

# MI 2077 TeraOhm 5 kV

## 5 kV Insulation and Voltage tester



Advanced, field proven instrument. Technical demands require high performance measuring instruments capable of measuring polarization index (PI), dielectric absorption ratio (DAR), dielectric discharge (DD), insulation system capacitance. Easiness of use, high EM immunity and automatic discharge of load after completed measurement are just some of many outstanding features that distinguish Metrel HV testers from other similar products on the market.

#### High insulation resistance measurement:

- DC test voltages from 250 V up to 5000 V in steps of 50 V;
- Measuring range up to 5 TΩ;
- Timer mode from 1 s up to 90 min;
- Capacitance measurement up to 50 μF.

#### Step voltage measurement of insulation resistance:

- DC test voltage up to 5000 V automatically divided in 5 steps;
- Adjustable test time.

#### Withstanding voltage test up to 5000 V:

- Insulation leakage current measurement;
- Adjustable test voltage slope;
- Pre-set threshold test current from 1 mA to 1.4 mA;
- Time programmable step voltage test.

#### Other features:

- Voltage and frequency measurement up to 600 V AC/DC;
- Automatic discharge of capacitive loads;
- Guard terminal to eliminate influence of insulation surface leakage currents;
- Digital and bar graph display;
- Built-in battery charger;
- User-friendly PC software (optional);
- RS232 isolated communication port.

#### TYPICAL APPLICATIONS:

- Rotating machines
- Transformers
- Cables
- High voltage generators
- Electrical circuits
- Surge arresters
- Measuring transducers

#### STANDARDS:

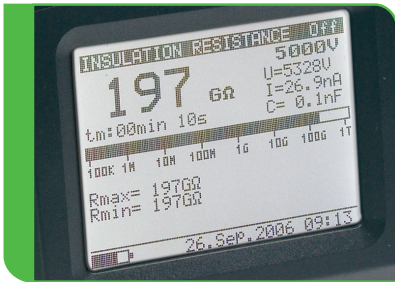
- Instruments operation: IEC/EN 61557-2
- Electromagnetic compatibility: (EMC) EN 61326 Class B
- Safety: EN 61010-1 (instruments), EN 61010-031 (accessories)

5 kV

CAT III  
600 V

# Technical Specification

Function	Measuring range	Resolution	Accuracy
Insulation resistance	0 kΩ ... 999 kΩ	1 kΩ	±(5 % of reading + 3 digits)
	1.00 MΩ ... 9.99 MΩ	10 kΩ	±(5 % of reading + 3 digits)
	10.0 MΩ ... 99.9 MΩ	100 kΩ	±(5 % of reading + 3 digits)
	100 MΩ ... 999 MΩ	1 MΩ	±(5 % of reading + 3 digits)
	1.00 GΩ ... 9.99 GΩ	10 MΩ	±(5 % of reading + 3 digits)
	10.0 GΩ ... 99.9 GΩ	100 MΩ	±(5 % of reading + 3 digits)
	100 GΩ ... 999 GΩ	1 GΩ	±(5 % of reading + 3 digits)
	1.00 TΩ ... 5.00 TΩ	10 GΩ	±(5 % of reading + 3 digits)
Test voltage	0 V ... 5500 V	1 V	±(3% of reading + 3 V)
Insulation leakage current	0.00 nA ... 9.99 nA	0.01 nA	±(5% of reading + 0.05 nA)
	10.0 nA ... 99.9 nA	0.1 nA	
	100 nA ... 999 nA	1 nA	
	1.00 μA ... 9.99 μA	10 nA	
	10.0 μA ... 99.9 μA	100 nA	
	100 μA ... 999 μA	1 μA	
Dielectric absorption ratio (DAR)	0.01 ... 9.99	0.01	±(5 % of reading + 2 digits)
	10.0 ... 100.0	0.1	±5 % of reading
Polarization index (PI)	0.01 ... 9.99	0.01	±(5 % of reading + 2 digits)
	10.0 ... 100.0	0.1	±5 % of reading
Dielectric discharge (DD)	0.01 ... 9.99	0.01	±(5 % of reading + 2 digits)
	10.0 ... 100.0	0.1	±5 % of reading
Voltage AC / DC	0 V ... 600 V	1 V	±(3% of reading + 3 V)
Frequency	45.0 Hz ... 65.0 Hz	0.1 Hz	±0.2 Hz
Capacitance	0.0 nF ... 99.9 nF	0.1 nF	±(5 % of reading + 2 digits)
	100 nF ... 999 nF	1 nF	
	1.00 μF ... 50.00 μF	10 nF	
Battery power supply	6 x 1.2 V NiMH rechargeable batteries, type C		
Display	Matrix LCD with backlight, 160 x 116 dots		
Overvoltage category	CAT III / 600 V		
Protection class	Double insulation		
COM port	RS232 (optional USB with serial converter)		
Dimensions	265 x 110 x 185 mm		
Weight	2.1 kg		



