



# **3 1/2 DIGITS DIGITAL MULTIMETER 600.005**

Gebbruiksaanwijzing

Mode d'Emploi

Gebrauchsanleitung

Brugsanvisning

Instruction Manual

Read the Users Manual thoroughly before use.

## SAFETY INFORMATION

The digital multimeter has been designed according to IEC-1010 concerning electronic measuring instruments with an over voltage category (CATI) and pollution degree 1.

## ELECTRICAL SYMBOLS



AC (Alternating Current)



DC (Direct Current)



Important safety information. Refer to the manual.



Dangerous voltage may be present.



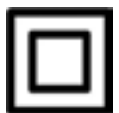
Earth ground



Fuse



Conforms to European Union directives



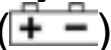
Double insulated

*Do not attempt to make any repairs yourself. This would invalid your warranty.  
Do not make any changes to the unit. This would also invalid your warranty.  
The warranty is not applicable in case of accidents or damages caused by  
inappropriate use or disrespect of the warnings contained in this manual.  
SkyTronic UK cannot be held responsible for personal injuries caused by a  
disrespect of the safety recommendations and warnings. This is also applicable to  
all damages in whatever form.*



## WARNING

To avoid possible electric shock or personal injury, follow these guidelines:

- Do not use the meter if it is damaged. Before you use the meter, inspect the case. Pay particular attention to the insulation surrounding the connectors.
- Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity. Replace damaged test leads before you use the meter.
- Do not use the meter if it operates abnormally. Protection may be impaired. When in doubt, have the meter serviced.
- Do not operate the meter around explosive gas, vapour, or dust.
- Do not apply more than the rated voltage, as marked on the meter, between terminals or between any terminal and earth ground.
- Before use, verify the meter's operation by measuring a known voltage.
- When servicing the meter, use only specified replacement parts.
- Use with caution when working above 30V ac rms, 42V peak, or 60V dc. Such voltages pose a shock hazard.
- When using the probes, keep your fingers behind the finger guards on the probes.
- Connect the common test lead before you connect the live test lead. When you disconnect test leads, disconnect the live test lead first.
- Remove the test leads from the meter before you open the battery door.
- Do not operate the meter with the battery door or portions of the cover removed or loosened.
- To avoid false readings, which could lead to possible electric shock or personal injury, replace the batteries as soon as the low battery indicator () appears.

## CAUTION

To avoid possible damage to the meter or to the equipment under test, follow these guidelines:

- Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity, diodes, or capacitance.
- Use the proper terminals, function, and range for your measurements.
- Before measuring current, check the meter's fuses and turn power OFF to the circuit before connecting the meter to the circuit.
- Remove test leads from the Meter before opening the Meter case.

## MAINTENANCE

- Before opening the case, always disconnect the test leads from all live circuits.
- For continue protection against fire, replace fuse only with the specified voltage and current ratings: F 250mA/250V (Fast Blown) ø5 x 20.
- Periodically wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.

## GENERAL SPECIFICATIONS

Display: 3 1/2 digits LCD, Max. reading 1999

Over range indicate: Symbol "1" appear on the LCD

Zero adjustment: Automatic

Low battery indication: Symbol "" appears on the LCD

Power: 12V battery

Dimension: 100mm(L) x 50mm(W) x 20mm(D)

Weight: 60g (including battery)

## TECHNICAL SPECIFICATIONS

Accuracy is specified for a period of one year after calibration and at 18°C~28°C(64°F~82°F) with relative humidity up to 75%.

Accuracy specifications take the form of:

$\pm([\% \text{ of Reading}] + [\text{Number of Least Significant Digits}])$

## DC VOLTAGE

<i>Range</i>	<i>Accuracy</i>	<i>Resolution</i>
200mV	$\pm(0.8\%+1)$	100 $\cdot$ V
2V		1mV
20V		10mV
200V		100mV
500V	$\pm(1\%+1)$	1V

Input impedance: 1M $\Omega$  for all ranges.

