MIT INSULATION TESTERS REFRESHED

Improvements at a glance

- **CATIV 600V Safety**
- **Improved Standard Test Leads**
- **Power DB Lite software (not MIT510/2)**
- **Improved Battery Life Management**
- **Operational Temperature Range**

Target Customers

- **MV & HV Electrical contractors**
- **Service companies, motor re-winders**
- **Power Generation, Transmission and distribution**
- **OEM's- Transformers, Switch gear, Motors**
- **Project houses, systems integrators**
- **Factory maintenance**

Sales Message

- **Enhanced product safety with compromising performance**
- **Reinforces Megger technical leadership in insulation testing**
- **Products to give you quick, accurate, and reliable testing**
- **Tough, easy to use products**

PRODUCT FAMILY

MIT Family				
Model	5kV Max output	10kV Max output	Diagnostic tests	Test result storage
MIT510/2	✔			
MIT520/2	✔		✔	✔
MIT1020/2		✔	✔	✔

The product family actually remains unchanged. The only difference in appearance is that the model names have all had "/2" added to them to designate the 2nd version or Mk 2. The operation of the instruments also remains unchanged.

Where do the names come from?

MIT instruments

MIT	**5**	**10**	**/2**
Megger Insulation Tester	5kV	none diagnostic base version	2nd Version
MIT	**5**	**20**	**/2**
Megger Insulation Tester	5kV	Diagnostic testing full version	2nd Version
MIT	**10**	**20**	**/2**
Megger Insulation Tester	5kV	Diagnostic testing full version	2nd Version

THESE PRODUCTS ARE USED FOR AND WHY?

These products are used to test insulation in the following applications:

- Check insulation of newly manufactured equipment
  - Prior to first power up
  - Detect manufacturing faults

- Check insulation of newly installed equipment before turning on the power.
  - Check for transportation damage
  - Check for correct wiring
  - Safe to switch power on

- Detection of faults periodically during working life
  - Fault diagnosis using diagnostic tests and guard terminal
  - Trending of insulation test results
    - Looking for developing faults in insulation
    - Using diagnostic tests to determine corrective action required preventing an expensive future failure.
  - Drives maintenance activity, insulation failure is a major cause of equipment failure

- Check insulation when putting back into service following maintenance work
  - Detect incorrect rewiring
  - Damage caused inadvertently during maintenance work

- Check insulation after prolonged shut down period
  - Effects of moisture etc.

Insulation testing is important because failure undetected can:

- Increase in the possibility of electrical shock and/or death for personnel.
- Increase the possibility of electrically induced fires.
- Cause a reduction in the useful life of the equipment.
- Cause unscheduled (and expensive) downtime.

Typical equipment that may be tested:

- Transformers (terminals to ground)
- Motors (terminals to ground)
- Switchgear and circuit breakers
- Switchboards and motor control centres
- Disconnect switches
- Insulators and bushings
- Cables

THESE PRODUCTS ARE USED BY?

- Power Utilities
    - Maintenance and commissioning departments

- Cable Manufacturers

- Electrical Contractors
    - Contracted to Power Utilities
    - Maintaining high voltage systems

- Testing Companies
    - Contracted to Power Utilities
    - Maintaining high voltage systems

- Electrical Maintenance Companies
    - Contracted to Power Utilities
    - Maintaining high voltage systems

- Industrial/Manufacturing Plants
    - Using and maintaining high voltage systems and rotating machinery

- Process Control Plants
    - Industrial manufacturing plant

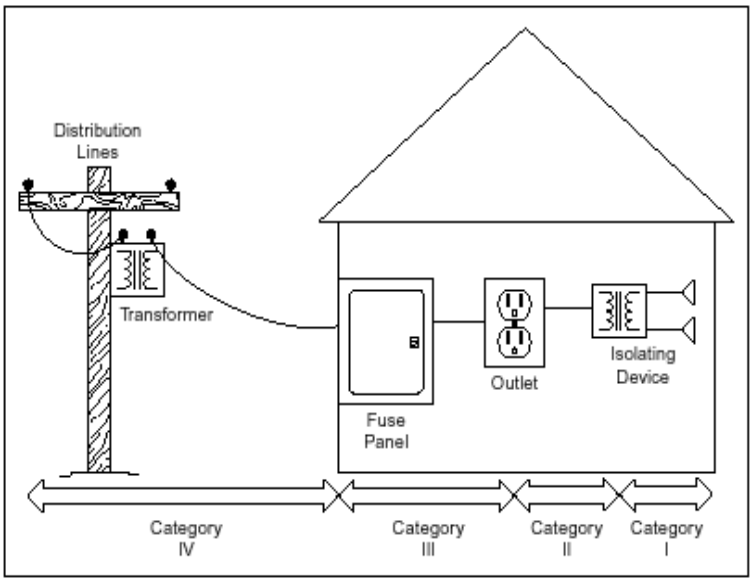
- University / Colleges
    - Research applications

- Large infrastructures
    - Airports
    - Transport

- Electricians
- Defence / Government

WHAT'S THE IMPROVEMENTS?

- **Safety rating increased from CAT III 300V to CATIV 600V**



  - CATIV effectively means the instrument is protected for use on outside applications.
  - 600V means the instrument is protected against connection to a system with up to 600V phase to earth / ground.
  - Protection against impulses doubled from 4kV (CATIII 300V) to 8kV (CATIV 600V).
  - CAT rating requirements come from IEC1010-1: 2001
  - The increase in safety rating has been achieved without compromising the performance of the guard terminal. Megger is the only manufacturer to specify the performance. See note below:

Note: Guard Terminal performance
The guard terminal performance of any of the MIT or S1 range is specified as

"2% error guarding 500k Ohm leakage with a 100M Ohm load".

