

MIT2500 CAT IV Insulation testers



**Insulation testing up to 2.5 kV (New)
and 200 GΩ range in a hand held instrument**

**Guard terminal for high resistance accuracy
(New)**

**Adjustable insulation test voltage from
50 V to 2500 V (New)**

Stabilised insulation test voltage (New)

**Rechargeable options for mains and car
charging (New)**

**Single range, faster continuity testing from
0.01 Ω to 1 MΩ (New)**

**Polarisation Index (PI) & Dielectric Absorption
Ratio (DAR)**

CAT IV 600 V applications

DESCRIPTION

The MIT2500 insulation and continuity tester has been designed for Electrical and Industrial test applications, where operation voltages exceed 1000 V and higher insulation test voltages are needed.

The MIT2500 offers both fixed range voltages of 50 V, 100V, 250 V, 500 V, 1000 V and 2500 V, as well as a variable range that allows any voltage between 50 V and 2500 V to be "dialled in". This is supported by the new test voltage feedback control, which maintains the output test voltage to within 2% of the selected range, even when under test.

The MIT2500 uses the redesigned case, back-stand, and 6 cell battery compartment, as well as incorporating a Guard terminal to reduce surface tracking currents that reduce accuracy at higher voltages.

All instruments are over-moulded for increased protection and achieve an IP54 weatherproof rating

INSULATION RESISTANCE TESTING

The feedback controlled insulation test voltage is now accurate to +2% -0% compared to the original +20%, providing a more accurate test voltage without the risk of over-voltage damage to circuits.

A variable range allows the exact test voltage to be selected from 50 V to 999 V in 1 V steps, (1KV to 2.5KV in 10 V steps) providing 1100 test voltage options.

FEATURES INCLUDE:

T (N)

- 50 V, 100 V, 250 V, 500 V, 1000 V, and 2500 V

G

- Improved performance on higher insulation test ranges

2.5 V (N)

- Purpose designed high 2.5 kV silicone test leads are included as well as standard 1000 V CAT III / 600 V CAT IV general purpose test leads.

V (N)

- Adjustable test voltage from 50 V to 999 V in 1 V steps, 1000 V to 2500 V in 10 V steps

2% T

- The output test voltage is maintained within the tolerance of -0% +2% +2 V

S

- The voltage is feedback controlled to ensure it remains within specification throughout the full test range

T (N)

- The actual test voltage is displayed on the smaller digital readout, with the measurement on the larger digital display.

M

- The range voltage is displayed during selection.

M (N)

- The measurement voltage is displayed during the test.

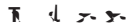
A

- The display also features an analogue arc to replicate the response of a moving coil display.

PI **DAR**

- Automatic Polarisation Index (PI) and Dielectric Absorption Ratio (DAR) functions. Polarisation Index (PI): 10 min / 1 minute ratio
Dielectric Absorption Ratio (DAR): 60 sec / 30 sec ratio

Me



- Automatically test to a time limit.

200 G

- Insulation testing up to 200 G at 1000 V.



- prevents testing if voltages in excess of 25, 30, 50, 75 or 100 V (set by the user) are detected when making insulation tests. Default is 50 V.



- The buzzer can be set to sound if the insulation resistance is above a user adjustable limit, configurable in the Setup menu.



- Holds insulation test on continuously.

T	10 G	200 G	1000 V	2500 V
50 Volts	10 G			
100 Volts	20 G			
250 Volts	50 G			
500 Volts	100 G			
1000 Volts	200 G			
2500 Volts	200 G			

The MIT2500 also includes a Guard terminal to prevent errors from stray leakage paths.

VARIABLE INSULATION VOLTAGE (NEW)*

The variable mode provides a unique solution for awkward insulation voltage measurement applications. The range option allows an insulation test voltage from 50 V to 999 V in 1 V steps, 1.0 KV to 2.5 KV in 10 V steps.