Large custom LCD dot matrix display with bar graph and backlight. Simultaneous presentation of measuring results and test parameters. Built-in timer and real time clock.

n	Location	Function	Results	Parameters	Date/Time
1	001	INSULATION RESISTANCE	R = 9.33 MΩ U = 210 V I = 211 nA C = 203 nF Rmin = 9.08 MΩ Rmax = 9.64 MΩ	On = 2000 V Ltime = 15min00s	14.Feb.2005 11:20
2	002	DIAGNOSTIC TEST	R = 9.30 MΩ U = 1050 V I = 105 nA C = 102 nF R(12) = 9.30 MΩ R(13) = 9.30 MΩ R(14) = 9.30 MΩ R(15) = 9.30 MΩ R(16) = 9.30 MΩ R(17) = 9.30 MΩ R(18) = 9.30 MΩ R(19) = 9.30 MΩ R(20) = 9.30 MΩ R(21) = 9.30 MΩ R(22) = 9.30 MΩ R(23) = 9.30 MΩ R(24) = 9.30 MΩ R(25) = 9.30 MΩ R(26) = 9.30 MΩ R(27) = 9.30 MΩ R(28) = 9.30 MΩ R(29) = 9.30 MΩ R(30) = 9.30 MΩ R(31) = 9.30 MΩ R(32) = 9.30 MΩ R(33) = 9.30 MΩ R(34) = 9.30 MΩ R(35) = 9.30 MΩ R(36) = 9.30 MΩ R(37) = 9.30 MΩ R(38) = 9.30 MΩ R(39) = 9.30 MΩ R(40) = 9.30 MΩ R(41) = 9.30 MΩ R(42) = 9.30 MΩ R(43) = 9.30 MΩ R(44) = 9.30 MΩ R(45) = 9.30 MΩ R(46) = 9.30 MΩ R(47) = 9.30 MΩ R(48) = 9.30 MΩ R(49) = 9.30 MΩ R(50) = 9.30 MΩ R(51) = 9.30 MΩ R(52) = 9.30 MΩ R(53) = 9.30 MΩ R(54) = 9.30 MΩ R(55) = 9.30 MΩ R(56) = 9.30 MΩ R(57) = 9.30 MΩ R(58) = 9.30 MΩ R(59) = 9.30 MΩ R(60) = 9.30 MΩ R(61) = 9.30 MΩ R(62) = 9.30 MΩ R(63) = 9.30 MΩ R(64) = 9.30 MΩ R(65) = 9.30 MΩ R(66) = 9.30 MΩ R(67) = 9.30 MΩ R(68) = 9.30 MΩ R(69) = 9.30 MΩ R(70) = 9.30 MΩ R(71) = 9.30 MΩ R(72) = 9.30 MΩ R(73) = 9.30 MΩ R(74) = 9.30 MΩ R(75) = 9.30 MΩ R(76) = 9.30 MΩ R(77) = 9.30 MΩ R(78) = 9.30 MΩ R(79) = 9.30 MΩ R(80) = 9.30 MΩ R(81) = 9.30 MΩ R(82) = 9.30 MΩ R(83) = 9.30 MΩ R(84) = 9.30 MΩ R(85) = 9.30 MΩ R(86) = 9.30 MΩ R(87) = 9.30 MΩ R(88) = 9.30 MΩ R(89) = 9.30 MΩ R(90) = 9.30 MΩ R(91) = 9.30 MΩ R(92) = 9.30 MΩ R(93) = 9.30 MΩ R(94) = 9.30 MΩ R(95) = 9.30 MΩ R(96) = 9.30 MΩ R(97) = 9.30 MΩ R(98) = 9.30 MΩ R(99) = 9.30 MΩ R(100) = 9.30 MΩ	On = 1000 V Ltime = 03min00s Ltime1 = 01 min Ltime2 = 03 min Ltime3 = 03 min	14.Feb.2005 11:34
3	003	STEP VOLTAGE	R = 9.30 MΩ U = 1050 V I = 105 nA C = 102 nF R(01) = 9.30 MΩ R(02) = 9.30 MΩ R(03) = 9.30 MΩ R(04) = 9.30 MΩ R(05) = 9.30 MΩ R(06) = 9.30 MΩ R(07) = 9.30 MΩ R(08) = 9.30 MΩ R(09) = 9.30 MΩ R(10) = 9.30 MΩ R(11) = 9.30 MΩ R(12) = 9.30 MΩ R(13) = 9.30 MΩ R(14) = 9.30 MΩ R(15) = 9.30 MΩ R(16) = 9.30 MΩ R(17) = 9.30 MΩ R(18) = 9.30 MΩ R(19) = 9.30 MΩ R(20) = 9.30 MΩ R(21) = 9.30 MΩ R(22) = 9.30 MΩ R(23) = 9.30 