

# 5025C

## Extended Specifications

Revision 2203-1

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# 5025C Specifications

1. Specifications are stated as  $\pm$  (ppm or % of output + floor), unless otherwise indicated.
2. Specifications apply at  $23\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$
3. For temperatures outside this range add  $0.2 \times$  specification per  $^{\circ}\text{C}$ .
4. Specifications include stability, linearity, and traceability of external standards used for calibration.
5. For operation outside specified range add  $0.25 \times$  specification.

## DC Voltage

Range	Resolution	Output Resistance	Max Burden	Specification
				1 Year
0 to 20 mV	0.1 $\mu\text{V}$	10 $\Omega$		15 ppm + 3 $\mu\text{V}$
20 to 200 mV	1 $\mu\text{V}$	10 $\Omega$		15 ppm + 4 $\mu\text{V}$
0.2 to 2 V	1 $\mu\text{V}$	0.1 $\Omega$	20 mA	15 ppm + 15 $\mu\text{V}$
2 to 20 V	10 $\mu\text{V}$	0.1 $\Omega$	20 mA	15 ppm + 75 $\mu\text{V}$
20 to 200 V	100 $\mu\text{V}$	< 5 $\Omega$	20 mA	25 ppm + 3 mV
100 to 1050 V	1 mV	< 10 $\Omega$	10 mA	40 ppm + 30 mV

Specifications are between 0.1 Hz and 10 Hz bandwidth. Maximum capacitance 1000 pF.

Settling times for 200 and 1050 V ranges < 10 seconds to full accuracy.

The output resistance of the 20 mV and 200 mV ranges is 10  $\Omega$ . This must be taken into account when loads of 100 k $\Omega$  or less are being driven.

A 100 k $\Omega$  load will result in a 0.01 % error.

## DC Current

Range	Resolution	Compliance Voltage	Max Terminal Inductance	Specification
				1 Year
0 to 200 $\mu\text{A}$	0.1 nA	10 V	50 $\mu\text{H}$	80 ppm + 15 nA
0.2 to 2 mA	1 nA	10 V	50 $\mu\text{H}$	60 ppm + 40 nA
2 to 20 mA	10 nA	10 V	50 $\mu\text{H}$	60 ppm + 200 nA
20 to 200 mA	100 nA	10 V	30 $\mu\text{H}$	60 ppm + 3 $\mu\text{A}$
0.2 to 2 A	1 $\mu\text{A}$	5 V	5.5 $\mu\text{H}$	100 ppm + 70 $\mu\text{A}$
2 to 22 A	10 $\mu\text{A}$	4 V	2.5 $\mu\text{H}$	250 ppm + 400 $\mu\text{A}$

For full accuracy the 2 A range load must be between 0.1 and 0.4  $\Omega$  and between 0.04 and 0.1  $\Omega$  for the 20 A range.