The guard terminal is an important function of the instrument providing what is, in it self, a diagnostic test to detect surface leakage across insulation. Use of the guard terminal may show that an insulation surface may require simply cleaning.

- **Test leads**
  - All instruments now come supplied with test leads with insulated test clips
  - 5kV instruments supplied with:
    - 6220-820 (Medium insulated clips)
  - 10kV instruments supplied with:
    - 6220-820 (Medium insulated clips)
    - 6220-811 (Large insulated clips)

- **Operates down to –20 degrees C**
  - Was –10 degrees C

- **Battery life management improvements**
  - Battery life indicator improved
  - Improved switched off battery life

- **Supplied with Power DB Lite software**
  - Supplied with all versions with the exception of MIT510/2
  - Provides professional report forms test results and asset management details.
  - Downloads results straight into test forms

FEATURES, ADVANTAGES AND BENEFITS

Common Features across the range

Key Feature: **CATIV 600V Safety**
A: Increased immunity to high voltage impulses in arduous testing environments
B: Combined with the Megger reputation for reliability this gives the customer un-equalled confidence in operator safety

Key Feature: **High Resistance measurement range**
A: Takes readings at high insulation values instead of infinity reading
B: Can trend readings for effective insulation evaluation, indicating potential failures earlier. Cannot trend infinity readings.

Key feature: **High accuracy readings**
A: Readings are reliable and repeatable, allows accurate trending of results over time
B: Accurate diagnosis of insulation ensures correct action taken to avoid breakdown of equipment.

Key Feature: **High Output test current**.
A: Less time to charge capacitance, and applies higher voltage to lower insulation levels
B: Saves testing time, and shows true condition of lower value insulation.

Key Feature: **High performance Guard terminal**
A: Allows large amount of surface leakage current to be ignored from the main insulation measurement and still give accurate readings
B: User can accurately determine quality of insulation with the presence of surface leakage.

Feature: **Real time test voltage measurement during test.**
A: You always know exactly what test voltage is being applied.
B: Confidence in instrument operation, continuous verification.

Feature: **Battery or mains powered.**
A: Can perform testing powered from the mains supply when battery is flat.
B: Saves time waiting for battery to charge.

Feature: **Rugged case**
A: Less likely to damage in harsh environments
B: Increases reliability and time lost due to unexpected repairs

Feature: **Lid mounted test lead bag**
A: Leads kept and protected with instrument at all times.
B: Less likely to loose test leads keeping the instrument ready to test.

Feature: **EMC compliance to heavy industrial level**
A: The instrument is immune to higher levels of RF interference, fast transients, static electricity etc.
B: Allows accurate reading to be made in tough electrical environments

Feature: **High noise immunity – 2mA**
A: The instrument is immune to high levels noise voltage present on the test piece and test leads.
B: Allows accurate reading to be made in tough electrical environments

10kV Version, MIT1020/2

Key Feature: **10kV insulation test voltage**
A: Higher test voltage produces higher current through insulation
B: The ability to make higher insulation reading (35TOhm), meets IEEE requirements.

PRODUCT SELECTION CHART

Tick Chart Feature	Sub-feature	MIT510/2	MIT520/2	MIT1020/2
Display	Analogue	✔	✔	✔
	Digital	✔	✔	✔
Power Supply	Line Power	✔	✔	✔
	Rechargeable Batteries	✔	✔	✔
Test Voltage	10kV			✔
	5kV	✔	✔	✔
	2.5kV	✔	✔	✔
	1kV	✔	✔	✔
	500V	✔	✔	✔
	250V	✔	✔	✔
	User selectable		✔	✔
Measurements	Maximum Reading	15TΩ	15TΩ	35TΩ
	Voltage	✔	✔	✔
	Capacitance	✔	✔	✔
	Leakage Current	✔	✔	✔
Automatic Test Types	Insulation Resistance	✔	✔	✔
	Polarisation Index		✔	✔
	Step Voltage		✔	✔
	Dielectric Discharge		✔	✔
	Dielectric Absorption Ratio		✔	✔
Other Features	Timer Control		✔	✔
	Timer Display	✔	✔	✔
	5mA Test Current			
	3mA Test Current	✔	✔	✔
	2mA rms at 200V and above interference rejection	✔	✔	✔
	4mA rms at 200V and above interference rejection			
	2% error guarding 500kΩ leakage with 100mΩ load	✔	✔	✔
	Data Storage		✔	✔
	USB Output		✔	✔
	RS232 Output		✔	✔
	Free Calibration Cert	✔	✔	✔
	IP65 rating	✔	✔	✔
	Alarm Limit Mode		✔	✔
	CATIV 600V safety	✔	✔	✔
Supplied std.	Test leads medium size clip	✔	✔	✔
	Test leads large size clip			✔
	Power DB Lite software	✔	✔	✔
	Lid mounted lead pouch	✔	✔	✔
Order Codes	EN (UK version)	1000-370	1000-374	1000-378
	EU (European version)	1000-371	1000-375	1000-379
	US version	1000-372	1000-376	1000-380
	AU (Australian version)	1000-373	1000-377	1000-381