## AC VOLTAGE

<i>Range</i>	<i>Accuracy</i>	<i>Resolution</i>
200V	$\pm(1.5\%+10)$	100mV
500V		1V

Input impedance: 452K $\Omega$

Frequency range: 50Hz~200Hz



## DC CURRENT

<i>Range</i>	<i>Accuracy</i>	<i>Resolution</i>
2mA	$\pm(2\%+2)$	1 $\mu$ A
20mA		10 $\mu$ A
200mA	$\pm(1\%+2)$	100 $\mu$ A

## RESISTANCE

<i>Range</i>	<i>Accuracy</i>	<i>Resolution</i>
200 $\Omega$	$\pm(1\%+3)$	0.1 $\Omega$
2K $\Omega$		1 $\Omega$
20K $\Omega$		10 $\Omega$
200K $\Omega$		100 $\Omega$
2M $\Omega$		1K $\Omega$

## DIODE AND AUDIBLE CONTINUITY TEST

<i>Range</i>	<i>Description</i>	<i>Test Condition</i>
	The approx. forward voltage drop of the diode will be displayed on the LCD.	The forward DC current is approx. 1mA, the reversed DC voltage is approx. 2.8V.
	If the resistance of the circuit under test is less than 40Ω, the built-in buzzer will sound.	Open circuit voltage is approx. 2.8V.

## TRANSISTOR TEST

<i>Range</i>	<i>hFE</i>	<i>Test Current</i>	<i>Test Voltage</i>
PNP & NPN	0~1000	1b=10μA	Vce=2.8V

## OPERATING INSTRUCTION


### DC VOLTAGE MEASUREMENT

1. Connect the red test lead to the “VΩ” jack and the black test lead to the “COM” jack
2. Set the range switch to the desired “ $\underline{V}$ ” range. If the voltage to be measured is not known beforehand, set the range switch to the highest range and then turn down range by range until satisfactory resolution is obtained.
3. Connect the test lead to the source or load to be measured.
4. Read the voltage value displayed on the LCD.

### AC VOLTAGE MEASUREMENT

- 1) Connect the red test lead to the “VΩ” jack, and the black test lead to the “COM” jack.
- 2) Set the range switch to the desired “ $\underline{V}$ ” range. If the voltage to be measured is not known beforehand, set the range switch to the highest range and then turn down range by range until satisfactory resolution is obtained.
- 3) Connect the test lead to the source or load to be measured.
- 4) Read the voltage value displayed on the LCD.


## DC CURRENT MEASUREMENT

- 1) Connect the red test lead to the “mA” jack and the black test lead to the “COM” jack.
- 2) Set the range switch to the desired “” range. If the current to be measured is not known beforehand, set the range switch to the range and then turn down range by range until satisfactory resolution is obtained.
- 3) Open the circuit in which the current is to be measured, and connect test leads in series with the circuit.
- 4) Read the current value displayed on the LCD.

## RESISTANCE MEASUREMENT

- 1) Connect the red test lead to the “V $\Omega$ ” jack and the black test lead to the “COM” jack.
- 2) Set the range switch to the desired “ $\Omega$ ” range.
- 3) Connect the test leads to the circuit to be measured.
- 4) Read the resistance value displayed on the LCD.

## DIODE TEST

- 1) Connect the red test lead to the “V $\Omega$ ” jack and the black test lead to the “COM” jack.
- 2) Set the range switch to the desired “” range.
- 3) Connect the red test lead to the anode of the diode to be tested and the black test lead to the cathode of the diode. The approximate forward voltage drop of the diode will be displayed on the LCD. If the connection is reversed, only figure “1” will be shown.


## TRANSISTOR TEST

- 1) Set the range switch to the “hFE” range.
- 2) Determine whether the transistor to be tested is NPN or PNP, and locate the E, B, C leads. Insert the leads into the proper holes of the hFE socket on the front panel.
- 3) Read the approximate hFE value at the test condition of base current 10 $\mu$ A and Vce 2.8V.

## **AUDIBLE CONTINUITY TEST**

- 1) Connect the red test lead to the “VΩ” jack and the black test lead to the “COM” jack.
- 2) Set the range switch to the “•)))” range.
- 3) Connect the test leads to the two terminals of the circuit to be tested. The resistance is less than about 40Ω, the built-in buzzer will sound.

## **Battery & Fuse Replacement**

If “” appears on the LCD, it indicates that the battery should be replaced. To replace the battery, open the case, replace the exhausted battery with the ratings specified: 12V, and then close the case.

The fuse rarely needs to be replaced and is blown as a result of the operator's error. To replace the fuse, open the case, replace the blown fuse with the ratings specified: F 250mA/250V, and then close the case.