2016

GENERAL CATALOGUE

2016

GENERAL
CATALOGUE

We are designing the future. **Right now.**

Thanks to the experience acquired in over thirty years of presence on the market, HT has established in Italy as a leading company in the field of electric devices. HT designs and develops a wide and reliable range of devices for checking electric safety, for power quality and energy consumption analysis and for checking, testing and maintaining photovoltaic systems.

Continuously staying up to date and keeping up with the latest developing technology, the Company has always offered to the Customers cutting-edge products, carefully studied under every aspect as regards safety, quality of the materials, modern design and ease of use.

From the sector of electric safety checking, HT has extended its expertise to the photovoltaic field as well, following a path of continuous evolution which combines a proven technology with innovation and care for every detail. Its wide range of products makes up a comprehensive offer for those who want to be sure they work in full compliance with the laws, in total safety and with cutting-edge technology.

The culture of research and innovation, together with the utmost attention to safety and the products' reliability are the pillars of the corporate philosophy of HT.

The primary target is the attention to the Customer: that's the main reason why the Company decided, in 1998, to achieve quality certification according to UNI EN ISO 9001.

This certification has further enhanced the quality of the production processes of products and services: as required by the laws in force, all HT products are provided with the CE mark. Anyway, for a better protection of Customers, certification is only granted after tests are carried out by prominent and specific inspection authorities, which are totally independent from the company to be evaluated.

Electric safety as a basic requirement of high-quality devices

Further to carrying out their function, devices for electric measurement must focus on the **operator's safety** as a basic requirement as regards **protection from instant overvoltage** which may generate because of the presence of **complex charging networks, short circuits, atmospheric charges, etc**...
In this respect, international standard **IEC 61010-1** harmonized in Europe with **EN 61010-1** has devised precise rules which electric devices used for measurements in LV (<1000VAC) must comply with. Four **"Overvoltage Categories"** were created, which define the protection level against voltage spikes of each device according to the distance from the power supply source. Devices in the highest category need a higher internal protection as they can operate near the power supply source. A short description is outlined below:

OVERVOLTAGE CATEGORY:

CAT I	CAT II	CAT III	CAT IV
TYPE OF MEASUREMENT Measurements carried out on circuits not directly connected to the distribution power	***TYPE OF MEASUREMENT*** Measurements carried out on circuits directly connected to the low-voltage installation	***TYPE OF MEASUREMENT*** Measurements carried out in the building installation	***TYPE OF MEASUREMENT*** Measurements carried out at the source of the low-voltage installation
APPLICATION Protected electronic devices, measurements on circuits not derived from power	***APPLICATION*** Household devices, mobile devices and similar	***APPLICATION*** Distribution boards, wirings, switches, sockets in fixed installations, electric motors, industrial devices	***APPLICATION*** Electricity meters, measurements on primary overcurrent protection devices, ripple control units.

Why using TRMS devices

In modern domestic and industrial installations, the use of so-called "**non-linear loads**" (e.g. computer networks, variable speed devices, switching suppliers, etc...) is increasing. These loads contribute to the **sometimes remarkable deformation of the waveform of the signals applied to it,** taking it further and further from the traditional sinusoidal waveform typical of "linear" loads (consisting in resistors, inductance or capacitance). Normal measuring devices (multimeters and clamp meters) for measuring alternating voltage and current of "**average-value**" type allow precise measurements **only on sinusoidal waveforms of signals, hence on linear loads**.
To measure non-linear loads, the generation of **harmonic components** which cause the **distortion of the waveform** of the signal, makes the use of **TRMS (True Root Mean Square) devices** necessary, since the average-value devices, taking only the value of fundamental frequency of 50Hz into consideration, may bring to **even remarkable mistakes** of the value reading.
Further to the TRMS value o the fundamental frequency, **TRMS** devices also provide the **TRMS value of the whole waveform, including harmonic components,** within the bandwidth they are designed for. Therefore, when measuring the same quantity with devices of both types, the obtained values will be identical only if the waveform of the signal is purely sinusoidal. In case of distorted waveforms, instead, **TRMS devices** always provide higher values than those measured by corresponding average-value devices.
Therefore, the use of **TRMS** measuring device is essential when carrying out measuring and maintenance operations on industrial electric systems in order to obtain **reliable reading values** of the measured quantities.

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PHOTOVOLTAIC TESTERS

PERFECTION FOR THE SUN

New HT solutions for performance optimization and troubleshooting.

Thanks to the decrease in the cost of components and the remarkable increase of performance, installing photovoltaic systems on the roof or on the ground has become increasingly common. In a photovoltaic system, problems connected to safety and to the system's performance must be checked, and maintenance of strings and single panels must be carried out.

Troubleshooting

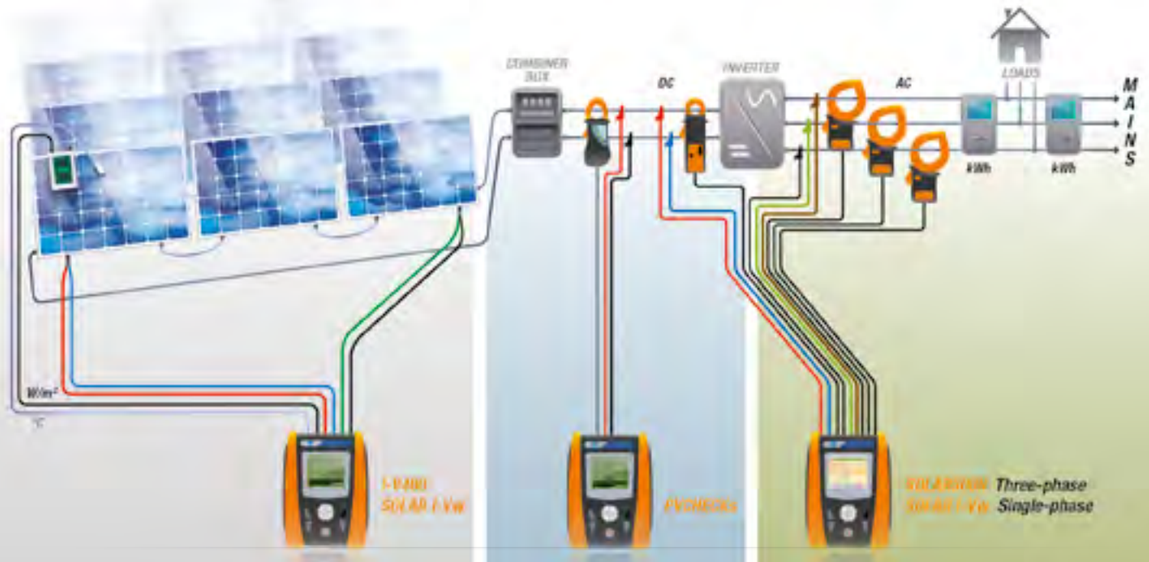
- It may happen that, during the operation of a system, **some modules may jeopardize the performance** of the whole system. When system efficiency is lower than expected, it is necessary **to detect the defective modules** so that they can be replaced. This can be achieved **by measuring the I-V curve** with devices **SOLAR I-Vw** and **I-V400w**.

Commissioning Tests

- When **operating** a photovoltaic system, it is necessary to **certify its safety according to IEC62446**. The suitable device to carry out these verifications is **PVCHECKs**.

Performance

- Performance **Recording** is one of the **necessary requirements** to make **maintenance programs efficient**. By monitoring system performance it is possible to **certify** a **production loss** quickly and efficiently. **SOLAR300N**, **SOLAR I-Vw** and **MPP300** are the **ideal solution** for **recording over time the energy production of a system** and the **performance check of an inverter**.



Troubleshooting

Commissioning Tests

Performance

COMPARISON TABLE **FUNCTIONS**

MAINTENANCE AND EFFICIENCY OF THE PHOTOVOLTAIC SYSTEM	SOLAR I-Vw	I-V400w	SOLAR300N	PVCHECKs	MPP300
Continuity of protective conductors with 200mA	-	-	-	•	-
Insulation measurement with test voltage 250, 500, 1000VDC with no service interruption	-	-	-	•	-
I-V Curve measurement on single module or string	•	•	-	-	-
VOC and ISC measurement on single module or string	•	•	-	•	-
Single-Phase and Three-Phase efficiency measurement	• 1MPPT (3MPPT with MPP300)	-	• 1MPPT (3MPPT with MPP300)	-	•
DC side efficiency of the photovoltaic field	-	-	•	•	-
Use of remote unit SOLAR-02 with USB \ RF connection	• RF	• RF	• USB	• RF	• RF • USB
Measurement of irradiation with reference cell	•	•	•	•	-
Temperature measurement of cell and environment	•	•	•	•	-
POWER QUALITY ANALYSIS					
AC/DC voltage in single-phase/three-phase systems	-	-	•	• DC	•
AC/DC current in single-phase/three-phase systems	-	-	•	• DC	•
Cosphi, Power Factor	-	-	•	-	-
Voltage unbalance (NEG%, ZERO%)	-	-	•	-	-
Power/Energy: Active P, Reactive Q, Apparent S	• only active P	-	•	• only active P	-
Voltage and current harmonics up to the 49th with THD%	-	-	•	-	-
Voltage anomalies (dips, peaks) with 10ms resolution (@ 50Hz)	-	-	•	-	-
Voltage fast transients (spikes) with 5µs resolution (200kHz)	-	-	•	-	-
Electric motor starting current (INRUSH)	-	-	•	-	-
Voltage flickers (Pst, Plt)	-	-	•	-	-
Full analysis according to EN50160	-	-	•	-	-
Phase sequence	-	-	•	-	-
Neutral-Ground Voltage	-	-	•	-	-
Neutral current	-	-	•	-	-
MEMORY AND RECORDING					
Max number of simultaneously selectable parameters	9	-	251	5	-
Recording with selectable integration period	5s-60m	-	1s-60m	5s-60m	1s-60m
Indicative memory duration (in days @ PI=10min @ max number of parameters)	8	-	90	-	8
Indication of recording duration for power quality analysis	-	-	•	-	-
Internal memory extension with Compact Flash card	-	-	•	-	-

› FOLLOWS	SOLAR I-Vw	I-V400w	SOLAR300N	PVCHECKs	MPP300
Default and custom recordings	-	-	•	-	-
REAL-TIME DISPLAY					
Summary table of main electric parameters	•	•	•	•	-
Voltage/current waveforms	-	-	•	-	-
Tables or histograms of Harmonics and THD%	-	-	•	-	-
Voltage/current vector diagram	-	-	•	-	-
ADDITIONAL CHARACTERISTICS					
Measuring range of I-V Curve / IVCK	1000V / 15A	1000V / 15A	-	1000V / 15A only VOC and ISC	-
Measuring range for efficiency measurement	1000VDC / 265VAC	-	1000VAC-DC 3000A	-	1000VDC / 600VAC 3000AC / 1000ADC
Measurement category:	CAT III 300V	CAT III 300V	CAT IV 600V	CAT III 300V	CAT IV 300V
Touchscreen colour display	-	-	•	-	-
LCD display with backlight	•	•	-	•	-
Internal memory capacity	200 curves I-V 8 days@ PI=10 min	200 curves I-V	15MB 90 days@ PI 10min	999 Locations	2MB 8 days@ PI=10 min
USB port for data download onto Pen Drive	-	-	•	-	-
PC interface with software for Windows	•	•	•	•	-
Integrated WiFi interface	•	•	-	-	-
Custom management of internal PV module database	•	•	-	•	-
Power supply with rechargeable battery and battery charger	-	-	•	-	•
Auto power off	•	•	•	•	•
Indication of recording duration for efficiency measurement	•		•	-	-
Reference standard for Power Quality Analysis	-	-	EN50160	-	-
Help on line on the display	•	•	•	•	-
Size (LxWxH) (mm)	235x165x75	235x165x75	235x165x75	235x165x75	300x265x214
Weight in kg (batteries included)	1.2	1.2	1	1.2	2.3
Reference standard for safety	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1
Order Code	HV000IVW	HV00400W	HV00300N	HV00PVCS	HVMPP300

YouTube

CAT II 1000VDC

CAT III 300VAC

MAX 1000V BETWEEN INPUTS

ORDER CODE ***HV000IVW***

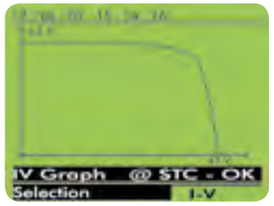
SOLAR I-Vw

MULTIFUNCTION DEVICE FOR TESTS AND MAINTENANCE ON SINGLE-PHASE INSTALLATIONS. (THREE-PHASE WITH ACCESSORY MPP300 *›see page 20)*

- Measurement of **efficiency of a single-phase photovoltaic system**
- Measurement of **I-V Curve** of a **module** or of a **string**
- Measurement of **open-circuit voltage** and of **short-circuit current Voc/Isc**
- Database of **30.000 selectable photovoltaic** modules

SOLAR I-Vw allows both **testing** a single-phase (three-phase with optional MPP300) photovoltaic system and **verifying I-V Curve**.
Thanks to remote unit SOLAR02, it is possible to test the system complying with the requirement of simultaneity as provided for by the reference standard. SOLAR02 is a datalogger which, **synchronized with SOLAR I-Vw**, acquires the data relevant to **irradiation** and **temperature while tests carried out by SOLAR I-Vw** are carried out.
For measuring **I-V curve**, SOLAR I-Vw manages an **internal database of modules**, (which can be updated at any time by the user) **to compare the measured data with the rated values**, thus allowing the **immediate evaluation** whether the string or the module **fulfills the efficiency parameters declared by the manufacturer**.
Current and voltage measurement at modules/strings output is measured with the 4-terminal method, which allows extending measuring cables without considering any compensation of their resistance, thus obtaining always precise measurements. At the end of the test, the display of I-V Curve on the screen is a clear indication about the compliance with the specifications declared by the panel manufacturer.

Measuring a I-V Curve on a string through remote synchronization of irradiation and temperature



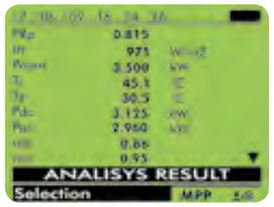
I-V Curve: **OK**

Measurement of curve IV with environmental sensors connected to SOLAR IVw

I-V Curve: **NOT OK**

Measurement of single-phase efficiency with remote environmental sensors

Measuring system efficiency



Result of efficiency measurement.

Functions

Maintenance of photovoltaic system

- Measurement of PV module/string output voltage up to 1000V DC
- Measurement of PV module/string output current up to 15A DC
- 128 spots per I-V Curve in STD or Capacitive mode
- Measurement of Voc-Isc-Pmax-Vmpp-Impp-Fill Factor
- Measurement of cell temperature through external probe
- Measurement of irradiation [W/m²] through reference cell
- Measurement of DC and rated power at module/string output
- Detection of I-V Curve with direct measurement of Irr/Temp parameters
- Detection of I-V Curve by means of SOLAR-02
- Measurement of resistance of series Rs of panels
- Measuring method with 4 terminals
- Direct comparison with reference conditions (STC – 1000W/m², 25°C)
- Test result OK / NO
- Internal database for managing up to 30 PV modules (30.000 modules by software)
- Internal memory for data saving
- Recalling measured data on the display
- Optical/USB interface for transferring data onto the PC
- Help on line on the display

Efficiency measurements of the photovoltaic system

- DC/AC TRMS single-phase voltage
- DC/AC TRMS single-phase current
- Single-phase DC power / AC active power
- Solar irradiation [W/m²] with reference cell HT304N
- Panel and environmental temperature through probes
- Remote unit SOLAR02 with RF connection
- Display of environmental data in real time
- Use of compensation relationships Cells/Environment on Pdc
- Parameter recording of a PV system with 5s to 60min programmable IP.

Main features

Display:	LCD custom, 128x128pxl, with backlight
Power supply:	6x1.5V alkaline batteries type AA LR06
Automatic power off:	after 5 minutes in stand-by
Duration for PV testing:	1.5 hours (@IP=5s); 8 days (@IP=10min)
Duration for I-V Curve:	> 200 curves
PC interface:	opto-isolated optical / USB
Safety:	IEC/EN61010-1
Safety and measuring accessories:	IEC/EN61010-031, IEC/EN61010-032
Measurement of I-V Curve:	IEC/EN60891, IEC/EN62446
Insulation:	double insulation
Pollution level:	2
Measurement category:	CAT II 1000V DC, CAT III 300V (to earth) Max 1000V between inputs
Size:	235x165x75 mm
Weight (batteries included):	1.3 kg

Accessories provided

SOLAR02	Remote unit RF or Irradiation and Temperature
KITGSC4	Set of 4 banana cables 4mm + 4 alligator clips
KITPVMC3	Set of 2 adapters with compatible connectors MC3
KITPVMC4	Set of 2 adapters with compatible connectors MC4
HT4005K	Standard 200AC/1V clamp, diameter 40mm
HT4004N	Standard DC 10-100A/1V clamp, diameter 32mm
HT304N	Reference cell for irradiation measurement
PT300N	PT1000 probe for cell/environmental temperature
M304	Mechanical inclinometer
TOPVIEW2006	Windows software + optical/USB C2006 cable
VA500	Transport case
	User manual on CD-ROM
	ISO9000 calibration certificate
	Quick user guide

Optional accessories

MPP300	Testing accessory on multi-string systems
HT4005N	Standard AC 0÷5A, 0÷100A clamp, diameter 20mm
HT96U	Standard 1-100-1000A AC clamp, diameter 54mm
HT97U	Standard 10-100-1000A AC clamp, diameter 54mm
HT98U	Standard 1000A DC clamp, diameter 50mm
HP30C2	Standard 200-2000A AC clamp, diameter 70mm
HP30C3	Standard 3000A AC clamp, diameter 70mm
HP30D1	Standard clamp, diameter 83mm 1000A DC
SP-0400	Shoulder strap to use the device with free hands
KITPVEXT25M	Set of 2 banana cables 4mm, Green/Black, 25m
606-IECN	Connector with magnetic terminal

YouTube

CAT II 1000VDC
MAX 1000VDC BETWEEN INPUTS

CAT III 300VAC
MAX 265VAC BETWEEN INPUTS

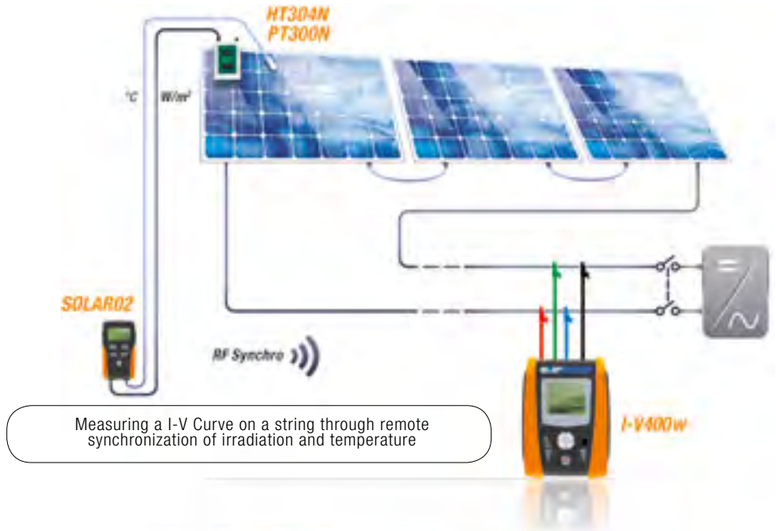
ORDER CODE ***HV00400W***

I-V400w

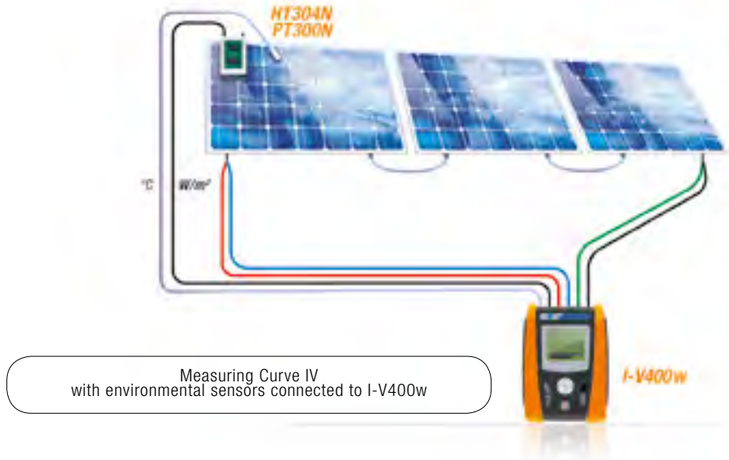
MULTIFUNCTION DEVICE FOR MAINTENANCE
AND TROUBLESHOOTING
OF PHOTOVOLTAIC SYSTEMS

- Measurement of I-V Curve of a module or of a string
- Measurement of open-circuit voltage and of short-circuit current Voc/Isc
- Database of 30.000 selectable photovoltaic modules

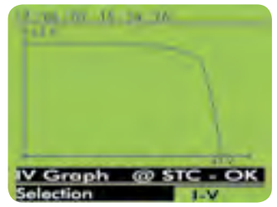
I-V400w allows **field detection of I-V Curve** an of the main characteristic parameters both of a single module and of a string for PV installations up to a maximum of **1000V** and **15A.**
For measuring I-V Curve, I-V400w manages an **internal database modules,** (which can be updated at any time by the user) to compare the measured data with the rated values, thus allowing the immediate evaluation whether the string or the module fulfills the efficiency parameters declared by the manufacturer.
I-V400w carries out irradiance and temperature measurement directly or under remote mode trough the optional unit SOLAR 02, synchronized with main unit I-V400w.
Also for I-V400w, **the display at the end of the test of I-V Curve** is a clear indication about the compliance with the specifications declared by the panel manufacturer.



Measuring a I-V Curve on a string through remote synchronization of irradiation and temperature



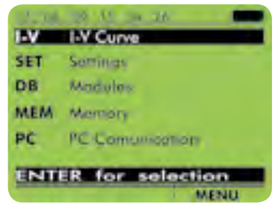
Measuring Curve IV
with environmental sensors connected to I-V400w



Result of I-V Curve: **OK**

Manual insertion of a module

Detail of the single results of I-V Curve: **OK**



General Menu

Functions

Maintenance of photovoltaic system

- Measurement of PV module/string output voltage up to 1000V DC
- Measurement of PV module/string output current up to 15A DC
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- Measurement of Voc-Isc-Pmax-Vmpp-Impp-Fill Factor
- Measurement of cell temperature through external probe
- Measurement of irradiation [W/m²] through reference cell
- Measurement of DC and rated power at module/string output
- Detection of I-V Curve with direct measurement of Irr/Temp parameters
- Detection of I-V Curve using the remote unit SOLAR02
- Measurement of resistance of series Rs of panels
- Measuring method with 4 terminals
- Direct comparison with reference conditions (STC – 1000W/m², 25°C)
- Test result OK / NO
- Internal database for managing up to 30 PV modules (30.000 modules by software)
- Internal memory for data saving
- Recalling measured data on the display
- Optical/USB interface for transferring data onto the PC
- Help on line on the display

Main features

Display:	LCD custom, 128x128pxl, with backlight
Power supply:	6x1.5V alkaline batteries type AA LR06
Automatic power off:	after 5 minutes in stand-by
Duration for I-V Curve:	> 200 curves
PC interface:	opto-isolated optical / USB
Safety:	IEC/EN61010-1
Safety and measuring accessories:	IEC/EN61010-031, IEC/EN61010-032
Measurement of I-V Curve:	IEC/EN60891, IEC/EN62446
Insulation:	double insulation
Pollution level:	2
Measurement category:	CAT II 1000V DC, CAT III 300V (to earth) Max 1000V between inputs
Size:	235x165x75 mm
Weight (batteries included):	1.3 kg

Accessories provided

KITGSC4	Set of 4 cables + 4 alligator clips
KITPVMC3	Set of 2 adapters with connectors MC3
KITPVMC4	Set of 2 adapters with connectors MC4
HT304N	Sensor for irradiation measurement
M304	Mechanical inclinometer
TOPVIEW2006	Windows software + optical/USB C2006 cable
VA500	Rigid carrying case
	User Manual
	ISO9000 calibration certificate

Optional accessories

PT300N	PT1000 probe for PV modules temperature
SP-0400	Shoulder strap to use the device with free hands
SOLAR02	Remote unit for Irradiation and Temperature
KITPVEXT25M	Set of 2 banana cables 4mm, Green/Black, 25m

YouTube

CAT IV 600V

CAT III 1000V

MAX 1000V BETWEEN INPUTS

ORDER CODE **HV00300N**

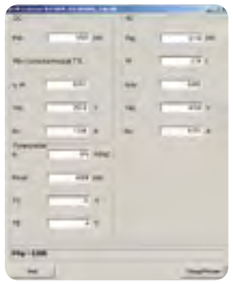
SOLAR300N

MULTIFUNCTION DEVICE FOR VERIFICATION
OF SINGLE-PHASE AND THREE-PHASE
PV SYSTEM EFFICIENCY AND POWER QUALITY ANALYSIS
IN COMPLIANCE WITH STANDARD EN50160

- New **touchscreen interface**
- Verification of the **efficiency** of the photovoltaic system
- **Analysis of power quality** and **energy consumption**

SOLAR300N tests **single-phase and three-phase photovoltaic systems**. For this kind of tests, it is necessary to guarantee **simultaneity** between power measurements carried out at the inverter and irradiation and temperature measurements carried out on the photovoltaic panels.
HT Instruments has introduced a **remote measuring device SOLAR02** which **acquires the values of solar Irradiation [W/m²], panel Temperature [°C] and environmental Temperature [°C] and transfers them onto SOLAR300N**, which inserts them onto the same string of power measurements an then elaborates them with the simultaneity required by the law in force.
SOLAR300N is not only a device for testing PV systems, but **also a powerful device for a complete analysis of power quality** according to standard EN50160 (harmonic analysis, voltage anomalies, flickers, unbalance, etc.).

Connection diagram (three-phase system)



Photovoltaic testing result on PC application TOPVIEW.

Photovoltaic testing result.

SOLAR300N IS ALSO AN ANALYZER FOR POWER QUALITY AND ENERGY CONSUMPTION

- Harmonics
- Analysis of recordings
- Measurement of energy consumption
- Flicker
- Voltage anomalies and spikes
- Inrush currents
- Vectors and waveforms

Functions

Efficiency measurements of the photovoltaic system

- DC/AC TRMS voltage (single-phase and three-phase)
- DC/AC TRMS current (single-phase and three-phase)
- DC/AC active power (single-phase and three-phase)
- Power factor cosj (single-phase and three-phase)
- Solar irradiation
- Panel and environmental temperature
- Display of testing result (OK/NOT OK)
- Remote unit SOLAR02 for measuring irradiation and temperature
- Periodic recording of power parameters with programmable PI

Analysis of power and energy consumption

- Recording of voltage and current harmonics (up to the 49th)
- Recording of voltage anomalies (dips, peaks) with resolution 10ms
- Flicker analysis according to EN50160
- Recording of Inrush Currents with resolution 10ms
- Recording of voltage spikes with resolution 5µs
- Complete analysis of power quality according to EN50160
- Touchscreen colour display
- Internal memory and USB output for PC connection
- Power supply with rechargeable Li-ION battery
- Rechargeable internal battery
- Help on line on the display
- Management of USB Pen Drive and compact flash card

Main features

Display:	Colour touchscreen with adjustable brightness
Power supply:	Rechargeable Li-ION, 3.7V battery
Internal memory:	15MB (duration 1 month @ IP=15min, 251 parameters)
External memory:	Compact Flash (CF) card
PC interface:	USB 2.0
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution level:	2
Measurement category:	CAT IV 600V (to earth) CAT III 1000V (between inputs)
Unbalance:	IEC/EN61000-4-7
Power quality:	IEC/EN50160
Flicker:	IEC/EN61000-4-15
Reference standard and class:	IEC/EN61000-4-30 Class B
Size:	235x165x75mm
Weight (batteries included):	1kg

Accessories provided

SOLAR02	Remote unit for Irradiation and Temperature
KIT800	Set of 5 cables + 5 alligator clips
HT4005K	Standard 200A AC clamp, diameter 40mm (3pcs)
HT4004N	Standard 10-100A DC clamp, diameter 32mm
HT304N	Sensor for irradiation measurement
PT300N	PT1000 probe for PV modules temperature
A0055	External AC/DC battery charger power supply 230V 50/60Hz*
YABAT0003HT1	Rechargeable Li-ION battery
PT400	Touch-screen pen
TOPVIEW2007	Windows software + USB C2007 cable
VA500	Rigid carrying case
	User Manual
	Quick guide
	ISO9000 calibration certificate

(*) Please check accessory line to find the correct power adapter for your country

Optional accessories

MPP300	Accessory for (AC) three-phase efficiency verification up to (3MPPT)
HT4005N	Standard AC 0÷5A, 0÷100A clamp, diameter 20mm
HT96U	Standard 1-100-1000A AC clamp, diameter 54mm
HT97U	Standard 10-100-1000A AC clamp, diameter 54mm
HP30C2	Standard 200-2000A AC clamp, diameter 70mm
HP30C3	Standard 3000A AC clamp, diameter 70mm
HT98U	Standard 1000A DC clamp, diameter 50mm
HP30D1	Standard clamp, diameter 83mm 1000A DC
HTFLEX33E*	Flex 3000A clamp, for power analysis, diameter 174mm
HTFLEX35*	Flex 3000A clamp, for power analysis, diameter 274mm
HT903	3x1-5A/1V box for TA connection
SP-0400	Shoulder strap to use the device with free hands
606-IECN	Magnetic connectors for voltage measurement
A0056	115V/50-60Hz power supply with American plug
CF800	1Gb Compact flash card
MCR800	Compact flash card reader

(*) can be used only for power analysis

CAT III 300V
MAX 1000V BETWEEN INPUTS

ORDER CODE ***HV00PVCS***

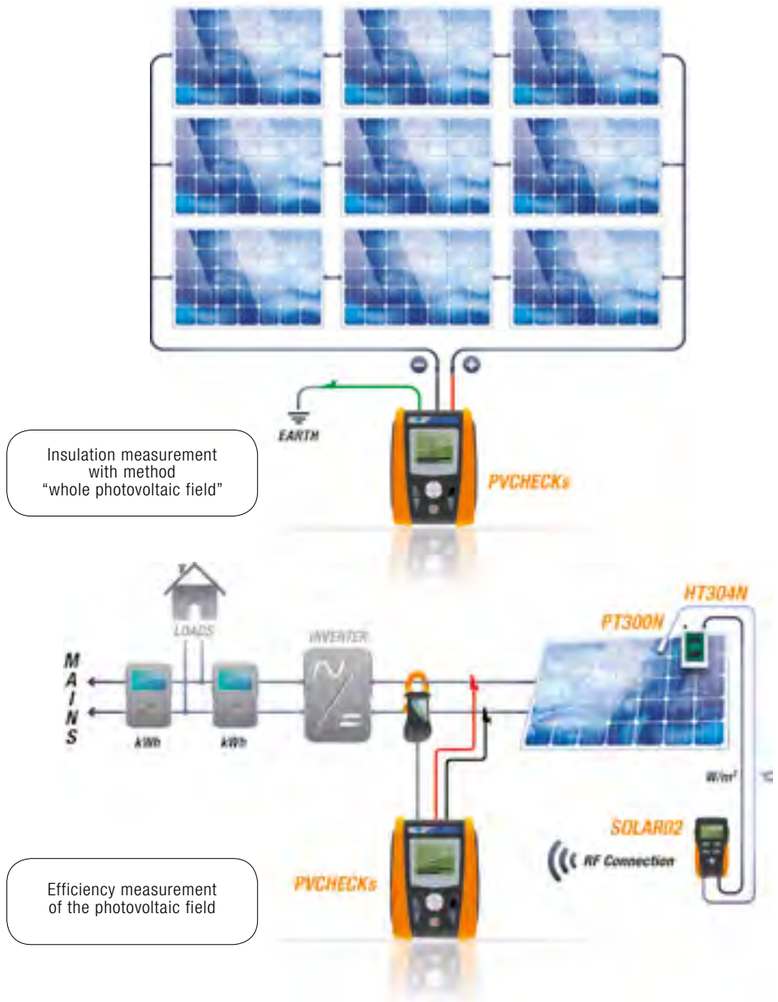
PVCHECKs

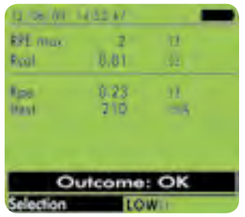
MULTIFUNCTION DEVICE FOR COMMISSIONING TESTS OF ELECTRIC SAFETY AND PERFORMANCE OF A PHOTOVOLTAIC SYSTEM

Automatic test in a sequence of:

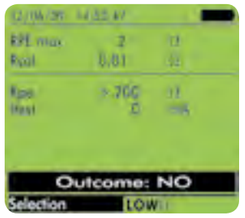
- **Measurement of insulation** up to 1000VDC
- **Open-circuit voltage** and **short-circuit current Voc/Isc**
- **Continuity** of **protective conductors** with 200mA

The multifunction device PVCHECKs allows quickly and safely carrying out the commissioning tests provided for a PV system (section in DC) and the functional test of modules/strings the system consists of according to the requirements of Standard **IEC/EN62446.**
When testing safety, PVCHECKs is a real innovation, since it is capable of **measuring insulation of a module, string or of a whole photovoltaic field (IEC/EN62446)** with no need to use an external switch to short-circuit the positive and negative terminals.
PVCHECKs also allows **checking the functionality of the connections and of the strings** in a photovoltaic field, according to the provisions of standard IEC/EN62446 by measuring the open circuit voltage and the short-circuit current at operating conditions (OPC) and referred to STC (via the optional measurement of irradiation, also with the use of optional accessories SOLAR02 and HT304N), providing an **immediate result** as regards the measurement just carried out, both in absolute terms and by comparison with the previously tested strings. Finally, PVCHECKs also allows analyzing the performance of the photovoltaic field (DC) under operating conditions (therefore connected to the inverter) with the use of optional accessories SOLAR02 and HT304N, providing an indication of the generated power and of the performance of the field itself.

