NEW PRODUCT LAUNCH

SALES GUIDE

MIT480/2

Unique features

- **Stabilised insulation testing** USP
- **3 terminal connection** USP
- **Integral terminal switching** USP
- **Variable 10V to 500V test voltage** USP
- **Continuous continuity range**
- **Distance by capacitance calculation**
- **Auto-hold on continuity tests**
- **Analogue arc with pointer** USP
- **100GΩ test range**
- **Rechargeable options**
- **Contoured ergonomic design** USP
- **Increased battery life**
- **IP54 ingress protection**
- **CAT IV 600V safety design**

The MIT480/2 series have been updated with a series of enhancements and additions from years of customer feedback and use.

Suitable for telecommunications, cable TV, industrial and specialist electrical installation testing, the new MIT480/2 series insulation and continuity testers represent the industry standard for insulation testing on a wide range of applications and circuits.

SALES MESSAGE

The new MIT480/2 series, with their 3 terminal connection interface, makes working on telecommunications networks, cable TV and 3-phase installation faster, safer and less prone to connection and measurement errors.
Greater test voltage stability and accuracy translate to safe accurate and fast testing.
Output insulation voltage is now maintained to -0%, +2% +2v, producing the most accurate test voltages in the industry under 5kV.

Range

2 models are in the standard range:

- **MIT481/2** The entry model, high performance 50V to 500 V (100 GΩ)
- **MIT485/2** As 481/2 + Bluetooth downloading

General range features

Direct access to ALL primary and secondary test modes

Terminal switching

Stabilized control of insulation test voltage

Variable voltage range

400mA AC/DC Trms current measurement

Six power cells improves operational life and costs

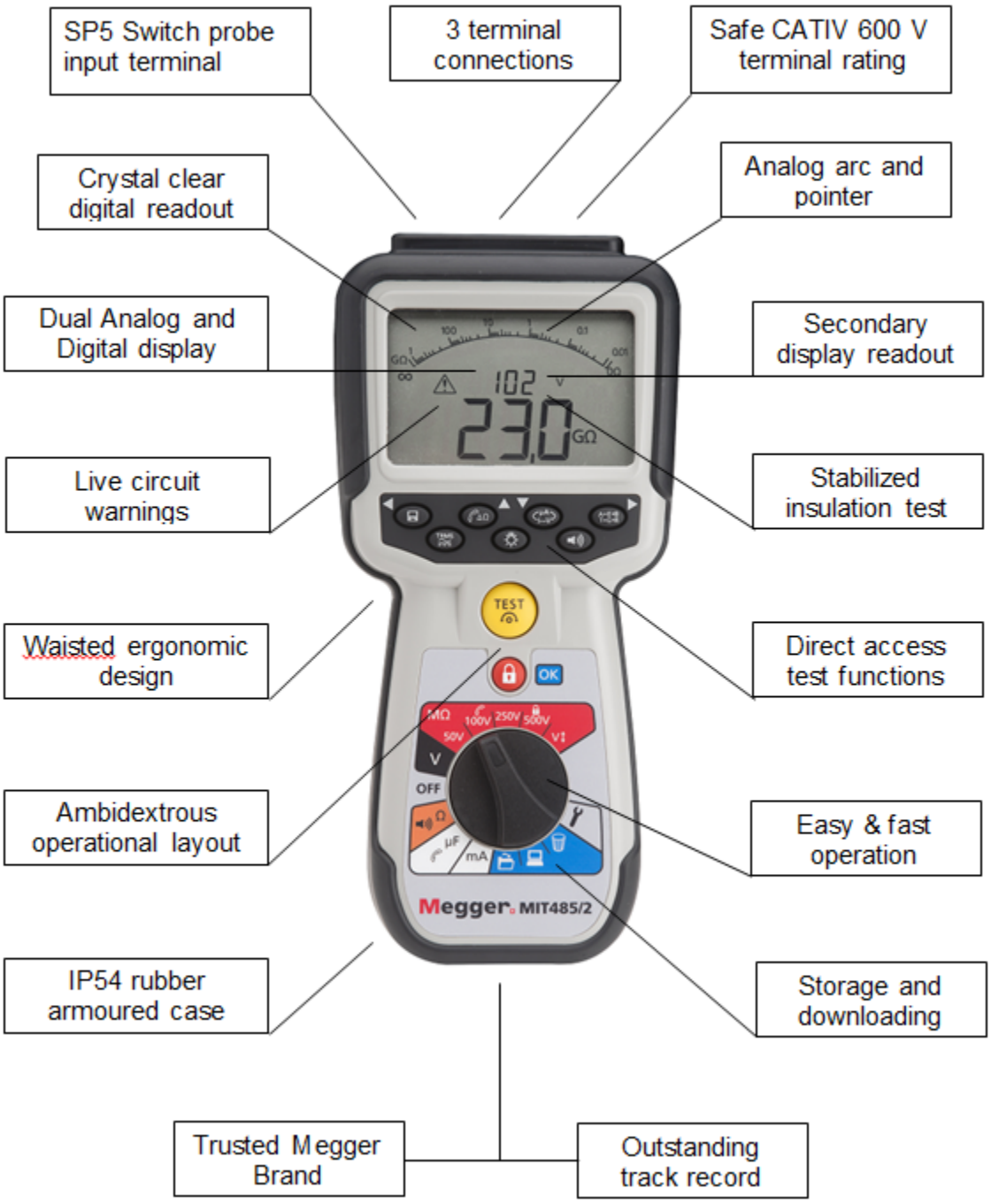
Recharging options with mains or car charger kits

