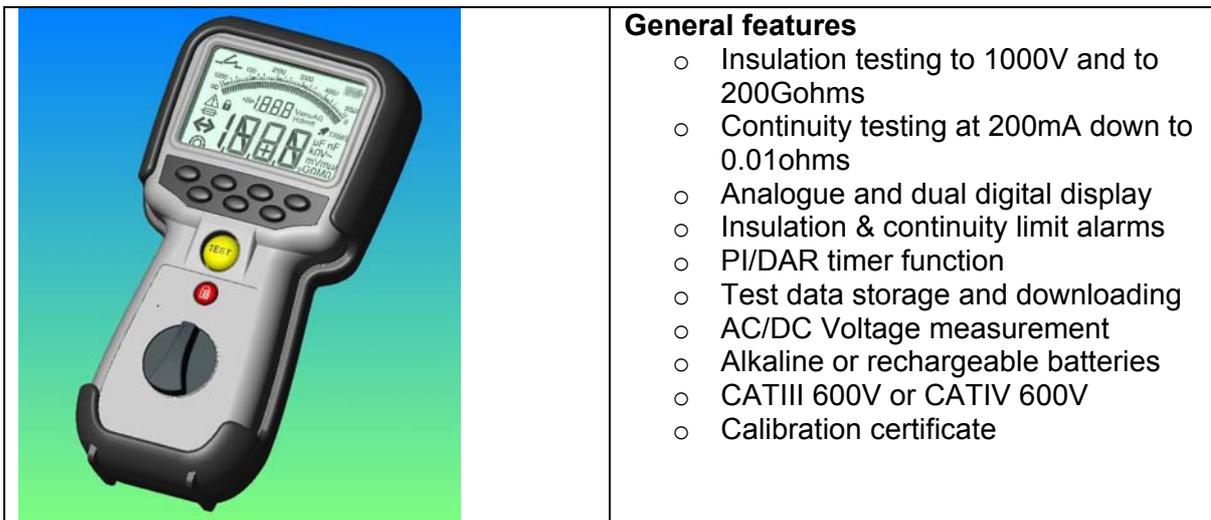


Megger – Datasheet

Industrial Insulation testers



Introduction

The new Megger Industrial insulation and continuity testers combine the latest range of measurement techniques with new instrument design to provide a state-of-the-art tester that is compact and comfortable to hold.

The MIT400 series directly replaces the BM400, BM80 and indirectly replace the BMM2000 and BMM2500 series, given greater functionality with simplified operation.

The range

The range consists of six instruments, which can be broken into 3 groups:

Industrial applications

MIT400
MIT410
MIT420
MIT430

Telecoms

MIT480
MIT481

Special apps

MIT40X

Every tester is designed to meet the stringent international requirements of IEC1010-2 as well as those for EN61557, and sealed to IP54, providing a weatherproof case to reduce the chances of water ingress, including the battery and fuse compartment.

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

Battery requirements are 5 AA batteries of either standard Alkaline or Nickel Metal Hydride (NiMH) rechargeable type.

Operation

Operation of all instruments is kept simple. All functions are displayed on the range selector, with additional push-buttons under the display.



Main measurement selection is by rotary knob for all main test functions.

The display has a major and minor 3 1/2 digit readout, plus an analogue arc. All primary results are displayed in the larger digits. Additionally, auxiliary test information such as frequency, leakage current, Insulation or 'x' circuit voltage etc is displayed in the smaller secondary 3 1/2 digit display within the main window.

Insulation testing

The insulation test voltages range from 10 V to 1000V depending on model. Insulation resistance measurement extends from 20Gohm to 200Gohm, with the option to display the insulation leakage current on the MIT410, MIT420 and MIT430.

A buzzer threshold permits an operator to set a minimum buzzer limit. If the insulation resistance exceeds the minimum limit the buzzer sounds without the operator having to check the actual measured value.

Timed insulation testing of 30/60 seconds and 1min/10min for PI/DAR testing is also available on the MIT410 upwards, but excludes the MIT480.

Variable insulation voltage (MIT400). (This is an example security method, which may be modified on the final design.) To set the test voltage, turn to MΩ and press the 'up' button. Use the 'left', 'down' and 'right' buttons to enter a security code number. Press ok. Without test leads connected, press TEST and observe the terminal voltage in top left hand corner of display. Use the 'up' and 'down' buttons to set the desired open circuit voltage and press 'ok'.