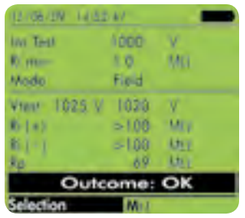




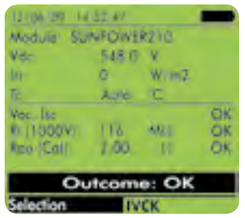
Continuity test result with 200mA **OK**



Continuity test result with 200mA **NOT OK**



Insulation measurement result at 1000V **OK**



Automatic sequence test result **OK**

Functions

Maintenance of photovoltaic system

- Continuity of protective conductors with test current 200mA
- Insulation measurement with test voltage 250,500 and 1000VDC
- Open-circuit voltage (VOC) measurement up to 1000V DC
- Short-circuit current (ISC) measurement up to 15A DC
- DC voltage - DC current - DC power measurement
- Measurement of irradiation [W/m²] through reference cell HT304N
- Environmental and photovoltaic module temperature measurement through PT300N probe
- Use of compensation relationships Cells/Environment on Pdc
- Measurements always compared to the values declared by the module's manufacturer
- Internal database for managing up to 30 PV modules (30.000 modules by software)
- Test measurement of string operation
- Mechanical inclinometer for verifying the correct inclination of sun rays
- Result for every measurement OK/NO
- Internal memory and USB output for PC connection
- Help on line on the display

Efficiency measurements of the photovoltaic system

- Efficiency measurement of the photovoltaic field (DC side)

Main features

Display:	LCD, 128x128pxl, with backlight
Power supply:	6x1.5V alkaline batteries type AA LR06
Auto power off:	after 5 minutes
Internal memory:	256kBytes
PC interface:	optical/USB
Safety:	IEC/EN61010-1
Safety of accessories:	IEC/EN61010-031
Measurements:	IEC/EN 62446
Insulation:	Double insulation
Pollution level:	2
Overvoltage category:	CAT III 1000VDC (to earth) Max 1000V between inputs
Size:	235x165x75mm
Weight (batteries included):	1.2kg

Accessories provided

HT4004	Standard 10-100A DC clamp, diameter 30mm
KITGSC4	Set of 4 cables + 4 alligator clips
KITPCMC3	Set of 2 adapters with connectors MC3
KITPCMC4	Set of 2 adapters with connectors MC4
TOPVIEW2006	Windows software + optical/USB C2006 cable
BORSA2051	Soft carrying bag
	ISO9000 calibration certificate
	User manual and quick guide

Optional accessories

PT300N	PT1000 probe for PV modules temperature
SOLAR02	Remote unit for Irradiation/Temperature measurement
HT304N	Reference cell for irradiation measurement
M304	Mechanical inclinometer
SP-0400	Shoulder strap to use the device with free hands
KITPVEXT25M	Set of 2 banana cables 4mm, Green/Black, 25m
606-IECN	Connectors with magnetic terminal

YouTube

CAT IV 300VAC — MAX 600VAC BETWEEN INPUTS

CAT III 1000VDC — MAX 1000VDC BETWEEN INPUTS

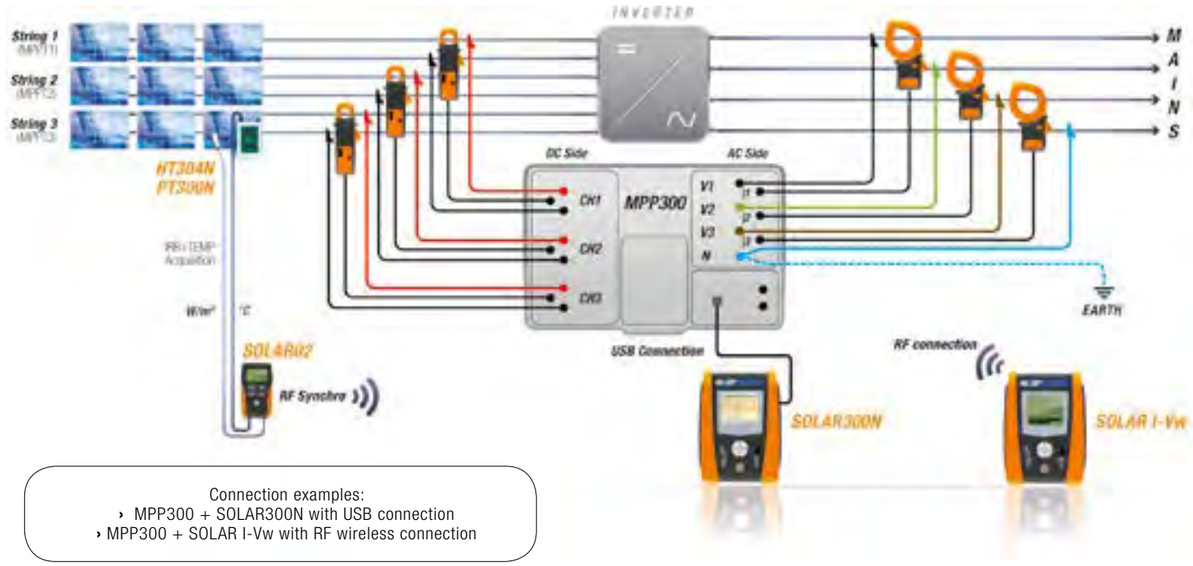
ORDER CODE ***HVMPP300***

MPP300

ACCESSORY FOR MEASURING AND RECORDING THE EFFICIENCY OF A SINGLE- AND THREE-PHASE, SINGLE- AND MULTI-STRING PHOTOVOLTAIC SYSTEM (UP TO THREE MPPT).

- Simultaneous analysis of **3 strings**
- **Compatible** with SOLAR300N and SOLAR I-Vw
- **Integrated rechargeable battery**

MPP300 is an innovative accessory which allows **measuring and recording the main parameters which characterize single and three-phase, single and multi-string photovoltaic systems (up to three MPPT)**. Provided with a practical **rigid anti-shock case**, thanks to its **lightness** and its **reduced size** is the ideal solution for on-site use. MPP300 **interfaces** with SOLAR300N and SOLAR I-Vw for its settings, to start/stop recording electric and environmental parameters and to allow for the download of the recorded values. The master devices SOLAR300N or SOLAR I-Vw are only used in the initial and final phase of recording, and they do not play any active role while recording electrical and environmental parameters. Remote unit SOLAR02 (**synchronized** with MPP300) is positioned next to the photovoltaic modules to measure environmental parameters (**irradiation and temperature**). Thanks to this synchronization, **it is not necessary to place long connection cables between the environmental probes and the device** (cables which would impair the operator's movements) **nor to use a wireless connection** between the environmental probes and the device, what is generally impossible due to the attenuation of the signal caused by the presence of floors, reinforced concrete or metal structures.



Connection examples:
› MPP300 + SOLAR300N with USB connection
› MPP300 + SOLAR I-Vw with RF wireless connection

Synchronization between the two units **guarantees the necessary simultaneity of measurements** and the two separate and independent units make **measurements comfortable and safe under any condition.**
MPP300's **best partner is SOLAR I-Vw**: while MPP300 records the electrical and environmental parameters, it is possible to measure the I-V curves o strings and modules with SOLAR I-Vw, **thus saving time and money.**

- Practical rigid anti-shock case
- Small size (mm 300x265x140) for an extreme portability

Functions

- DC/AC TRMS voltage measurement (single-phase and three-phase)
- DC/AC TRMS current measurement (single-phase and three-phase)
- DC/AC power measurement (single-phase and three-phase)
- Simultaneous multi-string tests (max 3 MPPT)
- Connection with master unit SOLAR300N and SOLAR I-Vw
- Power supply with rechargeable Li-ION battery
- LED operating indications
- USB port for connection to unit SOLAR300N
- RF connection for connection to SOLAR02 and SOLAR I-Vw
- Internal memory for saving recordings

Main features

Inputs:	3 DC voltage inputs (CH1, CH2, CH3), 3 DC current inputs (CH1, CH2, CH3), 4 AC voltage inputs (L1, L2, L3, N), 3 AC current inputs (L1, L2, L3)
Front panel:	4 two-colour LEDs (red, green)
Power supply:	Rechargeable Li-Ion battery Duration >3 hours
Internal memory:	2 MBytes
Communication interfaces	USB + RF
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution level:	2
Mechanical protection:	IP40 (open), IP65 (closed)
Measurement category:	CAT IV 300 VAC (to earth), 600 VAC (between inputs) CAT III 1000 VDC (to earth), 1000 VDC (between inputs)
Size:	300 x 265 x 140 mm
Weight (batteries included):	2.3 kg

Accessories provided

KITMPPDCW	Set of 2 cables, red and black banana-banana length 2m, 3 pieces
KITMPPDCC	Set of 2 alligator clips, black and red, 3 pieces
KITMPPACW	Set of 4 cables for AC voltage, 2m
KITMPPACC	Set of 4 alligator clips for AC voltage
A0055	External AC/DC battery charger power supply
C2007	USB cable
ACON3F4M	Adapter for the connection of clamps HT98U, HP30D1 and HT4004N, 3 pieces
BORSA2051	Soft carrying bag for accessories
	User Manual
	ISO9000 calibration certificate

Optional accessories

HT4004P	Standard 10-100ADC clamp, diameter 32mm (only MPP300)
HT4005N	Standard AC 0÷5A, 0÷100A clamp, diameter 20mm
HT4005K	Standard 200A AC clamp, diameter 40mm
HT96U	Standard 1-100-1000A AC clamp, diameter 54mm
HT97U	Standard 10-100-1000A AC clamp, diameter 54mm
HT98U	Standard 1000A DC clamp, diameter 50mm
HP30C2	Standard 200-2000A AC clamp, diameter 70mm
HP30C3	Standard 3000A AC clamp, diameter 70mm
HP30D1	Standard clamp, diameter 83mm 1000A DC
HTFLEX33E	Flex 3000A clamp, for power analysis, diameter 174mm
HTFLEX35	Flex 3000A clamp, for power analysis, diameter 274mm
606-IECN	Magnetic connectors for voltage measurement

COMPARISON TABLE OF ACCESSORIES

		SOLAR I-Vw	I-V400w	SOLAR300N	PVCHECKs	MPP300
	TOPVIEW2006 **TOPVIEW2007*** PC Windows software + USB/optical cable *ORDER CODE* ***HA000716*** ** ORDER CODE* ***HA000714***	S TOPVIEW2006	S TOPVIEW2006	S TOPVIEW2007	S TOPVIEW2006	-
	PT300N PT1000 probe for PV module temperature *ORDER CODE* ***HA00300N***	S	0	S	0	-
	SOLAR02 Remote unit for Irradiation and Temperature *ORDER CODE* ***HA000120***	S	0	S	0	-
	KITGSC4 Set of 4 cables + 4 alligator clips *ORDER CODE* ***HA000021***	S	S	-	S	-
	KITPVMC3 - KITPCMC3* Set of 2 adapters with connectors MC3 *ORDER CODE* ***HA000032*** ** ORDER CODE* ***HA000757***	S KITPVMC3	S KITPVMC3	-	S KITPCMC3	-
	KITPVMC4 - KITPCMC4* Set of 2 adapters with connectors MC4 *ORDER CODE* ***HA000034*** ** ORDER CODE* ***HA000758***	S KITPVMC4	S KITPVMC4	-	S KITPCMC4	-
	KIT800 Set of 5 cables + 5 alligator clips *ORDER CODE* ***HA008000***	-	-	S	-	-
	KITMPPACC Set of 4 alligator clips for AC voltage *ORDER CODE* ***HA000752***	-	-	-	-	S
	KITMPPACW Set of 4 cables for AC voltage 2m *ORDER CODE* ***HA000753***	-	-	-	-	S
	KITMPPDCC Set of 2 alligator clips for DC voltage *ORDER CODE* ***HA000754***	-	-	-	-	S
	KITMPPDCW Set of 2 alligator clips for DC voltage *ORDER CODE* ***HA000755***	-	-	-	-	S
	A0055 External power supply AC/DC battery charger 230V 50/60Hz** *ORDER CODE* ***HA005500***	-	-	S	-	S

S = Standard **0** = Optional *Adapter ACON3F4M necessary **Please check accessory line to find the correct power adapter for your country

	› FOLLOWS	SOLAR I-Vw	I-V400w	SOLAR300N	PVCHECKs	MPP300
	PT400 Touch-screen pen *ORDER CODE* ***HA0PT400***	-	-	S	-	-
	HT304N Sensor for irradiation measurement *ORDER CODE* ***HA0304N0***	S	S	S	0	-
	M304 Mechanical inclinometer *ORDER CODE* ***HA000026***	S	S	-	0	-
	HT4004N Standard 10-100A DC clamp, diameter 32 mm *ORDER CODE* ***HP04004N***	S	-	S	-	0*
	HT4005K Standard 200A AC clamp, diameter 40 mm *ORDER CODE* ***HP04005K***	S	-	S	-	0
	C2007 USB cable *ORDER CODE* ***HA002007***	-	-	S	-	S
	BORSA2051 Soft carrying bag *ORDER CODE* ***HA002051***	-	-	-	S	S
	SP-0400 Shoulder strap to use the device with free hands *ORDER CODE* ***HA000112***	0	0	0	0	-
	KITPVEXT25M Green and black cable extension, length 25m *ORDER CODE* ***HA000129***	0	0	-	0	-
	VA500 Rigid Carrying case *ORDER CODE* ***HA050000***	S	S	S	-	-
	MPP300 Accessory for measuring and recording the efficiency of a single- and three-phase single- and multi-string photovoltaic system (up to three MPPT) *ORDER CODE* ***HVMPP300***	0	-	0	-	-
	HT96U Standard clamp 1-100-1000A AC, diameter 54 mm *ORDER CODE* ***HP00096U***	0	-	0	-	0

S = Standard **0** = Optional *Adapter ACON3F4M necessary

COMPARISON TABLE **OF ACCESSORIES**

› FOLLOWS

	SOLAR I-Vw	I-V400w	SOLAR300N	PVCHECKs	MPP300
HT97U Standard clamp 10-100-1000A AC, diameter 54 mm *ORDER CODE* ***HP000972***	0	-	0	-	0
HT98U Standard 1000A DC clamp, diameter 50 mm *ORDER CODE* ***HP00098U***	0	-	0	-	0*
HTFLEX33E Flex 3000A AC clamp, diameter 174mm *ORDER CODE* ***HP00033E***	-	-	0	-	0
HP30D1 Standard 1000A DC clamp, diameter 83 mm *ORDER CODE* ***HP0030D1***	0	-	0	-	0*
HP30C3 Standard 3000A AC clamp, diameter 70 mm *ORDER CODE* ***HP003003***	-	-	0	-	0
HP30C2 Standard 200-2000A AC clamp, diameter 70 mm *ORDER CODE* ***HP003002***	-	-	0	-	0
HT4004P Standard 10-100 ADC clamp, diameter 32 mm *ORDER CODE* ***HP04004P***	-	-	-	-	0
HT4004 Standard 10-100A DC clamp, diameter 30 mm *ORDER CODE* ***HP004004***	-	-	-	S	-
HT903 3x1 - 5A/1V box for TA connection *ORDER CODE* ***HA019030***	-	-	0	-	-
606-IECN Magnetic connectors for voltage measurement *ORDER CODE* ***HA006060***	0	-	0	0	0
ACON3F4M Adapter for the connection of clamps HT4004N, HP30D1 and HT98U to MPP300 *ORDER CODE* ***HA00ACON***	-	-	-	-	S 3 pieces

S = Standard **0** = Optional *Adapter ACON3F4M necessary

ORDER CODE ***HA000406***

ANALYSIS TAB

7.85” IPS Touchscreen, Quad Core, Dual SIM 3G

HT introduces the new tablet with **pre-installed HTanalysis App** to immediately start working, right from the first time.

WITH
ANALYSIS TAB you will:

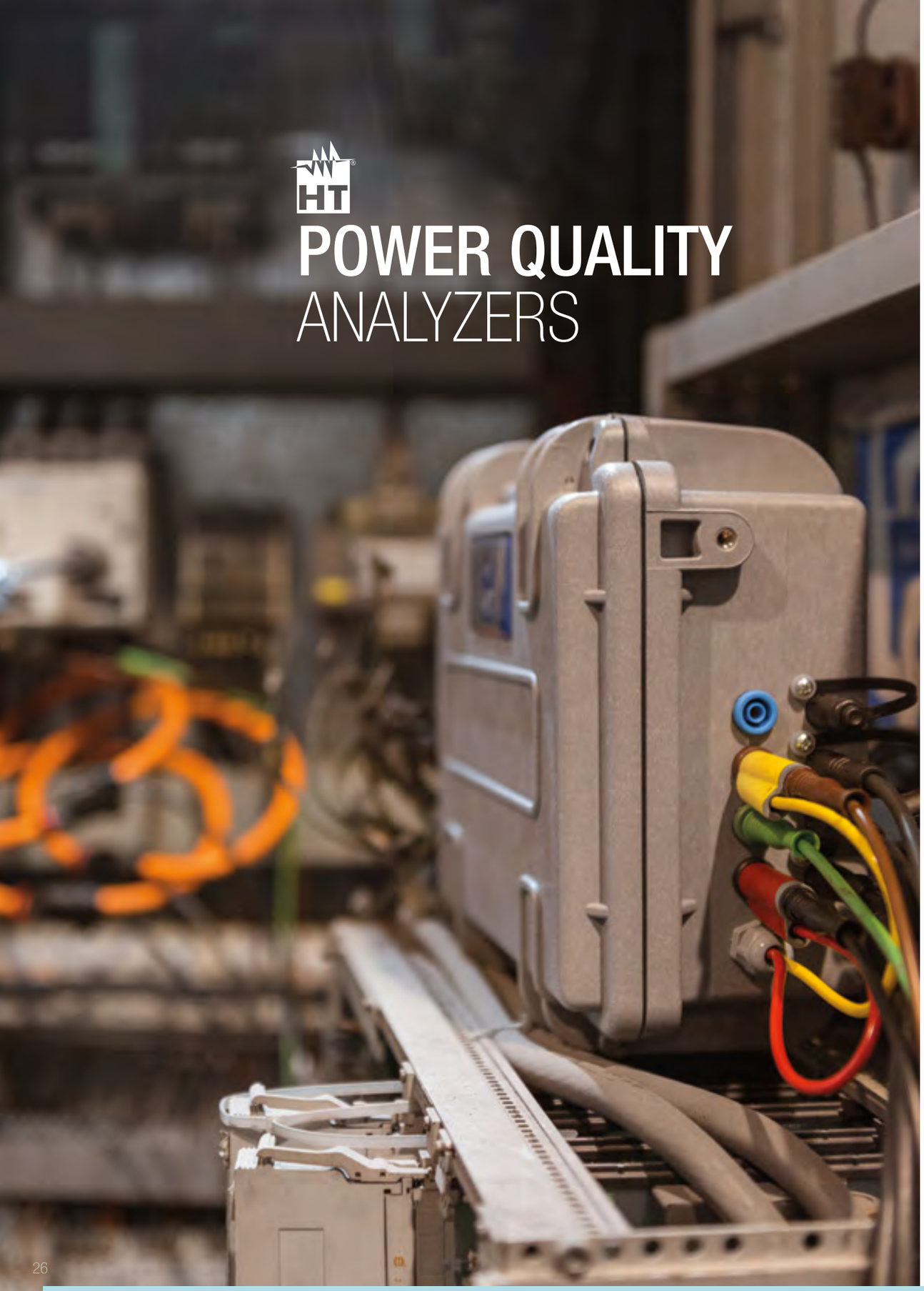
- Work in a quicker way
- Work in a more collaborative way
- Reduce the amount of paper documents
- Work more safely, protected from any danger of direct contact
- Through HTCLOUD you will be able to share all measurements with your colleagues and/or download them from the PC without physically connecting the device to the PC

CHARACTERISTICS
TABLET

CPU: MT8382 Cortex A7 Quad Core 1.2Ghz
GPU: Mali-400 MP2 Graphic Processor
RAM: 1GB DDR3
Cell network: Dual SIM 3G
Internal memory: NAND FLASH 8 GB
External memory: MicroSD Slot
Display: 7.85” LCD 1024 x768 (4:3)
OS: Android 4.4 OS
Display: Capacitive touchscreen
Photo camera: 0.3MP (front), 2.0MP (back)

COMPATIBLE DEVICES
MacroTestG3, G2, G1
CombiG2
PQA820, PQA819
HT9022

disponibile su Google play
disponibile su App Store



POWER QUALITY ANALYZERS

COMPARISON TABLE **FUNCTIONS**

MAIN MEASUREMENTS	PQA824	PQA823	VEGA78	PQA820	PQA819	HT9022
AC/DC voltage in single-phase/three-phase systems	•	•	•	•	•	• Single-phase
AC/DC current in single-phase/three-phase systems	•	•	•	•	•	• Single-phase
Cosphi, Power Factor	•	•	•	•	•	•
Voltage unbalance (NEG%, ZERO%)	•	•	•	•	-	-
Active, reactive, apparent power/energy and DC power	•	•	•	•	•	•
Voltage and current harmonics up to the 49th with THD%	•	•	•	•	• Only THD	• 25th
Voltage anomalies (dips, peaks) with 10ms resolution (@ 50Hz)	•	•	•	•	-	-
Voltage fast transients (spikes) with 5µs resolution	•	-	-	-	-	-
Electric motor starting current (INRUSH)	•	•	-	-	-	•
Voltage flickers (Pst, Plt)	•	•	-	-	-	-
Full analysis according to EN50160	•	•	-	-	-	-
Phase sequence	•	•	•	•	•	•
Neutral-Ground Voltage	•	•	•	-	-	•
Neutral current	•	•	•	•	-	•
MEMORY AND RECORDING						
Max number of simultaneously selectable parameters	251	251	251	383	44	60
Recording with selectable integration period	1s-60m	1s-60m	1s-60m	5s-60m	5s-60m	1s-15min
Indicative memory duration (in days @ PI=10min @ max number of parameters)	90 days	90 days	90 days	30 days	153 days	2 days
Indication of recording duration	•	•	•	•*	•*	•
Internal memory capacity	15MB	15MB	15MB	8MB	8MB	2MB
External compact flash card	•	•	•	-	-	-
Default and custom recordings	•	•	•	-	-	-
Saving instant sampled values	•	•	•	•*	•*	•*
REAL-TIME DISPLAY						
Summary table of main electric parameters	•	•	•	•*	•*	•*
Voltage/current waveforms	•	•	•	•*	•*	•*
Tables or histograms of Harmonics and THD%	•	•	•	•*	•*	•*
Voltage/current vector diagram	•	•	•	•*	•*	•*
ADDITIONAL CHARACTERISTICS						
Measurement category:	CAT IV 600V	CAT IV 600V	CAT IV 600V	CAT IV 300V	CAT IV 300V	CAT IV 600V
Measurement with use of external CT and VT (with optional accessory HT903)	•	•	•	•**	•**	-
Touchscreen colour display	•	•	•	-	-	-
Power supply and rechargeable battery recharging	•	•	•	• Auto power supplied	• Auto power supplied	-
Auto power off	•	•	•	•	•	•
USB port for data download onto Pen Drive	•	•	•	• Only PC	• Only PC	-
Provided PC interface with software for Windows	• USB	• USB	• USB	• Wi-Fi / USB	• Wi-Fi / USB	• Bluetooth
Context help active on each screen	•	•	•	-	-	•
Protection password on recording	•	•	•	-	-	-
Size (LxWxH) (mm)	235x165x75	235x165x75	235x165x75	255x200x115	255x200x115	252x88x44
Weight in kg (batteries included)	1	1	1	0.7	0.7	0.5
Reference standard for power quality	EN50160	EN50160	-	-	-	-
Reference standard for safety	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1
Order Code	HV000824	HV000823	HV000078	HV000820	HV000819	HP009022

*Through App HTANALYSIS **Adapter ACONBIN necessary

ORDER CODE ***HV000824*** | ***HV000823*** | ***HV000078***

PQA824 | PQA823 | VEGA78

THREE-PHASE POWER QUALITY ANALYZERS

CAT III 600V

MAX 1000V BETWEEN INPUTS

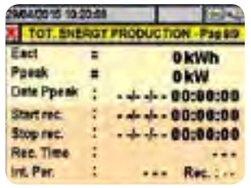
YouTube

PQA824, PQA823 and VEGA78 are **three-phase and single-phase power analyzers**. They allow for the analysis of **all electric parameters which can be measured nowadays**, elaborating them easily and quickly.
These devices can be easily programmed thanks to the **new colour touchscreen display** with icon menu, which guarantees the selection of internal parameters in a simple and intuitive way.
The **Help online** function **available on each screen** is a valid and concrete help for the operator in understanding how the devices are used. Each internal parameter is easily reached through the typical tree structure, widely known to Windows system users.
The devices allow **displaying** the parameters in **numerical and graphic** mode, both for **periodical analysis** and for **harmonic analysis**.
The graphic function "**vector diagram**" allows, among other things, to immediately evaluate the **phase angle between input voltage and current signals**, thus defining the loads' nature.
The **15MB internal memory** allows saving recorded data for a remarkable number of consecutive days.
Model **PQA824**, compared to PQA823 and VEGA78, **also allows detecting spikes on input voltages with a minimum resolution of 5µs (200kHz)**, setting different trigger thresholds which are very useful when solving typical problems on installations (monitoring atmospheric charges, commutations of switching suppliers, disturbance frequencies, etc.)

