1. TECHNICAL SPECIFICATIONS – DMM FUNCTIONS

Accuracy is indicated as ± [% readings + (no. of digits*resolution)] at 23°C ± 5°C, relative humidity <70%HR

DC/AC TRMS VOLTAGE (Autorange)

Range	Resolution	DC Accuracy	Accuracy (30 ÷ 70Hz)	Accuracy (70 ÷ 400Hz)	Input impedance
1.0 ÷ 999.9mV	0.1mV	±(0.5%rdg+2dgt)	±(1.0%rdg+2dgt)	±(2.0%rdg+2dgt)	1MΩ
1.000 ÷ 9.999V	0.001V				
10.00 ÷ 99.99V	0.01V				
100.0 ÷ 605.0V	0.1V				

AC/DC VOLTAGE: MAX / MIN / AVG / PEAK

Function	Range	Resolution	Accuracy	Response time
MAX, MIN, AVG	1.0mV ÷ 999.9mV	0.1mV	±(5.0%rdg + 10dgt)	500ms
	1.000V ÷ 9.999V	1mV		
	10.00V ÷ 99.99V	10mV		
	100.0V ÷ 605.0V	100mV		
PEAK	10.0mV ÷ 999.9mV	0.1mV		1ms
	1.000V ÷ 9.999V	1mV		
	10.00V ÷ 99.99V	10mV		
	100.0V ÷ 605.0V	100mV		

DC/AC CURRENT TRMS (with external clamp)

Range	Resolution	DC Accuracy	Accuracy (30 ÷ 70Hz)	Accuracy (70 ÷ 400Hz)	Crest factor	Overload protection
1.0 ÷ 999.9mV	0.1mV	±(0.5%rdg+2 dgt)	±(1.0%rdg+2 dgt)	±(2.0%rdg+2 dgt)	3	605Vrms max
1.000 ÷ 1.200V	1mV				1.5	

Note: accuracy indicated don't consider clamp accuracy. Please refer also to transducers clamp user's manual.

AC/DC CURRENT: MAX / MIN / AVG / PEAK (with external clamp)

Function	Range	Resolution	Accuracy	Response time	Overload protection
MAX, MIN, AVG	1.0mV ÷ 999.9mV	0.1mV	±(5.0%rdg+10 dgt)	500 ms	605Vrms max
	1.000V ÷ 1.200V	1mV			
PEAK	10.0mV ÷ 999.9mV	0.1mV		1ms	
	1.000V ÷ 3.000V	1mV			

RESISTANCE AND CONTINUITY TEST

Range	Resolution	Accuracy	Continuity test	Overload protection
0.00Ω ÷ 39.99Ω	0.01Ω	±(1.0%rdg+5 dgt)	R ≤40Ω	605Vrms max for 1 minute
40.0Ω ÷ 399.9Ω	0.1Ω			
400Ω ÷ 3999Ω	1Ω			
4.00kΩ ÷ 39.99kΩ	10Ω			

FREQUENCY (with test leads)

Range	Resolution	Accuracy	Input voltage	Overload protection
30.0 ÷ 199.9Hz	0.1Hz	±(0.5%rdg+2 dgt)	1.0mV ÷ 605V	605Vrms max
200 ÷ 400Hz	1Hz			

FREQUENCY (with external clamp)

Range	Resolution	Accuracy	Input voltage	Overload protection
30.0 ÷ 199.9Hz	0.1Hz	±(0.5%rdg+2dgt)	1.0mV ÷ 1.000V	605Vrms max
200 ÷ 400Hz	1Hz			

2. TECHNICAL SPECIFICATIONS – VERIFY TESTS & LAN TEST

Continuity test on protective and equalizing conductors (M72E, M74E, M75E, M75L)

Range (Ω)	Resolution (Ω)	Accuracy	Overload protection
0.01 ÷ 19.99	0.01	±(5.0%rdg + 3dgt)	605Vrms max
20.0 ÷ 99.9	0.1		

Test current: > 200mA DC for R≤5Ω (included calibration); Resolution on current measurement: 1mA
Open-circuit voltage: $4V \leq V_0 \leq 24V$

Insulation Resistance (M72E, M74E, M75E, M75L)

Range (MΩ)	Resolution (MΩ)	Accuracy	Overload protection
0.00 ÷ 19.99	0.01	±(5.0%rdg + 2dgt)	605Vrms max
20.0 ÷ 199.9	0.1		
200 ÷ 999 (*)	1	±(10.0%rdg + 2dgt)	