Redesigned functional

Storage and wireless downloading of test results

MIT480/2 functional roadmap…Key features:

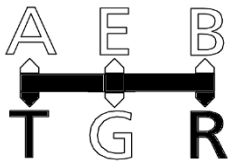
Features that customers have identified as being intrinsic to their buying decisions:

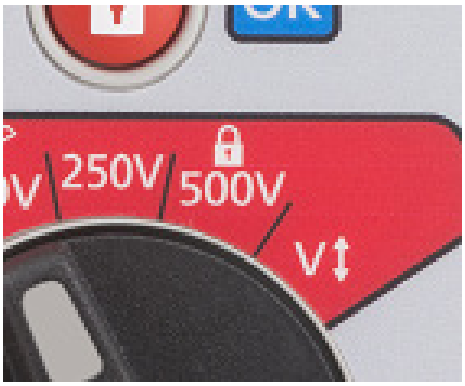


New MIT480/2 specific design feature detail:

3 Terminal connect – Allows all three test leads to be connected at the same time, reducing the need to reconnect test leads.

Terminal switching – Pressing the A-B-E (T-R-G) button allows any test (except mA) to be switched between each terminal pair without the need to disconnect test leads





500 V test LOCK – 500 V insulation test cannot be accidently accessed unless the LOCK button is depressed during selection. This prevents accidental testing at high voltage.

mA current measurement – AC/DC/Trms current measurement is now available on a dedicated "fuse protected" terminal pair.

Differential continuity measurement – Take a continuity measurement. Pressing the ΔΩ button zeros the value so the next measurement only shows the difference value.

New general design feature detail:

The MIT480/2 range has updates or additions of several features that were lacking, or customers thought could be improved, over the last 8 years:

Separate battery and fuse access – Calibration Seal does not need to be broken for battery replacement.

Optional internal battery charging – No need to remove batteries. Retains CAT IV 600V instrument rating.

New back stand - Eight years of research and development have created "the working back stand".

Set the instrument to the ideal angle for desk top working without slipping or collapse.

Rear accessory bar - available for a range of accessories for hanging or belt mounting the MIT480/2during use.

MIT480/2 features and USPs

Feature	Issues	Solution	Unique	Distinctive	Comments
3 Wire connection and Switching 	Two terminal connections require continuous lead reconnection to test 3 wire circuits (A-B-E)	Connect all three test leads in one go and switch connections using the A-B-E (T-R-G) connections on the instrument	■		Unique to hand held insulation testers
	Reconnection of two wire test leads is time consuming	Far quicker to switch pairs in the instrument	■		Comparison of circuit values far easier without reconnection variance.
	Reconnection easily introduces errors	Reduced risk of errors	■		Safer than continuously swapping test connections
"Gated" access to 500V test 	Accidental testing at 500 V can damage low voltage circuits	"Gated" access to high voltage prevents accidental testing at potentially damaging voltages. 500 V not accessible unless LOCK button is held down during selection	■		Requested from Telecommunications companies
Stabilized O/P voltage 	Overvoltage on low voltage applications causes damage	Limit test voltages to test voltage +2%	■		Expected performance from a market leader
	Guessed output voltage	Selected voltage now much closer		■	Less risk of damaged equipment
	Variable voltage setting inaccurate	Test voltage adjustment now easily set to desired voltage	■		
Rechargeable options 	High continuity use discharges batteries quickly	Recharge adaptor	■	■	Retains instrument CATIV rating
	Poor battery life	Improved battery autonomy increases battery life by 30%		■	Longer battery life through increased cell count and lower current demand.
	High battery costs	Reduced battery costs		■	Fast charge 3-4 hours from flat
	Stupid number of cells	Sixth cells removes the wasted 6th cell from packs of 2,4,6 or 8 battery packs			Makes recharging cells easier too, try charging 5 cells!
Single continuity range 	Confusing ranges	Single auto-range		■	Simple buzzer ON/OFF across the entire 0.01 Ω to 1 M Ω range
	Time consuming range changes	Fully auto ranging and current selection		■	