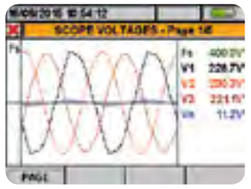
Current harmonics' display in real time

Display of recorded power graph

Voltage and current vector diagram



Energy consumption display



Waveform display (voltage)

General Menu

Functions

- Simultaneous measurement of power parameters on single-phase and three-phase 3-wire and 4-wire systems
- 5 input channels for voltages and 4 input channels for currents
- Numerical and graphic display (waveforms)
- Voltage and current vector diagram
- Voltage and current harmonic analysis up to the 49th with THD%
- Recording of voltage anomalies (dips, peaks) with 10ms resolution
- Flicker analysis in compliance with EN50160 ***(only PQA823 - PQA824)***
- Recording of fast transients (spikes) with resolution 5µs ***(only PQA824)***
- Recording of motor starting currents with resolution 10ms (INRUSH) ***(only PQA823 - PQA824)***
- Voltage unbalance (NEG%, ZERO%)
- Integration period selectable from 1s to 60min
- Preset and custom recordings
- Touchscreen colour display
- Power supply with rechargeable Li-ION battery
- Memory extension with external Compact Flash card
- Possibility of connecting an external pen drive
- PC interface with USB port

Main features

Display:	TFT, 65536 colours, (320x240pxl) with high contrast, touch screen
Power supply:	1x3.7V rechargeable Li-ION battery, with external adapter, duration >3h, auto power of after 5 minutes' idling
Internal memory:	15Mbyes (duration approx. 3 months @ IP=15min and 251 selectable parameters)
Memory extension:	external Compact Flash card (ca. 32Mb)
PC interface:	USB 2.0
Safety:	IEC/EN61010-1
Insulation:	double insulation
Measurement category:	CAT IV 600V (Phase – Neutral) CAT IV 1000V (between inputs)
Power quality and Flicker:	EN50160
Electric energy quality:	EN61000-4-30, class B
Unbalance:	EN61000-4-7, EN50160
Size:	235x165x75mm
Weight (battery included):	approx 1kg

Accessories provided

HTFLEX33E	Flex clamp 3000A, diameter 174mm, 4 pieces
KIT800	Set of 5 cables + alligator clips
A0055	AC/DC battery charger power supply 230V 50/60Hz*
YABAT0003HT1	Rechargeable 3.7V Li-ION battery
PT400	Touch-screen pen
TOPVIEW2007	Windows software + USB cable
VA500	Rigid Soft carrying bag
	User manual on CD-ROM
	Quick user guide
	ISO9000 calibration certificate

(*) Please check accessory line to find the correct power adapter for your country

Optional accessories

HTFLEX35	Flex 3000A AC clamp, diameter 274mm
HT96U	Standard 1-100-1000A AC clamp, diameter 54mm
HT97U	Standard 10-100-1000A AC clamp, diameter 54mm
HT98U	Standard 1000A DC clamp, diameter 50mm
HP30C2	Standard 200-2000A AC clamp, diameter 70mm
HP30C3	Standard 3000A AC clamp, diameter 70mm
HT4005N	Standard 5-100A AC clamp, diameter 20mm
HT903	3x1-5A/1V box for external TA connection
A0056	External power supply 110VAC-60Hz /12VDC
CF800	1GB Compact Flash Card
MCR800	Compact flash card reader
606-IECN	Connector with magnetic terminal
SP-0400	Set of straps for slinging the instrument over one's shoulder

ORDER CODE ***HV000820*** | ***HV000819***

PQA820|PQA819

THREE-PHASE AND SINGLE-PHASE POWER QUALITY ANALYZERS

CAT IV 300V
MAX 415V BETWEEN INPUTS

YouTube IP65 WiFi HTAnalysis™ HT Cloud

PQA820 e PQA819 are the **innovative** proposal by HT to **easily analyze** all involved components on a **three-phase** or **single-phase** electric system.
When designing them, HT has taken particular care of three aspects: **setting**, the operating or storage environment and data transfer.

- PQA820 and PQA819 **do not need to be set**. They simply need to be connected, started and they respectively record 383 and 44 quantities simultaneously.
- They are provided with a comfortable **IP65** case, which allows working **in any kind of environment**.
- When recording has finished, **thanks to the WI-Fi connection**, the devices are capable of transferring all data onto a **tablet**, **smart phone** or **PC**.

Further to the Wi-Fi connection, PQA devices are provided with USB connection for transferring data via cable to the PC through **the provided TopView software**.
They do not need any batteries since they are **auto power-supplied** from the power they are analyzing.
The **internal battery is automatically recharged** by the input voltage and will provide the necessary energy to **go on recording in case power supply is interrupted**.

To make the most of the technology used by PQA820 and PQA819 we recommend using the **HTanalysis App** (**available for free download** on AppStore and Google Play) on a tablet or smart phone.

Here are some of the functions of HTanalysis:

- Display of measured data on high-definition screen.
- Possibility of "scrolling" through a determined waveform and immediately detecting its critical "moments": it will be sufficient to "touch" a certain spot of the screen in which the measured signal is proposed to immediately obtain all necessary information in order to understand what happened in that spot and in that particular moment!

PQA820 and PQA819 respectively record 383 and 44 quantities which can be **recalled and dragged onto the screen** to be **compared between each other**; for example, if you are displaying the trend of voltages and **you want to check for the possible presence of harmonic distortion**, it will be sufficient to scroll through the list of recorded measures and **drag the one relevant to harmonics to the screen**.
The same can be done for all other quantities: **power, cosphi, current, energy,** etc.
Everything can then be shared on **HT Cloud**, the web database created by HT to **archive** recordings and **share them** quickly with anyone around the world. Through HTCLOUD™ you will be able to **share all measurements with you colleagues** and/or download them from **any PC/Mobile device connected on the web**.

IP65 - Waterproof and resistant to extreme conditions.

Functions

- AC TRMS voltage in single-/three-phase systems
- AC TRMS current in single-/three-phase systems
- Active, Reactive and Apparent Power/Energy
- Cosphi and Power Factor
- Voltage, Current, DC Power
- Neutral current ***(only PQA820)***
- Voltage dips and peaks on 10ms ***(only PQA820)***
- Voltage unbalance (NEG%, ZERO%) ***(only PQA820)***
- Measurements using external CT and VT
- Voltage/current waveforms
- Histograms of voltage/current harmonics and THD%
- Voltage/current vector diagram
- Periodical recording with selectable PI
- Maximum number of simultaneously recorded quantities
  PQA820: 383 ***PQA819:*** 44
- Voltage and current harmonic analysis up to the 49th
- Calculation and recording of voltage/current THD%
- Indication of recording duration

Main features

Power supply:	rechargeable Li-ION battery
External power supply:	100 ÷ 415V, 50/60Hz
Recording duration	> 30 days (@ PI = 10min) ***(PQA820)***
	> 230 days (@ PI =15min) ***(PQA819)***
Recording period:	5, 10, 30s, 1, 2, 5, 10, 15, 60min)
PC interface:	USB 2.0 and Wi-Fi
Safety:	IEC/EN61010-1, double insulation
Mechanical protection:	IP65 (closed case)
Measurement category:	CAT IV 300V, max 415V between inputs
Reference standards:	EN50160
Operating temperature:	0 ÷ 40°C
Operating humidity:	<80%RH
Storage temperature:	-10 ÷ 60°C
Storage humidity:	<80%RH
Size:	235x165x75mm
Weight (battery included):	approx 0.7 kg

Accessories provided

KITMPPACW	Set of 4 measuring cables
KITMPPACC	Set of 4 alligator clips
606-IECN	Adapters with magnetic terminal (4x)
HTFLEX33L	Flex 1000A AC clamp, diameter 174mm (4x)
TOPVIEW2007	PC Windows software + USB cable
BORSA2051	Soft carrying bag for accessories
	Quick user guide
	ISO9000 calibration certificate
	User manual on CD-ROM

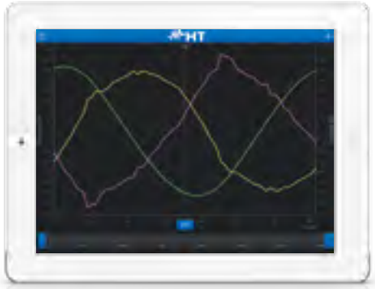
Optional accessories

HT96U	AC clamp for leakage current, 1-100-1000A/1V, diameter 54mm
HT97U	Standard 10-100-1000A AC clamp, diameter 54mm
HT98U	DC clamp for leakage current, 1000A/1V, diameter 50mm
HP30C2	Standard AC 200-2000A/1V clamp, diameter 70 mm
HP30D1	Standard DC 1000A/1V clamp, diameter 83 mm
HT903	3x1-5A/1V box for connection to external CT
ACONBIN	Adapter for the connection of standard clamps

PQA820|PQA819|HT9022
WITH HTANALYSIS™

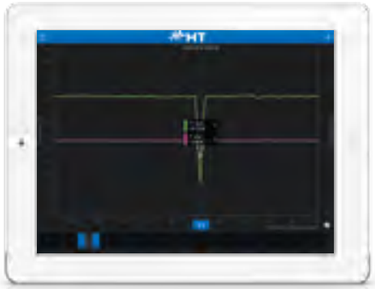
More information on **page 56**

YouTube | disponibile su Google play | disponibile su App Store


Voltage and current waveforms.

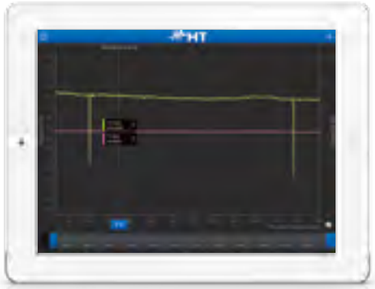
Current and voltage harmonics.

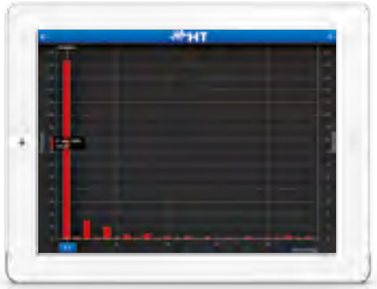
Voltage and current vector diagram.

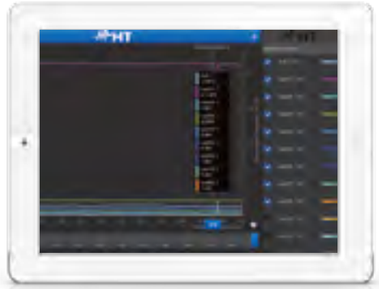

Zoom on a voltage and current drop.

Jump function
1 Click on the arrow next to the desired value.

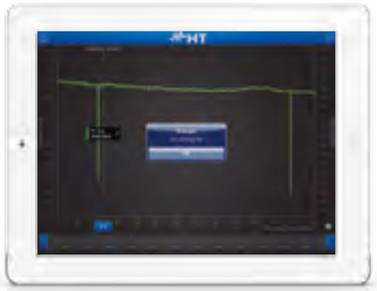
Jump function
2 It switches to harmonic values in real-time.


Trend of main quantities.


Harmonics up to the 49th.


Trend of all harmonics.

Power trend.


Jump function to know how much energy has been consumed.

Example of analysis on THD% and Power factor.

CAT IV 600V
CAT III 1000V
TRMS
HT Cloud
HTAnalysis™ ANDROID
Bluetooth™
YouTube

ORDER CODE ***HP009022***

HT9022

CLAMP ON POWER QUALITY ANALYZER
WITH POWER/HARMONIC MEASUREMENT
AND BLUETOOTH CONNECTION

The power clamp meter HT9022 has been designed for measuring DC, AC+DC TRMS current up to 1000A to obtain CAT IV 600V in compliance with standard IEC/EN61010-1. It also measures and records **Active, Reactive and Apparent Power, Energy, voltage/current harmonic analysis up to the 25th with THD% calculation** in single-phase and balanced three-phase systems. It also allows testing **phase sequence** and **conformity** with the 1-terminal measuring method. It is also possible to detect and record the events linked to **motor starting (INRUSH) currents**. HT9022 allows **recording** each measured electric parameter over time, with the possibility of transferring data via **Bluetooth** to **Android** devices through the **HTAnalysis** App or onto **PC** through the **TOPVIEW** software. The clamp is provided with a wide graphic dot-matrix screen (128x128pxl) with backlight, in order to allow reading data even in poorly lit environments, and it is provided with an auto power off function to preserve its internal battery.

HT9022 in use.

Functions

- AC, DC, AC + DC TRMS current up to 1000A
- AC, DC, AC + DC TRMS voltage up to 1000V
- Frequency with test leads and clamp jaws
- Phase sequence / phase concordance
- Resistance and Continuity test
- DC power measurement/recording
- Active, reactive, apparent power meas./rec. on single-phase systems
- Active, reactive, apparent energy meas./rec. on single-phase systems
- Power factor measurement/recording on single-phase systems
- Voltage/current harmonic meas./rec. up to the 25th with THD%
- Motor starting current detection (INRUSH)
- Data logger function with programmable PI
- Autorange
- Backlight
- Auto Power OFF
- Data HOLD, MAX/MIN/CREST
- Bluetooth for connection to PC and Android devices through HTAnalysis App

Main features

Display:	Dot-matrix 128x128pxl with backlight
Power supply:	2x1.5V batteries type AAA
Duration:	> 50 hours
Internal memory:	2MBytes (approx. 2 days @ IP=15min and 60 parameters)
PC interface:	Bluetooth
Safety:	IEC/EN61010-1
Insulation:	Double insulation
Pollution level:	2
Measurement category:	CAT IV 600V to earth, max 1000V between inputs
Max diameter of cable:	45mm
Size (LxWxH):	252x88x44mm
Weight (batteries included):	0.42kg

Accessories provided

YAAMK0000HT0	Pair of 4mm test leads
YAAMK0001HT0	Pair of alligator clips
TOPVIEWS	Windows software for PC connection
	Bluetooth/USB adapter for PC connection
YABRS0000NN0	Soft carrying bag
	Batteries and user manual on CD-ROM
	ISO9000 calibration certificate
	Quick user guide

COMPARISON TABLE OF ACCESSORIES

	PQA824	PQA823	VEGA78	PQA820	PQA819	HT9022
TOPVIEWS PC Windows software *ORDER CODE* ***HA000715***	-	-	-	-	-	S
TOPVIEW2007 PC Windows software + USB cable *ORDER CODE* ***HA000714***	S	S	S	S	S	-
PT400 Touch-screen pen *ORDER CODE* ***HAOPT400***	S	S	S	-	-	-
VA500 Rigid Carrying case *ORDER CODE* ***HA050000***	S	S	S	-	-	-
BORSA2051 Soft carrying bag for device/accessories *ORDER CODE* ***HA002051***	0	0	0	S	S	-
YABRS0000NN0 Soft carrying bag for HT9022 *ORDER CODE* ***HA000145***	-	-	-	-	-	S
SP-0400 Shoulder strap to use the device with free hands *ORDER CODE* ***HA000112***	0	0	0	-	-	-
A0055 External power supply AC/DC *ORDER CODE* ***HA005500***	S	S	S	-	-	-
KITMPPACC Set of 4 alligator clips for AC voltage *ORDER CODE* ***HA000752***	-	-	-	S	S	-
KITMPPACW Set of 4 cables for AC voltage 2m *ORDER CODE* ***HA000753***	-	-	-	S	S	-
KIT800 Set of 5 cables, black, red, green, blue and brown with alligator clips *ORDER CODE* ***HA008000***	S	S	S	-	-	-
YABAT0003HT1 Rechargeable Li-ION battery 3,7V (included in the device) *ORDER CODE* ***HA000146***	S	S	S	-	-	-
606-IECN Connector with magnetic terminal *ORDER CODE* ***HA006060***	0	0	0	S	S	-

S = Standard **0** = Optional

› FOLLOWS	PQA824	PQA823	VEGA78	PQA820	PQA819	HT9022
ACONBIN Adapter for connection standard clamps *ORDER CODE* ***HA000BIN***	-	-	-	0	0	-
HT903 Connection kit for external TA, 1A and 5A/1V *ORDER CODE* ***HA019030***	0	0	0	0	0	-
YAAMK0000HT0 Pair of test leads *ORDER CODE* ***HA000143***	-	-	-	-	-	S
YAAMK0001HT0 Pair of test leads with alligator clips *ORDER CODE* ***HA000144***	-	-	-	-	-	S
HTFLEX33E Flex 3000A AC clamp, max diameter of cable 174 mm *ORDER CODE* ***HP00033E***	S	S	S	-	-	-
HTFLEX33L Flex 1000A AC clamp, diameter 174mm *ORDER CODE* ***HP00033L***	-	-	-	S	S	-
HTFLEX35 Flex 3000A AC clamp, max diameter of cable 274 mm *ORDER CODE* ***HP000035***	0	0	0	0**	0**	-
HT96U Standard AC clamp 1-100-1000A/1V, diam.54 mm *ORDER CODE* ***HP00096U***	0	0	0	0*	0*	-
HT97U Standard clamp 10-100-1000A AC, diameter 54 mm *ORDER CODE* ***HP000972***	0	0	0	0*	0*	-
HT98U Standard 1000A DC clamp, diameter 50 mm *ORDER CODE* ***HP00098U***	0	0	0	0*	0*	-
HP30C2 Standard 200-2000A AC clamp, diameter 70 mm *ORDER CODE* ***HP003002***	0	0	0	0*	0*	-
HP30C3 Standard 3000A AC clamp, diameter 70 mm *ORDER CODE* ***HP003003***	0	0	0	0*	0*	-
HP30D1 Standard DC clamp 1000A/1V, diam. 83 mm *ORDER CODE* ***HP0030D1***	0	0	0	0*	0*	-
HT4004N Standard DC clamp 10-100A/1V, diameter 20mm *ORDER CODE* ***HP04004N***	0	0	0	0*	0*	-
HT4005K Standard AC 200A/1V clamp, diameter 40mm *ORDER CODE* ***HP04005K***	0	0	0	0*	0*	-
HT4005N Transducer AC 5A-100A/1V *ORDER CODE* ***HP04005N***	0	0	0	0*	0*	-

S = Standard **0** = Optional *Adapter ACONBIN necessary **Max measurement 1000A AC

COMPARISON TABLE **FUNCTIONS**

MAIN MEASUREMENTS	**XL421**	**XL422**	**XL423**	**XL424**
TRMS	•	•	•	•
AC voltage in single-phase/three-phase systems	-	-	• Single-phase	• Single-phase / three-phase
AC current in single-phase/three-phase systems	• Single-phase	• Single-phase / three-phase	-	-
MEMORY AND RECORDING				
Max number of simultaneously selectable parameters	1	3	1	3
Recording with selectable integration period	1s, 6s, 30s, 1min, 5min	1s, 6s, 30s, 1min, 5min	1s, 6s, 30s, 1min, 5min	1s, 6s, 30s, 1min, 5min
Indicative memory duration (single-/three-phase in days @ PI=5min)	455	455 / 1820*	455	455 / 1820*
Internal memory capacity	1MB	1MB	1MB	1MB
ADDITIONAL CHARACTERISTICS				
Protection rating	IP65	IP65	IP65	IP65
Protection category	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V
Power supply	2x AA batteries	2x AA batteries	2x AA batteries	2x AA batteries
PC interface with software for Windows	•	•	•	•
Size (LxWxH) (mm)	120x80x43	120x80x43	120x80x43	120x80x43
Weight (batteries included):	500g	500g	500g	500g
Reference standard for safety	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1
Order Code	HV000421	HV000422	HV000423	HV000424

*According to battery duration

CAT IV 600V

TRMS

ORDER CODE ***HV000421***

XL421

TRMS SINGLE-PHASE CURRENT DATA LOGGER

XL421 is a **Data Logger** capable of measuring and recording the true root mean square**(TRMS)** value of AC current up to **2500A** in **single-phase** electric systems for different applications (evaluation of load currents, rated powers of transformers, etc.). The device is enclosed in a pratical waterproof plastic case with integrated flex clamp jaws able to surround also a big-sized cable or bar. Thanks to an advanced memory management algorithm it is possible to monitor a system even for a long time. The device starts recording with a **sampling period** which can be selected through software among 1, 6, 30 and 60 seconds and, when memory is almost full, the previously recorded values are "re-sampled" according to the subsequent value of the sampling period, thus freeing part of the memory; the device then goes on recording new values, using the new measuring interval. In this way, it is possible to keep the device recording up to **approximately 1 year**. Each recording is kept stored in the internal memory and can be **downloaded and managed by PC** always through a dedicated software. Data Logger XL421 is also provided with a special adhesive strap which makes it possible to place it in any place in the installation where measuring is needed. The high protection rating **(IP65)** makes this device fully reliable also under extreme operating conditions.

Functions and characteristics

- TRMS single-phase current measurement
- Measuring range: 1 ÷ 2500A AC
- Accuracy: ±(1.0%reading+1 digit)
- Resolution: 1A
- Operating frequency: 50±6Hz, 60±6Hz
- Bandwidth: 3200Hz
- Sampling frequency: 64 spots in 20ms
- Integration period: 1s, 6s, 30s, 60s, 5min
- Memory capacity: 1Mbyte
- Serial interface: RS-232
- Integration period.....duration in days:
  1s.....5
  6s.....34
  30s.....170
  60s.....364(*)
  5min .....1820(*)
- Front panel indication: LED diodes
- Power supply: 2x1.5V batteries type AA LR6
- Battery life: >6months (with loaded batteries)
- Safety: IEC/EN 61010-1
- Measurement category: CAT IV 600V (to earth)
- Insulation: Double insulation
- Pollution level: 2
- Mechanical protection index: IP65
- Max height: 2000m
- Max diameter of flex clamps: 174mm
- Size (LxWxH): 120x80x43 mm
- Weight (batteries included): approx. 0.5kg

**according to battery duration*

Accessories provided

VELCRO	Adhesive strap 50x70mm
TOPVIEW2004	Windows software for PC + serial cable C2004
BORSA 2000	Soft carrying bag
	Batteries
	User Manual

Optional accessories

C2009	RS232-USB adapter

CAT IV 600V

TRMS

ORDER CODE ***HV000422***

XL422

TRMS THREE-PHASE CURRENT DATA LOGGER

XL422 is a **Data Logger** capable of measuring and recording the true root mean square**(TRMS)** value of AC current up to **2500A** in **three-phase** 3-wire electric systems for different applications (evaluation of load currents, rated powers of transformers, etc.). The device is enclosed in a pratical waterproof plastic case with integrated flex clamp jaws able to surround also big-sized cables or bars. Thanks to an advanced memory management algorithm it is possible to monitor a system even for a long time. The device starts recording with a **sampling period** which can be selected through software among 1, 6, 30 and 60 seconds and, when memory is almost full, the previously recorded values are "re-sampled" according to the subsequent value of the sampling period, thus freeing part of the memory; the device then goes on recording new values, using the new measuring interval. In this way, it is possible to keep the device recording up to **approximately 90 days**.
Each recording is kept stored in the internal memory and can be **downloaded and displayed on the PC** always through a dedicated software. Data Logger XL422 is also provided with a special adhesive strap which makes it possible to place it in any place in the installation where measuring is needed. The high protection rating **(IP65)** makes this device fully reliable also under extreme operating conditions.

Functions and characteristics

- TRMS three-phase current measurement
- Measuring range: 1 ÷ 2500A AC
- Accuracy: ±(1.0%reading+1 digit)
- Resolution: 1A
- Operating frequency: 50±6Hz, 60±6Hz
- Bandwidth: 3200Hz
- Sampling frequency: 64 spots in 20ms
- Integration period: 1s, 6s, 30s, 60s, 5min
- Memory capacity: 1Mbyte
- Serial interface: RS-232
- Integration period.....duration in days:
  1s.....1.5
  6s.....8
  30s.....42
  60s.....91
  5min .....455(*)
- Front panel indication: LED diodes
- Power supply: 2x1.5V batteries type AA LR6
- Battery life: >6months (with loaded batteries)
- Safety: IEC/EN 61010-1
- Measurement category: CAT IV 600V (to earth)
- Insulation: Double insulation
- Pollution level: 2
- Mechanical protection index: IP65
- Max height: 2000m
- Max diameter of flex clamps: 174mm
- Size (LxWxH): 120x80x43 mm
- Weight (batteries included): approx. 0.5kg

**according to battery duration*

Accessories provided

VELCRO	Adhesive strap 50x70mm
TOPVIEW2004	Windows software for PC + serial cable C2004
BORSA75	Soft carrying bag
	Batteries
	User Manual

Optional accessories

C2009	RS232-USB adapter

CAT IV 600V

TRMS

ORDER CODE ***HV000423***

XL423

TRMS SINGLE-PHASE VOLTAGE DATA LOGGER

XL423 is a **Data Logger** capable of measuring and recording the true root mean square **(TRMS)** value of AC voltage up to **600V** in **single-phase** electric systems for different applications (evaluation of power voltage, load unbalance, etc.).
The device is enclosed in a pratical waterproof plastic case with integrated flex clamp jaws able to surround also a big-sized cable or bar. Thanks to an advanced memory management algorithm it is possible to monitor a system even for a long time. The device starts recording with a **sampling period** which can be selected through software among 1, 6, 30 and 60 seconds and, when memory is almost full, the previously recorded values are "re-sampled" according to the subsequent value of the sampling period, thus freeing part of the memory; the device then goes on recording new values, using the new measuring interval. In this way, it is possible to keep the device recording up to **approximately 1 year**. Each recording is kept stored in the internal memory and can be **downloaded and displayed on the PC** always through a dedicated software. Data Logger XL423 is also provided with a special adhesive strap which makes it possible to place it in any place in the installation where measuring is needed. The high protection rating **(IP65)** makes this device fully reliable also under extreme operating conditions.

Functions and characteristics

- TRMS single-phase voltage measurement
- Measuring range: 0 ÷ 600VAC
- Accuracy: ±(1.0%reading+1 digit)
- Resolution: 0.1V
- Operating frequency: 50±6Hz, 60±6Hz
- Bandwidth: 3200Hz
- Sampling frequency: 64 spots in 20ms
- Integration period: 1s, 6s, 30s, 60s, 5min
- Memory capacity: 1Mbyte
- Serial interface: RS-232
- Integration period.....duration in days:
  1s.....5
  6s.....34
  30s.....170
  60s.....364(*)
  5min .....1820(*)
- **Front panel indication: LED diodes**
- **Power supply: 2x1.5V batteries type AA LR6**
- **Battery life: >6months (with loaded batteries)**
- **Safety: IEC/EN 61010-1**
- **Measurement category: CAT IV 600V (to earth)**
- **Insulation: Double insulation**
- **Pollution level: 2**
- **Mechanical protection index: IP65**
- **Max height: 2000m**
- **Size (LxWxH): 120x80x43 mm**
- **Weight (batteries included): approx. 0.5kg**

**according to battery duration*

Accessories provided

KITXL423C	Set of 2 alligator clips
VELCRO	Adhesive strap 50x70mm
TOPVIEW2004	Windows software for PC + serial cable C2004
BORSA2000	Soft carrying bag
	Batteries and user manual

Optional accessories

C2009	RS232-USB adapter
606-IECN	Connector with magnetic terminal

CAT IV 600V

TRMS

ORDER CODE ***HV000424***

XL424

TRMS THREE-PHASE VOLTAGE DATA LOGGER

XL424 is a **Data Logger** capable of measuring and recording the true root mean square**(TRMS)** value of AC voltage up to **600V** in **three-phase** 3-wire electric systems for different applications (evaluation of power voltage, load unbalance, etc.).
The device is enclosed in a pratical waterproof plastic case with integrated flex clamp jaws able to surround also a big-sized cable or bar. Thanks to an advanced memory management algorithm it is possible to monitor a system even for a long time. The device starts recording with a **sampling period** which can be selected through software among 1, 6, 30 and 60 seconds and, when memory is almost full, the previously recorded values are "re-sampled" according to the subsequent value of the sampling period, thus freeing part of the memory; the device then goes on recording new values, using the new measuring interval. In this way, it is possible to keep the device recording up to **approximately 90 days**. Each recording is kept stored in the internal memory and can be **downloaded and displayed on the PC** always through a dedicated software. Data Logger XL424 is also provided with a special adhesive strap which makes it possible to place it in any place in the installation where measuring is needed. The high protection rating **(IP65)** makes this device fully reliable also under extreme operating conditions.

