

## M74 - M75

### COMBINED INSTRUMENTS FOR SAFETY TESTS, MULTIMETER FUNCTIONS AND CHECKING OF LAN NETWORK WIRE MAPPING

Models M74 and M75 are innovative instruments with all the characteristics of a multimeter with true RMS value (TRMS), verification tests on civil systems and mapping check on LAN network cables (only M75) in one single unit. The ergonomic and attractive shapes, the innovative electronic function selector, the easiness and rapidity of use when carrying out tests make these instrument suitable for any kind of electric installer.

FUNCTIONS	M74	M75
Continuity with 200mA	•	•
Insulation with 250, 500VDC	•	•
Tripping time on RCDs type AC General, 30mA, 30x5mA, 100mA, 300mA	•	•
Global earth resistance without RCD tripping	•	•
AUTO function (global earth resistance, RCD test, insulation) on the tested socket	•	•
Phase sequence with 1 and 2 leads	•	•
Complete test on LAN network cable mapping with RJ45		•
DC/AC TRMS voltage	•	•
DC/AC TRMS current	•	•
Resistance and continuity test	•	•
Data HOLD, MAX/MIN/AVG	•	•
Voltage and current PEAK measurement	•	•
Leakage current measurement (with optional clamps HT96U)	•	•
Safety	EN61010-1	EN61010-1
Measurement category	CAT III 550V	CAT III 550V
Power supply	4x1.5V Type AA	4x1.5V Type AA
Dimensions (LxWxH) (mm)	240x100x45	240x100x45
Weight (with batteries)	450g	450g

ACCESSORIES	Code
<b>Standard</b>	
Set of 2 cables with test leads + 2 alligator clips	KIT0075
2-terminal cable with SHUKO plug	C2075
Clamp 400A AC, diameter 30mm (only M75)	HT4003
LAN remote unit #1 + patch cable (only M75)	REM1
LAN remote unit #2 + patch cable (only M75)	REM2
FTP patch cable RJ45 (only M75)	YAAMS0000000
Carrying bag	BORSA75
ISO9000 calibration certificate	
User manual on CD-ROM	
Quick reference guide	
<b>Optional</b>	
Clamp 1-100-1000A/1V AC, diameter 54mm	HT96U
Clamp 400A AC, diameter 30mm	HT4003
Clamp 200A/1V AC, diameter 40mm	HT4005K
Clamp 10-100A/1V DC, diameter 32mm	HT4004N
Adapter for connection of HT96U, HT4004N, HT4005K clamps	NOCANBA
LAN remote unit #3 (only M75)	REM3
LAN remote unit #4 (only M75)	REM4
LAN remote unit #5 (only M75)	REM5
LAN remote unit #6 (only M75)	REM6
LAN remote unit #7 (only M75)	REM7
LAN remote unit #8 (only M75)	REM8
6x LAN remote units #3 ÷ #8 (only M75)	REM38





## 1. TECHNICAL SPECIFICATIONS – DMM FUNCTIONS

Accuracy is indicated as  $\pm$  (% readings + no. of digits) at 23°C  $\pm$  5°C, relative humidity HR <70%

### DC VOLTAGE (Autorange)

Range	Resolution	Accuracy	Input impedance	Overload protection
1.0mV $\div$ 999.9mV	0.1mV	$\pm(0.5\%rdg + 2\text{ dgt})$	1M $\Omega$	605Vrms max
1.000V $\div$ 9.999V	1mV			
10.00V $\div$ 99.99V	10mV			
100.0V $\div$ 605.0V	100mV			

### AC VOLTAGE TRMS (Autorange)

Range	Resolution	Accuracy (30 $\div$ 70Hz)	Accuracy (70 $\div$ 400Hz)	Input Impedance	Crest factor
1.0mV $\div$ 999.9mV	0.1mV	$\pm(1.0\%rdg + 2dgt)$	$\pm(2.0\%rdg+2\text{ dgt})$	1M $\Omega$	3
1.000V $\div$ 9.999V	1mV				1.5
10.00V $\div$ 99.99V	10mV				
100.0V $\div$ 605.0V	100mV				

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

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

### DC/AC CURRENT TRMS (with external clamp)

Range	Resolution	DC Accuracy	Accuracy (30 $\div$ 70Hz)	Accuracy (70 $\div$ 400Hz)	Crest factor	Overload protection
1.0mV $\div$ 999.9mV	0.1mV	$\pm(0.5\%rdg+2\text{ dgt})$	$\pm(1.0\%rdg+2\text{ dgt})$	$\pm(2.0\%rdg+2\text{ dgt})$	3	605Vrms max
1.000V $\div$ 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 $\div$ 999.9mV	0.1mV	$\pm(5.0\%rdg+10\text{ dgt})$	500 ms	605Vrms max
	1.000V $\div$ 1.200V	1mV		1ms	
PEAK	10.0mV $\div$ 999.9mV	0.1mV			
	1.000V $\div$ 3.000V	1mV			

