuracy
0 to 400Ω	0.01Ω	± 0.03%
Excitation Current 0.2 to 2mA		

# 7061 Specifications

## TECHNICAL SPECIFICATIONS – PROCESS SIGNAL & TEMPERATURE MEASUREMENT & SIMULATION

### TEMPERATURE

°C			°F		
Thermocouple Type	Temp Range °C	Accuracy °C	Thermocouple Type	Temp Range °F	Accuracy °F
J	-210 to 0 0 to 710 710 to 1200	± 0.4 ± 0.2 ± 0.9	J	-410 to 32 32 to 1310 1310 to 2192	± 0.7 ± 0.4 ± 1.0
K	-270 to -240 -240 to -180 -180 to -50 -50 to 960 960 to 1370	± 3.0 ± 1.2 ± 0.5 ± 0.3 ± 1.7	K	-454 to -430 -430 to -292 -292 to -58 -58 to 1760 1760 to 2498	± 5.4 ± 2.0 ± 0.9 ± 0.6 ± 1.5
T	-270 to -250 -250 to -180 -180 to -100 -100 to 400	± 3.0 ± 1.0 ± 0.5 ± 0.2	T	-454 to -418 -418 to -292 -292 to -148 -148 to 752	± 5.4 ± 1.8 ± 0.9 ± 0.4
R	-50 to 0 0 to 70 70 to 400 400 to 1000 1000 to 1760	± 3.0 ± 2.0 ± 1.5 ± 1.0 ± 0.8	R	-58 to 32 32 to 158 158 to 752 752 to 1832 1832 to 3200	± 5.4 ± 3.6 ± 2.7 ± 1.8 ± 1.4
S	-50 to 0 0 to 100 100 to 450 450 to 1760	± 2.5 ± 1.8 ± 1.3 ± 0.9	S	-58 to 32 32 to 212 212 to 842 842 to 3200	± 4.5 ± 3.2 ± 2.3 ± 1.6
B	200 to 400 400 to 1000 1000 to 1820	± 5.0 ± 2.0 ± 1.0	B	392 to 752 752 to 1832 1832 to 3308	± 9.0 ± 3.6 ± 1.8
N	0 to 330 330 to 1100 1100 to 1300	± 0.4 ± 0.3 ± 1.5	N	32 to 626 626 to 2012 2012 to 2372	± 0.7 ± 0.5 ± 2.7
E	-230 to 0 0 to 540 540 to 1000	± 0.5 ± 0.2 ± 1.5	E	-382 to 32 32 to 1004 1004 to 1832	± 0.9 ± 0.4 ± 2.7

### RTD

PT100 (°C)		PT100 (°F)	
Range	Accuracy	Range	Accuracy
-200 to 850	± 0.3	-392 to 1562	± 1.0

Thermocouple ..... Linearisation to BS 4937. ITS 90 or IPTS68 selectable.  
 Pt100 ..... Linearisation to BS1904 (1984).DIN43760 (1980). Linearisation Acc: 0.1% of reading for Class A, 38.5Ω FI  
 Excitation current ..... 0.5mA (Input), 200µA to 2mA (Output).  
 Cold Junction Compensation ..... External (Pt100), Internal, Ice point. Accuracy +/-0.2°C at 23°C  
 Ramp ..... Fully programmable continuous and stepped  
 Steps ..... 5 Steps with fully adjustable zero  
 Transmitter ..... Tx function 4-20mA  
 Signal Converter ..... Any input to any output  
 Dual Readout ..... Measure and source simultaneously displayed

### GENERAL SPECIFICATION

Stability ..... 100ppm per °C range 0 to 40°C  
 Displays ..... LCD Dot Matrix, 1 line by 20 charx12mm, alphanumeric.  
 Module Dimensions ..... W285 x H201mm (primary or secondary console fitting)  
 Optional Extras ..... Calibration certificates traceable to NPL and UKAS

### ORDERING INFORMATION

7061 ..... **Process and Thermocouple Calibrator Module**  
 C180 ..... Factory Calibration Certificate (NPL traceable)  
 C192 ..... UKAS Calibration Certificate (ISO 17025)

Due to continuous development Time Electronics reserves the right to change specifications without prior notice.

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