Functions and characteristics

- AC TRMS three-phase voltage measurement
- Measuring range: 0 ÷ 600VAC
- Accuracy: ±(1.0%reading+1 digit)
- Resolution: 0.1V
- Operating frequency: 50±6Hz, 60±6Hz
- Bandwidth: 3200Hz
- Sampling frequency: 64 spots in 20ms
- Integration period: 1s, 6s, 30s, 60s, 5min
- Memory capacity: 1Mbyte
- Serial interface: RS-232
- Integration period.....duration in days:
  1s.....1.5
  6s.....8
  30s.....42
  60s.....91
  5min .....455(*)
- **Front panel indication: LED diodes**
- **Power supply: 2x1.5V batteries type AA LR6**
- **Battery life: >6months (with loaded batteries)**
- **Safety: IEC/EN 61010-1**
- **Measurement category: CAT IV 600V (to earth)**
- **Insulation: Double insulation**
- **Pollution level: 2**
- **Mechanical protection index: IP65**
- **Max height: 2000m**
- **Size (LxWxH): 120x80x43 mm**
- **Weight (batteries included): approx. 0.5kg**

**according to battery duration*

Accessories provided

KITXL424C	Set of 4 alligator clips
VELCRO	Adhesive strap 50x70mm
TOPVIEW2004	Windows software for PC + serial cable C2004
BORSA2000	Soft carrying bag
	Batteries and user manual

Optional accessories

C2009	RS232-USB adapter
606-IECN	Connector with magnetic terminal

COMPARISON TABLE **OF ACCESSORIES**

	XL421	XL422	XL423	XL424
TOPVIEW2004 PC Windows software + serial cable *ORDER CODE* ***HA000177***	S	S	S	S
C2009 RS232-USB adapter *ORDER CODE* ***HA0C2009***	0	0	0	0
KITXL423C Set of 2 alligator clips *ORDER CODE* ***HA00423C***	-	-	S	-
KITXL424C Set of 4 alligator clips *ORDER CODE* ***HA00424C***	-	-	-	S
606-IECN Connector with magnetic terminal *ORDER CODE* ***HA006060***	-	-	0	0
C2004 RS232 cable/IP65 connector for series XL devices	S*	S*	S*	S*

S = Standard **0** = Optional *Always provided in TOPVIEW2004

MULTIFUNCTION **INSTALLATION TESTERS WITH POWER QUALITY ANALYSIS**

COMPARISON TABLE **FUNCTIONS**

ELECTRIC SAFETY MEASUREMENTS	GSC3	GSC57F	ZG47	SIRIUS89N
Insulation with test voltage 50, 100, 250, 500, 1000VDC	•	•	•	•
Continuity of protective conductors with 200mA / 10A	•	• 200mA / 10A	•	•
Current and tripping time of RCDs type A, AC Standard and Selective	•	•	•	•
Current and tripping time of delayed and B-type RCDs	•	-	-	-
Non-trip earth resistance	•	•	•	•
Earth resistance with rods	•	•	•	•
Earth resistance with stakeless testing method	•	-	-	-
Ground resistivity by 4-wire method	•	•	•	•
Loop/Line impedance, Phase-Phase, Phase-Neutral, Phase-PE	•	•	•	•
Loop/Line impedance Phase-Phase Phase-Neutral, Phase-PE with high resolution (0.1mΩ)	•***	•***	•***	•***
Percentage voltage drop on the line	•	-	-	-
Contact voltage	•	•	•	•
Phase sequence	•	•	•	•
Leakage current	•*	•*	•*	•*

MEMORY AND RECORDING				
AC/DC voltage and current in single-phase/three-phase systems	•	•	•	•
Active, reactive, apparent power/energy and DC power	•	•	•	•
Voltage and current harmonics up to the 49th with THD%	•	•	•	•
Voltage anomalies (dips, peaks) with a resolution of 10ms (@ 50Hz)	•	•	•	•
Cosphi and Power Factor	•	•	•	•
Max number of simultaneously selectable parameters	383	64	64	64
Recording with selectable integration period	5s-60m	5s-60m	5s-60m	5s-60m
Indicative memory duration (@ PI=10min @ max numb parameters)	30 days	32 days	32 days	32 days
Indication of recording duration	•	•	•	•
Internal memory capacity	8MB	2MB	2MB	2MB
Saving instant sampled values	•**	•	•	•

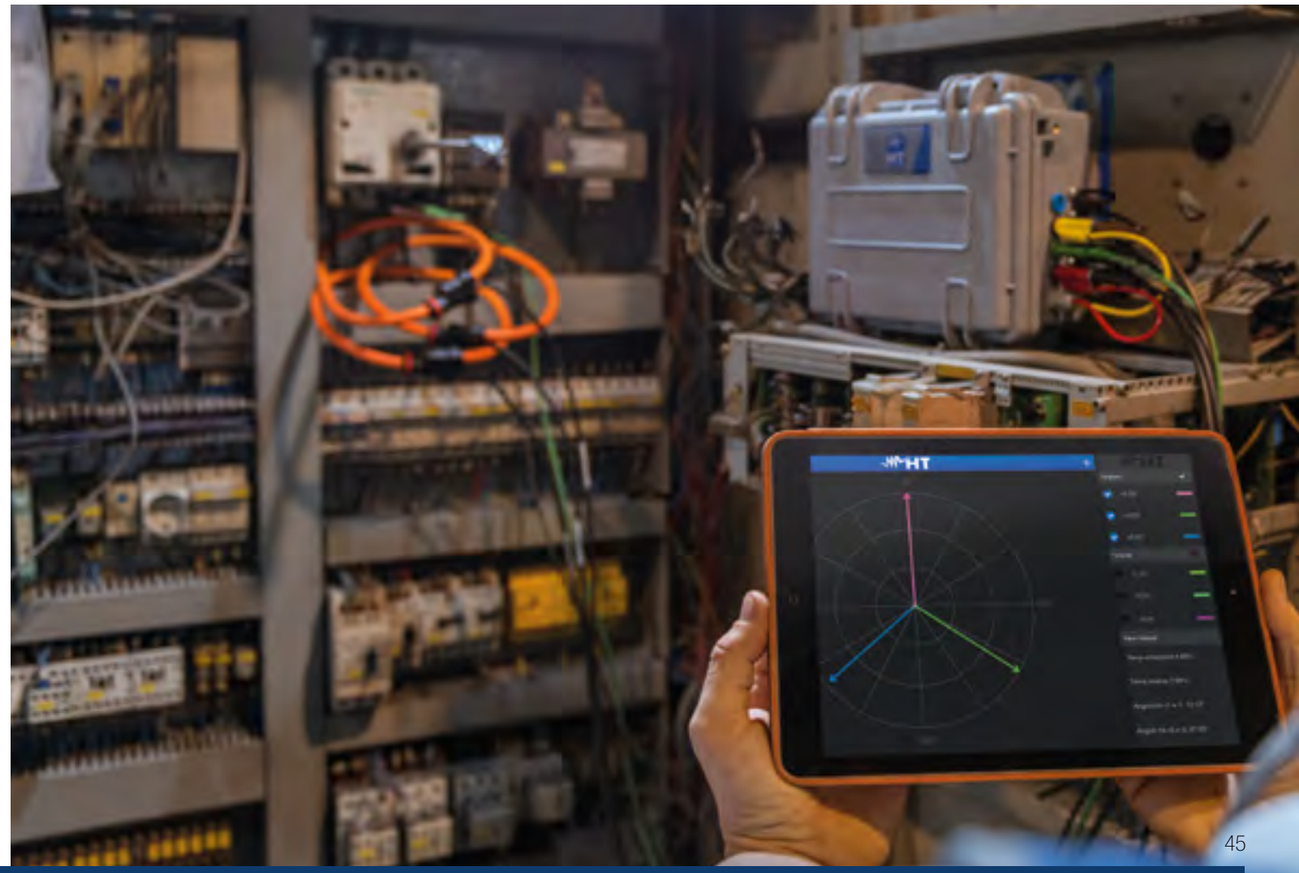
REAL-TIME DISPLAY				
Summary table of main electric parameters	•**	•	•	•
Voltage/current waveforms	•**	•	•	•
Tables or histograms of Harmonics and THD%	•**	•	•	•
Voltage/current vector diagram	•**	•	•	•

* Through optional clamp HT96U **Through HTANALYSIS App ***With optional accessory IMP57

COMPARISON TABLE **FUNCTIONS**

ADDITIONAL CHARACTERISTICS	GSC3	GSC57F	ZG47	SIRIUS89N
Measurement category	CAT IV 300V	CAT III 600V	CAT III 600V	CAT III 600V
Measurement with use of external CT and VT (with optional accessory HT903)	••****	•	•	•
Measurement of air temperature (°C/°F), relative humidity (%RH) and illuminance (Lux)	•	•	•	•
Touchscreen colour display	•	-	-	-
Power supply	• Auto power supplied (PQA820)	6x1.5V batteries type AA LR6	6x1.5V batteries type AA LR6	6x1.5V batteries type AA LR6
Auto power off	•	•	•	•
PC interface with software for Windows	• Wi-Fi / Optical / USB	Optical / USB	Optical / USB	Optical / USB
Context help active on each screen	•	-	-	-
Size (LxWxH) (mm)	255x200x115	225x165x105	225x165x105	225x165x105
Weight in kg (batteries included)	0.7 + 1	1.4	1.3	1.2
Reference standard for safety	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1
Order Code	HV00GSC3	HV000570	HV000047	HV00089N

****Adapter ACONBIN necessary



CAT III 240VAC — MAX 415V BETWEEN INPUTS MACROTESTG3

CAT IV 300VAC — MAX 460V BETWEEN INPUTS PQA820

WiFi™ — HTAnalysis™ — HT Cloud™ — YouTube

ORDER CODE ***HV00GSC3***

GSC3

MULTIDEVICE KIT FOR TESTING THE ELECTRIC SAFETY AND CARRYING OUT POWER QUALITY ANALYSES ON DOMESTIC AND INDUSTRIAL ELECTRIC SYSTEMS

GSC3 is the ideal solution for technicians who want to have both the device to carry out the **tests** (MACROTESTG3) and the **power quality analyzer** (PQA820) always at hand.
Both devices **can be used separately** and are located in a **comfortable case**, very useful for **transport** and for the **protection** of the devices themselves.

MACROTESTG3

- **All verifications of electric safety** provided for by **standard IEC/EN61557-1.**
- **Advanced Loop** Verification of magnetothermal protections, fuses, cable size and prospective short-circuit current.
- **Earth resistance** by **voltammetric method** with 2 or 3 poles in TT, TN and IT systems, **non-trip earth resistance measurement** and earth resistance with stakeless testing method with **clamp meter** T2100 (optional).
- **Ground resistivity.**
- **Measurement of electric parameters** in **single-phase or three-phase balanced** installations (V, I, W, VAR, VA, PF)
- **Test of RCDs** of type A, AC, B and earth leakage relays with test current up to 10A*
- Measurement of **insulation resistance.**
- Measurement of **continuity** of protection conductors.
- Verification of **phase sequence (SEQ)** and of **leakage currents.**
- **Measurement of environmental parameters** through external probes.

PQA820

- 3 types of system: **single-phase, three-phase 3-wire, three-phase 4-wire.**
- **383 simultaneously recorded parameters.**
- **Directly configurable via smart phone or tablet** through the **HTAnalysis App**.
- **Real Time**. Real-time display of all waveforms, harmonics, vector diagrams and summary function on phases for an immediate reading of the most important parameters **through the HTAnalysis App**.
- **Energy saving**. Discover the detailed absorption of all devices connected to one line with a simple click, and save energy **through the HTAnalysis App**.
- **Jump Function**. Relationship between time and frequency or between power and consumed energy available at any time, **thanks to the HTAnalysis App**.
- **REC Function**. Analyzing and sharing the recordings carried out **through the HTAnalysis App** and **HTCloud**.

HTAnalysis and HTCloud

It is possible to take advantage of the technological innovation offered by the cutting-edge GSC3 through the **HTAnalysis App on tablet or smart phone**, with iOS or Android operating system. The App can be downloaded free on AppStore™ or Play Store™, **discover all the details on page 56**.

disponibile su Google play — disponibile su App Store

* For 10A with optional accessory RCDX10

Functions of MACROTESTG3

- Insulation with voltage 50, 100, 250, 500, 1000VDC
- Continuity of protective conductors with 200mA
- Earth resistance by voltammetric method
- Earth resistance with stakeless testing method
- Ground resistivity by 4-wire method
- Non-trip earth resistance
- Line/Loop impedance, Phase-Phase, Phase-Neutral, Phase-PE
- Line/Loop impedance, Phase-Phase, Phase-Neutral, Phase-PE with high resolution (0.1 mΩ)
- Prospective short-circuit current
- Contact voltage
- Tripping time of General, Selective and Delayed RCDs.
- Test current A, AC max 1A and type B max 300mA.
- Test on RCDs with separate clamp jaw up to 10A
- RCD tripping current (Ramp test)
- Phase sequence
- Measurement of percentage voltage drop on the lines
- Measurement with use of remote lead (with optional accessory PR400)
- Leakage current (with optional clamp HT96U)
- Measurement of electric parameters (V, I, W, VAR, VA, Wh, cosphi)
- Harmonic analysis V, I and calc THD%
- Measurement of environmental parameters (with optional probes HT52/05 and HT53/05)
- Help on line on the display
- Internal memory for measured data saving
- Optical/USB serial port for PC connection
- Integrated WiFi communication interface

Functions of PQA820

- AC TRMS voltage in single-/three-phase systems
- AC TRMS current in single-/three-phase systems
- Active, Reactive and Apparent Power/Energy
- Cosphi and Power Factor
- Voltage, Current, DC Power
- Neutral current
- Voltage dips and peaks on 10ms
- Voltage unbalance (NEG%, ZERO%)
- Measurements using external TA and TV
- Voltage/current waveforms
- Histograms of voltage/current harmonics and THD%
- Voltage/current vector diagram
- Periodical recording with selectable PI
- Max number of simultaneously selectable quantities 383
- Voltage/current harmonic analysis up to the 49th
- Calculation and recording of voltage/current THD%
- Indication of recording duration

Accessories provided

MACROTESTG3	
C2033X	Cable with 3-terminal Shuko plug
UNIVERSALKITG3	Set of 4 cables + 4 alligator clips + 3 leads
KITTERRNE	Bag with 4 cables + 4 metal rods
PR400	Remote lead for test activation
PT400	Touch-screen pen
BORSA2000	Soft carrying bag
YABAT0003000	1.2V NiMH AA rechargeable battery, 6 pieces
YABAT0004001	Battery charger for 6 AA/AAA batteries
TOPVIEW2006	Management software + optical/USB C2006 cable
VA502	Rigid transport case for devices and accessories
	Quick user guide and ISO9000 calibration certificate
	User manual on CD-ROM
PQA820	
KITMPPACW	Set of 4 measuring cables
KITMPPACC	Set of 4 alligator clips
606-IECN	Adapters with magnetic terminal (4x)
HTFLEX33L	Flex 1000A AC clamp, 174mm (4x)
C2007	USB cable
BORSA2000	Soft carrying bag for accessories
	Quick user guide and ISO9000 calibration certificate
	User manual on CD-ROM

Optional accessories

MACROTESTG3	
HT96U	AC clamp for leakage current, 1-100-1000A/1V, diameter 54mm
IMP57	Accessories for loop impedance measurement with high resolution
T2100	Clamp for measuring the resistance of earth probes
HT52/05	Probe for measuring temperature/humidity
HT53/05	Probe for illuminance measurement
SP-0400	Set for slinging the instrument over one's shoulder
606-IECN	Adapter for leads with magnetic terminal
1066-IECN	Connector for cable extension banana 4mm
RCDX10	Accessory for industrial RCDs up to 10A
HT4005K	Standard 200A AC clamp, diameter 40mm
PQA820	
HT96U	AC clamp for leakage current, 1-100-1000A/1V, diameter 54mm
HT98U	DC clamp for leakage current, 1000A/1V, diameter 50mm
HP30C2	Standard AC 200-2000A/1V clamp, diameter 70 mm
HP30D1	Standard DC 1000A/1V clamp, diameter 83 mm
HT903	3x1-5A/1V box for connection to external TA
ACONBIN	Adapter for the connection of standard clamps

CAT III 600VAC
CAT III 300VAC
BETWEEN INPUTS

ORDER CODE ***HV000570***

GSC57F

MULTIFUNCTION DEVICE FOR VERIFICATION OF ELECTRIC SAFETY AND POWER ANALYSIS ON SINGLE-PHASE AND THREE-PHASE INSTALLATIONS

GSC57F is the first big **multifunction** device developed by HT!
In a **single device**, all functions of the most advanced systems for safety testing; **power analyses,** THREE-PHASE or SINGLE-PHASE (**voltages, currents, powers, power factor, energies,** etc.), voltage/current**harmonic analysis** (up to the 49th) and **an analysis of the anomalies on** power supply voltages (**dips**, **peaks**); **continuity test with test current 10A**.
The device has a whole variety of functions and can be used with external probes for measuring **environmental parameters** such as **temperature/humidity** of air, **illuminance (Lux)** further to measuring **leakage currents**, **Loop/Line impedance** and calculating the **prospective short-circuit current** with high resolution (0.1mOhm) in TN systems with the use of the optional accessory IMP57.
Cutting-edge management of measurement with indication, at the end of each safety test, of **compliance or non-compliance** with requirements with simple symbols **OK** or **NOT OK**.

Reference standards

The device has been developed to carry out measurements, tests and analyses in compliance with the following standards:

- **CEI 64-8**
- **IEC/EN61557-1**
- **VDE 0100**
- **VDE 0413**
- **IEC/EN61010-1**
- **17th edition**

Functions and characteristics

- Continuity of protective and equipotential conductors with 200mA and **10A**
- Insulation with test voltage 50, 100, 250, 500, 1000VDC
- Tripping time and current on type A RCDs, AC General and Selective RCDs up to 500mA
- Non-trip earth resistance
- Line/Loop impedance P-N, P-P, P-PE also with high resolution (0.1mΩ) with optional accessory IMP57
- Earth resistance by voltammetric method
- Ground resistivity by 4-terminal method
- Phase sequence
- Leakage current (with optional clamp HT96U)
- Measurement of electric parameters (voltages, currents, powers, energies, frequency cosphi) in single-phase and three-phase systems
- Recording of electric parameters with integration period from 5s to 60min
- Voltage and current harmonic analysis up to the 49th with THD% calculation
- Analysis of voltage anomalies (dips, peaks) with resolution 10ms
- Numerical display, display of waveforms and harmonic histogram
- Measurement of air temperature (°C/°F), relative humidity (%RH) and Illuminance (Lux) with optional external probe
- **Internal memory: 2MB**
- **Optical/USB interface for transferring data onto the PC**
- **Backlight LCD display**
- **Power supply: 6x1.5V batteries type AA LR6**
- **Safety: IEC/EN61010-1**
- **Measurement category: CAT III 600VAC between inputs, 300VAC to earth**
- **Size (L x W x H): 225x165x105mm**
- **Weight (batteries included): 1.2 kg (approx.)**

Accessories provided

C2033X	Cable with 3-terminal Shuko plug
UNIVERSALKITG3	Set of 4 cables + 4 alligator clips + 3 leads
KITTERRNE	Set of 4 cables + 4 earth probes
C5700	Power supply cable for test with 10A
HTFLEX3003	Set of 3 flex 300-3000A AC clamps, diameter174mm
A0050	Power power supply 230VAC/12VDC
TOPVIEW2006	Windows software for PC + optical/USB cable
BORSA 2051	Soft carrying bag
	ISO9000 calibration certificate

Optional accessories

HT96U	Standard 1-100-1000A AC clamp, diameter 54mm
HT97U	Standard 10-100-1000A AC clamp, diameter 54mm
HP30C2	Standard 200-2000A AC clamp, diameter 70mm
HP30C3	Standard 3000A AC clamp, diameter 70mm
HT4005N	Standard 5-100A AC clamp, diameter 20mm
HT903	3x1-5A/1V box for external TA connection
C7000/05	Set of cables for continuity test 10A, 5m
C7000/10	Set of cables for continuity test 10A, 10m
HT52/05	Probe for measuring air temperature/humidity
HT53/05	Probe for illuminance measurement (Lux)
IMP57	Access. for measuring Loop impedance with high resolution
A0053	External power supply 110VAC-60Hz /12VDC
CN0050	Strap for slinging the device over one's shoulder
606-IECN	Connector with magnetic terminal
1066-IECN	Connector for cable extension banana 4mm

CAT III 600VAC
CAT III 300VAC
BETWEEN INPUTS

ORDER CODE ***HV000047***

ZG47

MULTIFUNCTION DEVICE FOR VERIFICATION OF ELECTRIC SAFETY AND POWER ANALYSIS ON SINGLE-PHASE AND THREE-PHASE INSTALLATIONS

ZG47 is the complete and versatile **multifunction device** developed starting from real installation needs. In a **single device**, all functions of the most advanced systems for safety testing developed by HT; possibility of carrying out **power analyses,** THREE-PHASE or SINGLE-PHASE (**voltages, currents, powers, power factor, energies,** etc.), voltage/current **harmonic analysis** (up to the 49th) and **an analysis of the anomalies on** power supply voltages (**dips**, **peaks**).
The device has a whole variety of functions and can be used with external probes for measuring **environmental parameters** such as **temperature/humidity** of air, **illuminance (Lux)** further to measuring leakage currents, **Loop/Line impedance** and calculating the **prospective short-circuit current** with high resolution (0.1mOhm) in TN systems with the use of the optional accessory IMP57. Cutting-edge management of measurement with indication, at the end of each safety test, of **compliance or non-compliance** with requirements with simple symbols **OK** or **NOT OK**.

Reference standards

The device has been developed to carry out measurements, tests and analyses in compliance with the following standards:

- **CEI 64-8**
- **IEC/EN61557-1**
- **VDE 0100**
- **VDE 0413**
- **IEC/EN61010-1**
- **17th edition**

Functions and characteristics

- Continuity of protective and equipotential conductors with 200mA
- Insulation with test voltage 50, 100, 250, 500, 1000VDC
- Tripping time and current on type A, AC General and Selective RCDs up to 500mA
- Non-trip earth resistance
- Line/Loop impedance P-N, P-P, P-PE also with high resolution (0.1mOhm) with optional accessory IMP57
- Earth resistance by voltammetric method
- Ground resistivity by 4-terminal method
- Phase sequence
- Leakage current (with optional clamp HT96U)
- Measurement of electric parameters (voltages, currents, powers, energies, frequency cosphi) in single-phase and three-phase systems
- Recording of electric parameters with integration period from 5s to 60min
- Voltage and current harmonic analysis up to the 49th with THD% calculation
- Analysis of voltage anomalies (dips, peaks) with resolution 10ms
- Numerical display, display of waveforms and harmonic histogram
- Measurement of air temperature (°C/°F), relative humidity (%RH) and Illuminance (Lux) with optional external probe
- **Internal memory: 2MB**
- **Optical/USB interface for transferring data onto the PC**
- **Backlight LCD display**
- **Power supply: 6x1.5V batteries type AA LR6**
- **Safety: IEC/EN61010-1**
- **Measurement category: CAT III 600VAC between inputs, 300VAC to earth**
- **Size (L x W x H): 225x165x105mm**
- **Weight (batteries included): 1.2 kg (approx.)**

Accessories provided

C2033X	Cable with 3-terminal Shuko plug
UNIVERSALKITG3	Set of 4 cables + 4 alligator clips + 3 leads
KITTERRNE	Set of 4 cables + 4 earth probes
HTFLEX33E	Flex clamp 3000A, diameter 174mm, 3 pieces
A0050	Power power supply 230VAC/12VDC
TOPVIEW2006	Windows software for PC + optical/USB cable
BORSA 2051	Soft carrying bag
	ISO9000 calibration certificate

Optional accessories

HTFLEX35	Flex 3000A AC clamp, diameter 274mm
HT96U	Standard 1-100-1000A AC clamp, diameter 54mm
HT97U	Standard 10-100-1000A AC clamp, diameter 54mm
HP30C2	Standard 200-2000A AC clamp, diameter 70mm
HP30C3	Standard 3000A AC clamp, diameter 70mm
HT4005N	Standard 5-100A AC clamp, diameter 20mm
HT903	3x1-5A/1V box for external TA connection
HT52/05	Probe for measuring air temperature/humidity
HT53/05	Probe for illuminance measurement (Lux)
IMP57	Access. for measuring Loop impedance with high resolution
A0053	External power supply 110VAC-60Hz /12VDC
CN0050	Strap for slinging the device over one's shoulder
606-IECN	Connector with magnetic terminal
1066-IECN	Connector for cable extension banana 4mm

CAT III 600VAC
CAT III 300VAC
BETWEEN INPUTS

ORDER CODE ***HV00089N***

SIRIUS89N

MULTIFUNCTION DEVICE FOR VERIFICATION OF ELECTRIC SAFETY AND POWER ANALYSIS ON SINGLE-PHASE INSTALLATIONS

SIRIUS89N is the complete and versatile **multifunction device** developed starting from real installation needs. **It has all of the functions of the most advanced systems for safety testing. Single-phase** power analysis allows recording parameters such as **voltages, currents, powers, power factor, energies, voltage/current harmonic analyses** (up to the 49th) and analyzing the anomalies on power supply voltages (dips, peaks).
The device can be used with external probes for measuring environmental parameters such as **temperature/humidity of air, illuminance** (Lux) further to measuring **leakage currents**, **Loop/Line impedance** and calculating the **prospective short-circuit current** with high resolution (0.1mOhm) in TN systems (with use of optional accessory IMP57), **earth resistance**, etc. Cutting-edge management of measurement with indication, at the end of each safety test, **of compliance or non-compliance with requirements** with simple symbols **OK** or **NOT OK**.

Reference standards

The device has been developed to carry out measurements, tests and analyses in compliance with the following standards:

- **CEI 64-8**
- **IEC/EN61557-1**
- **VDE 0100**
- **VDE 0413**
- **IEC/EN61010-1**
- **17th edition**

Functions and characteristics

- Continuity of protective and equipotential conductors with 200mA
- Insulation with test voltage 50, 100, 250, 500, 1000VDC
- Tripping time and current on type A, AC General and Selective RCDs up to 500mA
- Non-trip earth resistance
- Line/Loop impedance P-N, P-P, P-PE also with high resolution (0.1mΩ) with optional accessory IMP57
- Earth resistance by voltammetric method
- Ground resistivity by 4-terminal method
- Phase sequence
- Leakage current (with optional clamp HT96U)
- Measurement of electric parameters (voltages, currents, powers, energies, frequency cosphi) in balanced single-phase and three-phase systems
- Recording of electric parameters with integration period from 5s to 60min
- Voltage and current harmonic analysis up to the 49th with THD% calculation
- Analysis of voltage anomalies (dips, peaks) with resolution 10ms
- Numerical display, display of waveforms and harmonic histogram
- Measurement of air temperature (°C/°F), relative humidity (%RH) and Illuminance (Lux) with optional external probe
- **Internal memory: 2MB**
- **Optical/USB interface for transferring data onto the PC**
- **Backlight LCD display**
- **Power supply: 6x1.5V batteries type AA LR6**
- **Safety: IEC/EN61010-1**
- **Measurement category: CAT III 600VAC between inputs, 300VAC to earth**
- **Size (L x W x H): 225x165x105mm**
- **Weight (batteries included): 1.2 kg (approx.)**

Accessories provided

C2033X	Cable with 3-terminal Shuko plug
UNIVERSALKITG3	Set of 4 cables + 4 alligator clips + 3 leads
KITTERRNE	Set of 4 cables + 4 earth probes
TOPVIEW2006	Windows software for PC + optical/USB cable
BORSA 2051	Soft carrying bag
	ISO9000 calibration certificate

Optional accessories

HTFLEX33E	Flex 3000A AC clamp, diameter 174mm
HTFLEX35	Flex 3000A AC clamp, diameter 274mm
HT96U	Standard 1-100-1000A AC clamp, diameter 54mm
HT97U	Standard 10-100-1000A AC clamp, diameter 54mm
HP30C2	Standard 200-2000A AC clamp, diameter 70mm
HP30C3	Standard 3000A AC clamp, diameter 70mm
HT4005N	Standard 5-100A AC clamp, diameter 20mm
HT903	3x1-5A/1V box for external TA connection
C7000/05	Set of cables for continuity test 10A, 5m
C7000/10	Set of cables for continuity test 10A, 10m
HT52/05	Probe for measuring air temperature/humidity
HT53/05	Probe for illuminance measurement (Lux)
IMP57	Access. for measuring Loop impedance with high resolution
A0053	External power supply 110VAC-60Hz /12VDC
CN0050	Strap for slinging the device over one's shoulder
606-IECN	Connector with magnetic terminal
1066-IECN	Connector for cable extension banana 4mm
A0050	Power power supply 230VAC/12VDC

COMPARISON TABLE OF ACCESSORIES

		GSC3	GSC57F	ZG47	SIRIUS89N
	KITTERRNE Neutral bag + 4 NBVR bna-bna cables + 4 earth rods *ORDER CODE* ***HA100001***	S	S	S	S
	UNIVERSALKITG3 Set of 4 cables + 4 alligator clips + 3 terminals *ORDER CODE* ***HA000203***	S	S	S	S
	KITMPPACC Set of 4 alligator clips for AC voltage *ORDER CODE* ***HA000752***	S	-	-	-
	KITMPPACW Set of 4 banana-banana green, blue, brown and black cables, 2m long *ORDER CODE* ***HA000753***	S	-	-	-
	C2033X Cable with 3-terminal Shuko plug *ORDER CODE* ***HA02033X***	S	S	S	S
	606-IECN Connector with magnetic terminal *ORDER CODE* ***HA006060***	S	0	0	0
	1066-IEC# Connector for extension banana cable 4mm # = colour N (black) - R (red) *ORDER CODE* ***HA10660#***	0	0	0	0
	404-IEC# Measuring lead with protection cap diameter 4mm # = colour N (black) - B (blue) - V (green) *ORDER CODE* ***HA40400#***	S Black-Blue-Green	S Black-Blue-Green	S Black-Blue-Green	S Black-Blue-Green
	ACONBIN Adapter for standard clamps for PQA820 *ORDER CODE* ***HA000BIN***	0	-	-	-
	IMP57 Accessory for loop impedance measurement with high resolution *ORDER CODE* ***HAIMP001***	0	0	0	0

S = Standard **0** = Optional

COMPARISON TABLE **OF ACCESSORIES**

› FOLLOWS

		GSC3	GSC57F	ZG47	SIRIUS89N
	HT903 3x1 - 5A/1V box for TA connection *ORDER CODE* ***HA019030***	0*	0	0	0
	PT400 Touch-screen pen *ORDER CODE* ***HA0PT400***	S	-	-	-
	HTFLEX3003 Set of 3 flex clamps 300-3000A AC, diameter 174mm *ORDER CODE* ***HP0X3003***	-	S	-	-
	HTFLEX33E Flex clamp 3000A AC, diameter 174mm *ORDER CODE* ***HP00033E***	-	-	S	0
	HTFLEX35 Flex clamp 3000A AC, diameter 274mm *ORDER CODE* ***HP000035***	0*	-	0	0
	HTFLEX33L Flex 1000A AC clamp, 174mm *ORDER CODE* ***HP00033L***	S	-	-	-
	T2100 Clamp for measuring earth probes' resistance *ORDER CODE* ***HP002100***	0	-	-	-
	HT96U Standard AC clamp 1-100-1000A/1V, diameter 54 mm *ORDER CODE* ***HP00096U***	0*	0	0	0
	HT97U Standard AC clamp 10-100-1000A/1V, diameter 54 mm *ORDER CODE* ***HP000972***	0*	0	0	0
	HT98U Standard DC clamp 1000A/1V, diameter 50 mm *ORDER CODE* ***HP00098U***	0*	-	-	-
	C7000 Set of cables for continuity test with 10A 5m and 10m *ORDER CODE* ***HA007000*** 2m *ORDER CODE* ***HA700005*** 5m *ORDER CODE* ***HA700010*** 10m	-	S 2m	-	-

S = Standard **0** = Optional *For PQA820, the adapter ACONBIN is necessary

› FOLLOWS

		GSC3	GSC57F	ZG47	SIRIUS89N
	HT4004N Standard DC clamp 10-100A/1V, diameter 20mm *ORDER CODE* ***HP04004N***	0*	-	-	-
	HT4005N Standard AC 5-100A/1V clamp, diameter 20mm *ORDER CODE* ***HP04005N***	0*	0	0	0
	HT4005K Standard AC clamp 200A/1V, diameter 40mm *ORDER CODE* ***HP04005K***	0*	0	0	0
	HP30C2 Standard AC clamp 200-2000A/1V, diameter 70 mm *ORDER CODE* ***HP003002***	0*	0	0	0
	HP30C3 Standard 3000A AC clamp, diameter 70mm *ORDER CODE* ***HP003003***	0*	0	0	0
	HP30D1 Standard DC clamp 1000A/1V, diameter 83mm *ORDER CODE* ***HP0030D1***	0*	-	-	-
	HT52/05 Probe for measuring air temperature/humidity *ORDER CODE* ***HN005205***	0	0	0	0
	HT53/05 Probe for illuminance measurement (Lux) *ORDER CODE* ***HN005305***	0	0	0	0
	SP-0400 Set for slinging the instrument over one's shoulder *ORDER CODE* ***HA000112***	0	-	-	-
	CN0050 Set for slinging the instrument over one's shoulder *ORDER CODE* ***HA000052***	-	0	0	0
	RCDX10 Accessory for industrial RCDs up to 10A *ORDER CODE* ***HA000801***	0	-	-	-

S = Standard **0** = Optional *For PQA820, the adapter ACONBIN is necessary

ORDER CODE ***HAIMP001***

IMP57

ACCESSORY FOR LOOP IMPEDANCE MEASUREMENT WITH HIGH RESOLUTION AND PROSPECTIVE SHORT-CIRCUIT CURRRENT UP TO 400KA

IMP57 is an optional accessory to measure **Loop/ Line fault loop impedance** and **calculating the prospective short-circuit current**.
IMP57 can be used together with the devices of series **GSC**, **SIRIUS**, **Combi** and **Macrotest Gx** further to **ZG47**, **Fulltest3** and **Speed418**. The high generated test current (**approx. 200A**) allows carrying out measurements **with high resolution (0.1mΩ)** and, therefore, obtaining correct and precise results, **even near MT/BT transformer cabinets (TN systems)** and, in general, carrying out measurements in which the devices' basic resolution is not sufficient to guarantee correct measurements of prospective short-circuit currents according to the project's theoretical data. IMP57 is provided with a comfortable and resistant case structure. Finally with 4-terminal measurement allows not considering the effect of the provided cables' resistance and, hence, **no preliminary calibrations are necessary**.

