

TIS258

Digital Multimeter



Instruction Manual Version 2.00

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1.0- Introduction

Thank you for purchasing the TIS258

The TISS258 Digital Multimeter, is a 3 1/2-digit multimeter with the following capabilities / functionality:

Function	Range	Function	
Max. Display	2000 counts	Diode	Yes
Basic Accuracy	0.5%	Continuity	Yes
DC Voltage	200mV-500V	Data Hold	Yes
AC Voltage	200mV-500V	Back Light	Yes
DC Current	200μA-10A	Auto Power off	Yes
AC Current	200μA-10A	Manual Range	Yes
Resistance	200Ω-20MΩ	Battery	9V x 1
Temperature	-20°C-750°C	Diode	Yes
	-4°F-1382°F	Continuity	Yes

2.0 – Accessories

Test lead(s) (Red + Black) -----	2
9V PP3 alkaline battery-----	1
User Manual -----	1

3.0- SAFETY INSTRUCTIONS

Warning – Please read and follow the following:

Before using the instrument, test leads and / or the adaptors please ensure there are no signs of damage as this could result in electrical shock and / or inaccurate results.

- Once the battery indicator appears, please replace the battery. As low battery level can produce inaccurate results.
- Do not use / store the instrument in high temperature, humid, flammable, or electromagnetic environments as this could result in injury, damage to the instrument and / or inaccurate results.
- If the instrument / equipment is use in a manner not specified by the manufacturer, the protection provided by the instrument may be impaired.
- Do not connect test leads to live systems or hazardous voltages unless stated within the manual.

3.1 Safety Symbols

	Warning & caution safety label
	Double insulation
	DC (Direct Current)
	AC (Alternating Current)
	Low battery
	Dangerous high voltage!
	Buzzing on-off
	Earthing
	Comply with EC standard
CAT IV	Applicable to test and measuring circuits connected at the source of the building's low-voltage MAINS installation.

3.2 - Warranty

NEW INSTRUMENTS HAVE A WARRANTY PERIOD OF: 1 YEAR FROM THE DATE OF PURCHASE BY THE USER.

(A copy of the original purchase invoice may be requested to validate the purchase date).

This warranty period includes parts and labor only.

Any unauthorized repair / adjustment will void the warranty.

For service / calibration / repair requirements, please contact:

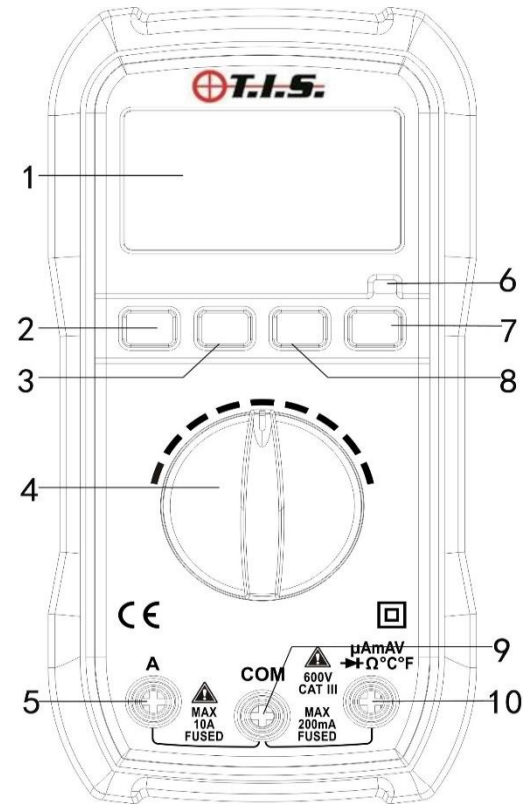
TEST INSTRUMENT SOLUTIONS LIMITED
UNIT 12/14, LUDDITE WAY BUSINESS PARK
RAWFOLDS WAY
CLECKHEATON
BD19 5DQ

Tel: 01274 752407

Email: SALES@TIS-TIC.CO.UK

4.0 Instrument Layout, display information & symbols

1. LCD display
2. Select Button (Switch the measurements of AC, DC current; Temperature, Diode & Continuity check)
3. MAX Hold button
4. Rotary/ Function Selector Switch
5. 10A, Input Terminal
6. LED Indicator
7. Backlight Button
8. Data Hold Button
9. COM, Input Terminal
10. V, Ω ,mA, Input Terminal



5.0 - Description of Measurement Operation

AC / DC Voltage Measurement

- 1) Set the rotary switch to the voltage position. (V_{DC} / V_{AC})
- 2) If required press the select button to change the voltage sine wave from DC V_{DC} to AC (V_{AC})
- 3) Insert the black test lead banana plug into the negative **COM** input terminal & insert the red test lead banana plug into the positive **V/ Ω mA** input terminal.
- 4) Connect test leads to the conductors to be tested.
- 5) Read the voltage in the LCD display.

PLEASE NOTE: That the polarity of red test lead must be connected to the positive conductor to indicate the positive voltage measurement when conducting DC voltage measurements.

AC/DC Current Measurement

- 1) Select the rotary switch to the appropriate current measurement function & range.
- 2) Insert black test lead banana plug into the negative **COM** input terminal.
- 3) To perform current measurements less than 200mA insert the red test lead banana plug into the **mA** Input terminal or for current measurement between 200mA to 10A insert the red test lead banana plug into **10A** input terminal
- 4) Disconnect the circuit under test then connect the test leads in series with the circuit.
- 5) Turn the power on and read the measurement value displayed.
If OL (Over Limit) is displayed, increase the measurement range / function.