TYPICAL APPLICATIONS INCLUDE

- Commercial Avionics
- Military Land, Marine and Air communications
- Manufacturing/production line goods
- Electrostatic measurement
- Component testing
- Battery powered traction and lifting equipment

GUARD TERMINAL

The Guard terminal (G) is a third terminal on the connection panel. Connection of the guard terminal on certain applications provides a return path for parallel leakage currents that could otherwise create significant errors in the insulation measurement. This is especially so for surface contamination of equipment or cables.

For voltages of 1000 V and above, or expected insulation values over 100 M the guard terminal should be considered to reduce measurement error.

CONTINUITY (RESISTANCE) TESTS

OTHER FUNCTIONS AND FEATURES

S    :

Allow control of:

- Continuity buzzer limit alarms,
- Insulation buzzer limit alarms,
- Insulation LOCK
- Insulation test timer duration
- Backlight ON duration
- Sleep timer
- Continuity test currents,
- Factory reset

W    :

Every tester is sealed to IP54, providing a weatherproof case to reduce the chances of water ingress, including the battery and fuse compartment.

T    :

Rubber over moulding combines the tough shock absorbing outer protection with excellent grip, on a strong modified ABS housing, providing an almost indestructible case.

B    :

Battery requirements are 6 AA batteries of either standard Alkaline or Nickel Metal Hydride (NiMH) rechargeable type, providing a

FUNCTIONAL SUMMARY

INSULATION	
50 V / 100 V	
250 V / 500 V / 1000 V	
2500 V	
VARIABLE voltage from 50 V to 2500 V	
PI- / DAR / timed	
Lock button on M	
Guard terminal	
CONTINUITY	
Continuity 0.01 - 1 M	
Auto reverse polarity (setup ON-OFF)	
Lead null (<10)	
VOLTAGE	
AC / DC Volts 600 V	
mV AC / DC range	
Frequency measurement 15 - 400 Hz	
Input impedance	250 k
CAPACITANCE	
Capacitance 0.1 nF - 10 μF	
OTHER FEATURES	
PASS/FAIL on limit alarms	
Auto power down (setup)	
On board memory	
Bluetooth® Download and Software	
AA Alkaline or NiMH	
Recharger ready	
CAT IV 600 V	
ACCESSORIES	
Silicone leads (Red/Black/Blue with probes and clips)	
2.5 kV Silicone croc clip leads	
OPTIONAL Switched probe supplied	
OPTIONAL Battery charger available	

SPECIFICATIONS

All quoted accuracies are at +20 °C.

Insulation

Insulation accuracy

50 Volts	10 G	± 2%	± 2 digits	± 4.0% per G
100 Volts	20 G	± 2%	± 2 digits	± 2.0% per G
250 Volts	50 G	± 2%	± 2 digits	± 0.8% per G
500 Volts	100 G	± 2%	± 2 digits	± 0.4% per G
1000 Volts	200 G	± 2%	± 2 digits	± 0.2% per G
2500 Volts	200 G	± 2%	± 2 digits	± 0.2% per G

Service Error: BS EN 61557-2 (2007).

50V,	± 2.0%	± 2d,	100k - 900k	± 10.5%
100V,	± 2.0%	± 2d,	100k - 900k	± 10.3%
250V,	± 2.0%	± 2d,	100k - 900k	± 10.3%
500V,	± 2.0%	± 2d,	100k - 900k	± 10.3%
1000V,	± 2.0%	± 2d,	100k - 900k	± 11.5%

Guard terminal performance <5% error at 500 k parallel circuit resistance with 100 M load

Display range Analogue: 1 G full scale

Resolution 0.1 k

Short circuit/charge current 2 mA +0% -50% to EN 61557-2 (2007) (except 2500 V)

Terminal voltage accuracy -0% +2% ± 2V

Test current 1 mA at min. pass value of insulation to a maximum of 2 mA max

Operation EN61557 : 0.10 M to 1.0 G

Leakage current display 10% ± 3 digits

Voltage ± 3% ± 2 digits ± 0.5% of rated voltage

Timer control Countdown timer 60 second (adjustable to 10 minutes)

Note Above specifications only apply when high quality silicone leads are being used.

