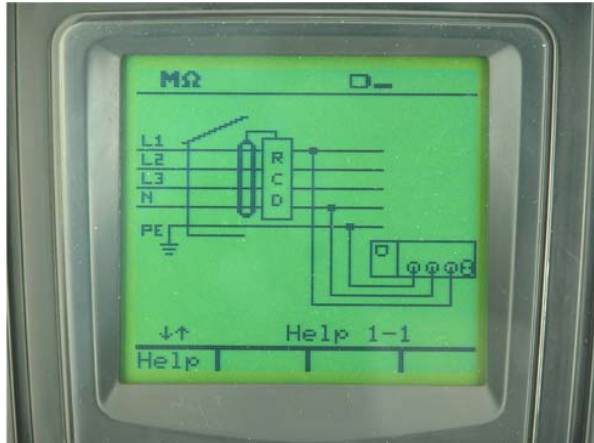
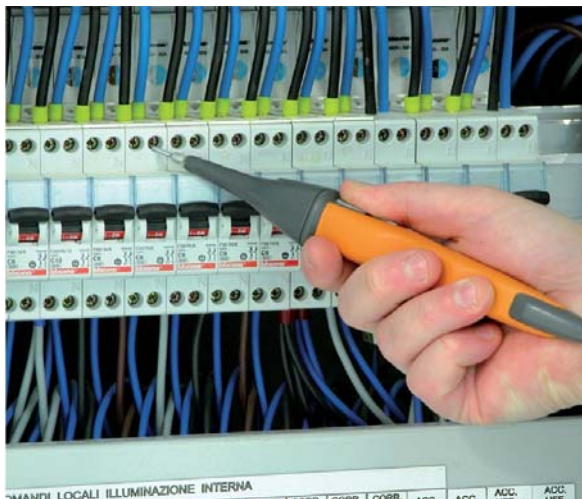


1. MAIN FEATURES OF FAMILY 400 METERS



Help on line (available on each function) to support the user while connecting the instrument to the installation under measurement



Each model permits the Start of measurements with remote probe (PR400 optional accessory)



General menu to quickly selection of available test performed by meter (COMBI419 and COMBI420 models only)



1. ELECTRICAL SPECIFICATIONS

Accuracy is indicated as \pm (% rdgs + no. of dgt) at 23°C \pm 5°C, con relative humidity <60%HR

RCDs tripping time

Range (ms)		Resolution (ms)	Accuracy	Category of measure
$\frac{1}{2} I_{\Delta N}, I_{\Delta N}$	1 \div 999	1	$\pm(2.0\%rdg + 2\ dgt)$	CAT III 240V to Ground CAT III 415V between inputs
2 $I_{\Delta N}$	1 \div 200 general			
	1 \div 250 selective			
5 $I_{\Delta N}$ RCD	1 \div 50 general			
	1 \div 160 selective			

Nominal tripping current: 10mA, 30mA, 100mA, 300mA, 500mA, 650mA
 RCD type: AC, A, general and selective
 Phase-ground voltage: (110V \div 240V) \pm 10%
 Frequency: 50Hz \pm 0.5Hz, 60Hz \pm 0.5Hz
 Voltage contact limits: 25V or 50V

RCDs tripping current

RCD's type	$I_{\Delta N}$	Range $I_{\Delta N}$ (mA)	Resolution (mA)	Accuracy	Category of measure
AC	$I_{\Delta N} \leq 10mA$	$(0.5 \div 1.4) I_{\Delta N}$	0.1 $I_{\Delta N}$	-0%, +10% $I_{\Delta N}$	CAT III 240V to Ground CAT III 415V between inputs
A		$(0.5 \div 2) I_{\Delta N}$			
AC	$I_{\Delta N} > 10mA$	$(0.5 \div 1.4) I_{\Delta N}$			
A		$(0.5 \div 2) I_{\Delta N}$			