## AC Voltage (Sine Wave)

Range	Frequency	Resolution	Output Resistance	Max Burden Current	Specification
					1 Year
1 to 20 mV	20 to 45 Hz	1 $\mu\text{V}$	10 $\Omega$		0.08 % + 50 $\mu\text{V}$
	45 Hz to 1 kHz		10 $\Omega$		0.03 % + 25 $\mu\text{V}$
	1 to 10 kHz		10 $\Omega$		0.05 % + 30 $\mu\text{V}$
	10 to 20 kHz		10 $\Omega$		0.08 % + 50 $\mu\text{V}$
	20 to 100 kHz		50 $\Omega$		0.05 % + 500 $\mu\text{V}$
20 to 200 mV	20 to 45 Hz	1 $\mu\text{V}$	10 $\Omega$		0.08 % + 50 $\mu\text{V}$
	45 Hz to 1 kHz		10 $\Omega$		0.03 % + 25 $\mu\text{V}$
	1 to 10 kHz		10 $\Omega$		0.05 % + 30 $\mu\text{V}$
	10 to 20 kHz		10 $\Omega$		0.08 % + 50 $\mu\text{V}$
	20 to 100 kHz		50 $\Omega$		0.05 % + 500 $\mu\text{V}$
0.2 to 2 V	20 to 45 Hz	10 $\mu\text{V}$	< 0.1 $\Omega$	20 mA	0.08 % + 200 $\mu\text{V}$
	45 Hz to 1 kHz		< 0.1 $\Omega$		0.02 % + 80 $\mu\text{V}$
	1 to 10 kHz		< 0.1 $\Omega$		0.03 % + 120 $\mu\text{V}$
	10 to 20 kHz		< 0.1 $\Omega$		0.05 % + 350 $\mu\text{V}$
	20 to 100 kHz		< 0.5 $\Omega$		0.09 % + 900 $\mu\text{V}$
2 to 20 V	20 to 45 Hz	100 $\mu\text{V}$	< 5 $\Omega$	20 mA	0.08 % + 3 mV
	45 Hz to 1 kHz		< 5 $\Omega$		0.02 % + 1 mV
	1 to 10 kHz		< 5 $\Omega$		0.03 % + 1.5 mV
	10 to 20 kHz		< 5 $\Omega$		0.05 % + 1.5 mV
	20 to 100 kHz				0.15 % + 15 mV
20 to 200 V	40 Hz to 1 kHz	1 mV	< 5 $\Omega$	20 mA	0.03 % + 15 mV
200 to 1050 V	40 Hz to 1 kHz	10 mV	< 10 $\Omega$	10 mA	0.08 % + 60 mV

Below 5 mV an additional 15  $\mu\text{V}$  floor applies. The frequency accuracy for AC ranges is 0.01 %. The setting resolution is 1 Hz.

The output resistance of the 20 mV and 200 mV ranges is 10  $\Omega$  / 50  $\Omega$ . This must be taken into account when loads of 100 k $\Omega$  or less are being driven.

A 100 k $\Omega$  load will result in a 0.01 % error.

## AC Current (Sine Wave)

Range	Frequency	Resolution	Compliance Voltage (rms)	Specification
				1 Year
10 to 200 $\mu$ A	20 Hz to 45 Hz	10 nA	8 V	0.1 % + 0.2 $\mu$ A
	45 Hz to 1 kHz			0.05 % + 0.2 $\mu$ A
	1 kHz to 5 kHz			0.1 % + 0.5 $\mu$ A
0.2 to 2 mA	20 Hz to 45 Hz	10 nA	8 V	0.1 % + 0.2 $\mu$ A
	45 Hz to 1 kHz			0.05 % + 0.2 $\mu$ A
	1 kHz to 5 kHz			0.08 % + 0.5 $\mu$ A
2 to 20 mA	20 Hz to 45 Hz	100 nA	8 V	0.1 % + 2 $\mu$ A
	45 Hz to 1 kHz			0.05 % + 2 $\mu$ A
	1 kHz to 5 kHz			0.08 % + 5 $\mu$ A
20 to 200 mA	20 Hz to 45 Hz	1 $\mu$ A	8 V	0.1 % + 20 $\mu$ A
	45 Hz to 1 kHz			0.05 % + 20 $\mu$ A
	1 kHz to 5 kHz			0.1 % + 50 $\mu$ A
0.2 to 2 A	20 Hz to 500 Hz	10 $\mu$ A	3.5 V	0.1 % + 300 $\mu$ A
	2 to 22 A			100 $\mu$ A

For full accuracy the 2 A range load must be between 0.1 and 0.4  $\Omega$  and between 0.04 and 0.1  $\Omega$  for the 20 A range.