Main features

Type of measurement:	Loop impedance P-N, P-P, P-PE and calculation of short-circuit current
Measurement resolution:	0.1mΩ (Zloop); 400kA (Ipsc)
Test current:	approx. 200A
Frequency range:	50Hz ± 5%
Size (LxWxH):	340x300x150mm
Weight:	4.1kg

Accessories provided

C7000	Couple of cables, 3m, with alligator clips
C2001	Serial optical / RS-232 cable
B80	Soft carrying bag for accessories
	ISO9000 calibration certificate
	User manual on CD-ROM
	CD-ROM with Firmware update

Optional accessories

C7000/05	Set of measuring cables, 5m long
C7000/10	Set of measuring cables, 10m long

IMP57 COMBINATIONS FOR USE

Short-circuit current up to **400KA**

MACROTESTG3
› Page 60

SPEED418
› Page 96

GSC5x / ZG47
SIRIUS89N
› Page 48, 49, 50

FULLTEST3
› Page 100

COMBI42x / COMBIGx
› Page 64, 65, 62

HTANALYSIS.
Artificial Intelligence.

With the latest-generation HT devices **it is possible to interface with tablets and smart phones** thanks to the creation of the **HTanalysis App**. HTanalysis is a professional software which**allows displaying and consulting,** on your mobile devices, **measured and recorded data**, and then **share them** with your colleagues trough the **HTCloud** database.
HTanalysis allows generating professional reports complete with images, texts, videos and audio comments. By interfacing the device with your mobile device's display, the touch-screen interaction will allow quickly displaying a detailed report of the trend of the recorded quantities.

WITH
MacroTestG3, G2, G1 and CombiG2

- You can generate reports complete with photos, videos, audio comments and texts.
- You can archive reports in the big HT-Cloud database and share them safety with your colleagues.

WITH
PQA820, PQA819 and HT9022*

- You can display voltage, current, power, harmonic, THD%, cosphi and frequency recordings.
- You can display in real time all wave-forms, vector diagrams and harmonics.
- You can archive all recordings in the HT-Cloud database and share them safety with your colleagues.

*Only compatible with Android

disponibile su Google play

disponibile su App Store

HT CLOUD.
Share everything. When, how and where you like.

Install the HTanalysis App to **use** the big **HTCloud** database as an archive and **share** measured and recorded data with colleagues and cooperators **from all over the world.**

MULTIFUNCTION INSTALLATION TESTERS

COMPARISON TABLE **FUNCTIONS**

ELECTRIC SAFETY MEASUREMENTS	MACROTEST G3	COMBI G2	COMBI 420	COMBI 419	M75	M74	EQUITEST 5071
TRMS	•	•	•	•	•	•	•
Insulation with voltage 50, 100, 250, 500, 1000VDC	•	•	•	•	• 250V, 500V	• 250V, 500V	-
Continuity of protective conductors with 200mA / 10A	• 200mA	• 200mA	• 200mA	• 200mA	• 200mA	• 200mA	• 200mA/10A
Tripping time and current of RCDs type B, A, AC Standard, Selective and Delayed up to 1A	•	•	• Only A, AC general and selective	• Only A, AC general and selective	• A = 30mA AC = 300mA only general	• A = 30mA AC = 300mA only general	-
Tripping time and current of earth leakage relays type B, A, AC Standard, Selective and Delayed up to 10A	•***	•***	-	-	-	-	-
Non-trip earth resistance	•	•	•	•	•	•	-
Earth resistance with rods	•	-	-	-	-	-	-
Earth resistance with stakeless testing method	•**	-	-	-	-	-	-
Ground resistivity by 4-wire method	•	-	-	-	-	-	-
Loop/Line impedance, Phase-Phase, Phase-Neutral, Phase-PE	•	•	•	•	-	-	-
Loop/Line impedance Phase-Phase, Phase-Neutral, Phase-PE with high resolution (0.1mΩ)	•*	•*	•*	•*	-	-	•*
Measurement of percentage voltage drop on the line	•	•	-	-	-	-	-
Contact voltage	•	•	•	•	•	•	-
Wire mapping of LAN cables with RJ45 plug	-	-	-	-	•	-	-
Phase sequence	•	•	•	•	•	•	•
Leakage current with optional clamp meter	•	•	•	•	•	•	•
POWER ANALYSIS							
Measurement of Voltage, Current, Active, Reactive, Apparent Power	•(1)	•(1)	•(1)	-	-	-	-
Measurement of Cosphi, Power Factor	•(1)	•(1)	•(1)	-	-	-	-
Voltage and current harmonics up to the 49th with calculation of THD%	• 25th	• 25th	• 49th	-	-	-	-
ADDITIONAL CHARACTERISTICS							
Protection category	CAT III 240V	CAT III 240V	CAT III 240V	CAT III 240V	CAT III 550V	CAT III 550V	CAT III 550V
DC/AC TRMS voltage and current, Frequency, Resistance, Continuity with buzzer	-	-	-	-	•	•	•
AUTOMATIC test (Ra, RCD, Insulation)	-	-	•	•	-	-	-
Measurement of environmental parameters (°C,°F, %RH, Lux)	•	•	•	-	-	-	-
Test with remote lead PR400	•	•	•	•	-	-	-
Help on line on the display	•	•	•	•	-	-	-
Internal memory for measured data saving	•	•	•	•	-	-	•
Optical/USB serial port for PC connection	•	•	•	•	-	-	•
Integrated WiFi connection and compatibility with HTANALYSIS App	•	•	-	-	-	-	-
Size (LxWxH) (mm)	222x162x57	222x162x57	222x162x57	222x162x57	240x100x45	240x100x45	225x1165x105
Weight (batteries included):	1.2 kg	1.2 kg	1.2 kg	1.2 kg	450g	450g	1.7kg
Reference standard for safety	IEC /EN61010-1	IEC /EN61010-1	IEC /EN61010-1	IEC /EN61010-1	IEC /EN61010-1	IEC /EN61010-1	IEC /EN61010-1
Order Code	HV005036	HV0000G2	HV000420	HV000419	HV000075	HV000074	HV005071

* With optional accessory IMP57 ** With optional accessory clamp T2100 *** With optional accessory RCDX10 (1) Single-phase or balanced three-phase system

WiFi™ HTAnalysis™ HT Cloud™ CAT III 240V MAX 415V BETWEEN INPUTS YouTube

ORDER CODE ***HV005036***

MACROTESTG3

ADVANCED MULTIFUNCTION DEVICE FOR VERIFICATION OF ELECTRIC SAFETY OF DOMESTIC AND INDUSTRIAL ELECTRIC SYSTEMS (IEC/EN61557-1)

- **All verifications of electric safety** provided for by **standards IEC/EN61557-1**
- **Advanced Loop** Verification of magnetothermal protections, fuses and cable sizes.
- **Earth resistance** by **voltammetric method** with 2 or 3 poles in TT, TN and IT systems, **non-trip earth resistance measurement** and earth resistance with stakeless testing method with **clamp meter** T2100 (optional). **Ground resistivity.**
- **Measurement of electric parameters in single-phase** installations (V, I, W, VAR, VA, PF)
- **Test of RCDs** type A, AC, B up to 1A, earth leakage relays with test current up to 10A (with optional accessory RCDX10).
- Measurement of **insulation resistance.**
- Measurement of **continuity** of protection conductors.
- Verification **of phase sequence (SEQ)** and **leakage currents.**
- **Measurement of environmental parameters** through external probes.

MacrotestG3 is a revolutionary device.
Its TFT colour display with **touch-screen** allows using this device in a completely new manner. **MacrotestG3 makes available on its display all possible variables to obtain a perfect measurement;** your task will only be to "**touch**" what you really want to measure: then simply leave the rest to Macrotest G3's micro-processor!
The device complies with **all requirements as regards the safety of electric systems: test of RCDs type A, AC also up to 1000 mA** and **type B; insulation, continuity, earth resistance tests** (this also with the aid of the optional clamp **T2100**).
With the appropriate programming guided by the touch-screen system, this device can test the **breaking capacity, tripping current, I2t relevant to magneto-thermal switches (MCB) with curves B, C, D, K and fuses type gG and aM!**
The device can be used with external probes for measuring environmental parameters such as air temperature/humidity, illuminance (Lux) further to measuring leakage currents, cosphi, power and harmonics, Loop/Line impedance and calculating the prospective short-circuit current with high resolution (0.1mOhm) in TN systems with use of optional accessory IMP57.
Cutting-edge management of measurement with indication, at the end of each safety test, of **compliance or non-compliance with requirements** with simple symbols **OK** or **NOT OK.**

Power measurement, using the HTAnalysis™ App on tablet.

Lux measurement with HT53/05.

Earth resistance measurement with clamp T2100.

Start/stop measuring with remote lead PR400.

Selection of RCD type and tripping current

Selection of test voltage and minimum limit value on MΩ measurement

Continuity of protective conductors: Measurement result negative

Leakage current with optional clamp 96U

Power measurement.

Power measurement: harmonics

Advanced Loop.

Advanced Loop: negative result of breaking capacity test.

Earth resistance: selection of measurement type

Earth resistance: result OK.

Functions

- Insulation with voltage 50, 100, 250, 500, 1000VDC
- Continuity of protective conductors with 200mA
- Earth resistance by voltammetric method
- Earth resistance with stakeless testing method
- Ground resistivity by 4-wire method
- Non-trip earth resistance with no RCD tripping
- Line/Loop impedance, Phase-Phase, Phase-Neutral, Phase-PE
- Line/Loop impedance, Phase-Phase, Phase-Neutral, Phase-PE with high resolution (0.1 mΩ with optional accessory IMP57)
- Prospective short-circuit current
- Contact voltage
- Tripping time of General, Selective and Delayed RCDs.
- Test current A, AC max 1A and type B max 300mA.
- Test on earth leakage relays up to 10A
- RCD tripping current (Ramp test)
- Phase sequence
- Measurement of percentage voltage drop on the lines
- Measurement with use of remote lead (with optional accessory PR400)
- Leakage current (with optional clamp HT96U)
- Measurement of electric parameters (V, I, W, VAR, VA, Wh, cosphi)
- Voltage and Current harmonics analysis and THD% and PF
- Measurement of environmental parameters (with optional probes HT52/05 and HT53/05)
- Help on line on the display
- Internal memory for measured data saving
- Optical/USB serial port for PC connection
- Integrated WiFi communication interface

Main features

Power supply:	6x1.2V rechargeable batteries type AA NiMH or 6x1.5 type AA alkaline
Battery life:	> 550 test (alkaline)
Display:	Resistive touch screen, colour LCD, resolution 320x240 pxl
Memory:	999 locations, 3 levels of markers
PC interface:	optical/USB and WiFi
Safety:	IEC/EN61010-1, double insulation
Operating humidity:	<80%RH
Operating temperature:	0 ÷ 40°C
Storage humidity:	<80%RH
Storage temperature:	-10 ÷ 60°C
Measurement category:	CAT III 240V, max 415V between inputs
Pollution level:	2
Reference standard:	IEC/EN61557-1-2-3-4-5-6-7
Size (LxWxH):	225 x 165 x 75 mm
Weight (batteries included):	1.2 kg

Accessories provided

C2033X	Cable with 3-terminal Shuko plug
UNIVERSALKITG3	Set of 4 cables, 4 alligator clips, 3 leads
KITTERRNE	Bag with 4 cables + 4 metal probes
PR400	Remote lead for test activation
PT400	Touch-screen pen
BORSA2051	Soft carrying bag
YABAT0003000	1.2V NiMH AA rechargeable battery, 6 pieces
YABAT0004001	Battery charger for 6 AA/AAA batteries
TOPVIEW2006	Management software + optical/USB C2006 cable
	Quick user guide
	User manual on CD-ROM
	ISO9000 calibration certificate

Optional accessories

HT96U	AC clamp for leakage current, 1-100-1000A/1V, diameter 54mm
HT4005K	Clamp AC 200A/1V, diameter 40mm
IMP57	Accessory for measuring Loop impedance with high resolution
T2100	Clamp for measuring the resistance of earth rods
HT52/05	Probe for measuring temperature/humidity
HT53/05	Probe for illuminance measurement
SP-0400	Set for slinging the instrument over one's shoulder
606-IECN	Adapter for leads with magnetic terminal
1066-IECN	Connector for cable extension banana 4mm
RCDX10	Accessory for industrial earth leakage relays up to 10A
VA500	Rigid transport case for device and accessories
VA504	Rigid carrying case for device and clamp T2100

ORDER CODE ***HV0000G2***

COMBIG2

ADVANCED MULTIFUNCTION DEVICE FOR VERIFICATION OF ELECTRIC SAFETY OF DOMESTIC AND INDUSTRIAL ELECTRIC SYSTEMS (IEC/EN61557-1)

- **All verifications of electric safety** provided for by **standards IEC/EN61557-1.**
- **Advanced Loop** Verification of magnetothermal protections, fuses and cable sizes.
- **Measurement of electric parameters in single-phase** installations (V, I, W, VAR, VA, PF)
- **Test of RCDs** type A, AC, B up to 1A, and earth leakage relays with test current up to 10A (with optional accessory RCDX10).
- Measurement of **insulation resistance.**
- Measurement of **continuity** of protection conductors.
- Verification **of phase sequence (SEQ)** and **leakage currents.**
- **Measurement of environmental parameters** through external probes.

COMBIG2 is used for checking the safety of domestic and industrial electric systems (IEC/EN61557-1).
Thanks to its building characteristics, the type of setting and the multiple applications as regards the documentation it is capable of producing, this device can satisfy even the most demanding technician and the most rigorous verifier.
Its TFT colour display with **touch-screen** allows using this device in a completely new manner. **COMBIG2 makes available on its display all possible variables to obtain a perfect measurement;** your task will only be to "**touch**" what you really want to measure: then, simply leave the rest to COMBIG2's micro-processor!
The device complies with **all requirements as regards the safety of electric systems**: **test of RCDs type A, AC also up to 1000 mA** and **type B; insulation, continuity, earth resistance tests** directly on the power outlet without causing the RCDs' tripping.
With the appropriate programming guided by the touch-screen system, this device can test the **breaking capacity, tripping current, I2t relevant to magneto-thermal switches (MCB) with curves B, C, D, K and fuses type gG and aM!**
Combined with **optional clamp HT96U** it is capable to carry out and record **measurements of leakage current, power, cosphi, harmonics, THD% and frequency**. This device has been devised for use together with optional accessories which widen its operating fields: e.g. **HT53/05** for measuring lux, **HT52/05** for measuring temperature and humidity and **RCDX10** for testing earth leakage relays **up to 10A**.
Cutting-edge management of measurement with indication, at the end of each safety test, of compliance or non-compliance with requirements with simple symbols **OK** o **NOT OK**.
Finally, thanks to the brand new **HTAnalysis App, free to download for iOS and Android systems,** COMBIG2 is capable of transferring measured and recorded data onto tablets and smartphones, thus giving the operator the possibility to customize and share through **HtCloud** the result of their tests.

Selection of RCD type and tripping current

Selection of test voltage and minimum limit value on measurement

Measurement result negative

Selection of measurement type with external probe

Selection of measurement type of phase sequence

Measurement of leakage current with optional clamp HT96U

Power measurement, using the HTAnalysis™ App on tablet.

Lux measurement with accessory HT53/05.

General screen Advanced Loop

Negative result of breaking capacity test

Functions

- Insulation with voltage 50, 100, 250, 500, 1000VDC
- Continuity of protective conductors with 200mA
- Non-trip earth resistance
- Line/Loop impedance, Phase-Phase, Phase-Neutral, Phase-PE
- Line/Loop impedance, Phase-Phase, Phase-Neutral, Phase-PE with high resolution (0.1 mΩ)
- Prospective short-circuit current
- Contact voltage
- Tripping time of General, Selective and Delayed RCDs.
- Test current A, AC max 1A and type B max 300mA.
- Test on RCDs with separate clamp jaw up to 10A
- RCD tripping current (Ramp test)
- Phase sequence
- Measurement of percentage voltage drop on the lines
- Measurement with use of remote lead (with optional accessory PR400)
- Leakage current (with optional clamp HT96U)
- Measurement of electric parameters (V, I, W, VAR, VA, Wh, cosphi)
- Voltage and Current harmonics analysis and THD% and PF
- Measurement of environmental parameters (with optional probes HT52/05 and HT53/05)
- Help on line on the display
- Internal memory for measured data saving
- Optical/USB serial port for PC connection
- Integrated WiFi communication interface

Main features

Power supply:	6x1.2V rechargeable batteries type AA NiMH or 6x1.5 type AA alkaline
Battery life:	> 550 test (alkaline)
Display:	Resistive touch screen, colour LCD, resolution 320x240 pxl
Memory:	999 locations, 3 levels of markers
PC interface:	optical/USB and WiFi
Safety:	IEC/EN61010-1, double insulation
Operating humidity:	<80%RH
Operating temperature:	0 ÷ 40°C
Storage humidity:	<80%RH
Storage temperature:	-10 ÷ 60°C
Measurement category:	CAT III 240V, max 415V between inputs
Pollution level:	2
Reference standard:	IEC/EN61557-1-2-3-4-5-6-7
Size (LxWxH):	225 x 165 x 75 mm
Weight (batteries included):	1.2 kg

Accessories provided

C2033X	Cable with 3-terminal Shuko plug
UNIVERSALKITCOMBI	Set of 3 cables, 3 alligator clips, 3 leads
PT400	Touch-screen pen
BORSA2051	Soft carrying bag
TOPVIEW2006	Management software + optical/USB C2006 cable
	Quick user guide
	User manual on CD-ROM
	ISO9000 calibration certificate

Optional accessories

HT96U	AC clamp for leakage current, 1-100-1000A/1V, diameter 54mm
IMP57	Accessory for measuring Loop impedance with high resolution
HT52/05	Probe for measuring temperature/humidity
HT53/05	Probe for illuminance measurement
SP-0400	Set for slinging the instrument over one's shoulder
606-IECN	Adapter for leads with magnetic terminal
1066-IECN	Connector for cable extension banana 4mm
RCDX10	Accessory for industrial RCDs up to 10A
YABAT0003000	1.2V NiMH AA rechargeable battery, 6 pieces
YABAT0004001	Battery charger for 6 AA/AAA batteries
PR400	Remote lead for test activation
VA500	Rigid transport case for device and accessories

YouTube

CAT III 240V
MAX 415V BETWEEN INPUTS

ORDER CODE ***HV000420***

COMBI420

MULTIFUNCTION DEVICE FOR TESTS ON DOMESTIC AND INDUSTRIAL SYSTEMS WITH POWER ANALYSIS

COMBI420 carries out tests of electric systems in compliance with IEC/EN61557-1 and therefore measurements of **non-trip earth resistance, tests on RCDs type A and AC up to a rated current of 1A, Insulation, Continuity and short-circuit currents, it also allows measuring and saving environmental parameters (illuminance, temperature), leakage current and the electric quantities active power, harmonics, power factor on single-phase systems and, last but not least, it offers the possibility of checking phase sequence only using one lead.**
The **internal memory** allows **saving** the measurements carried out in order to subsequently **transfer them onto the PC** through the USB connection.
The instrument has been provided with the innovative **AUTO function:** by selecting this function and only setting the value of RCD current, COMBI420, connected to a power outlet, carries out tests of non-trip earth resistance, on RCDs and insulation tests in a sequence. At the end of the test, the device shows all results with the indication of compliance or non-compliance with the standards with simple symbols **OK** or **NOT OK**.

Functions and characteristics

- Continuity of protective conductors with 200mA
- Insulation with 50, 100, 250, 500, 1000VDC
- Tripping time of type A, AC Standard and Selective RCDs up to 1A
- Tripping current of type A, AC Standard and Selective RCDs up to 1A
- Loop/Line impedance P-N, P-P, P-PE also with high resolution (0.1mΩ) with optional accessory IMP57
- Non-trip earth resistance
- Contact voltage
- Phase sequence
- AUTO test (non-trip earth resistance, RCD and insulation test) on the outlets to be tested
- Power and cosphi measurements in single-phase systems
- Voltage and current harmonics up to the 49th with THD%
- Measurement of environmental parameters (temperature, humidity, illuminance) with optional probes
- Measurement of leakage currents (with optional clamp HT96U)
- Activation of measurements with optional remote lead PR400
- Context help on the display
- Storage of results
- Optical/USB interface for PC connection
- **Safety: IEC/EN61010-1, IEC/EN61557-1-2-3-4-6-7**
- **Measurement category: CATIII 240V (to earth), max 415V between inputs**
- **Power supply: 6x1.5V batteries type AA, LR6, AM3, MN 1500**
- **Size (LxWxH): 235x165x75mm**
- **Weight (batteries included): 1.2 kg**

Accessories provided

UNIVERSALKITCOMBI	Set of 3 cables + 3 alligator clips + 3 leads
C2033X	3-terminal cable with SHUKO plug
BORSA75	Soft carrying bag
	User manual on CD-ROM and Quick guide for use
	ISO9000 calibration certificate

Optional accessories

TOPVIEW2006	Windows software for PC + optical/USB cable
IMP57	Accessory for measuring Loop impedance with high resolution (0,1mΩ)
HT4005K	Standard AC 200A/1V clamp, diameter 40mm
HT4005N	Standard AC 5-100A/1V clamp, diameter 20mm
HT96U	AC clamp for leakage current, 1-100-1000A/1V, diameter 54mm
HT52/05	Probe for measuring temperature/humidity
HT53/05	Probe for illuminance measurement
SP-0400	Set for slinging the instrument over one's shoulder
PR400	Remote lead for test activation
VA500	Rigid transport case for device and accessories

CAT III 240V
MAX 415V BETWEEN INPUTS

ORDER CODE ***HV000419***

COMBI419

MULTIFUNCTION DEVICE FOR TESTS ON DOMESTIC AND INDUSTRIAL SYSTEMS

COMBI419 carries out tests of electric systems in compliance with IEC/EN61557-1 and therefore measurements of **non-trip earth resistance, tests on RCDs type A and AC up to a rated current of 1A, Insulation, Continuity and short-circuit currents, it also allows measuring and saving leakage current and offers the possibility of checking phase sequence only using one lead**.
The **internal memory** allows **saving** the measurements carried out in order to subsequently **transfer them onto the PC** through the USB connection.
In order to make it versatile and fully functional for any kind of end user, the device has been provided with the innovative **AUTO** function: by selecting this function and only setting the value of RCD current, COMBI 419, connected to a power outlet, carries out tests of non-trip earth resistance, on RCDs and insulation tests in a sequence. At the end of the test, the device shows all results with the indication of compliance or non-compliance with the standards with simple symbols **OK** or **NOT OK**.

Functions and characteristics

- Continuity of protective conductors with 200mA
- Insulation with 50, 100, 250, 500, 1000VDC
- Tripping time of type A, AC Standard and Selective RCDs up to 1A
- Tripping current of type A, AC Standard and Selective RCDs up to 1A
- Loop/Line impedance P-N, P-P, P-PE also with high resolution (0.1mΩ) with optional accessory IMP57
- Non-trip earth resistance
- Contact voltage
- Phase sequence
- AUTO test (non-trip earth resistance, RCD and insulation test) on the outlets to be tested
- Measurement of leakage currents (with optional clamp HT96U)
- Activation of measurements with optional remote lead PR400
- Context help on the display
- Storage of results
- Optical/USB interface for PC connection
- **Safety: IEC/EN61010-1, IEC/EN61557-1-2-3-4-6-7**
- **Measurement category: CATIII 240V (to earth), max 415V between inputs**
- **Power supply: 6x1.5V batteries type AA, LR6, AM3, MN 1500**
- **Size (LxWxH): 235x165x75mm**
- **Weight (batteries included): 1.2 kg**

Accessories provided

UNIVERSALKITCOMBI	Set of 3 cables + 3 alligator clips + 3 leads
C2033X	3-terminal cable with SHUKO plug
BORSA75	Soft carrying bag
	User manual on CD-ROM and Quick guide for use
	ISO9000 calibration certificate

Optional accessories

TOPVIEW2006	Windows software for PC + optical/USB cable
IMP57	Accessory for measuring Loop impedance with high resolution
HT4005K	Standard AC 200A/1V clamp, diameter 54mm
HT4005N	Standard AC 5-100A/1V clamp, diameter 20mm
HT96U	AC clamp for leakage current, 1-100-1000A/1V, diameter 54mm
SP-0400	Set for slinging the instrument over one's shoulder
PR400	Remote lead for test activation
VA500	Rigid transport case for device and accessories

CAT III 550V

TRMS

YouTube

ORDER CODE ***HV000075***

M75

SAFETY VERIFICATION DEVICES IN COMPLIANCE WITH STANDARD IEC/EN61557-1 WITH TRMS MULTIMETER AND LAN RJ-45 NETWORK CABLE MAPPING FUNCTIONS

M75 is the **mobile device** par excellence!
HT suggests operators who mainly work on **domestic installations** to **ALWAYS have M75 at hand.** Here's the reason why: it is very **easy to use**, very **small in size** and it fully **automatically carries out all necessary tests** to establish COMPLIANCE (and hence ensure SAFETY) of a domestic electric system.
ALWAYS using it **before starting working** on an already existing system the operator does not know well and always using it at the end of the job will **guarantee the necessary** safety to both operators and users of the electric systems!
Thanks to its small size, this device offers **many operating opportunities.** M75 is used for testing the safety of electric systems, so for measuring **non-trip earth resistance**, **testing RCDs type A and AC, insulation and continuity of protective conductors**.
In order to make it versatile and fully functional for any kind of end user, the device has been provided with the innovative **AUTO function**: by selecting this function and **only setting the value of RCD current**, M75, **connected to a power outlet**, carries out tests of **non-trip earth resistance**, **RCD tests and insulation tests in a sequence**. At the end of the test, the device shows all results with the indication of compliance or non-compliance with the standards with simple symbols **OK** or **NOT OK**.
This innovative product also offers the following functions: **TRMS multimeter** for **AC/DC voltage**, **AC/DC current** (with external clamp), **Resistance measurement**, **Test on LAN** cables, **Test of phase sequence with a single lead.**

Functions and characteristics

- Continuity of protective conductors with 200mA
- Insulation with 250,500VDC
- Tripping time on General RCDs type AC (up to 300mA) and type A (30mA)
- Tripping current on General RCDs type AC and A (30mA)
- Non-trip earth resistance
- AUTO function (non-trip earth resistance test, RCD tests, insulation tests)
- Phase sequence with 1 and 2 terminals
- Full test on cable mapping of LAN networks with RJ45
- DC/AC TRMS voltage
- DC/AC TRMS current
- Resistance and Continuity test
- Data HOLD, MAX/MIN/AVG
- Measurement of voltage and current PEAK
- Measurement of leakage currents (with optional clamp HT96U)
- **Safety: IEC/EN61010-1**
- **Measurement category: CATIII 550V**
- **Power supply with AA batteries 4x1.5V**
- **Size (LxWxH): 240x100x45 mm**
- **Weight (batteries included): approx. 450 g**

Accessories provided

KIT0075	Set of 2 cables with leads + 2 alligator clips
C2075	2-terminal cable with SHUKO plug
HT4003	Standard 400A/IV clamp
CH1	Remote unit LAN #1
CH2	Remote unit LAN #2
YAAMS0000000	(3x) patch LAN RJ45 cable
BORSA75	Soft carrying bag
	User manual on CD-ROM, calibration certificate ISO9000 and Quick user guide

Optional accessories

HT96U	Standard 1-100-1000A/I V clamp, diam. 54 mm
HT4005K	Standard 5-100A AC/IV clamp
HT4004N	Standard 10-100A DC/IV clamp
NOCANBA	Adapter for connecting HT96U, HT4004, HT4005N
REM3,4,5,6,7,8	Single remote LAN unit, choose between no.3, 4, 5, 6, 7, 8.
REM38	Kit of 6 remote units (no. 3, 4, 5, 6, 7, 8)

CAT III 550V

TRMS

ORDER CODE ***HV000074***

M74

DEVICE FOR SAFETY TESTS ACCORDING TO IEC/EN61557-1 WITH TRMS MULTIMETER FUNCTIONS

M74 measures **Non-trip earth resistance, tripping time of RCDs type AC, Insulation and Continuity of earth and equipotential conductors** according to the laws in force in domestic electric installations.
In order to make it versatile and fully functional for any kind of end user, the device has been provided with the innovative **AUTO** function: by selecting this function and only setting the value of RCD current, M74, connected to a power outlet, carries out **tests of non-trip earth resistance, RCD tests and insulation tests in a sequence**. At the end of the test, the device shows all results with the indication of compliance or non-compliance with the standards with simple symbols **OK** or **NOT OK**.
M74 has many additional functions such as measurement of **phase sequence with 1 terminal**, measurement of **leakage currents with optional clamp transducer** and a powerful **multimeter** function for measuring **voltage and current's** true root mean square value **TRMS**.

Functions and characteristics

- Continuity of protective conductors with 200mA
- Insulation with 250,500VDC
- Tripping time on General RCDs type AC (up to 300mA) and type A (30mA)
- Tripping current on General RCDs type AC and A (30mA)
- Non-trip earth resistance
- AUTO function (non-trip earth resistance test, RCD tests, insulation tests)
- Phase sequence with 1 and 2 terminals
- DC/AC TRMS voltage
- DC/AC TRMS current
- Resistance and Continuity test
- Data HOLD, MAX/MIN/AVG
- Measurement of voltage and current PEAK
- Measurement of leakage currents (with optional clamp HT96U)
- **Safety: IEC/EN61010-1**
- **Measurement category: CATIII 550V**
- **Power supply with AA batteries 4x1.5V**
- **Size (LxWxH): 240x100x45 mm**
- **Weight (batteries included): approx. 450 g**

Accessories provided

KIT0075	Set of 2 cables with leads + 2 alligator clips
C2075	2-terminal cable with SHUKO plug
BORSA2000	Soft carrying bag
	User manual on CD-ROM
	ISO9000 calibration certificate
	Quick user guide

Optional accessories

HT96U	Standard 1-100-1000A/I V clamp, diameter 54 mm
HT4003	Standard 400A AC clamp
HT4005N	Standard 5-100A AC/IV clamp
HT4004N	Standard 10-100A DC/IV clamp
NOCANBA	Adapter for connecting HT96U, HT4004, HT4005N

ORDER CODE ***HV005071***

EQUITEST5071

DEVICE FOR MEASURING CONTINUITY OF PROTECTIVE CONDUCTORS WITH 10A AMD LINE/LOOP IMPEDANCE

EQUITEST5071 is a device mainly designed for testing **equipotential conductors with test current >10A** according to the prescriptions of standards for test of medical environments and IEC/EN60204-1:2006 (safety tests on electric machines and machine boards). This device also allows measuring **continuity on protective conductors with 200mA**, **Line/Loop impedance** also with **high resolution (0.1mΩ)**, using the optional accessory IMP57, **non-trip earth resistance without causing the RCDs' tripping and phase sequence.** Each measurement can be saved in the **internal memory** of the device and transferred **onto the PC** through the provided Windows software.