Contact voltage U_t

Range (V)	Resolution (V)	Accuracy	Category of measure
0 \div 2 U_{lim}	0.1	-0%, +(2.0%rdg + 2dgt)	CAT III 240V to Ground CAT III 415V between inputs

U_{lim} (UI): 25V , 50V

Loop impedance P-P, P-N, P-PE TT/TN systems

Range (Ω)	Resolution (Ω) (*)	Accuracy	Category of measure
0.01 \div 9.99	0.01	$\pm(5.0\%rdg + 3dgt)$	CAT III 240V to Ground CAT III 415V between inputs
10.0 \div 199.9	0.1		
200 \div 1999 (only P-PE)	1		

(*) 0.1m Ω in 0.0 \div 199.9 m Ω range (with option accessory IMP57)

Maximum peak current: 3A @ 127V, 6A @ 230V, 10A @ 400V
 Test voltage: (110 \div 240V) \pm 10% (P-N, P-PE) ; 50Hz \pm 0.5Hz, 60Hz \pm 0.5Hz
 (110 \div 415V) \pm 10% (P-P); 50Hz \pm 0.5Hz, 60Hz \pm 0.5Hz

Loop impedance P-P, P-N, P-PE IT systems

Range (mA)	Resolution (mA)	Accuracy	Category of measure
5 \div 999	1	$\pm(5.0\%rdg + 3dgt)$	CAT III 240V to Ground CAT III 415V between inputs

U_{lim} (UI): 25V , 50V

Global Earth Resistance R_A without tripping the RCD (COMBI419-COMBI420)

Range (Ω)	Resolution (Ω)	Accuracy	Category of measure
0.01 \div 9.99	0.01	$\pm(5.0\%rdg + 1.0\Omega)$	CAT III 240V to Ground CAT III 415V between inputs
10.0 \div 199.9	0.1		
200 \div 1999 (solo F-PE)	1		

U_{lim} (UI): 25V , 50V

Phase sequence with 1 or 2 wires (COMBI419-COMBI420)

Range (V)	Results displayed	Category of measure
$(100 \div 240) \pm 10\%$	"123" \rightarrow correct phase sequence "132" \rightarrow wrong phase sequence "11-" \rightarrow phase coincidence	CAT III 240V to Ground CAT III 415V between inputs

The instrument detects the phase sequence by touching the hot wire. The detection is not performed on insulated cables.

Frequency: 50Hz \pm 0.5Hz, 60Hz \pm 0.5Hz



2. GENERAL SPECIFICATIONS

MECHANICAL FEATURES

Dimensions:	240 (L) x 160 (W) x 70 (D) mm
Weight (batteries included):	about 1.2kg
Protection degree:	IP50

MEMORY AND SERIAL INTERFACE

Each measurement can be stored	
Memory:	>600 locations
PC communication port:	optical / USB

DISPLAY:

Features:	graphic LCD with backlight
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POWER SUPPLY:

Batteries:	6x 1.5V type LR6, AA, AM3, MN 1500
Battery life:	> 600 measurements (without using the timer)

ENVIRONMENTAL CONDITIONS:

Reference temperature of calibration:	23°C ± 5°C
Working temperature:	0° ÷ 40°C
Working humidity:	< 80%HR
Storage temperature (batteries not included):	-10 ÷ 60°C
Storage humidity:	< 80%HR

GENERAL REFERENCE STANDARDS:

Safety:	IEC/EN61010-1, IEC/EN61557-1, -3, -6, -7
Technical literature:	IEC/EN61187
Safety of accessories:	IEC/EN61010-031, IEC/EN61010-2-032
RCD:	IEC/EN61557-6
LOOP P-P, P-N, P-PE:	IEC/EN61557-3
Ra 15 _{mA}	IEC/EN61557-3
123:	IEC/EN61557-7
Insulation:	double insulation
Pollution degree:	2
Overvoltage category:	CAT III 240V to ground, 415V between inputs
Overvoltage category of the AUX input:	5V to ground
Max altitude of use:	2000m

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