## Decade Resistance

Nominal Value	Max Rating	Specification
		1 Year
1 $\Omega$	0.1 W	800 ppm + 5 m $\Omega$
10 $\Omega$	0.1 W	70 ppm + 5 m $\Omega$
100 $\Omega$	0.1 W	30 ppm + 5 m $\Omega$
1 k $\Omega$	0.1 W	20 ppm + 5 m $\Omega$
10 k $\Omega$	0.1 W	30 ppm + 5 m $\Omega$
100 k $\Omega$	0.1 W	30 ppm
1 M $\Omega$	200 V	150 ppm
10 M $\Omega$	200 V	0.1 %
100 M $\Omega$	200 V	1 %
1 G $\Omega$	200 V	10 %

Specifications apply to models fitted with 4 wire decade resistance. For models fitted with 2 wire decade resistance an additional floor of  $\pm 15$  m $\Omega$  (or equivalent conductance) applies after subtraction of external lead resistance. Above 10 k $\Omega$  connections can be made as either 4 or 2 wire. Settling time < 10 seconds. Conductance is a mathematical calculation of the resistance functions and therefore does not require calibration.

## Decade Conductance

Value	Max Rating	Specification
		1 Year
1 S	0.1 W	0.58 %
100 mS	0.1 W	570 ppm
10 mS	0.1 W	80 ppm
1 mS	0.1 W	35 ppm
100 $\mu$ S	0.1 W	31 ppm
10 $\mu$ S	0.1 W	30 ppm
1 $\mu$ S	200 V	150 ppm
100 nS	200 V	0.1 %
10 nS	200 V	1 %
1 nS	200 V	10 %

## Capacitance

Value	Resolution	Max Rating	Specification 1Year
1 nF	0.1 pF	25 V	0.2 %
10 nF	1 pF	25 V	0.2 %
20 nF	1 pF	25 V	0.2 %
50 nF	1 pF	25 V	0.2 %

Value	Resolution	Max Rating	Specification 1Year
100 nF	10 pF	25 V	0.2 %
200 nF	10 pF	25 V	0.2 %
500 nF	10 pF	25 V	0.2 %
1 $\mu$ F	100 pF	25 V	0.2 %

All values are  $\pm 10$  pF. Specifications apply to the displayed value, after subtraction of residual lead capacitance. Specification at 1 kHz, based on 4 wire sine wave measurement technique.

## Thermocouple Simulation

Type	Range $^{\circ}$ C	Specification
		1 Year
J	-210 to -50	$\pm 0.15$ $^{\circ}$ C
	-50 to 1200	$\pm 0.09$ $^{\circ}$ C
K	-200 to -100	$\pm 0.2$ $^{\circ}$ C
	-100 to 480	$\pm 0.1$ $^{\circ}$ C
	480 to 1372	$\pm 0.15$ $^{\circ}$ C
T	-200 to -100	$\pm 0.2$ $^{\circ}$ C
	-100 to 400	$\pm 0.09$ $^{\circ}$ C
R	-50 to 20	$\pm 0.9$ $^{\circ}$ C
	20 to 250	$\pm 0.5$ $^{\circ}$ C
	250 to 1768	$\pm 0.35$ $^{\circ}$ C

Type	Range $^{\circ}$ C	Specification
		1 Year
B	300 to 600	$\pm 1.0$ $^{\circ}$ C
	600 to 1820	$\pm 0.6$ $^{\circ}$ C
N	-200 to 0	$\pm 0.3$ $^{\circ}$ C
	0 to 600	$\pm 0.1$ $^{\circ}$ C
	600 to 1300	$\pm 0.15$ $^{\circ}$ C
E	-200 to 0	$\pm 0.1$ $^{\circ}$ C
	0 to 280	$\pm 0.05$ $^{\circ}$ C
	280 to 1000	$\pm 0.05$ $^{\circ}$ C
S	-50 to 100	$\pm 0.7$ $^{\circ}$ C
	100 to 500	$\pm 0.4$ $^{\circ}$ C
	500 to 1768	$\pm 0.3$ $^{\circ}$ C

Resolution 0.1  $^{\circ}$ C. Switchable automatic internal cold junction reference, accuracy  $\pm 0.5$   $^{\circ}$ C and applies to ambient changes less than  $\pm 0.5$   $^{\circ}$ C

$^{\circ}$ F and  $^{\circ}$ K units also selectable. The accuracy of the thermocouple simulation is determined by the accuracy of the 20 and 200 mV DC ranges using tables published in EN 60584-1:2013 (ITS-90). Accredited measurements are not available for Type B thermocouple simulation.