Functions and characteristics

- Continuity of protective conductors with current >200mA
- Continuity of protective conductors with current >10A and voltage <12V
- Continuity with current >10A in compliance with IEC/EN60204-1:2006
- Measuring mode: 4 terminals
- Loop/Line impedance P-N, P-P, P-PE also with high resolution (0.1mΩ) with optional accessory IMP57
- Prospective short-circuit current calculation
- Non-trip earth resistance
- Contact voltage
- Phase sequence with 3 terminals
- **Internal memory: 999 locations**
- **Power supply for tests 10A: 230V/50Hz**
- **Device power supply: 6x1.5V batteries type AA LR06**
- **Safety: IEC/EN61010-1**
- **Measurement category: CAT III 300V to earth**
- **Insulation: double insulation**
- **Pollution level: 2**
- **Size (LxWxH): 225x165x105mm**
- **Weight (batteries included): 1.7kg**

Accessories provided

C2033X	Cable with 3-terminal Shuko plug
UNIVERSALKITCOMBI	Set of 3 cables + 3 alligator clips + 3 leads
C5700	Power supply cable for tests with 10A
C7000	Pair of cables, 3m with alligator clips for tests with 10A
BORSA2051	Soft carrying bag
TOPVIEW2006	Windows software for PC + optical/USB cable
	ISO9000 calibration certificate
	User manual on CD-ROM
	Quick user guide

Optional accessories

IMP57	Access. for measuring Loop impedance with high res.
C7000/05	Couple of cables, 5m, with alligator clips
C7000/10	Couple of cables, 10m, with alligator clips
1066-IECN	Connector for cable extension banana 4mm
CN0050	Strap for slinging the device over one's shoulder

ORDER CODE ***HU000740***

F30

STANDARD SCISSORS WITH INTEGRATED CRIMPER

- New design, even more ergonomic
- Non-slip grip
- Blade in reinforced steel
- Universal crimper for crimp terminals between 1 and 6 mm²

ORDER CODE ***HV000697***

F40

PROFESSIONAL SCISSORS WITH INTEGRATED CRIMPER FUNCTION AND CABLE CUTTER 70mm²

- High-quality scissors with rigid case
- Blade in reinforced stainless steel
- Blade width 19mm (0.7")
- Blade thickness 3.5mm (0.1")
- Blade for cutting cables up to 70 mm²
- Crimper function for crimp terminals between 1 and 6 mm², sleeve type
- Long grip for easy cutting

Blade for cutting cables up to 70 mm²

Crimper function for crimp terminals between 1 and 6 mm², sleeve type

ORDER CODE ***HU000741***

F50

STANDARD SCISSORS WITH CABLE CUTTER UP TO 50mm² AND CRIMPER FUNCTION

- New design, even more ergonomic
- Non-slip grip
- Blade in reinforced steel
- Universal crimper for crimp terminals between 1 and 6 mm²
- Cable cutter up to 50 mm²
- Case with safety lock
- Practical hooking system

COMPARISON TABLE **OF ACCESSORIES**

	MACROTEST G3	COMBI G2	COMBI 420	COMBI 419	M75	M74	EQUITEST 5071
TOPVIEW2006 PC Windows software + USB/optical cable *ORDER CODE* ***HA000716***	S	S	0	0	-	-	S
KITTERRNE Set of 4 cables + 4 earth probes *ORDER CODE* ***HA100001***	S	-	-	-	-	-	-
UNIVERSALKITG3 Set of 4 cables + 4 alligator clips + 3 terminals *ORDER CODE* ***HA000203***	S	-	-	-	-	-	-
UNIVERSALKITCOMBI Set of 3 cables + 3 alligator clips + 3 leads *ORDER CODE* ***HA000201***	-	S	S	S	-	-	S
KIT0075 Set of 2 cables + 2 leads + 2 alligator clips *ORDER CODE* ***HA000158***	-	-	-	-	S	S	-
C2033X Cable with 3-terminal Shuko plug *ORDER CODE* ***HA02033X***	S	S	S	S	-	-	S
C2075 Cable with 2 terminals with SHUKO plug *ORDER CODE* ***HA002075***	-	-	-	-	S	S	-
606-IECN Magnetic connectors for voltage measurement *ORDER CODE* ***HA006060***	0	0	0	0	0	0	0
404-IEC# Measuring lead with protection cap diameter 4mm # = colour N (black) - B (blue) - V (green) *ORDER CODE* ***HA40400#***	0	0	0	0	-	-	0
1066-IEC# Connector for extension banana cable 4mm # = colour N (black) - R (red) *ORDER CODE* ***HA10660#***	0	0	0	0	0	0	0
PR400 Remote lead for test activation *ORDER CODE* ***HA000400***	S	0	0	0	-	-	-
PT400 Touch-screen pen *ORDER CODE* ***HA0PT400***	S	S	-	-	-	-	-

S = Standard **0** = Optional *Adapter NOCANBA necessary

› FOLLOWS

	MACROTEST G3	COMBI G2	COMBI 420	COMBI 419	M75	M74	EQUITEST 5071
RCDX10 Accessory for industrial RCDs up to 10A *ORDER CODE* ***HA000801***	0	0	-	-	-	-	-
T2100 Clamp for earth resistance with stakeless testing method *ORDER CODE* ***HP002100***	0	-	-	-	-	-	-
NOCANBA Adapter banana-hypertac for devices series M *ORDER CODE* ***HA00NOCA***	-	-	-	-	0	0	-
HT96U Standard AC clamp 1-100-1000A/1V, diameter 54 mm *ORDER CODE* ***HP00096U***	0	0	0	0	0*	0*	-
HT97U Standard AC clamp 10-100-1000A/1V, diameter 54 mm *ORDER CODE* ***HP000972***	-	-	0	0	0*	0*	-
HT98U Standard DC clamp 1000A/1V, diameter 50 mm *ORDER CODE* ***HP00098U***	-	-	-	-	0*	0*	-
HT4003 Standard 400A AC clamp *ORDER CODE* ***HP004003***	-	-	0	0	S	0	-
HT4004N Standard DC clamp 10-100A, diameter 20mm *ORDER CODE* ***HP04004N***	-	-	-	-	0*	0*	-
HT4005K Standard AC clamp 200A/1V, diameter 40mm *ORDER CODE* ***HP04005K***	0	0	0	0	0*	0*	-
HP30C2 Standard AC clamp 200-2000A/1V, diameter 70 mm *ORDER CODE* ***HP003002***	-	-	0	0	0*	0*	-
HP30C3 Standard 3000A AC clamp, diameter 70mm *ORDER CODE* ***HP003003***	-	-	0	0	0*	0*	-
HP30D1 Standard DC clamp 1000A/1V diameter 83 mm *ORDER CODE* ***HP0030D1***	0	0	-	-	0*	0*	-
IMP57 Accessory for loop impedance measurement with high resolution *ORDER CODE* ***HAIMP001***	0	0	0	0	-	-	0

S = Standard **0** = Optional *Adapter NOCANBA necessary

COMPARISON TABLE **OF ACCESSORIES**

› FOLLOWS

	MACROTEST G3	COMBI G2	COMBI 420	COMBI 419	M75	M74	EQUITEST 5071
HT52/05 Probe for measuring air temperature/humidity *ORDER CODE **HN005205***	0	0	0	-	-	-	-
HT53/05 Probe for illuminance measurement (Lux) *ORDER CODE **HN005305***	0	0	0	-	-	-	-
CH1 - CH2 Remote unit LAN N°1 Remote unit LAN N°2 *ORDER CODE **HA000CH1** ORDER CODE **HA000CH2***	-	-	-	-	S	-	-
YAAMS0000000 Patch cable LAN RJ45 *ORDER CODE **HA000141***	-	-	-	-	S 3 pieces	-	-
REM 3 Remote unit LAN N°3 + Patch cable LAN RJ45 *ORDER CODE **HA000383***	-	-	-	-	0	-	-
REM 4 Remote unit LAN N°4 + Patch cable LAN RJ45 20cm *ORDER CODE **HA000384***	-	-	-	-	0	-	-
REM 5 Remote unit LAN N°5 + Patch cable LAN RJ45 *ORDER CODE **HA000385***	-	-	-	-	0	-	-
REM 6 Remote unit LAN N°6 + Patch cable LAN RJ45 *ORDER CODE **HA000386***	-	-	-	-	0	-	-
REM 7 Remote unit LAN N°7 + Patch cable LAN RJ45 *ORDER CODE **HA000387***	-	-	-	-	0	-	-
REM 8 Remote unit LAN N°8 + Patch cable LAN RJ45 *ORDER CODE **HA000388***	-	-	-	-	0	-	-
REM 38 Set of 6 remote units no. 3, 4, 5, 6, 7, 8. + 6 patch cables LAN RJ45 20cm *ORDER CODE **HA000380***	-	-	-	-	0	-	-

S = Standard **0** = Optional

› FOLLOWS

	MACROTEST G3	COMBI G2	COMBI 420	COMBI 419	M75	M74	EQUITEST 5071
YABAT0003000 Rechargeable batteries NiMH 1.2V type AA, *ORDER CODE **HA030000***	S 6 pieces	0	0	0	0	0	0
YABAT0004001 Battery charger for 6 AA/AAA batteries *ORDER CODE **HA040010***	S	0	0	0	0	0	0
BORSA2051 Soft bag with two big compartments for transporting devices and accessories. *ORDER CODE **HA002051***	S	S	0	0	0	0	S
BORSA75 Bag with three internal compartments, medium size, for transporting devices and accessories. *ORDER CODE **HA750000***	-	-	S	S	S	0	-
BORSA2000 Bag for transporting small to medium-sized devices and accessories *ORDER CODE **HA002000***	-	-	-	-	-	S	-
SP-0400 Set for slinging the instrument over one's shoulder *ORDER CODE **HA000112***	0	0	0	0	-	-	-
CN0050 Set for slinging the instrument over one's shoulder *ORDER CODE **HA000052***	-	-	-	-	-	-	0

S = Standard **0** = Optional

EARTH RESISTANCE AND STEP/CONTACT VOLTAGE TESTERS

COMPARISON TABLE **FUNCTIONS**

MAIN MEASUREMENTS	**MACROTEST G2**	**MACROTEST G1**	**GEO416**	**M71**	**T2000 T2100**	**HT2055**
TRMS	•	•	•	•	•	•
Measuring range	50KΩ	50KΩ	50KΩ	50KΩ	1KΩ	200Ω
Insulation with voltage 50, 100, 250, 500, 1000VDC	•	-	-	-	-	-
Earth resistance by 2- and 3-wire method	•	•	•	•	-	•
Earth resistance with stakeless testing method	•*	•*	-	-	•	-
Ground resistivity by 4-wire method	•	•	•	-	-	•
Compensation of disturbance voltages	•	•	•	•	-	•
Resistance compensation of test cables	•	•	•	•	-	•
Measurement of leakage current on earth systems	-	-	-	-	• T2000	-
Measurement of step/contact voltage	-	-	-	-	-	•
Power ANALYSIS						
Measurement of Voltage, Current, Active, Reactive and Apparent Power	•	•	-	-	-	-
Cosphi and Power Factor	•	•	-	-	-	-
Voltage and current harmonics up to the 25th and THD%	•	•	-	-	-	-
ADDITIONAL CHARACTERISTICS						
Measurement category	CAT III 240V	CAT III 240V	CAT III 240V	CAT III 240V	CAT III 150V	CAT IV 50V
Detection of disturbance currents on measurement	•	•	•	•	-	•
Touchscreen colour display	•	•	-	-	-	-
Backlight	•	•	•	-	•	•
AutoPowerOFF	•	•	•	•	•	•
Help on line on the display	•	•	•	-	-	
Internal memory for measured data saving	•	•	•	-	•	•
Integrated WiFi connection and compatibility with HTANALYSIS App	•	•	-	-	-	-
Optical/USB serial port for PC connection	•	•	•	-	-	• RS-232/USB
Size (LxWxH) (mm)	225x165x75	225x165x75	225x165x75	240x100x45	293x90x66	230x115x103
Weight in kg (batteries included)	1.2	1.2	1.0	0.6	1.3	30.8
Reference standard for safety	IEC / EN61010-1	IEC / EN61010-1	IEC / EN61010-1	IEC / EN61010-1	IEC / EN61010-1	IEC / EN61010-1
Order Code	HV005038	HV005037	HV000416	HV000071	HP002000 (T2000) HP002100 (T2100)	HN002055

*With optional clamp T2100

HTAnalysis™ Cloud CAT III 240V MAX 415V BETWEEN INPUTS

ORDER CODE ***HV005038***

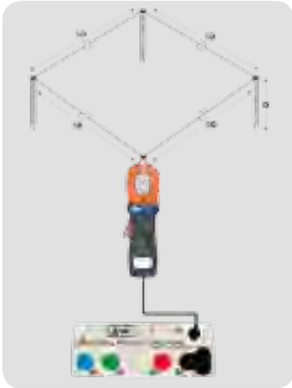
MACROTESTG2

ADVANCED MULTIFUNCTION DEVICE FOR VERIFICATION OF ELECTRIC SAFETY OF DOMESTIC AND INDUSTRIAL ELECTRIC SYSTEMS (IEC/EN61557-1)

- **Earth resistance** by **voltammetric method** with 2 or 3 poles in TT, TN and IT systems, **non-trip earth resistance measurement** and earth resistance with stakeless testing method with **clamp meter** T2100 (optional).
- **Ground resistivity.**
- **Measurement of electric parameters in single-phase** installations (V, I, W, VAR, VA, PF)
- Measurement of **insulation resistance.**
- Measurement of **continuity** of protection conductors.

MacrotestG2 fully takes advantage of the **touch-screen** technology developed for MacrotestG3 and, hence, of all its settings, but its application range is for measuring **insulation resistance** and **earth resistance by voltammetric method**, also with **optional clamp T2100 and, finally, for continuity measurement of protective conductors**. Cutting-edge management of measurement with indication, at the end of each safety test, of compliance or non-compliance with requirements with simple symbols **OK** o **NOT OK**.

Measurement of earth resistance with Clamp T2100.



Example of measurement diagram with T2100.

Measurement result negative

Selection of test voltage and minimum limit value on measurement

Power measurement.

Power measurement: harmonics

Selection of earth measurement type.

Earth resistance measurement result OK.

Use on tablets through the HTAnalysis™ App.

Measurement of earth impedance by voltammetric method

Start/stop measuring with remote lead PR400.

Functions

- Insulation with voltage 50, 100, 250, 500, 1000VDC
- Continuity of protective conductors with 200mA
- Earth resistance by voltammetric method
- Earth resistance with stakeless testing method
- Ground resistivity by 4-wire method
- Measurement with use of remote lead (with optional accessory PR400)
- Measurement of electric parameters (V, I, W, VAR, VA, Wh, cosphi)
- Voltage and Current harmonics analysis and THD% and PF
- Help on line on the display
- Internal memory for measured data saving
- Optical/USB serial port for PC connection
- Integrated WiFi communication interface

Main features

Power supply:	6x1.2V rechargeable batteries type AA NiMH or 6x1.5 type AA alkaline
Battery life:	> 550 test (alkaline)
Display:	Resistive touch screen, colour LCD, resolution 320x240 pxl
Memory:	999 locations, 3 levels of markers
PC interface:	optical/USB and WiFi
Safety:	IEC/EN61010-1, double insulation
Operating humidity:	<80%RH
Operating temperature:	0 ÷ 40°C
Storage humidity:	<80%RH
Storage temperature:	-10 ÷ 60°C
Measurement category:	CAT III 240V, max 415V between inputs
Pollution level:	2
Reference standard:	IEC/EN61557-1-2-3-4-5-6-7
Size (LxWxH):	225x165x75 mm
Weight (batteries included):	1.2 kg

Accessories provided

UNIVERSALKITG3	Set of 4 cables, 4 alligator clips, 3 leads
KITTERRNE	Bag with 4 cables + 4 metal probes
PT400	Touch-screen pen
BORSA2051	Carrying soft bag
YABAT0003000	1.2V NiMH AA rechargeable battery, 6 pieces
YABAT0004001	Battery charger for 6 AA/AAA batteries
TOPVIEW2006	Management software + optical/USB C2006 cable
	Quick user guide and User manual on CD-ROM
	ISO9000 calibration certificate

Optional accessories

T2100	Clamp for measuring the resistance of earth probes
SP-0400	Set for slinging the instrument over one's shoulder
606-IECN	Adapter for leads with magnetic terminal
1066-IECN	Connector for cable extension banana 4mm
PR400	Remote lead for test activation
HT4005K	Clamp AC 200A/1V, diameter 40mm
VA500	Rigid transport case for device + accessories
VA504	Rigid transport case for device with accessories + clamp T2100

WiFi™ HTAnalysis™ HT Cloud™ CAT III 240V MAX 415V BETWEEN INPUTS

ORDER CODE ***HV005037***

MACROTESTG1

ADVANCED MULTIFUNCTION DEVICE FOR VERIFICATION OF ELECTRIC SAFETY OF DOMESTIC AND INDUSTRIAL ELECTRIC SYSTEMS (IEC/EN61557-1)

- **Earth resistance** by **voltammetric method** with 2 or 3 poles in TT, TN and IT systems, **non-trip earth resistance measurement** and earth resistance with stakeless testing method with **clamp meter** T2100 (optional).
- **Ground resistivity.**
- **Measurement of electric parameters in single-phase** installations (V, I, W, VAR, VA, PF)
- Measurement of **continuity** of protection conductors.

MacrotestG1 fully takes advantage of the **touch-screen** technology developed for MacrotestG3 and, hence, of all its settings, but its application range is for **measuring earth resistance by voltammetric method**, also with **optional clamp T2100 and, finally, for continuity measurement of protective conductors**. Cutting-edge management of measurement with indication, at the end of each safety test, of compliance or non-compliance with requirements with simple symbols **OK** o **NOT OK**.

YouTube

Functions and characteristics

- Continuity of protective conductors with 200mA
- Earth resistance by voltammetric method
- Earth resistance with stakeless testing method
- Ground resistivity by 4-wire method
- Measurement with use of remote lead (with optional accessory PR400)
- Measurement of electric parameters (V, I, W, VAR, VA, Wh, cosphi)
- Voltage and Current harmonics analysis and THD% and PF
- Help on line on the display
- Internal memory for measured data saving
- **Power supply: 6x1.2V rechargeable batteries type AA NiMH or 6x1.5 alkaline batteries type AA**
- **Battery life: > 550 test (alkaline)**
- **Display: Resistive touch screen, colour LCD, resolution 320x240 pxl**
- **Memory: 999 locations, 3 levels of markers**
- **PC interface: optical, USB and WiFi**
- **Safety: IEC/EN61010-1, double insulation**
- **Operating humidity: <80%RH**
- **Operating temperature: 0÷40°C**
- **Storage humidity: <80%RH**
- **Storage temperature: -10÷60°C**
- **Measurement category: CAT III 240V, max 415V between inputs**
- **Pollution level: 2**
- **Reference standards: IEC/EN61557-1-2-3-4-5-6-7**
- **Size (LxWxH) and weight (batt. included): 225x165x75mm, 1.2 kg**

Accessories provided

UNIVERSALKITG3	Set of 4 cables, 4 alligator clips, 3 leads
KITTERRNE	Bag with 4 cables + 4 metal probes
PT400	Touch-screen pen
BORSA2051	Soft carrying bag
YABAT0003000	1.2V NiMH AA rechargeable battery, 6 pieces
YABAT0004001	Battery charger for 6 AA/AAA batteries
TOPVIEW2006	Management software + optical/USB C2006 cable
	Quick user guide and User manual on CD-ROM
	ISO9000 calibration certificate

Optional accessories

T2100	Clamp for measuring the resistance of earth probes
SP-0400	Set for slinging the instrument over one's shoulder
606-IECN	Adapter for leads with magnetic terminal
1066-IECN	Connector for cable extension banana 4mm
PR400	Remote lead for test activation
VA500	Rigid transport case for device and accessories
VA504	Rigid transport case for device and clamp T2100

CAT III 265V

ORDER CODE ***HV000416***

GEO416

DEVICE FOR MEASURING EARTH RESISTANCE AND GROUND RESISTIVITY

GEO416 has been developed to measure **earth resistance with 2 wires, 3 wires and 4 wires** by **voltammetric method** and ground resistivity. These values are extremely important while designing earth systems. The 2-wire method, by taking advantage of appropriate external masses as a reference (metal surfaces, tubes, neutral conductor, etc.), is particularly useful in domestic environments where, because of logistic problems, it is not possible to use the 3-wire method.
The device allows carrying out **measurements with a wide measuring range (up to 50kOhm)** with an efficient internal compensation of the disturbance effects found on the installations.
GEO416 is provided with an **internal memory for saving measurements** and with an **optical/USB interface for transferring** measured data onto the PC.

Functions and characteristics

- Earth measurement with 2 and 3 terminals
- Ground resistivity by 4-wire method
- Measuring range: 0.01Ω - 50kΩ
- Compensation of disturbance voltages
- Compensation of test cables
- Context help on the display
- Storage of results
- Interface: optical/USB for PC connection
- **Safety: IEC/EN61010-1**
- **Measurement category: CAT III 265V**
- **Power supply with batteries type AA: 4x1.5V**
- **Size (LxWxH): 222x162x57mm**
- **Weight (batteries included): 1 kg**

Accessories provided

KITTERRNE	Set of 4 cables + 4 metal probes
COC4-UK	Set of 4 alligator clips
BORSA2000	Soft carrying bag
	User Manual
	ISO9000 calibration certificate

Optional accessories

TOPVIEW2006	Windows software for PC + optical/USB cable
1066-IECN	Connector for cable extension 4mm
SP-0400	Set of straps for slinging the instrument over one's shoulder
VA500	Rigid transport case for device and accessories
YABAT0003000	1.2V NiMH AA rechargeable battery, 6 pieces
YABAT0004001	Battery charger for 6 AA/AAA batteries

CAT III 240V

You Tube

ORDER CODE ***HV000071***

M71

DEVICE FOR MEASURING EARTH RESISTANCE

M71 has been developed to measure **earth resistance with 2 wires and 3 wires** by **voltammetric method** in compliance with standard IEC/EN61557-1.
This device allows carrying out measurements with a **wide measuring range (50kΩ)** and an efficient internal automatic compensation of the disturbance effects found on the installations, and it is provided with an **ergonomic design** with electronic function selector for **quickly** carrying out the tests.
The 2-wire method allows carrying out earth measurement by taking advantage of appropriate external masses as a reference (metal surfaces, tubes, neutral conductor, etc.), which is particularly useful in domestic environments where, because of logistic problems, it is not possible to use the 3-wire method.

Functions

- Earth measurement with 2 terminals
- Earth measurement with 3 terminals
- Measuring range: 0.01Ω -50kΩ
- Compensation of disturbance voltages
- Compensation of test cables

Accessories provided

KIT0071	Set of 3 cables + 3 alligator clips + 2 metal probes
SP-6085	Soft carrying bag
	User manual on CD-ROM
	Quick user guide
	ISO9000 calibration certificate

Main features

Power supply:	batteries type AA 4x1.5V
Display:	LCD display
Pollution level:	2
Safety:	IEC/EN61010-1
Measurement category:	CAT III 240V
Size (LxWxH):	240x100x45mm
Weight (batteries included):	630g

Optional accessories

1066-IECN	Connector for cable extension 4mm

CAT III 150V

TRMS

You Tube

ORDER CODE ***HP002000*** | ***HP002100***

T2000 | T2100

CLAMP METERS FOR MEASURING EARTH RESISTANCE WITH STAKELESS TESTING METHOD AND LEAKAGE CURRENT UP TO 20A AC

T2000 e T2100 are professional voltammetric clamps **specially developed to evaluate resistance of earth rods with no need to disconnect any part of the system**. The inner part of the device is made of 2 jaws, one for current reading and the other for voltage generation. The voltage jaws generate a potential (E) on the loop during resistance (R) measurement. A current (I) is consequently generated on the loop and is measured by the current jaws. Based on the value of parameters E and I, the instrument displays the resistance R value calculated as their ratio. The value measured by the device can be used in case the single rods do not influence each other. T2000 also measures **AC current up to 20A** and **leakage current with resolution 0.05mA**.
This devices comply with standard **IEC/EN61010-1** in **CAT III 150V** and they are the ideal solution for measurements to be carried out both in domestic and in industrial environments.

Functions

- Earth resistance with stakeless testing method
- Measurement of leakage current on earth systems ***(only T2000)***
- Setting of alarm thresholds on measurements
- Storage of measurement results
- Detection of disturbance currents on measurement
- Data HOLD, Backlight, Auto Power OFF
- Maximum diameter for clamp 32mm
- Serial interface RS-232 for connection to devices of ***MacrotestG series (only T2100)***

Main features

Power supply:	batteries type AA 4x1.5V
Memory:	99 locations
Display:	LCD 4-digit display + decimal point, backlight
Pollution level:	2
Safety:	IEC/EN61010-1-2-032
Measurement category:	CAT III 150V
Size (LxWxH):	293x90x66mm
Weight (batteries included):	1320g

Technical Specifications

Resistance measurement
- Measuring range Ω: 0.010 ÷ 1000
- Resolution Ω: 0.001 ÷ 20
- Basic accuracy Ω: ± (1%reading + 0.01)

TRMS current measurement *(only T2000)*
- Measuring range: 0.00mA ÷ 20A
- Resolution: 0.05mA ÷ 0.01A
- Basic accuracy: ± (2.5%reading + 1mA)

Accessories provided

	Resistive test loop
	Batteries
	User Manual
	ISO9000 calibration certificate
C2100	Connection cable Hypertac / Jack 3,5mm RS-232 ***(only T2100)***
	Rigid Carrying case

CAT IV 50V

CAT III 300V

ORDER CODE ***HN002055***

HT2055

METER FOR STEP/CONTACT VOLTAGE UP TO 50A

HT2055 consists in a **power unit** and a **voltmetric unit**, necessary for carrying out step and contact voltage measurements in **industrial installations (such as TN systems, transformer cabinets) with a rated test current up to 50A**. The two units, **synchronized** in time and current are capable of providing the correct value of step and contact voltages consistently with the real current values measured by the power unit, also taking into consideration the disturbance effects found on the measured circuit. It is also capable of measuring **earth resistance and ground resistivity by the classical voltammetric method**.
These measurements can be saved in the **internal memory** of the voltmetric unit and downloaded onto the PC through the provided Windows software.

Remote unit

Soft carrying bag
for remote unit and accessories

Cable 10mm² with cable winder
and alligator clip, 50m

Red measuring cable,
50m

Black measuring cable, 3m,
with industrial plugs, 2 pieces

- Measurement of step/contact voltage with separate units
- Synchronization of units for correct measurements
- Test current selectable up to 50A
- LCD display on both units
- Earth resistance measurement
- Compensation function of disturbance effects
- Internal memory for measured data saving
- USB and RS-232 ports for communication between unit and PC

Characteristics

Power unit

- Power supply: 110/230V AC, 50/60Hz
- Output power: 900VA
- Output current: max 55A
- Test frequency: 55Hz
- Voltage measurement: 0.1÷999V
- Resolution: 0.1÷1V
- Basic accuracy: ±2%reading
- Display: LCD 240x128 dots + backlight
- Memory: 2000 locations
- Communication interface: RS-232
- Measurement category: CAT III 300V
- Protection: fuse T 6.3A/250V
- Pollution level: 2
- Mechanical protection: IP40 (closed case)
- Size (LxWxH): 335x335x160mm
- Weight: 28kg

Voltmetric unit

- Voltage measurement: 0.1÷999V
- Resolution: 0.1÷1V
- Resistance measurement: 0.001÷99.99Ω
- Resolution: 0.01Ω
- Basic accuracy: ±2%reading
- Input impedance: Selectable 1kΩ/1MΩ
- Display: LCD 240x128 dots + backlight
- Memory: 2000 locations
- Communication interface: RS-232/USB
- Power supply: 6x1.2V rechargeable batteries type AA
- Pollution level: 2
- Mechanical protection: IP40
- Size (LxWxH): 230x115x103mm
- Weight: 1.3kg

Accessories provided

	Power supply cable of power unit
	Metal plate (200x100mm), 2 pieces
	Current metal probe
	Voltage metal probe
	Cable 10mm² with winder and alligator clip, 50m
	Cable 10mm² with alligator clip, 10m
	Black measuring cable, 3m, with industrial plugs, 2 pcs.
	Green measuring cable, 10m
	Black measuring cable, 1.5m
	Red measuring cable, 50m
	Red connection cable with alligator clip, 1m
5004-IECN	Alligator clip, 4 pieces
	Cable RS-232
C2007	USB cable
	Soft transport bag, 2 pieces
	Strap for slinging the device over one's shoulder
	6 x 1.2V rechargeable batteries NiMH type AA
	External power supply
TERAVIEW	Windows software on CD-ROM
	User manual and ISO9000 calibration certificate

Optional accessories

Metal probe, 1m long
Metal probe, 60cm long

For further information on optional accessories, please contact HT.