Diode Test

1. Set the rotary switch to the “ ” position.
2. Connect the black test lead to the "COM" terminal and the red test lead to the "VΩ:" input terminal.
3. Pres the “SEL” button to select the diode function (If required)
4. Connect the test leads to the diode, test both the “Forward Bias & Reverse Bias” of the diode under test. Open circuit measurements will be indicated as OL on the display,

Continuity Indication / Buzzer Test

1. Set the rotary switch to the “ ” position.
2. Connect the black test lead to the "COM" terminal and the red test lead to the "VΩ:" input terminal.
3. Pres the “SEL” button to select the continuity function (If required)
4. Connect test leads to the circuit under test.
5. Measurement will be displayed and the audible indicator will sound, when measurements are under 70Ω.

Resistance Measurement

1. Set the rotary switch to the required resistance range.
2. Insert the black test lead banana plug into the negative **COM** input terminal & insert the red test lead banana plug into the positive **V/ Ω mA** input terminal.
3. Connect test leads / probes to the measuring points
4. Read resistance measurement displayed on the LCD.
If OL (Over Limit) is displayed, increase the measurement range / function.

Temperature Measurement

1. Set rotary switch to the “°C °F” function.
2. Select the measurement type by press the “SEL” button.
3. Connect the thermocouple by inserting the black lead in to the **COM** input terminal & insert the red lead in to the **V/ Ω mA** input terminal.
4. Place the thermocouple either on or in the vicinity of the object / room under test.
5. Wait while measurement stabilizes.
6. Read temperature measurement displayed on the LCD.

6.0 – Technical Specifications

DC Voltage

Range	Resolution	Accuracy
200mV	100 μ V	$\pm 0.5\%$ reading ± 3 digits
2V	1mV	$\pm 0.8\%$ reading ± 3 digits
20V	10mV	
200V	100mV	
500V	1V	$\pm 1.0\%$ reading ± 5 digits

Overload Protection:

200mV Range at 250V AC/DC

Other ranges at 600V AC/DC

AC Voltage

Range	Resolution	Accuracy
200mV	0.1mV	$\pm 0.5\%$ reading ± 3 digits
2V	1mV	$\pm 0.8\%$ reading ± 3 digits
20V	10mV	$\pm 0.8\%$ reading ± 3 digits
200V	0.1V	$\pm 0.8\%$ reading ± 3 digits
500V	1V	$\pm 1.2\%$ reading ± 5 digits

Overload Protection: 600V AC/DC

Frequency range: 40~400Hz

DC Current

Range	Resolution	Accuracy
200 μ A	0.1 μ A	$\pm 1.0\%$ reading ± 5 digits
2mA	1 μ A	
20mA	10 μ A	
200mA	100 μ A	$\pm 2.0\%$ reading ± 5 digits
2A	1mA	$\pm 2.5\%$ reading ± 5 digits
10A	10mA	

Overload protection: fuse F200mA; fuse F10A

AC Current

Range	Resolution	Accuracy
200 μ A	0.1 μ A	$\pm 1.8\%$ reading ± 3 digits
2mA	1 μ A	$\pm 1.5\%$ reading ± 5 digits
20mA	10 μ A	
200mA	100 μ A	$\pm 2.5\%$ reading ± 5 digits
2A	1mA	$\pm 3.0\%$ reading ± 10 digits
10A	10mA	

Overload protection: fuse F200mA; fuse F10A

Resistance

Range	Resolution	Accuracy
200 Ω	0.1 Ω	$\pm 1.2\%$ reading ± 2 digits
2k Ω	1 Ω	$\pm 1.0\%$ reading ± 2 digits
20k Ω	10 Ω	$\pm 1.0\%$ reading ± 2 digits
200k Ω	100 Ω	$\pm 1.0\%$ reading ± 2 digits
2M Ω	1k Ω	$\pm 1.0\%$ reading ± 2 digits
20M Ω	10k Ω	$\pm 1.2\%$ reading ± 8 digits

Diode and Continuity

Range	Function
	Display approximate forward voltage of diode
	Built-in buzzer will be sounded if resistance is less than $70\Omega \pm 30\Omega$

Temperature

Range	Resolution	Accuracy
$-20^{\circ}\text{C} \sim 750^{\circ}\text{C}$	1°C	$\pm 2.0\%$ reading ± 3 digits
$-4^{\circ}\text{F} \sim 1832^{\circ}\text{F}$	1°F	$\pm 3.0\%$ reading ± 3 digits

7.0 - Installation / Replacement of Battery & Fuse Protection



WARNING:

- To avoid electric shock, disconnect the test leads from any source of voltage before removing the back cover or the battery or fuse covers.
- To avoid electric shock, do not operate the meter until the battery and fuse covers are in place and fastened securely.

Battery Installation / Replacement.

To avoid the false readings, replace the battery as soon as the battery indicator  appears.

- 1) Turn power off and disconnect the test leads from the meter.
- 2) Open the rear battery cover..
- 3) Insert the battery into battery holder, observing the correct polarity.
- 4) Put the battery cover back in place & secure.

Replacing the Fuse(s)

- 1) Turn power off and disconnect the test leads from the meter.
- 2) Remove the battery cover and the battery.
- 3) Remove the screws securing the rear cover.
- 4) Remove the defective fuse and install an identical fuse. (F200mA or F10A Fuse)
- 5) Replace and secure the rear cover, battery and battery cover.