## Digital Frequency

Range	Resolution	Specification
		1 Year
0.1 Hz to 1 kHz	0.01 Hz	20 ppm
1 kHz to 1 MHz	1 Hz	20 ppm
1 MHz to 10 MHz	10 Hz	20 ppm

Square wave output. Amplitude  $\sim 2$  V peak to peak. Period is a mathematical calculation of the Frequency function and therefore does not require calibration.

## Period

Range	Resolution	Specification
		1 Year
100 ns to 10 s	Fixed Values 1,2,5 Steps	20 ppm

## Simulated Resistance

Range	Resolution	Specification	UUT Test Current
		1 Year	
10 Ω to 40 Ω	0.01 Ω	0.15 % + 50 mΩ	10 mA
40 Ω to 400Ω	0.01 Ω	0.05 % + 50 mΩ	1 mA
400 Ω to 4 kΩ	0.01 Ω	0.02 % + 1 Ω	0.1 mA
4 kΩ to 40 kΩ	0.01 Ω / 1 Ω	0.02 % + 10 Ω	0.1 mA
40 kΩ to 400 kΩ	1 Ω	0.02 % + 100 Ω	10 μA
400 kΩ to 4 MΩ	1 Ω / 1 kΩ	0.02 % + 1 kΩ	1 μA
4 MΩ to 40 MΩ	1 kΩ	0.2 % + 10 kΩ	0.1 μA

Specifications apply at the UUT Test Current and suitable for DC currents only. For further information see the 5025x Simulated Resistance application note.  
 (For firmware prior to version 9.6.9, the simulated resistance ranges are selectable from 10.00 Ω to 9999.99 Ω, 0.010 kΩ to 999.999 kΩ or 0.001 MΩ to 40.000 MΩ)

## Pt100

Range	Resolution	Specification
		1 Year
-180 to 200 °C	0.01 °C	± 0.2 °C
200 to 850 °C	0.01 °C	0.03 % + 0.15 °C

Alpha = 0.00385. (ITS-90). IEC 60751

## Resistance Plus Upgrade (Option 9787)

### 2 Wire Variable Resistance

Range	Resolution	Max Rating	Specification
			1 Year
1 Ω to 20 Ω	1 Ω	0.1 W	100 ppm + 12 mΩ
20 Ω to 50.00 Ω	10 mΩ	0.1 W	100 ppm + 12 mΩ
50 Ω to 999.999 Ω	1 mΩ	0.1 W	100 ppm + 12 mΩ
1 kΩ to 10.000 kΩ	1 Ω	0.1 W	200 ppm + 25 mΩ
10 kΩ to 100.000 kΩ	1 Ω	0.1 W	100 ppm + 1 Ω
100 kΩ to 999.99 kΩ	10 Ω	0.1 W	100 ppm + 10 Ω
1 MΩ to 10.0000 MΩ	100 Ω	0.1 W	200 ppm + 100 Ω
10 MΩ to 120.000 MΩ	1 kΩ	0.1 W	0.1% + 1 kΩ

2 wire at output terminals. Specifications do not include external lead resistance. Replaces the Simulated Resistance function.  
 Variable Resistance uses real resistors. RTD Function: Alpha = 0.00385. (ITS-90). IEC 60751.

### RTD

Range	Resolution	Specification
		1 Year
-180 to 200 °C	0.01 °C	± 0.07 °C
200 to 850 °C	0.01 °C	± 0.15 °C

### 2 Wire Conductance

Nominal Value	Max Rating	Specification 1 Year
1 S	0.1 W	1 %
100 mS	0.1 W	0.11 %
10 mS	0.1 W	200 ppm
1 mS	0.1 W	230 ppm
100 μS	0.1 W	200 ppm
10 μS	0.1 W	200 ppm
1 μS	0.1 W	300 ppm
100 nS	0.1 W	0.1 %
10 nS	0.1 W	1 %

Conductance is a mathematical calculation of the resistance functions and therefore does not require calibration.