MΩ R(24) = 9.30 MΩ R(25) = 9.30 MΩ R(26) = 9.30 MΩ R(27) = 9.30 MΩ R(28) = 9.30 MΩ R(29) = 9.30 MΩ R(30) = 9.30 MΩ R(31) = 9.30 MΩ R(32) = 9.30 MΩ R(33) = 9.30 MΩ R(34) = 9.30 MΩ R(35) = 9.30 MΩ R(36) = 9.30 MΩ R(37) = 9.30 MΩ R(38) = 9.30 MΩ R(39) = 9.30 MΩ R(40) = 9.30 MΩ R(41) = 9.30 MΩ R(42) = 9.30 MΩ R(43) = 9.30 MΩ R(44) = 9.30 MΩ R(45) = 9.30 MΩ R(46) = 9.30 MΩ R(47) = 9.30 MΩ R(48) = 9.30 MΩ R(49) = 9.30 MΩ R(50) = 9.30 MΩ R(51) = 9.30 MΩ R(52) = 9.30 MΩ R(53) = 9.30 MΩ R(54) = 9.30 MΩ R(55) = 9.30 MΩ R(56) = 9.30 MΩ R(57) = 9.30 MΩ R(58) = 9.30 MΩ R(59) = 9.30 MΩ R(60) = 9.30 MΩ R(61) = 9.30 MΩ R(62) = 9.30 MΩ R(63) = 9.30 MΩ R(64) = 9.30 MΩ R(65) = 9.30 MΩ R(66) = 9.30 MΩ R(67) = 9.30 MΩ R(68) = 9.30 MΩ R(69) = 9.30 MΩ R(70) = 9.30 MΩ R(71) = 9.30 MΩ R(72) = 9.30 MΩ R(73) = 9.30 MΩ R(74) = 9.30 MΩ R(75) = 9.30 MΩ R(76) = 9.30 MΩ R(77) = 9.30 MΩ R(78) = 9.30 MΩ R(79) = 9.30 MΩ R(80) = 9.30 MΩ R(81) = 9.30 MΩ R(82) = 9.30 MΩ R(83) = 9.30 MΩ R(84) = 9.30 MΩ R(85) = 9.30 MΩ R(86) = 9.30 MΩ R(87) = 9.30 MΩ R(88) = 9.30 MΩ R(89) = 9.30 MΩ R(90) = 9.30 MΩ R(91) = 9.30 MΩ R(92) = 9.30 MΩ R(93) = 9.30 MΩ R(94) = 9.30 MΩ R(95) = 9.30 MΩ R(96) = 9.30 MΩ R(97) = 9.30 MΩ R(98) = 9.30 MΩ R(99) = 9.30 MΩ R(100) = 9.30 MΩ	On = 1000 V Ltime = 03min00s	14.Feb.2005 11:34

Up to 1000 test results can be stored in the memory module of TeraOhm 5 kV. Windows compatible PC software TeraLink serves for downloading and management of test results. Results can be further exported to other Windows programs.

## ORDERING INFORMATION

### MI 2077

### Standard set



Instrument TeraOhm 5 kV  
Soft carrying bag  
Mains cable  
Test lead, 2 m, 2 pcs (black, red)  
Guard test lead, 2 m, with crocodile clip (green)  
Crocodile clip, 2 pcs (black)  
Test probe, 2 pcs (black, red)  
Handbook "Guide to modern insulation testing" on CD  
Instruction manual  
Calibration certificate

## OPTIONAL ACCESSORIES

Photo	Order No.	Acc. description
	A 1046	6 x 1.2 V NiMH batteries, C type
	A 1056	PC SW TeraLink with RS232 cable
	A 1171	RS232 / USB adapter with 1 m cable
	S 2036	HV crocodile clip, 2 pcs (black, red)
	S 2039	5 kV shielded test lead 15 m, 2 pcs
	S 2042	5 kV shielded test lead with test probe 10 m, 2 pcs
	S 2044	5 kV shielded test lead with test probe 15 m, 2 pcs



Measuring and Regulation Equipment Manufacturer

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