COMPARISON TABLE **OF ACCESSORIES**

	MACROTEST G2	MACROTEST G1	GEO416	M71	T2000 T2100	HT2055
TOPVIEW2006 PC Windows software + optical/USB C2006 cable *ORDER CODE **HA000716***	S	S	O	-	-	S TeraView
KITTERRNE Set of 4 cables + 4 metal probes *ORDER CODE **HA100001***	S	S	S	-	-	-
KIT0071 Set of 3 cables + 3 alligator clips + 2 metal probes *ORDER CODE **HA000089***	-	-	-	S	-	-
COC4-UK Set of 4 alligator clips *ORDER CODE **HA0004UK***	O	O	S	-	-	-
UNIVERSALKITG3 Set of 4 cables + 4 alligator clips + 3 terminals *ORDER CODE **HA000203***	S	S	-	-	-	-
HT96U Standard AC clamp 1-100-1000A/1V, diam.54 mm *ORDER CODE **HP00096U***	O	O	-	-	-	-
HT4005K Standard AC clamp 200A/1V, diameter 40mm *ORDER CODE **HP04005K***	O	O	-	-	-	-
T2100 Clamp for earth resistance with stakeless testing method *ORDER CODE **HP002100***	O	O	-	-	-	-
PR400 Lead for remote test starting *ORDER CODE **HA000400***	O	O	-	-	-	-
1066-IEC# Connector for extension banana cable 4mm # = colour N (black) - R (red) › Page 55 ***HA10660#***	O	O	O	O	-	-
YABAT0003000 Rechargeable batt. NiMH 1.2V type AA *ORDER CODE **HA030000***	S 6 pieces	S 6 pieces	O	O	O	S 6 pieces

S = Standard **O** = Optional

	MACROTEST G2	MACROTEST G1	GEO416	M71	T2000 T2100	HT2055
YABAT0004001 Battery charger for 6 AA/AAA batteries *ORDER CODE **HA040010***	S	S	O	O	O	O
PT400 Touch-screen pen *ORDER CODE **HA0PT400***	S	S	-	-	-	-
BORSA2051 Soft Soft carrying bag for device/accessories *ORDER CODE **HA002051***	S	S	O	O	-	-
SP-6085 Soft Soft carrying bag for devices of series M *ORDER CODE **HU000325***	-	-	-	S	-	-
SP-0400 Shoulder strap to use the device with free hands *ORDER CODE **HA000112***	O	O	O	-	-	-
BORSA2000 Soft transport bag for accessories *ORDER CODE **HA000066***	O	O	S	O	-	-
VA504 Rigid transport case for device with accessories + clamp T2100 *ORDER CODE **HA000237***	O	O	-	-	-	-
VA500 Rigid transport case for device + accessories *ORDER CODE **HA050000***	O	O	O	-	-	-
C2100 Connection cable **T2100** / MacrotestGx 1.5 m long *ORDER CODE **HA000244***	-	-	-	-	S T2100	-
606-IECN Magnetic connectors for voltage measurement *ORDER CODE **HA006060***	O	O	-	-	-	-

S = Standard **O** = Optional

COMPARISON TABLE **FUNCTIONS**

MAIN MEASUREMENTS	**HT7052**	**HT7051**	**ISO410**	**M72**	**M70**
TRMS	-	-	-	•	-
Insulation test voltage measuring range	500V ÷ 10kVDC	100V ÷ 5kVDC	50V ÷ 1kVDC*	250 / 500VDC	250 ÷ 1000VDC**
Insulation resistance measuring range	120kΩ ÷ 10TΩ	0.01MΩ ÷ 9.99TΩ	0.01MΩ ÷ 1999MΩ	0.00MΩ ÷ 999MΩ	0.001MΩ ÷ 4000MΩ
DC Dielectric Withstand	•	-	-	-	-
Continuity of protective conductors with 200mA	-	-	•	•	•
ADDITIONAL FUNCTIONS					
Test with programmable ramp	• steps of 25VDC	• steps of 25VDC	-	-	-
Programmable test timer	• 1s ÷ 30min	5s ÷ 100min	• 10s ÷ 16,6min	-	• 2s ÷ 1min
Setting of measurement limit value	•	•	•	-	-
Measurement of polarization index P.I.	•	•	-	-	-
Measurement of dielectric absorption ratio D.A.R.	•	•	-	-	-
Measurement of dielectric discharge ratio D.D.	•	•	-	-	-
Measurement of discharge capacity	•	•	-	-	-
Automatic discharge of the measured object	•	•	•	•	•
Measurement of DC/AC voltage up to 600V	•	•	-	•	•
Measurement of resistance and continuity with buzzer	-	-	-	•	•
Measurement of phase sequence	-	-	-	•	-
ADDITIONAL CHARACTERISTICS					
Measurement category:	CAT IV 600V	CAT IV 600V	CAT III 265V	CAT III 550V	CAT III 550V
Backlight	•	•	•	-	•
Autocalibration of measuring leads	-	-	•	•	•
Guard terminal	•	•	-	-	-
Measurements with remote terminal	-	-	•	-	-
Internal memory for saving results	•	•	•	-	-
Recalling on the display the measured results	•	•	•	-	-
RS232/optical/USB interface for transferring data onto the PC	•	•	•	-	-
Power supply with rechargeable battery from power	•	•	-	-	-
AutoPowerOFF	-	•	•	•	•
Power supply	6x 1.2V NiMH LR20	Rechargeable NiMH	6x 1.5V AA	4x 1.5V AA	4x 1.5V AA
Size in mm (LxWxH)	360 x 330 x 160	360 x 310 x 195	222 x 162 x 57	240 x 100 x 45	240 x 100 x 45
Weight (batteries included):	5.5kg	3.5kg	1kg	450g	450g
Safety	IEC/EN61010-1 IEC/EN61557-2	IEC/EN61010-1 IEC/EN61557-1-2	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1
Order Code	HV007052	HV007051	HV000410	HV000072	HV000070

*Insulation with 50,100, 250, 500, 1000VDC **Insulation with 250, 500, 1000VDC

CAT IV 600V

ORDER CODE ***HV007052***

HT7052

PROFESSIONAL INSULATION METER WITH TEST VOLTAGE UP TO 10KV DC

HT7052 has been developed to measure **insulation resistance** with test voltage **programmable** up to **10kVDC** and **measuring range up to 10TΩ** which makes it very useful in any industrial application (tests on electric machines, power transformers, electric cables, electric boards, generic devices, etc.). The device allows measuring parameters such as **Polarization Index (PI)** and **Dielectric Absorption Ratio (DAR)** and **Dielectric Discharge (DD)**, diagnostic tests which allow determining the quality of an insulating material. It carries out **"ramp"** insulation tests and **dielectric strength test in DC**. HT7052 is supplied with NiMH rechargeable battery with integrated battery charger, which allows for a remarkable duration when carrying out measurements, it is provided with **internal memory** for saving measurements and it is also possible to connect it to the PC to download the measured results. The device has been inserted into a comfortable and resistant transport case, solid and safe for "on-site" use.

Functions and characteristics

- Insulation with test voltage from 500 to 10kVDC in steps of 25VDC
- Measuring range up to 10TΩ
- Timer programmable from 1s to 30min
- Diagnostic tests on materials (PI, DAR, DD)
- Insulation resistance with programmable "ramp"
- Dielectric strength up to 10kVDC
- Measurement of DC/AC voltage up to 600V
- Measurement of capacity of the target
- GUARD terminal for surface current compensation
- Automatic discharge of test object
- **Backlight display**
- **Internal memory for saving results**
- **Recalling on the display the saved results**
- **RS-232 and USB serial interface for transferring data onto the PC**
- **Power supply with rechargeable battery from power**
- **Display: Custom LCD with backlight and bargraph**
- **External power supply: 90-260V AC, 45-65Hz, 70VA**
- **Internal power supply: rechargeable batteries**
- **Duration: 4 hours (test with 10kV)**
- **Internal memory: 1000 locations**
- **PC interface: RS232 and USB**
- **Insulation: double insulation**
- **Pollution level: 2**
- **Mechanical protection: IP53 (closed case)**
- **Measurement category: CAT IV 600V**
- **Size (LxWxH) and weight: 330x360x160mm, 5.5kg**

Accessories provided

	Red terminal, protection 10kV, 2m
	Terminals (red/black), protection 10kV, 2m, 2 pieces
	Terminals (red/black), protection 10kV, 2 pieces
	Green guard terminal
5004-IECV	Green alligator clip
	Power supply cable
	USB cable
	Cable RS-232
	Software "TeraView" on CD-ROM
	6 x 1.2V rechargeable batteries NiMH IEC LR20
	User Manual
	ISO9000 calibration certificate

Optional accessories

For further information on optional accessories, please contact HT.

CAT IV 600V

ORDER CODE ***HV007051***

HT7051

PROFESSIONAL INSULATION METER WITH PROGRAMMABLE TEST VOLTAGE UP TO 5KV

HT7051 has been developed to measure **insulation resistance** with test voltage **programmable up to 5kVDC** and measuring range up to **10TΩ** which makes it very useful in any industrial application (tests on electric machines, power transformers, electric cables, electric boards, generic devices, etc.). The device allows carrying out tests in **FIX** (with fixed test voltages), **ADJUST** (programmable test voltage) and **RAMP** mode (**programmable test voltage and application time with selection of 3 available ramp types**) which define a kind of operation suitable for any situation.
Measurement of parameters such as **Polarization Index (PI)** and **Dielectric Absorption Ratio (DAR)**, are duration tests which allow defining the quality of insulation. HT7051 is supplied with **NiMH rechargeable battery** with integrated battery charger, which allows for a remarkable duration when carrying out measurements, it is provided with **internal memory** for saving measurements and it is also possible to connect it to the PC to download the measured results. The whole structure has been inserted into a comfortable and resistant transport case, solid and safe for "on-site" use.

Functions and characteristics

- Insulation with test voltage from 100V to 5kVDC
- Measuring range up to 10TΩ
- Measurement with fixed test voltages
- 3 test ramps, programmable in time and voltage
- SMOOTH function for steady measurement results
- Measurement of dielectric discharge current
- Measurement of polarization index (P.I.)
- Measurement of dielectric absorption ratio (D.A.R.)
- Measurement of discharge capacity
- DC/AC TRMS voltage up to 600V
- Rechargeable internal NiMH battery
- GUARD terminal
- Automatic discharge of the test object
- **Display: Custom LCD with backlight and bargraph**
- **External supply: power 220-240V, 50/60Hz, 20VA**
- **Internal supply: rechargeable internal NiMH battery**
- **Protection fuse: T 200mA H 250V**
- **Battery life: >1000 tests (@ 5kV on 5MΩ)**
- **AutoPowerOFF: after 5 minutes' idling**
- **Internal memory: 700 locations**
- **Serial interface: RS-232 optically insulated**
- **Safety: IEC/EN61010-1, IEC/EN61557-1**
- **Insulation: double insulation**
- **Pollution level: 2**
- **Mechanical protection: IP53 (closed case)**
- **Measurement category: CAT IV 600 (to earth),**
- **Size (LxWxH) and weight: 360x310x195 mm, approx. 3.5kg**

Accessories provided

KIT14000	Set of 3 cables with alligator clips + 2 cables with leads
C7051	Power supply cable Europlug-Schuko with no earthing
BORSA2000	Transport bag for accessories
TOPVIEW	Windows software for PC + cable RS-232
	ISO9000 calibration certificate
	User Manual

Optional accessories

C2009	RS232-USB adapter

CAT III 265V

ORDER CODE ***HV000410***

ISO410

MULTIFUNCTION DEVICE FOR MEASURING INSULATION AND CONTINUITY OF PROTECTIVE CONDUCTORS

ISO410 has been developed to measure **Insulation up to 1000VDC** and **Continuity of protective and equipotential conductors with 200mA**. This device is **very easy to use** and has an innovative structure with no mechanical commuters, which makes it extremely solid and resistant. It allows activating measurements by means of a **remote switch probe** (optional accessory **PR400**), very comfortable when carrying out measurements in a sequence. The context **help on line**, selectable by the user and active for any function, is a useful aid when connecting the device to the system to be tested.
The **internal memory** allows saving the measurements carried out in order to subsequently **transfer them onto the PC** through the serial connection. Each measurement is saved together with all its sub-results and test parameters, as well as with two identifiers (which can be set by the user) in order to better identify the spot in which measurement was carried out.

Functions and characteristics

- Continuity of protective conductors with 200mA
- Insulation with 50, 100, 250, 500, 1000VDC
- Insulation measuring range 0.01MΩ-2GΩ
- Automatic discharge of measured object
- Autocalibration of measuring leads
- Setting the limit on measurement
- Activation of measurements with optional remote lead PR400
- Context help on the display
- Storage of results
- Optical/USB interface for PC connection
- **Safety: IEC/EN61010-1**
- **Measurement category CAT III 265V**
- **Power supply 6 x 1.5V batt. type AA**
- **Size (LxWxH): 222x162x57mm**
- **Weight (batteries included): 1kg**

Accessories provided

UNIVERSALKITCOMBI	Set of 3 cables + 3 alligator clips + 3 leads
BORSA75	Soft carrying bag
	ISO9000 calibration certificate
	User manual on CD-ROM
	Quick user guide

Optional accessories

TOPVIEW2006	Windows software for PC + optical/USB C2006 cable
VA500	Rigid transport case for device and accessories
PR400	Remote lead for test activation
SP-0400	Set of straps for slinging the instrument over one's shoulder

CAT II 550V

TRMS

ORDER CODE ***HV000072***

M72

COMBINED DEVICE FOR INSULATION MEASUREMENT, CONTINUITY OF PROTECTIVE CONDUCTORS AND MULTIMETER FUNCTION

M72 is mainly dedicated to measuring **Insulation resistance** and **Continuity of protective and equipotential conductors with 200mA** in electric installations, typically domestic. Further to these measurements, M72 has many **additional functions** such as **measurement of phase sequence with 1 terminal**, measurement of **leakage currents** with optional clamp transducer and a powerful **multimeter** function for measuring **voltage and current** in true root mean square value **(TRMS)**.

Functions and characteristics

- Continuity of protective conductors with 200mA
- Insulation with 250,500VDC
- Insulation measuring range 0.01MΩ-2GΩ
- Automatic discharge of measured object
- Autocalibration of measuring leads
- Phase sequence
- DC/AC TRMS voltage
- DC/AC TRMS current
- Resistance and Continuity test
- Data HOLD, MAX/MIN/AVG
- Measurement of voltage and current PEAK
- Measurement of leakage currents (with optional clamp HT96U)
- **Safety: IEC/EN61010-1**
- **Measurement category: CAT III 550V**
- **Power supply: 4 x 1.5V batt. type AA**
- **Size (LxWxH): 240x100x45 mm**
- **Weight (batteries included): 450g**

Accessories provided

KIT0075	Set of 2 cables with leads + 2 alligator clips
BORSA2000	Soft Soft carrying bag
	ISO9000 calibration certificate
	User manual on CD-ROM
	Quick user guide

Optional accessories

HT96U	Standard 1-100-1000A/1V clamp, diameter 54mm
HT4003	Standard 400A AC clamp
HT4004N	Standard 10-100A DC/1V clamp
HT4005N	Standard 5-100A AC/1V clamp
NOCANBA	Adapter for connect. HT96U, HT4004N, HT4005N

CAT III
550V

ORDER CODE ***HV000070***

M70

COMBINED DEVICE FOR MEASURING INSULATION AND CONTINUITY OF PROTECTIVE AND EQUIPOTENTIAL CONDUCTORS

M70 is a mobile device dedicated to measuring **Insulation resistance with test voltage up to 1000VDC** and **Continuity of protective and equipotential conductors with current of 200mA** in domestic and industrial electric installations.
Thanks to the **LOCK function**, insulation measurement can be carried out in a **continuous manner over time**, thus testing the insulation of the target with a **duration test**.
It carries out measurement with a timer, **programmable from 2 to 60s**.

Functions and characteristics

- Insulation with test voltage 250, 500, 1000VDC
- Measuring range up to 4GΩ
- Automatic discharge of measured object
- LOCK function for measurements in a continuous mode
- Insulation with timer programmable from 2 to 60s
- Continuity of protective conductors with 200mA
- Autocalibration of measuring leads
- AC/DC voltage up to 600V
- Resistance and continuity test with buzzer
- Wide display with backlight
- AutoPowerOFF
- **Display with backlight: LCD, 4 digits, 10000 dots**
- **Power supply: 4x1.5V batteries type AA**
- **AutoPowerOFF: after 15 minutes' idling**
- **Safety: IEC/EN61010-1**
- **Measurement category: CAT III 550V**
- **Size (LxWxH): 240x100x45 mm**
- **Weight (batteries included): 450g**

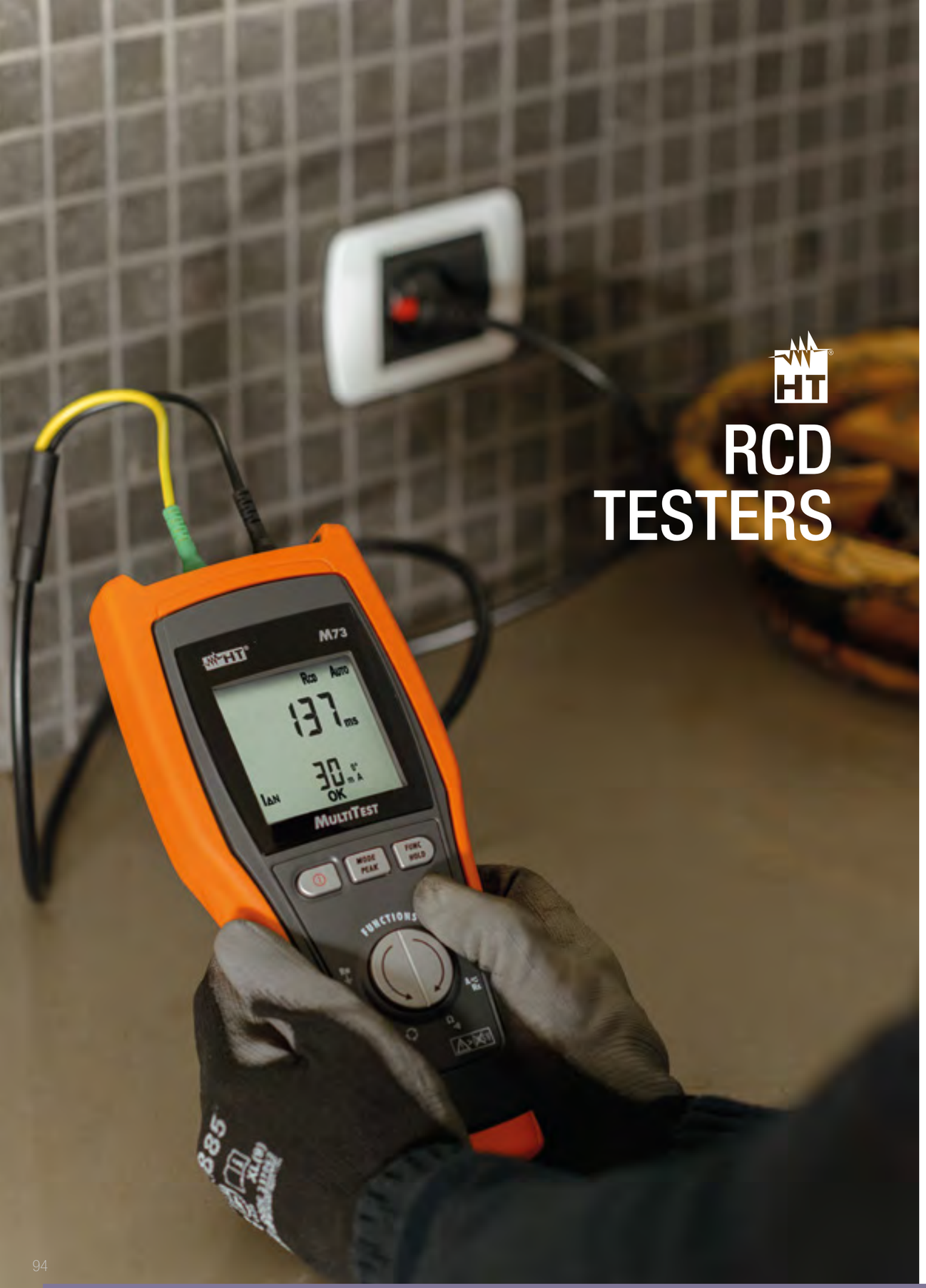
Accessories provided

KIT0070	Set of 2 cables + 2 alligator clips + 1 lead
BORSA2000	Soft carrying bag
	Batteries
	CE declaration of conformity
	User Manual

COMPARISON TABLE
OF ACCESSORIES

	HT7051	ISO410	M72	M70
TOPVIEW / TOPVIEW2006 PC Windows software + cable *ORDER CODE for TOPVIEW* ***HA000715*** *ORDER CODE for TOPVIEW2006* ***HA000716***	**S** TOPVIEW	**0** TOPVIEW2006	-	-
UNIVERSALKITCOMBI Set of 3 cables + 3 alligator clips + 3 leads *ORDER CODE* ***HA000201***	-	**S**	-	-
KIT0070 Set of 2 cables + 2 alligator clips + 1 lead *ORDER CODE* ***HA000164***	-	-	-	**S**
KIT14000 Set of 3 cables with alligator clips + 2 cables with leads *ORDER CODE* ***HA014000***	**S**	-	-	-
KIT0075 Set of 2 leads + 2 black and green alligator clips *ORDER CODE* ***HA000158***	-	-	**S**	-
C2009 RS232-USB adapter *ORDER CODE* ***HA0C2009***	**0**	-	-	-
C7051 Power supply cable Europlug-Schuko with no earthing *ORDER CODE* ***HA007051***	**S**	-	-	-
PR400 Remote lead for test activation *ORDER CODE* ***HA000400***	-	**0**	-	-
HT96U Standard clamp diam. 54mm, 1-100-1000A/1V *ORDER CODE* ***HP00096U***	-	-	**0***	-
HT4003 Standard 400A AC clamp *ORDER CODE* ***HP004003***	-	-	**0***	-
HT4004N Standard AC 5-100A/1V clamp, diameter 20mm *ORDER CODE* ***HP04004N***	-	-	**0***	-
HT4005N Standard AC 200A/1V clamp, diameter 40mm *ORDER CODE* ***HP04005N***	-	-	**0***	-
NOCANBA Adapter for connecting HT96U, HT4004N, HT4005N *ORDER CODE* ***HA00NOCA***	-	-	**0**	-
BORSA75 - BORSA2000 Device and accessories *ORDER CODE for BORSA75* ***HA750000*** *ORDER CODE for BORSA2000* ***HA002000***	**S** BORSA2000	**S** BORSA75	**S** BORSA2000	**S** BORSA2000
SP-0400 Shoulder strap to use the device with free hands *ORDER CODE* ***HA000112***	-	**0**	-	-
YABAT0003000 Rechargeable batteries NiMH 1.2V type AA, *ORDER CODE* ***HA030000***	-	**0**	**0**	**0**
YABAT0004001 Battery charger for 6 AA/AAA batteries *ORDER CODE* ***HA040010***	-	**0**	**0**	**0**

S = Standard **0** = Optional *Adapter NOCANBA necessary



RCD TESTERS

COMPARISON TABLE **FUNCTIONS**

MAIN MEASUREMENTS	**SPEED418**	**M73**
TRMS	•	•
Measuring range of nominal RCD currents	10,30,100,300,500,650,1000mA	30,30x5,100,300mA
Tripping time of type A, AC General and Selective RCDs	•	• A = 30mA AC = 300mA only general
Ramp test for tripping current of RCDs type A, AC General and Selective	•	• A = 30mA AC = 30mA only general
Non-trip earth resistance	•	•
Loop/Line impedance, Phase-Phase, Phase-Neutral, Phase-PE	•	-
Loop/Line impedance Phase-Phase Phase-Neutral, Phase-PE with high resolution (0.1mΩ)	•*	-
Contact voltage	•	•
Leakage current with optional clamp	-	•

ADDITIONAL FUNCTIONS		
DC/AC TRMS voltage and current	-	•
Phase sequence	•	•
Frequency	-	•
Resistance	-	•
Continuity with buzzer	-	•
Data HOLD, MAX/MIN/AVG	-	•
Measurement of voltage and current PEAK	-	•

ADDITIONAL CHARACTERISTICS		
Measurement category	CAT III 265V	CAT III 550V
AUTOMATIC Test	•	-
Test with remote lead	•	-
Help on line on the display	•	-
Internal memory for measured data saving	•	-
Optical/USB serial port for PC connection	•	-
Size (LxWxH) (mm)	222x162x57	240x100x45
Weight (batteries included)	1kg	450g
Reference standard for safety	IEC/EN61010-1	IEC/EN61010-1
Order Code	HV000418	HV000073

*With optional accessory IMP57

CAT III 265V

ORDER CODE ***HV000418***

SPEED418

MULTIFUNCTION DEVICE
FOR NON-TRIP EARTH RESISTANCE
MEASUREMENT AND RCD TESTS

SPEED418 has been specifically developed to measure **Non-trip earth resistance** directly at the outlets to be measured and for **operating tests of RCDs type A, AC General and Selective** with tests both in manual and **automatic** mode in domestic electric installations.
Extremely simple to use, with setting of parameters via scroll-through menu. It has no mechanical commuters and it is therefore more solid in structure.
The device is provided with an **internal memory** for saving measurements and with an optical/USB interface for transferring measured data onto the PC.
At the end of the test, the device shows all results with the indication of compliance or non-compliance with the standards with **simple symbols OK** or **NOT OK**.

Functions and characteristics

- Tripping time of type A, AC General and Selective RCDs with test currents 10,30,100,300,500,650,1000mA
- Tripping current of type A, AC General and Selective RCDs 10,30,100,300,500,650,1000mA
- Non-trip earth resistance
- Line/Loop impedance also with high resolution (0.1mΩ) with optional accessory IMP57
- Prospective short-circuit current
- Phase sequence
- Activation of measurements with (optional remote lead PR400)
- Context help on the display
- Storage of results
- Optical/USB interface for PC connection
- **Safety: IEC/EN61010-1**
- **Measurement category: CAT III 265V**
- **Power supply with batteries type AA: 6x1.5V**
- **Size (LxWxH): 222x162x57mm**
- **Weight (batteries included): 1kg**

Accessories provided

C2033X	3-wire cable with Shuko plug
BORSA75	Soft carrying bag
	ISO9000 calibration certificate
	User manual on CD-ROM and Quick guide for use

Optional accessories

TOPVIEW2006	Windows software for PC + optical/USB cable
UNIVERSALKITCOMBI	Set of 3 cables + 3 alligator clips + 3 leads
IMP57	Accessory for measuring Loop impedance with high resolution
PR400	Remote lead for test activation
SP-0400	Set of straps for slinging the instrument over one's shoulder
VA500	Rigid transport case for device and accessories

CAT III 550V

TRMS

ORDER CODE ***HV000073***

M73

MULTIFUNCTION DEVICE
FOR NON-TRIP EARTH RESISTANCE
MEASUREMENT AND RCD TESTS

M73 has been developed for operators who mainly work on domestic installations.
M73 is very easy to use, it is very small in size and it carries out all necessary tests to establish COMPLIANCE (and hence ensure SAFETY) of a domestic electric system.
By always using it before starting working on an already existing system (which the operator therefore does not know well) and at the end of the job, this device will guarantee the necessary safety to both operators and users of the electric systems!
Thanks to its small size, this device offers many operating opportunities.
M73 is also used to test the safety of electric system; it s therefore capable of measuring **Non-trip earth resistance**, carrying out **tests on RCDs type A and AC and measuring Insulation and Continuity**.
At the end of the test, the device shows all results with the indication of compliance or non-compliance with the standards with **simple symbols OK** or **NOT OK**.

Functions and characteristics

- Tripping time of type A, AC General RCDs with currents 30,30x5,100,300mA
- Tripping current of type A, AC General RCDs with 30mA test current
- Non-trip earth resistance
- Prospective short-circuit current
- Phase sequence
- DC/AC TRMS voltage
- DC/AC TRMS current
- Resistance and Continuity test
- Data HOLD, MAX/MIN/AVG
- Measurement of voltage and current PEAK
- Measurement of leakage currents (with optional clamp HT96U)
- **Safety: IEC/EN61010-1**
- **Measurement category: CAT III 550V**
- **Power supply with batteries type AA: 4x1.5V**
- **Size (LxWxH): 240x100x45mm**
- **Weight (batteries included): 450g**

Accessories provided

KIT0075	Set of 2 cables with leads + 2 alligator clips
C2075	2-wire cable with Shuko plug
BORSA2000	Soft carrying bag
	ISO9000 calibration certificate
	User manual on CD-ROM
	Quick user guide

Optional accessories

HT96U	Standard 1-100-1000A/1V clamp, diameter 54mm
HT4003	Standard 400A AC clamp
HT4004N	Standard 10-100A DC/1V clamp
HT4005N	Standard 5-100A AC/1V clamp
NOCANBA	Adapter for connect. HT96U, HT4004N, HT4005N

COMPARISON TABLE **OF ACCESSORIES**

		SPEED418	M73
	TOPVIEW2006 PC Windows software + USB/optical cable *ORDER CODE* ***HA000716***	0	-
	UNIVERSALKITCOMBI Set of 3 cables + 3 alligator clips + 3 leads *ORDER CODE* ***HA000201***	0	-
	KIT0075 Set of 2 cables with leads + 2 alligator clips *ORDER CODE* ***HA000158***	-	S
	C2075 2-wire cable with Shuko plug *ORDER CODE* ***HA002075***	-	S
	C2033X 3-wire cable with Shuko plug *ORDER CODE* ***HA02033X***	S	-
	IMP57 Accessory for loop impedance measurement with high resolution *ORDER CODE* ***HAIMP001***	0	-
	PR400 Remote lead for test activation *ORDER CODE* ***HA000400***	0	-
	HT96U Standard clamp, diameter 54mm 1-100-1000A/1V *ORDER CODE* ***HP00096U***	-	0*
	HT4003 Standard 400A AC clamp *ORDER CODE* ***HP004003***	-	0
	HT4004N Standard 10-100A DC clamp, diameter 20mm *ORDER CODE* ***HP04004N***	-	0*
	HT4005N Standard AC/1V, 5-100A clamp *ORDER CODE* ***HP04005N***	-	0*
	NOCANBA Adapter for connecting HT96U, HT4004N, HT4005N *ORDER CODE* ***HA00NOCA***	-	0
	BORSA75 - BORSA2000 Device and accessories *ORDER CODE for BORSA75* ***HA750000*** *ORDER CODE for BORSA2000* ***HA002000***	S BORSA2000	S BORSA75
	SP-0400 Shoulder strap to use the device with free hands *ORDER CODE* ***HA000112***	0	-

S = Standard **0** = Optional *Adapter NOCANBA necessary

ELECTRICAL **SWITCHBOARDS AND MACHINE TESTERS**

YouTube Bluetooth™ CAT III 300V SAFETY TESTS CAT II 300V FUNCTIONAL TESTS

ORDER CODE ***HV000003***

FULLTEST3

MULTIFUNCTION DEVICE FOR SAFETY TESTS ON SWITCHBOARDS AND MACHINES ACCORDING TO IEC/EN60204-1:2006 AND IEC/EN61439-1

- **Verification of dielectric strength** with test voltage up to 5100V in compliance with the prescriptions of new standard IEC/EN61439-1
- **Verification of protection against indirect contact** in compliance with the prescriptions of standard IEC/EN 60204-1:2006
  - **Continuity of protective conductors** (test current 200mA ÷ 25A)
  - Verification **of RCD tripping** (RCD AC, A, B) up to 1A
  - Measurement of **Non-trip earth resistance**
  - Verification of coordination of **magneto-thermal protections** (MCB curves B, C, D, K) and fuses (gG, aM)
- **Insulation resistance** with test voltage up to 1000V
- Verification **of residual voltage** on capacitive elements
- Measurement of **leakage current** through the outlet and through optional clamp (HT96U)
- **Functional test** through outlet (power, current)
- **Phase sequence.**

HT offers a cutting-edge device to carry out all measurements required by the new laws as regards tests to be performed on electric switchboards and machines **IEC/EN60204-1:2006** and **IEC/EN61439-1**.
Further to measurements of **protective conductors' continuity**, **insulation** and **dielectric strength**, FULLTEST3 is capable of carrying out **tests on RCDs type A, AC and B, General, Selective and Delayed**, **measurements of Line/Loop impedance** also with high resolution **0.1mΩ** (with optional accessory IMP57), **measurement of non-trip earth resistance and leakage current with clamp transducer**. It can also carry out test on **breaking capacity, protection tripping, I2t tests relevant to magneto-thermal circuit breakers in curve B, C, D, K and fuses type gG and aM**. The device is also provided with a **"touch-screen"** colour display and **3 USB ports** for **connection to PC**, **USB pen drive**, **USB printers** and possible **bar code readers**.