## Enhanced Performance Pack (Option 9701)

### Extended Capacitance

Value	Resolution	Frequency	Max Voltage	Specification
				1 Year
10 $\mu$ F	1 nF	1 kHz	25 V	0.5 %
20 $\mu$ F	1 nF	1 kHz	25 V	0.5 %
50 $\mu$ F	1 nF	1 kHz	25 V	0.5 %
100 $\mu$ F	10 nF	100 Hz	25 V	0.5 %

All values are  $\pm 10$  pF. Specifications apply to the displayed value, after subtraction of residual capacitance. Specification based on 4 wire sine wave measurement technique.

### Inductance

Value	Frequency	Test Voltage	Specification
			1 Year
1 mH	1 kHz	50 mV	0.2 %
1.9 mH	1 kHz	100 mV	0.2 %
5 mH	1 kHz	200 mV	0.2 %
10 mH	1 kHz	300 mV	0.2 %
19 mH	1 kHz	400 mV	1 %
50 mH	1 kHz	600 mV	1 %
100 mH	1 kHz	600 mV	1 %
190 mH	1 kHz	700 mV	1 %
500 mH	1 kHz	700 mV	1 %
1 H	1 kHz	700 mV	1 %
10 H	100 Hz	700 mV	1 %

An additional floor of  $\pm 1$   $\mu$ H applies. Specifications apply to the displayed value after subtraction of residual inductance. Specification based on 4 wire sine wave measurement technique at the specified test voltage. For full accuracy the 5025's warmup period is extended to 12 hours at Tcal  $\pm 3$  °C.

### Enhanced DC High Voltage (DCHV+)

Range	Resolution	Output Resistance	Max Burden	Specification
				1 Year
20 to 200 V	100 $\mu$ V	0.25 $\Omega$	10 mA	15 ppm + 800 $\mu$ V
100 to 1020 V	1 mV	1 $\Omega$	1 mA	25 ppm + 1500 $\mu$ V

These ranges are in addition to the standard ranges and selectable from front panel or remote command. (DCHV+). Minimum load 20 k $\Omega$  200 V Range / 1 M $\Omega$  1 kV range. For full accuracy when operating over 50 % of range, a 2-minute operation period is allowed with a duty cycle of 50 %.

### Extended AC Voltage Frequency

Range	Frequency	Resolution	Output Resistance	Specification
				1 Year
1 to 20 mV	100 to 300 kHz	1 $\mu$ V	50 $\Omega$	0.05 % + 1000 $\mu$ V
20 to 200 mV	100 to 300 kHz	1 $\mu$ V	50 $\Omega$	0.05 % + 1000 $\mu$ V
0.2 to 2 V	100 to 300 kHz	10 $\mu$ V	<0.5 $\Omega$	0.1 % + 5 mV
	300 kHz to 1 MHz	10 $\mu$ V	<0.5 $\Omega$	1 % + 10 mV

### Full Range Resistance

Range	Resolution	Max Rating	Specification
			1 Year
1 $\Omega$ to 20 $\Omega$	1 $\Omega$	0.1 W	100 ppm + 10 m $\Omega$
20 $\Omega$ to 50.00 $\Omega$	10 m $\Omega$	0.1 W	100 ppm + 10 m $\Omega$
50 $\Omega$ to 999.999 $\Omega$	1 m $\Omega$	0.1 W	100 ppm + 8 m $\Omega$
1 k $\Omega$ to 10.000 k $\Omega$	1 $\Omega$	0.1 W	200 ppm + 23 m $\Omega$
10 k $\Omega$ to 100.000 k $\Omega$	1 $\Omega$	0.1 W	100 ppm + 1 $\Omega$
100 k $\Omega$ to 999.99 k $\Omega$	10 $\Omega$	0.1 W	100 ppm + 10 $\Omega$
1 M $\Omega$ to 10.0000 M $\Omega$	100 $\Omega$	0.1 W	200 ppm + 100 $\Omega$
10 M $\Omega$ to 120.000 M $\Omega$	1 k $\Omega$	0.1 W	0.1 % + 1 k $\Omega$