	Confusion limit alarms	Wider limit alarm options on one setting		■	
Fast response buzzer  Beep Beep!	Poor buzzer response	Fast contact detection and buzz.		■	Faster working with less change of accidents when looking away from the circuit
	Test times unnecessarily long	Fast circuit measurement and PASS FAIL testing		■	
	Short circuits missed	Quick circuit identification		■	
Extended continuity range 	Gaps between continuity and insulation test ranges	Extended range from 0.01 Ω to 1.0 MΩ		■	No more unnecessary range changing
Lower Insulation test range down to 1kΩ GET LOW	Insulation testing only extends down to 100k	No need to swap to continuity range when working below 100KΩs		■	Lower insulation range allows extended measurement, although test voltage falls. This can be seen on the secondary display.
	Frequently <0.1MΩ is mistaken for a low (zero) resistance path	Extended range shows resistance down to 1k Ωs		■	
	Competitors extend downwards to 100Ω	Combats the extended low range from Metrel		■	
Improved Bluetooth pairing 	Difficult to pair, download and delete records	Simple Download paring, and download of data		■	No lost data or wasted time. Pairing initiated when PC mode is selected.

WHY?

WHY?

3 Wire connection:

Most communications connections are 3 wire, either A-B-E (Europe and most other countries) or T-R-G; Tip, Ring, Ground (North America). Making one 3-wire connection to the circuit is safer and faster.

Each measurement can be swapped between the 3 pairs, A-B, A-E or B-E by pressing the appropriate button on the MIT481/2 or 485/2.

Values are easily compared and no variation is encountered from reconnection of test leads during the measurements.

This makes for much faster and more reliable testing.

WHY?
Differential measurement (ΔΩ):

Comparing both the A-E and B-E resistances gives a good indication of the quality of the cable pair. The difference should be small.
Manually deducting one value from another is time consuming and prone to error.

Using the ΔΩ in conjunction with the terminal switching function allows two pairs to be compared quickly and without calculation errors.

Pressing the ΔΩ button after the first continuity measurement (say A-E) resets the value to zero, and so a subsequent measurement will only show the difference.

This function works just the same way as the “Test lead null”, but test leads can be nulled first, then the ΔΩ function used without interfering with the null mode.

WHY?
Continuity resistance with automatic reversal of polarity:

To meet European requirements for earth continuity testing (EN60364) and EN61557-4 the requirement for performing continuity in both polarities must be met.

When enabled, the MIT performs a continuity test in one polarity, then reverses the measurement and makes the same measurement in the other.

The result displayed is the higher of the two measurements, eg worst case.

Reasons for differences between measurements?

Direction devices, such as surge protection equipment may conduct in one polarity but not in the other, providing an artificially low reading.

Equipment left connected to the supply will frequently interfere with measurements.

Low currents flowing in an earth circuit can significantly upset the accuracy or reported resistance of a circuit.

EMFs generated due to connections between dissimilar metals

WHY?
Change to 6 batteries, not 4:

Six cells give the advantage of 20% extra capacity and the higher voltage. Combined with better measurement economy, the new MIT480’s delivers increased battery life with better charge status feedback.

PRODUCT FAMILY:

This chart provides a comparison between the MIT480/2 models.