Continuity:

Continuity measurement 0.01 to 1 M (0 to 1000 k on analogue scale)

Continuity accuracy ± 3% ± 2 digits (0 to 100)
 ± 5% ± 2 digits (100 - 500 k)
 Service Error: BS EN 61557-4 (2007) -
 ± 2.0%, 0.1 - 2 ± 6.8%

Open circuit voltage 5 V ± 1 V

Test current 200 mA (-0 mA +20 mA)
 (0.01 to 4)

Polarity Single polarity (Default) / Dual polarity (configurable on setup).

Lead resistance Null up to 10

Voltage range:

Voltage range DC:
 0 to 600 V
 AC:
 10 mV to 600 V TRMS sinusoidal (15 Hz to 400 Hz)
 Unspecified:
 0 - 10 mV (15 to 400 Hz)

Volt range accuracy DC: $\pm 2\% \pm 2$ digits
AC: $\pm 2\% \pm 2$ digits

Service Error: BS EN 61557-1 (2007) -
 $\pm 2.0\% \pm 2d$, 0V - 300Vac/dc $\pm 5.1\%$

Waveform Non-sinusoidal:
 $\pm 3\% \pm 2$ digits >100 mV to 600 V TRMS
 $\pm 8\% \pm 2$ digits 10 mV to 100 mV TRMS

Default voltmeter $\pm 0.5\% \pm 1$ digit (100 Hz to 400 Hz)
unspecified

Frequency:

Frequency measurement range 15 Hz - 400 Hz

Frequency measurement accuracy $\pm 0.5\% \pm 1$ digits

Capacitance measurement:

Capacitance range 0.1 nF to 10 μ F

Accuracy $\pm 5.0\% \pm 2$ digits (1 nF-10 μ F)

Results storage:

Storage capacity >1000 test results

Data download Bluetooth® wireless
Bluetooth® Class II

Range up to 10 m

Power supply 6 x 1.5 V cells type IEC LR6
(AA, MN1500, HP7, AM3 R6HP) Alkaline

6 x 1.2 NiMH rechargeable cells may be used.

Battery life 3000 insulation tests with duty cycle of 5
sec ON /55 sec OFF @ 1000 V into 1 M
Charger (Optional): 12-15 V dc (accessory
interface) 303sf8.1 e ceetor: BS010 61551995400 Hz(nings(Poweridosults)Tf-10.63 -1.70()pacity widapacitests typ61326(3

ORDERING INFORMATION

Description	Order Code	Description	Order Code
L < < 1 - E \ - F - G - D >		Included Accessories	
MIT2500 - 50 V to 2500 V Insulation tester + Store and Download	1004-745	Red/Black/Blue silicone test leads with prods and clips	
		2.5 kV Red/Black/Blue silicone test leads with clips	
		Owners Information CD	
		Batteries 6 x AA Alkaline	
		Carry Case	
L < < 2 - E \ - S \ - I > - P >		Optional Accessories	
MIT2500 - 50 V to 2500 V Insulation tester + Store and Download	1006-764	Mains Charger kit	1007-464
		12 V DC car charger (requires mains charger kit)	1004-183
		Switched probe SP5	1007-157
		Test lead set and crocodile clips	1002-001
		2 wire 500 mA fused test lead set	1002-015
		Batteries (6 x NiMH)	1002-735
L < < 3 - E \ - A \ - T \ - F			
MIT2500 - 50 V to 2500 V Insulation tester + Store and Download	1006-765		
L < < 4 - E \ - C - S - P \			
MIT2500 - 50 V to 2500 V Insulation tester + Store and Download	1006-766		
L < < 5 - E \ - C \ - J \ - K			
MIT2500 - 50 V to 2500 V Insulation tester + Store and Download	1006-767		
L < < 6 - E \ - H \ - R \ - R \			
MIT2500 - 50 V to 2500 V Insulation tester + Store and Download	1006-768		
L < < 7 - E \ - R \ - N \ - S \			
MIT2500 - 50 V to 2500 V Insulation tester + Store and Download	1006-769		