### RTD

Range	Resolution	Specification
		1 Year
<b>Pt100</b>		
-180 to 200 °C	0.01 °C	$\pm 0.07$ °C
200 to 850 °C	0.01 °C	$\pm 0.15$ °C
<b>Pt200</b>		
-180 to 0 °C	0.01 °C	$\pm 0.03$ °C
0 to 850 °C	0.01 °C	0.02 % + 0.03 °C
<b>Pt500</b>		
-180 to 200 °C	0.01 °C	0.02 % + 0.03 °C
200 to 850 °C	0.01 °C	0.1 % + 0.3 °C
<b>Pt1000</b>		
-180 to 0 °C	0.01 °C	$\pm 0.03$ °C
0 to 850 °C	0.01 °C	0.1 % + 0.3 °C

After subtraction of lead resistance. The Full Range Resistance option uses real resistors and replaces the Simulated Resistance function. RTD Function: Alpha = 0.00385. (ITS-90). IEC 60751.

### Extended Thermocouples

Type	Range °C	Specification
		1 Year
U	-200 to 100	$\pm 0.15$ °C
	100 to 600	$\pm 0.1$ °C
L	-200 to 900	$\pm 0.1$ °C

Type	Range °C	Specification
		1 Year
C	0 to 1100	$\pm 0.2$ °C
	1100 to 1900	$\pm 0.35$ °C
	1900 to 2315	$\pm 0.5$ °C

Cold Junction Compensation  $\pm 0.5$  °C (applies to ambient changes of  $\pm 1$  °C). °F and °K units also selectable. Type U & L based on tables published in DIN 43710 (ITPS68). Type C based on tables published in ASTM E230/E230M - 12 (ITS-90). Accredited measurements are not available extended thermocouples.

## Oscilloscope Calibration (Option 9770)

### Amplitude

Range	Resolution	Specification
		1 Year
2 to 200 mV	10 $\mu$ V	0.20 % + 10 $\mu$ V
0.2 to 20 V	1 mV	0.05 % + 25 $\mu$ V
1 to 200 V	10 mV	0.05 % + 100 $\mu$ V
1 mV to 200 mV (50 $\Omega$ )	100 $\mu$ V	0.25 % + 20 $\mu$ V
0.2 to 2 V (50 $\Omega$ )	1 mV	0.25 % + 20 $\mu$ V

Selectable DC or 1 kHz chopped DC voltage. Accuracy applies to the top line measurement relative to ground.

### Frequency

Range	Resolution	Specification
		1 Year
0.1 Hz to 10 MHz	Fixed values	0.1 ppm*
20, 50, 100 MHz	1,2,5 sequence	20 ppm

Replaces standard Digital Frequency / Period function.

\* Fitted with option 9783 Oven-Controlled Frequency Reference. Otherwise 20 ppm.

1.5 V pk-pk - 0.1 Hz to 100 kHz. 1 V pk-pk - 100 kHz to 100 MHz (sine wave at 100 MHz). Deviation function is not available.

### Period

Range	Resolution	Specification
		1 Year
100 ns to 10 s	Fixed values	0.1 ppm*
50, 20, 10 ns	1,2,5 sequence	20 ppm

### Duty Cycle

3 frequencies, 100 Hz, 1 kHz, 10 kHz. Duty cycle settable from 0 to 100 %. Setting resolution 0.01 % at 100 Hz, 0.1 % at 1 kHz, 1 % at 10 kHz. Deviation function is not available.
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### Fast Rise

Into 50 $\Omega$ Load	Specification
	1 Year
400 ps	$\pm$ 150 ps

Accredited measurements are not available for Duty Cycle & Fast Rise.