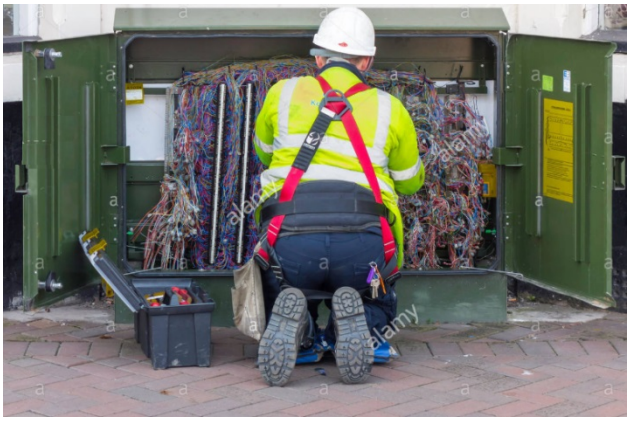
	Function / Feature	481/2	485/2	Customer benefits
Insulation	Variable voltage (1V steps)	●	●	Any desired application specific voltage from 10V to 500V in 1V steps - dedicated switch position
	50V/100V	●	●	Low voltage test for Telecoms and Cable applications and sensitive electrical circuits
	250V	●	●	Standard electrical test voltage for LV circuits and devices where 500V could cause damage
	500V	●	●	Standard electrical test voltage
	100 GΩs	●	●	Allows degradation monitoring of good circuits
	Gated 500V testing	●	●	Prevents unintentional selection and circuit damage. Requires LOCK to be pressed when selecting
	Displays test range voltage	●	●	Easy range selection in poor lighting when selecting the test range
	Displays actual test voltage	●	●	Know when test voltages drop below permissible limits during the test
	Stabilized test voltage	●	●	Don't risk damage by over voltage on a test circuit. MIT480/2 are +2% +2V
Continuity	1 MΩ range	●	●	Reduced range swapping increases productivity
	Selectable 20mA / 200mA	●	●	Reduced battery consumption when 200mA is not required
	Reverse polarity	●	●	Identifies asymmetric circuit resistances
	Lead null	●	●	Removes test lead resistance and difference measurements
	Fast buzzer	●	●	Quick circuit confirmation increases productivity
Other tests	Trms AC Volts / mVolts	●	●	Trms for asymmetric voltage waveforms (such as VSD circuits) from 0.mV to 600V
	DC Volts / mVolts	●	●	High input impedance t prevent voltage drop during measurement
	10MΩ i/p Impedance	●	●	
	mA current		□	Direct measurement of circuit current in mA
	Frequency	●	●	
	250 kΩ I/P impedance	●	●	Loads the circuit so reducing the presence of ghost voltages
	1nF to 10uF	●	●	Confirmation that circuit capacitance is not excessive
Storage/DL	MIN/Max			
	Results storage	●	●	Store results for later recording or performance monitoring
	Downloading		●	Export to PC for long term storage
	Software provided		●	No need for expensive software to export results

Other features	3 Terminal connection	●	Connect all three leads once
	3 Terminal switching	●	Switch between connections without disconnecting leads
	Alkaline/NiMH	●	Choice of rechargeable cells to reduce operational costs
	Rechargeable enabled	●	Can be recharged with batteries in-situ
	Alk/NiMH battery level	●	Provides better battery level monitoring by changing battery voltage (1.5V Alkaline or 1.2V NiMH)
	Ergonomic case design	●	Designed to be held for long periods without fatigue
	Analogue arc with pointer	●	Charge and discharge characteristics of insulation testing circuits
	CATIV 600V	●	Safe on all low voltage installations
	IP54	●	Water resistant and dust resistant for extended operational life
	Limit alarms	●	PASS / FAIL buzzer alarms where values are not required
	Silicone lead set	●	PVC leads leak above 4GΩ giving incorrect measurement values
	Remote switch probe	●	Do not remove your eyes from the circuit under test
	Grabber test leads	OPT	Red and Black small jaw crocs for tricky locations, small wires etc.
	Batteries included	●	Alkaline included - NiMH available as optional as part of the charging kit
	3 year warranty option	●	Reduced cost of ownership

PRODUCT USES

MIT480/2 series are not just for telecommunications and cable testing. CATIV 600V ensures the widest range of applications are covered, including standard electrical and specialist testing.

Examples:



- **Telecommunications:**
  A-B, A-E and B-E testing
  (T-R, T-G and R-G)
  All three connections in one go
  Capacitance measurement
  Distance by capacitance
  Resistance balance measurement
  Live circuit detection

- **Cable TV:**
  A-B, A-E and B-E testing
  T-R, T-G and R-G
  Open capacitance measurement
  50V, 100V & 500V Insulation testing
  Capacitance measurement

- **Specialist testing:**
  Bespoke applications
  No need for DAR or PI
  Strain gauge failure
  Diagnostics
  Automotive solenoid testing