(*) For 500VDC test voltage. For 250VDC test voltage the range is: 200 ÷ 499MΩ
Test Voltage: 250V,500VDC
Test voltage accuracy: -0% ÷ +10% rdg
Short circuit current: <3.0mA
Nominal test current: 1mA @ 1kΩ x Vnom ; 1mA @ 500 kΩ

Tripping time test for RCD type AC and A/F (M73E, M74E, M75E, M75L)

Range (ms)	Resolution (ms)	Accuracy	Overload protection
2 ÷ 300	1	±(2.0% rdg + 2dgt)	605Vrms max

Nominal trip-out currents: 30mA, 30x5mA, 100mA, 300mA (Type AC), 30mA (Type A/F)
RCD type: AC (∿), A/F (⌒), General
Phase-Earth / Phase-Neutral voltage: 100V ÷ 265V
Frequency: 50Hz ± 0.5Hz / 60Hz ± 0.5Hz

Tripping current test for RCD type AC and A/F (M73E, M74E, M75E, M75L)

RCD Type	IΔN	Range IΔN [mA]	Resolution	Accuracy
AC, A/F (General)	30mA	6.0 ÷ 33.0	0.5mA	- 0%, +10%$I_{\Delta N}$

Phase-Earth / Phase-Neutral voltage: 100V ÷ 265V
Frequency: 50Hz ± 0.5Hz / 60Hz ± 0.5Hz

Global Earth Resistance (M73E, M74E, M75E, M75L)

Test current	Range (Ω)	Resolution (Ω)	Accuracy	Overload protection
15mA	1 ÷ 1999	1	±(5.0% rdg + 2dgt)	605Vrms max
100mA	0.1 ÷ 199.9	0.1	±(5.0% rdg + 3dgt)	

Phase-Earth voltage: 110V ÷ 265V
Frequency: 50Hz ± 0.5Hz / 60Hz ± 0.5Hz
Limit contact voltage: 50V

Phase sequence / conformity

Type of measure	Voltage range (V)	Frequency range (Hz)	System type
1 Wire	90 ÷ 315 (Phase – Earth)	45 ÷ 65	up to 315 (Phase – Earth) up to 550V (Phase – Phase)
2 Wire	110 ÷ 315 (Phase – Neutral)	45 ÷ 65	up to 315 (Phase – Earth) up to 550V (Phase – Phase)

Max crest factor :1.5
NOTE: the two-wire measurement can be performed also phase to phase in plants without neutral, even with one phase to earth, but always with phase to phase voltage up to 550V

Wire mapping test on LAN networks with RJ45 (M75E)

Length of the cable: 1÷100m
Remote units recognized: max 8 units
Wire mapping detected conditions: OPEN Pairs, REVERSED pairs, SHORT pairs, SPLIT pairs, CROSSED pairs, MISWIRING
Reference standard: TIA568B (UTP/STP)

3. GENERAL SPECIFICATIONS

DISPLAY:	
Features:	Dual numeric, 9999 points
Display update:	2 times/sec
Visible area:	73x73 mm
POWER SUPPLY:	
Batteries:	4 batteries 1.5V type LR6-AA-AM3-MN 1500
ELECTRICAL FEATURES:	
Conversion:	AC 16 Bit, TRMS
Sample frequency:	64 sample/period
MECHANICAL FEATURES:	
Dimensions (L x W x H):	240 x 100 x 45mm
Weight (included batteries):	approx 630 g
ENVIRONMENTAL CONDITIONS:	
Reference temperature:	23°C ± 5°C
Working temperature:	0°C ÷ 40°C
Allowed relative humidity:	<70%RH
Storage temperature:	-10°C ÷ 60°C
Storage humidity:	<70%RH
TEST VERIFIES REFERENCE STANDARDS:	
Continuity test with 200mA:	IEC/EN61557-4
Insulation resistance:	IEC/EN61557-2
Global earth resistance:	IEC/EN61557-3
RCDs test:	IEC/EN61557-6
REFERENCE STANDARDS:	
Safety of measuring instruments:	IEC/EN61010-1 + A2(1997)
EMC:	IEC/EN61326-1
Product type standard:	IEC/EN61557-1, 2, 3, 4, 6
Insulation:	double insulation
Pollution degree:	2
Overvoltage category:	CAT III 550V AC Phase - Ground CAT III 550V AC Phase - Phase
Max height of use:	2000m

This instrument satisfies the requirements of Low Voltage Directive 2014/35/EU (LVD) and of Directive 2014/30/EU (EMC)
This instrument satisfies the requirements of 2011/65/CE (RoHS) directive and the requirements of 2012/19/CE (WEEE) directive