## Oscilloscope 2.2 GHz Levelled Sine (Option 9769)

Range	Resolution	Amplitude	Specification
			1 Year
50 MHz to 199.9 MHz	0.1 MHz	(0.35 V)	1 %
200 MHz to 499.9 MHz	0.1 MHz	0.5 V, 1 V, 1.5 V	2 %
500 MHz to 999.9 GHz	0.1 MHz	(2 V, 2.5 V, 3 V, 3.5 V)	4 %
1 GHz to 2.2 GHz	0.1 MHz		6 %

Sine wave, 50  $\Omega$  Output. From 50 to 499.9 MHz an additional error of 0.5% of range applies. Frequency Accuracy 50 ppm.

Amplitudes in brackets are optional. 2, 2.5 and 3 V limited to 1.6 GHz. 3.5 V limited to 1.3 GHz.

Accredited measurements are not available for levelled sinewave amplitude.

## Power (Option 9797)

DC Current	Specification 1 Year	Compliance	Resolution	AC Current (45 to 400 Hz)	Specification 1 Year	Compliance	Resolution
0.02 to 2 A	0.03 % + 500 $\mu$ A	5 V	100 $\mu$ A	0.1 to 2 A	0.1 % + 2 mA	3.5 V	100 $\mu$ A
2 to 22 A	0.05% + 6 mA	4 V	1 mA	2 to 22 A	0.1 % + 20 mA	3 V	1 mA
DC Voltage	Specification 1 Year	Output Current	Resolution	AC Voltage (45 to 400 Hz)	Specification 1 Year	Output Current	Resolution
0.1 to 20 V	0.01 % + 500 $\mu$ V	20 mA	100 $\mu$ V	0.1 to 20 V	0.03 % + 2 mV	20 mA	100 $\mu$ V
20 to 200 V	0.02 % + 30 mV	20 mA	1 mV	20 to 200 V	0.06 % + 30 mV	20 mA	1 mV
200 to 1050 V	0.05 % + 50 mV	10 mA	10 mV	200 to 1050 V	0.08 % + 90 mV	10 mA	10 mV
Phase	Specification 1 Year	Range	Resolution	Power Factor	Range	Resolution	
45 to 99 Hz	0.25 $^\circ$	$\pm$ 90 $^\circ$	0.1 $^\circ$	45 to 99 Hz	0.00 to 1.00	0.01	
100 Hz to 400 Hz	1.0 $^\circ$	$\pm$ 90 $^\circ$	0.1 $^\circ$	100 Hz to 400 Hz	0.00 to 1.00	0.01	

The accuracy of the power is complex and is determined by using a formula, which combines the errors due to Voltage, Current, and Phase.

Power Specification (%) =  $\sqrt{(V_{spec}^2 + I_{spec}^2 + \text{Phase Correction}^2)}$ . Where Phase Correction (%) =  $100 \times (1 - \cos(\text{Phase} + \text{Phase}_{spec})) / \cos(\text{Phase})$ .

The current and voltage terminals must be isolated. A current transformer or clamp meter adaptor must be used if instrument under test has a common negative.

Settling time < 15 seconds. Accredited measurements are not available for phase angle or power factor. Calibration is performed independently for voltage, current and phase.

## General Specifications

Power supply	
Mains Voltage	100 to 260 V AC 50/60 Hz.
Fuse Ratings	3.15 A anti-surge.
Power Consumption	120 W typical, 200 W Max.
Operating Temperature	10 to 40 °C.
Storage Temperature	-10 °C to 50 °C.
Operating Humidity	Operating less than 80 %.
Altitude	0 to 3 km. Non-operating 3 km to 12 km.
Warm Up Time	1 hour to full accuracy.
Settling Time	< 5 seconds for all functions, unless otherwise stated.
Dimensions	Width 447 x Height 152 x Depth 470 mm.
Weight	16.5 kg.
Interfaces	RS-232, USB and GPIB.
Command Set	Standard SCPI.

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