### RESISTANCE AND CONTINUITY TEST

Range	Resolution	Accuracy	Continuity test	Overload protection
0.00 $\Omega$ $\div$ 39.99 $\Omega$	0.01 $\Omega$	$\pm(1.0\%rdg+5\text{ dgt})$	R $\leq$ 40 $\Omega$	605Vrms max for 1 minute
40.0 $\Omega$ $\div$ 399.9 $\Omega$	0.1 $\Omega$			
400 $\Omega$ $\div$ 3999 $\Omega$	1 $\Omega$			
4.00k $\Omega$ $\div$ 39.99k $\Omega$	10 $\Omega$			

### FREQUENCY (with test leads)

Range	Resolution	Accuracy	Input voltage	Overload protection
30.0 $\div$ 199.9Hz	0.1Hz	$\pm(0.5\%rdg+2\text{ dgt})$	1.0mV $\div$ 605V	605Vrms max
200 $\div$ 400Hz	1Hz			

### FREQUENCY (with external clamp)

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



## 2. TECHNICAL SPECIFICATIONS – VERIFY TESTS

Accuracy is indicated as  $\pm$  (% readings + no. of digits) at  $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ , relative humidity HR <70%

### Continuity test on protective and equalizing conductors

Range ( $\Omega$ )	Resolution ( $\Omega$ )	Accuracy	Overload protection
0.01 $\div$ 19.99	0.01	$\pm(5.0\% \text{ rdg} + 3\text{dgt})$	605Vrms max
20.0 $\div$ 99.9	0.1		

Test current: > 200mA DC for  $R \leq 4\Omega$  (included calibration)  
Resolution on current measurement: 1mA

Open-circuit voltage:  $4\text{V} \leq V_0 \leq 24\text{V}$

### Insulation Resistance

Range (M $\Omega$ )	Resolution (M $\Omega$ )	Accuracy	Overload protection
0.00 $\div$ 19.99	0.01	$\pm(5.0\% \text{ rdg} + 2\text{dgt})$	605Vrms max
20.0 $\div$ 199.9	0.1		
200 $\div$ 999	1	$\pm(10.0\% \text{ rdg} + 2\text{dgt})$	

Test Voltage: 500V DC  
Test voltage accuracy:  $-0\% \div +10\% \text{ rdg}$   
Short circuit current: <3.0mA  
Nominal test current: 1mA @ 1k $\Omega$  x Vnom ; 1mA @ 500 k $\Omega$

### RCD Tripping time

Range (ms)	Resolution (ms)	Accuracy	Overload protection
2 $\div$ 400	1	$\pm(2.0\% \text{ rdg} + 2\text{dgt})$	605Vrms max

Nominal trip-out currents: 30mA, 30x5mA, 100mA, 300mA  
RCD type: AC, Standard  
Phase-Earth voltage: 110V  $\div$  265V  
Frequency: 50Hz  $\pm$  0.5Hz / 60Hz  $\pm$  0.5Hz  
Limit contact voltage: 50V

### Global Earth Resistance

Test current	Range ( $\Omega$ )	Resolution ( $\Omega$ )	Accuracy	Overload protection
15mA	1 $\div$ 1999	1	$\pm(5.0\% \text{ rdg} + 2\text{dgt})$	605Vrms max
100mA	0.1 $\div$ 199.9	0.1	$\pm(5.0\% \text{ rdg} + 3\text{dgt})$	

Phase-Earth voltage: 110V  $\div$  265V  
Frequency: 50Hz  $\pm$  0.5Hz / 60Hz  $\pm$  0.5Hz  
Limit contact voltage: 50V

### PHASE SEQUENCE / CONFORMITY (1 wre measurement)

Type of measure	Voltage range (V)	Frequency range (Hz)	System type
SEQUENCE	90 $\div$ 315 (Phase – Earth)	45 $\div$ 65	up to 315 (Phase – Earth)
CONFORMITY			up to 550V (Phase – Phase)

### PHASE SEQUENCE / CONFORMITY (2 wre measurement)

Type of measure	Voltage range (V)	Frequency range (Hz)	System type
SEQUENCE	110 $\div$ 315 (Phase – Neutral)	45 $\div$ 65	up to 315 (Phase – Earth)
CONFORMITY			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



### 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
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**ELECTRICAL FEATURES:**

Conversion:	AC 16 Bit, TRMS
Sample frequency:	64 sample/period

**MECHANICAL FEATURES:**

Dimensions:	240(W) x 100(L) x 45(D) mm
Weight (included batteries):	about 630 g

**WORKING ENVIRONMENTAL CONDITIONS:**

Reference temperature:	23°C ± 5°C
Working temperature:	0° ÷ 40°C
Allowed relative humidity:	< 70% HR
Storage temperature:	-10 ÷ 60°C
Storage humidity:	< 70% HR

**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
Phase sequence indication:	IEC/EN61557-7

**GENERAL REFERENCE STANDARDS:**

Safety of measuring instruments:	EN61010-1 + A2(1997)
Product type standard:	IEC61557-1, 2, 3, 4, 6,7
Insulation:	class 2 (double insulation)
Pollution degree:	2
Overvoltage category:	CAT III 550V AC Phase - Ground CAT III 550V AC Phase - Phase
Use:	internal use; max altitude: 2000m
EMC:	EN61326-1 (1998) + A1 (1999)

**This instrument complies with the requirements of the European 2006/95/EEC (LVD) and EMC 2004/108/EEC**