This can only be changed by entering the correct security code.

Continuity testing

A 200mA continuity test is available with a resolution to 0.01ohms for fast accurate cable resistance measurement.

Alternatively a buzzer range can be used for fast point-to-point testing where measurement is not required.

Selectable buzzer threshold aids fast testing where measured values are not to be recorded, only a pass fail at a specified limit is required, with the option to disable buzzer sounding if required.

Special applications

The MIT40X has a special applications voltage, selectable from 10V to 100V in 1V steps, depending on the application. Once selected this can be locked into the instrument and not changed unless secret squirrel power-up is performed.

Storage & Downloading results

The MIT420 is capable of storing test results for recall to the screen. A simple storage structure allows for a test number and screen results to be recalled individually.

The MIT430 and the MIT481 support test result storage and downloading.

For these instruments the result storage allows approximately 3000 results to be stored under a Job, Distribution board, circuit and phase structure, and is supplied with the Megger download manager CD.

Data transfer is by Bluetooth, using either internal Bluetooth enabled PC's or the USB ports available on a PC with a Bluetooth dongle.

The MIT430 and MIT481 will have a Bluetooth transceiver built-in, offering excellent isolation from the test circuit, and utilising the convenience of wireless operation.

Applications: CATIII and CATIV

All MIT400 instruments are rated to CATIV 600V (or CATIII 1000V).

The testers are optimised for different industrial applications. These have been grouped into the following:

- Service, maintenance and electrical installations
 - Telecommunications
 - Special applications
- (A) Service maintenance and electrical installations testing:
The MIT400, MIT410, MIT420 and MIT430 include all the features required for engineers working in a range of industries including:
- Domestic and industrial service and maintenance
 - Manufacturing/production testing
 - Electrical installation
 - Panel building
 - Rail
- (B) Telecommunications testers
Designed to cope with the additional requirements of the Telecommunications industry, the MIT480 series includes lower range insulation testing as standard, plus higher voltages if required.
Required to achieve TNV3 requirements.
Measurement of cable distance by capacitance measurement provides fast cable length testing without the need to use TDR technology.
- (C) Special Applications
The MIT40X provides a unique solution for awkward insulation voltage measurement applications. Typical test voltages are 10V, 35V, 50V, 55V, 65V, 75 etc found in diverse applications including:
- Commercial Avionics
 - Military Land, Marine and Air Communications
 - Manufacturing

Electrostatic measurement
Component testing

Specification summary

	MIT400	MIT 410	MIT 420	MIT 430	MIT 480	MIT 481	MIT 400
Insulation Voltage range							
10-100V variable							X
50V		X	X	X	X	X	
100V		X	X	X	X	X	
250V	X	X	X	X		X	
500V	X	X	X	X		X	
1000V	X	X	X	X		X	
Insulation range							
2-20Gohm							X
20Gohm	X						
100Gohm		X			X		
200Gohm			X	X		X	
Leakage current display		X	X	X		X	X
Insulation test voltage display	X	X	X	X	X	X	X
Continuity							
200mA (0.01 to 200 ohms)	X	X	X	X	X	X	X
Variable current limit	X	X	X	X	X	X	X
Fast buzzer- Selectable limit	X	X	X	X	X	X	X
K ohms range to 999 K ohms	X	X	X	X		X	
Voltage							
Live circuit warning 50V	X	X	X	X	X	X	X
Live circuit warning 75V					X	X	
Default voltmeter	X	X	X	X	X	X	X
TRMS Measurement to 600 V	X	X	X	X	X	X	X
Measurement ranges							
Frequency Hz- 40 to 400Hz			X	X		X	X
Capacitance 0.1nF tp 10uF			X	X		X	
Distance by capacitance Km/Ft						X	
Transducer (0.1 to 500mV)	X	X	X	X	X	X	X
Features							
Fuse blown display	X	X	X	X	X	X	X
Backlight	X	X	X	X	X	X	X
Battery condition display	X	X	X	X	X	X	X
Timer function (t PI DAR)			X	X		X	
Test button plus lock button	X	X	X	X	X	X	X
Limit alarm pass band on INS			X	X			
Auto power down	X	X	X	X	X	X	X
Standard or rechargeable cells	X	X	X	X	X	X	X
TNV 3					X	X	
New switch probe option	X					X	X

New switch probe		X	X	X			
Lead storage	X	X	X	X	X	X	X
Rubberised case set	X	X	X	X	X	X	X
Stand/ hook function	X	X	X	X	X	X	X
Calcert with product	X	X	X	X		X	
Supplied in double walled plastic case	X	X	X	X	X	X	X
Environmental							
Storage (-25 C to + 70 C)	X	X	X	X	X	X	X
Operation (-10 C to +55 C)	X	X	X	X	X	X	X
IP 54	X	X	X	X	X	X	X
Storage							
Result storage/recall			X	X		X	
Bluetooth storage and download				X		X	
Accessories-Nice to have							
Magnetic mount accessory		X	X	X	X	X	X
Security lock system		X	X	X	X	X	X
600V/ CATIII		X			X		X
600V CATIV			X	X		X	

	MIT400	MIT 410	MIT480
Application	Electrical Domestic Industrial	Electrical Industrial Service Maintenance Transport Avionics	Telecoms
Insulation Voltage range			
50V, 100V		X	X
250V, 500, 1000V	X	X	
Insulation range			
100Gohm range		X	X
Leakage current display		X	
Insulation test voltage display	X	X	X
Continuity			
200mA (0.01 to 200 ohms)	X	X	X
Variable current limit 20mA or 200mA	X	X	X
Voltage/Frequency			
Frequency		X	
Live circuit inhibit 50V	X	X	
Live circuit inhibit 75V			X
TRMS Measurement to 600 V	X	X	X
Features			
TNV3			X
Switched remote probe		X	X
Backlight	X	X	X
Timer function (t PI DAR)		X	
Test button plus lock button	X	X	X

Calcert with product	X	X	
Supplied in double walled hard case	X	X	X

Accuracy (at 20°C):

Insulation: $\pm 3\%$ ± 2 digits up to 10Megohms, $\pm 5\%$ up to 100Megohms
 $\pm 30\%$ up to full scale.

Continuity: $\pm 3\%$ ± 2 digits (0.01 to 100 ohms)

Resistance: $\pm 5\%$ ± 2 digits (10 ohms to 1Megohm)

Voltage: $\pm 1\%$ ± 2 digits for 50/60Hz

Frequency: $\pm 2.0\%$ ± 2 Digits. ($\pm 1.0\%$ ± 1 digit. For additional 30p)

mV: $\pm 2.0\%$ ± 2 Digits.

mA: $\pm 2.0\%$ ± 2 Digits.

Capacitance: $\pm 5.0\%$ ± 2 Digits.

Power supply

A 2Ah alkaline battery will be good for 3,000 tests of any type.

Battery type: 6 x 1,5 V cells IEC LR6 (AA), NICAD 1.2V or NiMH 1.2V

Auto-power-off (after typically 10 minutes)

Safety

Designed to IEC1010, IEC 61557, and VDE 0413

CATIII 600V or CATIV 600V depending on instrument.

Mechanical

Weight

800g $\pm 10\%$

Dimensions

232mm x 108mm x 55mm including rubber boot

Environmental

Operating temperature -10°C to +55°C

Humidity 90%RH @+40°C

Storage temperature -25°C to +70°C

Free fall 1m

Bump test 6 x 250 bumps at 40g

Rotary switch life >50,000 operations

Push button switch life >50,000 operations

Maximum altitude 2,000m to full safety spec.

Dust and water IP54

Accessories supplied.

Test leads: 2 wire lead set to CAT IV 600V, consisting of :

- 1 x Red lead 1.25m complete with probe
- 1 x Black lead 1.25m complete with probe
- 1 x Red croc clip
- 1 x Black croc clip

User manual. (To meet EN61557 requirements)

Product structure

Part Number	Description	Part number
MIT400	Special selectable voltage 10-100V	MIT400-EN
MIT410	Basic CATIII 600V +250V/500V/1000	MIT410-EN
MIT420	Advanced CATIV 600V + Timer	MIT420-EN
MIT430	Compact flash storage version of MIT420	MIT430-EN
MIT480	Telecoms Base instrument 50V/100V	MIT480-EN
MIT481	Telecoms 50V to 1000V + Storage	MIT481-EN