2-wire continuity test

Test on RCDs

4-wire continuity test

Measurement of Loop impedance

Measurement of insulation resistance

Measurement of non-trip earth resistance

Dielectric strength test

Residual voltage measurement

FULLTEST at work

Compact USB printer with rechargeable battery

Soft carrying bag for accessories.

IMP57 (Optional)

HT96U (Optional)

FT3REDLP (Optional)

FT3RMTCT (Optional)

Functions

- Continuity of protective conductors with 200mA
- Continuity of protective conductors with I>10A, V<12V
- Continuity of protective conductors with I>25A, V<12V
- Insulation with test voltages 100, 250, 500, 1000VDC
- Dielectric withstand with voltage programmable from 250V to 5100VAC
- Discharge time/residual voltage on plugs and internal circuits
- Absorbed/leaked current and power at plug of machines
- Tripping time/current of type A, AC, B General and Selective RCDs up to 1000mA
- Contact voltage
- Line/Loop impedance and Ipsc calculation
- Line/Loop impedance with high resolution (with optional accessory IMP57)
- Non-trip earth resistance
- Leakage current (with optional accessory HT96U)
- Phase sequence
- Timer and limit thresholds selectable through programmable ramps

Main features

Power supply:	207V ÷ 253V / 50-60Hz
Protection:	with fuses, at input
Display:	LCD colour "touch-screen" display
Memory:	internal, 999 locations
PC interface:	USB (PC, pen drive, printers, etc.) and Bluetooth™
Mechanical protection:	IP40
Pollution level:	2
Safety:	IEC/EN61010-1
Considered standards:	IEC/EN61557-1-2-3-4-13-14 IEC/EN60204-1:2006 IEC/EN61439-1 IEC/EN60335-1 EN50106
Measurement category:	CAT III 300V (safety test) CAT III 300V (functional test)
Size (LxWxH):	400x300x170mm
Weight:	15 kg

Accessories provided

	Integrated power supply cable
2317-IECIV-200-R	Test cable 2.5mm², 2m, red, 2 pieces
2310-IECIV-200-B	Test cable 0.75mm², 2m, blue
2310-IECIV-200-V	Test cable 0.75mm², 2m, green
2310-IECIV-200-N	Test cable 0.75mm², 2m, black, 2 pieces
C2033X	Cable with 3-terminal Shuko plug
FT3HVPRB1	1 cable banana-alligator clip + 1 cable banana-lead 2m HV
404-IECN	Measuring lead CAT III, 3 pieces
5004-IECN	Alligator clip, 4 pieces
TOPVIEW2007	Windows software + USB cable
FT3BRSN	Soft carrying bag for accessories.
	ISO9000 calibration certificate
	User Manual
	Quick user guide
	User manual on CD-ROM

Optional accessories

IMP57	Accessory for measuring Loop impedance with high resolution
HT96U	Clamp for measuring leakage currents
FT3HVTIP	Cable banana-lead, black HV
FT3KBDEN	USB keyboard
FT3REDLP	Control lamp to warn tests are being carried out with cable length 7 m.
FT3RMTCT	Remote start/stop/save button with cable length 7 m.
FT3SFTSW	Open door detection device for verification room
C2009AD	Cable with adapter for connection to IMP57
FT3MPT2	Thermal printer with 32 columns
FT3BARCR	Bar code reader with USB port

INFRARED CAMERAS

Simply advanced.

Capacitive touch screen extra-bright

Interchangeable optics Optional equipment

Laser pointer

Optical thermal camera in visible range

Integrated Flash LED

Up to 3 independent pointers

Preset selection properties of materials

Multi-areas with independent pointers

Fluid image also on moving targets

384x288
160x120
80x80
32x31
pixel

High resolution for sharp images

P.i.P. fusion Overlapping visual + thermographic image

PC USB 2.0 connection HDMI video output Data saving on MicroSD card

Temperature range –20 → +400 °C

Automatic adjustment of SPAN

0,06 °C

Higher thermal sensitivity

Rechargeable batteries and battery chargers

Recording of IR videos

Recording of comments Audio

Integration Comments Text

Industrial, electric or construction. Excellent in any sector.

The new THT range makes use of a highly innovative technology, more and more reliable over time.
The use of IR technology nowadays applies to many sectors, from industry to construction, from systems to installation. Thanks to the innovative icon display, the wide capacitive touch screen display and the very high infrared resolution with 384x288 pixels and 160x120 pixels (80x80 pixels for THT45), identifying those problems which are not visible to the naked eye becomes simpler and more intuitive.
The new THT thermal cameras are provided with Flash Led*, Laser pointer*, photo-camera for visual images and PiP* and optional interchangeable optics**. With the provided 4GB memory card, with which you will be able to take hundreds of pictures, it will be possible to prepare reports complete with images, audio and text comments. With the new THT thermal cameras, thermographic analysis will be simple and quick.

* THT70, THT60 and THT45. ** Only THT60 and THT70

COMPARISON TABLE **FUNCTIONS**

CHARACTERISTICS OF IR IMAGE	THT70	THT60	THT46	THT45	THT32
IR sensor resolution	384 x 288	160 x 120	160 x 120	80 x 80	32 x 31
Temperature range	-20 ÷ 400°C -4 ÷ 752°F	-20 ÷ 400°C -4 ÷ 752°F	-20 ÷ 350°C -4 ÷ 662°F	-20 ÷ 350°C -4 ÷ 662°F	-20 ÷ 300°C -4 ÷ 572°F
Thermal sensitivity	< 0.06°C @ 30°C	< 0.08°C @ 30°C	< 0.1°C @ 30°C	< 0.1°C @ 30°C	< 0.15°C @ 25°C
NETD	< 60mK	< 80mK	< 100mK	< 100mK	< 150mK
Spectrum range	8 ÷ 14µm	8 ÷ 14µm	8 ÷ 14µm	8 ÷ 14µm	6.5 ÷ 14µm
IFOV (@1m)	1.14mrad	3.33mrad	2.78mrad	3.78mrad	-
Type of IR sensor	UFPA	UFPA	UFPA	UFPA	UPC
Frequency	50Hz	50Hz	50Hz	50Hz	9Hz
CHARACTERISTICS OF IR AND INTEGRATED OPTICS					
Field of view (FOV):	24.6° X 18.6° (provided optics)	29.8° X 22.6° (provided optics)	25° X 19°	17° X 17°	38° X 38°
Focal length of standard lens	22mm	7.5mm	9mm	9mm	-
Focusing of IR optics	Manual	Manual	Manual	Manual	Fixed
Resolution and FOV of integrated camera	640 x 480pxl, FOV 62.3°	640 x 480pxl, FOV 62.3°	1.3Mpxl, FOV 59°	1.3Mpxl, FOV 59°	320 x 240pxl
Interchangeable optics	•	•	-	-	-
FUNCTIONS					
Fusion PiP function for combination of thermal and visual images	•	•	•	•	• (Blending)
3 cursors: Central, Min, Max.	•	•	•	•	•
Advanced analysis: Spots, Lines, Areas on images and Isotherm line function	•	•	-	-	-
Correction according to distance, reflected temperature and relative humidity	•	•	• Only reflected temperature	• Only reflected temperature	• Only reflected temperature
8 standard + 10 custom colour palettes	•	•	• 4 standard, no custom	• 4 standard, no custom	• 5 standard, no custom
Integrated table with emissivity values of common materials	•	•	•	•	-
Alarm thresholds on temperature measurement	•	•	-	-	•
Readings in °C, °F, °K	•	•	•	•	•
Class 2 laser pointer	•	•	•	•	-
Integrated white light illuminator	•	•	•	•	-
Digital zoom	1x ÷ 20x	1x ÷ 20x	1x ÷ 32x	1x ÷ 32x	-
Manual and automatic span	•	•	•	•	Only Auto
Vertical and horizontal lines	•	•	-	-	-

COMPARISON TABLE **FUNCTIONS**

DATA SAVING	THT70	THT60	THT46	THT45	THT32
Standard format of saved images JPEG	•	•	•	•	• (BMP)
Saving of IR videos and audio comments in MPEG4 format	•	•	•	•	-
Voice and text annotation	•	•	-	-	-
ADDITIONAL CHARACTERISTICS					
Capacitive touch-screen colour display	•	•	-	-	-
Power supply with rechargeable battery	•	•	•	•	•
USB interface to PC and THTLink software	•	•	•	•	• (No software)
PAL/NTSC video output	•	•	• HDMI	• HDMI	-
POWER SUPPLY					
Battery type:	rechargeable Li-ION 7,4V 2700mAh	rechargeable Li-ION 7,4V 2700mAh	rechargeable Li-ION 3,7V 2000mAh	rechargeable Li-ION 3,7V 2000mAh	rechargeable Li-ION 3,7V 1400mAh
Recharging system	On thermal camera or external recharging base	On thermal camera or external recharging base	On thermal camera	On thermal camera	On thermal camera
Duration	4.5 hours	4.5 hours	4 hours	4 hours	2 hours
External power supply:	External power supply 100/240VAC (50/60Hz)/12VDC	External power supply 100/240VAC (50/60Hz)/12VDC	External power supply 100/240VAC (50/60Hz)/5VDC	External power supply 100/240VAC (50/60Hz)/5VDC	External power supply 100/240VAC (50/60Hz)/5VDC
GENERAL CHARACTERISTICS					
Operating temperature	-20°C ÷ 50°C	-20°C ÷ 50°C	-15°C ÷ 50°C	-15°C ÷ 50°C	0°C ÷ 50°C
Operating humidity	10% ÷ 90%HR	10% ÷ 90%HR	10% ÷ 90%HR	10% ÷ 90%HR	10% ÷ 90%HR
Storage temperature	-40°C ÷ 70°C	-40°C ÷ 70°C	-40°C ÷ 70°C	-40°C ÷ 70°C	-20°C ÷ 60°C
Storage humidity	10% ÷ 90%HR	10% ÷ 90%HR	10% ÷ 90%HR	10% ÷ 90%HR	10% ÷ 90%HR
Mechanical protection	IP65 in compliance with IEC529	IP65 in compliance with IEC529	IP50 in compliance with IEC529	IP50 in compliance with IEC529	-
Shock	25G, in compliance with IEC60068-2-29	25G, in compliance with IEC60068-2-29	25G, in compliance with IEC60068-2-29	25G, in compliance with IEC60068-2-29	-
Vibrations	2G, in compliance with IEC60068-2-6	2G, in compliance with IEC60068-2-6	2G, in compliance with IEC60068-2-6	2G, in compliance with IEC60068-2-6	-
Falling test	2m	2m	2m	2m	-
Size (L x W x H):	243x103x160mm	243x103x160mm	224x77x96mm	224x77x96mm	205x155x62mm
Weight (battery included):	0.92kg	0.92kg	0.5kg	0.5kg	0.4kg
Order Code	HN000070	HN000600	HN000046	HN000045	HN000032

384 x 288 pixel

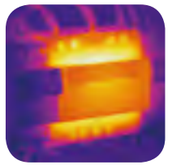
YouTube

ORDER CODE ***HN000070***

THT70

ADVANCED TOUCH SCREEN INFRARED CAMERA WITH IR RESOLUTON 384X288PXL

THT70 is a professional thermal camera provided with an IR sensor with **high resolution 384x288pxl** which makes it suitable both for use in **industrial environments** and in the **construction sector**, thus allowing it to be used for **energetic certification tests**. Its peculiarity is its **internal icon structure** with one **capacitive colour touch-screen display with high brightness**. It is possible to save thermal and visual images in standard JPG format in the internal memory or on the appropriate Micro-SD card and **transfer data onto the PC** through the **USB** interface. It can be used to record **IR videos**. THT70 has a **wide temperature range (max. 400°C)** and it is possible to carry out **advanced analyses** including **spots**, **lines**, **areas** and **isotherm lines** on **every image.** The thermal camera is the ideal solution for **detecting electric problems**, **checking mechanical parts**, **analyzing hydraulic systems**, **forced ventilation**, etc. This thermal camera is completed and made particularly performing by the possibility of using **optional interchangeable optics**, the **Flash LED** and the **laser pointer**. In order to make thermographic analyses more immediate, this thermal camera has been provided with the technology **Picture in Picture** (possibility of **overlapping thermographic** and **visual images**), with the **SPAN** function **(creation of a temperature range of interest)** and with the **automatic setting of emissivity** with a **preset table of materials**. Finally, with the **provided software THTLink** it is possible to **analyze IR photos**, **change colour palettes**, prepare advanced reports and much more.



Functions and characteristics

Characteristics of IR image
- IR sensor resolution 384x288pxl / 25µm
- Temperature range from -20°C to 400°C
- Thermal sensitivity < 0,06° @ 30°C
- NETD: < 60mK
- Spectrum range 8÷14µm
- IFOV (@1m)1.14mrad
- Type of sensor IR UFPA
- Frequency 50Hz

Characteristics of IR and integrated optics
- Field of view (FOV) 24.6° x 18.6° (lens 22mm)
- Focal length of standard lens 22mm
- Manual focusing of IR optics
- Integrated photo-camera resolution 640x480pxl

Functions
- Fusion PiP function for combination of thermal and visual images
- 3 cursors: Central, Min, Max.
- Advanced analysis: Spots, Lines, Areas on images and Isotherm line function
- Correction according to distance, reflected temperature and relative humidity
- 8 standard + 10 custom colour palettes
- Integrated table with emissivity values of common materials
- Alarm thresholds on temperature measurement
- Readings in °C, °F, °K
- Class 2 laser pointer
- Integrated white light illuminator

Data saving
- Standard format of saved images JPEG
- Saving of IR videos in MPEG4 format
- Voice and text annotation

Additional characteristics
- Capacitive touch-screen colour display
- Power supply with rechargeable battery
- USB interface to PC
- PAL/NTSC video output

Accessories provided

	Optics 22mm f/1.0
	Micro SD Card 4GB
BAT7X	Rechargeable Li-ION battery (2x)
	USB cable for PC connection
	Video cable
A007X	AC/DC power supply + universal plugs
	Headset with microphone
	User manual on CD-ROM + Quick guide for use
VA6070	Rigid Carrying case
	Recharging base
TRIPO7X	Adapter for tripod
SSHIELD7X	Sun screen
THTLink	Windows software
	ISO9000 calibration certificate

Optional accessories

RL-11-70	Optional optics 11mm
RL-38-70	Optional optics 38mm

160 x 120 pixel

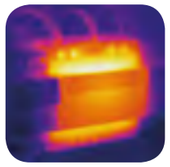
YouTube

ORDER CODE ***HN000600***

THT60

ADVANCED TOUCH SCREEN INFRARED CAMERA WITH IR RESOLUTON 160X120PXL

THT60 is a professional thermal camera provided with an IR sensor with **high resolution 160x120pxl** which makes it suitable both for use in **industrial environments** and in the **construction sector**, thus allowing it to be used for **energetic certification tests**. Its peculiarity is its **internal icon structure** with one **capacitive colour touch-screen display with high brightness**. It is possible to save thermal and visual images in standard JPG format in the internal memory or on the appropriate Micro-SD card and **transfer data onto the PC** through the **USB** interface. It can be used to record **IR videos**. THT60 has a **wide temperature range (max. 400°C)** and it is possible to carry out **advanced analyses** including **spots**, **lines**, **areas** and **isotherm lines** on **every image**. The thermal camera is the ideal solution for **detecting electric problems**, **checking mechanical parts**, **analyzing hydraulic systems, forced ventilation**, etc. This thermal camera is completed and made particularly performing by the possibility of using **optional interchangeable optics**, the **Flash LED** and the **laser pointer**. In order to make thermographic analyses more immediate, this thermal camera has been provided with the technology **Picture in Picture** (possibility of **overlapping thermographic** and **visual images**), with the **SPAN** function **(creation of a temperature range of interest)** and with the **automatic setting of emissivity** with a **preset table of materials**. Finally, with the **provided software THTLink** it is possible to **analyze IR photos**, **change colour palettes**, prepare advanced reports and much more.



Functions and characteristics

Characteristics of IR image
- IR sensor resolution 160x120pxl / 25µm
- Temperature range from -20°C to 400°C
- Thermal sensitivity < 0,08° @ 30°C
- NETD: < 80mK
- Spectrum range 8÷14µm
- IFOV (@1m) 3.33mrad
- Type of sensor IR UFPA
- Frequency 50Hz

Characteristics of IR and integrated optics
- Visual range (FOV) 29.8° x 22.6° (lens 7.5mm)
- Focal length of standard lens 7.5mm
- Manual focusing of IR optics
- Integrated photo-camera resolution 640x480pxl

Functions
- Fusion PiP function for combination of thermal and visual images
- 3 cursors: Central, Min, Max.
- Advanced analysis: Spots, Lines, Areas on images and Isotherm line function
- Correction according to distance, reflected temperature and relative humidity
- 8 standard + 10 custom colour palettes
- Integrated table with emissivity values of common materials
- Alarm thresholds on temperature measurement
- Readings in °C, °F, °K
- Class 2 laser pointer
- Integrated white light illuminator

Data saving
- Standard format of saved images JPEG
- Saving of IR videos in MPEG4 format
- Voice and text annotation

Additional characteristics
- Capacitive touch-screen colour display
- Power supply with rechargeable battery
- USB interface to PC
- PAL/NTSC video output

Accessories provided

	Optics 7.5 mm f/1.0
	Micro SD Card 4GB
BAT7X	Rechargeable Li-ION battery (2x)
	USB cable for PC connection and video cable
A007X	AC/DC power supply + universal plugs
	Headset with microphone
	User manual on CD-ROM + Quick guide for use
VA6070	Rigid Carrying case
	Recharging base
TRIPO7X	Adapter for tripod
SSHIELD7X	Sun screen
THTLink	Windows software
	ISO9000 calibration certificate

Optional accessories

RL-11-60	Optional optics 11mm
RL-22-60	Optional optics 22mm
RL-33-60	Optional optics 33mm

160 x 120
80 x 80
pixel

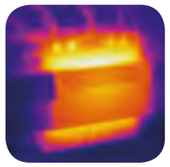
YouTube

ORDER CODE ***HN000046*** | ***HN000045***

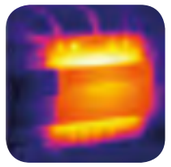
THT46 | THT45

COMPACT INFRARED CAMERAS WITH PiP FUNCTION

THT45 and THT46 are an **absolute innovation** in the field of thermal imaging cameras, due to both the advanced performance, specific to thermal imaging cameras, **and** the **compact design**. **THT45** is equipped with IR sensor with **80x80pxl resolution**, which makes this the ideal instrument for routine **maintenance and analysis**. **THT46** with a resolution of **160x120pxl** boasts an even greater performance that allows obtaining a **better definition** of the infrared image. These instruments feature a **high-brightness color LCD display** and a very simple drop-down menu that enables easy programming via a keypad. The temperature range is very broad **(-20° C to 350° C)**, and you can save both the thermal images and the visual images in standard JPG format to a micro SD card. It is also possible to **transfer data to PC via USB**. **IR video recording** is also available. THT45 and THT46 cameras are the ideal solution for **detecting electrical problems**, **check of mechanical parts**, **analysis of hydraulic systems**, **forced ventilation**, etc. These cameras are completed by the SPAN function **(creation of a temperature range of interest)**, and the **automatic setting of emissivity with a preset table of materials.**



THT46 160x120pxl



THT45 80x80pxl

Functions and features

IR image features
- IR sensor resolution 160x120pxl /25µm ***(THT46)***
  80x80pxl / 34µm ***(THT45)***
- Temperature range -20°C to 350°C
- Thermal sensitivity < 0.1° @ 30°C
- NETD: < 100mK
- Spectral range 8÷14µm
- IFOV (@1m) 2.78mrad ***(THT46)***
  3.78mrad ***(THT45)***
- Sensor type IR UFPA
- Frequency 50Hz

IR and integrated optical system features
- Field of view (FOV) 25° x 19° ***(THT46)*** 17° x 17° ***(THT45)***
- Standard lens focal length 9 mm
- Manual IR optical system focus

Functions
- PiP Fusion function to mix thermal images with visual images
- 3 cursors: Central, Min, Max.
- Reflected temperature correction
- 4 color palettes
- Integrated emissivity table of common materials
- Readout in °C, °F, °K
- Laser pointer Class 2
- Built-in white light lamp

Data saving
- Images saved in standard JPEG format
- Saving IR video and audio in MPEG4 format

Additional features
- Powering with rechargeable battery
- USB port for PC connection
- HDMI output

Supplied accessories

	Micro SD Card 8GB
BAT45N	Rechargeable Li-ION battery
	USB cable for PC connection
	HDMI Video Cable
A0045N	Universal Mini USB adapter + AC/DC plug
	Headset with microphone
	User manual on CD-ROM + quick guide
B45	Soft bag for transport
THTLink	Windows software
	Calibration certificate ISO9000

32 x 31
pixel

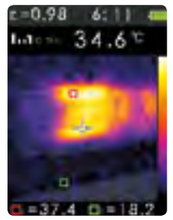
YouTube

ORDER CODE ***HN000032***

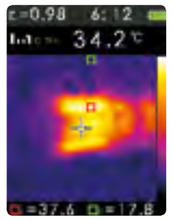
THT32

COMPACT INFRARED CAMERA WITH 32X31PXL IR RESOLUTION AND PIP FUNCTION

THT32 is the entry level **thermal imaging camera** for anyone who wants to enter the world of thermographic inspection for the first time.
The device is extremely simple and features an intuitive menu that allows you to set up measurement solutions till now available only on expensive equipment. For example, **you can read all maximum or minimum temperature values by choosing to display on display either a visual image or an infrared image**. The images can be saved and opened later.
An interesting feature of THT32 is the ability to gradually mix the visual image with the infrared image **(PiP)**. That's why it represents a handy solution for everyone. Last but not least, THT32 is equipped with a **rechargeable battery**, via **Mini USB**, to charge the battery in any condition (Network, PC, Car).



PiP function



Only infrared image

Functions and features

IR image features
- IR sensor resolution: 32x31pxl
- Temperature range: -20°C ÷ 300°C
- Thermal sensitivity: <0.15°C @ 25°C
- NETD: <150mK
- Spectral range: 6.5 ÷ 14µm
- IFOV (@1m):
- IR sensor type: UPC
- Frequency: 9Hz

IR and integrated optical system features
- Field of view (FOV): 38°x 38°
- Standard lens focal length:
- Focus: automatic

Functions
- **Fusion (Blendings) function with adjustable distance**
- 3 cursors: Central, Max, Min
- Object emissivity adjustable from 0.10 to 1.00
- Reflected temperature correction
- 5 color palettes
- Readout in °C, °F
- Automatic read lock (HOLD)

Data saving
- Saved images in BMP format
- Save to micro SD card (max 6000 images)

Additional features
- Powering with rechargeable battery
- USB port

Supplied accessories

Rechargeable Li-ION battery
Battery charger power supply
USB cable
Tripod
Transport bag
Micro SD card 4GB + reader
User manual

COMPARISON TABLE OF ACCESSORIES

	THT70	THT60	THT46	THT45	THT32
THTLink software Software for managing images and preparing reports	S	S	S	S	-
RL-11-60 Additional lens 11mm FOV 20.6° x 15.5° *ORDER CODE* ***HA000245***	-	0	-	-	-
RL-22-60 Additional lens 22mm FOV 10.4° x 7.8° *ORDER CODE* ***HA000246***	-	0	-	-	-
RL-33-60 Additional lens 33mm FOV 6.9° x 5.2° *ORDER CODE* ***HA000247***	-	0	-	-	-
RL-11-70 Additional lens 11mm FOV 47.1° x 36.2° *ORDER CODE* ***HA000248***	0	-	-	-	-
RL-38-70 Additional lens 38mm FOV 14.4° x 10.8° *ORDER CODE* ***HA000249***	0	-	-	-	-
A0045N Battery charger power supply + universal plugs *ORDER CODE* ***HA000211***	-	-	S	S	-
A007X Battery charger power supply + universal plugs *ORDER CODE* ***HA000208***	S	S	-	-	-
SSHIELD7X Rubber screen for protection against sun rays *ORDER CODE* ***HA000205***	S	S	-	-	-
TRIPO7X Support for tripod *ORDER CODE* ***HA000214***	S	S	-	-	-
USB A/MINI USB CABLE Usb cable for PC connection	S	S	S	S	S

S = Standard **0** = Optional

› FOLLOW

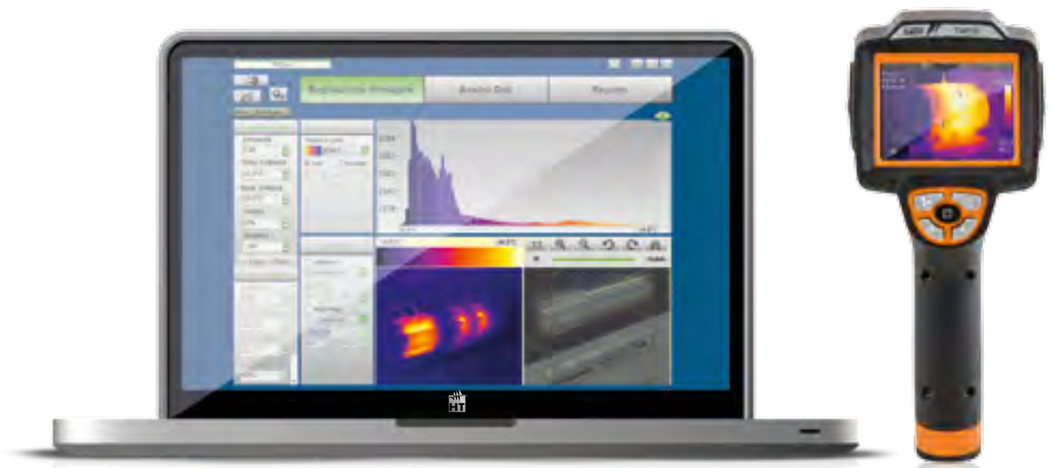
	THT70	THT60	THT46	THT45	THT32
VA6070 Rigid case *ORDER CODE* ***HA000204***	S	S	-	-	-
BRS47 Soft bag *ORDER CODE* ***HA000207***	0	0	-	-	0
B45 Soft bag *ORDER CODE* ***HA000213***	-	-	S	S	-
BAT7X Rechargeable battery *ORDER CODE* ***HA000206***	S 2 pieces	S 2 pieces	-	-	-
BAT45N Rechargeable battery *ORDER CODE* ***HA000212***	-	-	S	S	-

S = Standard **0** = Optional

THTLink. All in one.

- **Detailed** analyses
- **Image** adjustment
- Creation of **professional** reports

Thanks to the new THT Link software, it will be possible to prepare professional and detailed reports in a very simple and quick manner. Adding pointers, creating areas, lines, figures will be immediate. Everything thanks to the new THT Link interface.



COMPARISON TABLE **FUNCTIONS**

	HT157	HT155	HT154
Device category (Class)	Class 1	Class 1	Class 2
Noise measuring range	25 ÷ 140dB	25 ÷ 140dB	30 ÷ 130dB
Noise measurement resolution	0.1 ÷ 0.01dB	0.1dB	0.1dB
Frequency range	10kHz ÷ 20kHz	10kHz ÷ 20kHz	30kHz ÷ 8kHz
Dynamic range	90dB	90dB	50dB
Measurement of sound pressure level (SPL)	•	•	•
Measurement of equivalent noise levels (Leq)	•	•	-
Frequency weighting	A/C/Z	A/C/Z	A/C
Integration over time	Fast/Slow/Impulse	Fast/Slow/Impulse	Fast/Slow
Integration with programmable period	•	•	-
Peak measurements (Peak-, Peak+)	•	•	-
Display of MAX/MIN values of SPL	•	•	•
Statistic analysis of noise with “A” weighting	•	•	-
SPL analysis in 24H	•	•	-
Spectrum analysis with octave-band filter (1/1)	• 19Hz ÷ 16kHz	-	-
Spectrum analysis with 1/3 octave-band filter	•	-	-
Mobile calibrator provided	• Class 1	• Class 1	• Class 2
Manual calibration with trimmer	•	•	•
Precise calibration with internal procedure	•	•	-
Pre-polarized “1/2” condenser microphone	•	•	•
AC and DC analogue outputs with 3.5mm jack	• Only AC	• Only AC	•
Internal memory for data saving	128	128	-
Recalling of results on the display	•	•	-
Mini-USB interface for PC connection	•	•	-
Transfer of saved data onto USB Pen Drive	•	•	-
Windows software for saved data analysis	•	•	-
Display	LCD 240 x 160	LCD 240 x 160	LCD 3½ digits
Display backlight	•	•	-
Power supply	4x 1.5V AA	4x 1.5V AA	1x 9V
Provided external power supply	•	•	-
Reference standards	IEC61672 Class 2 IEC61620 Class 2	IEC61672 Class 1	IEC61672 Class 2
Size (LxWxH) (mm)	285x90x39	285x90x39	289x80x32
Weight in grams (batteries included)	500	500	300
Order Code	HN000157	HN000155	HN000154

ORDER CODE ***HN000154***

HT154

PROFESSIONAL SOUND LEVEL METER TYPE 2

HT154 is a professional digital precision sound level meter, the ideal solution to carry out common inspection checks on **environmental noise**, verification of **soundproofing levels**, **acoustic pollution**, etc.
The use of the device is extremely easy and immediate thanks to the wide **LCD display** and the management of operations through **only 5 buttons**.
Sound level meter HT154 is provided with **mobile calibrator** for integrity checks before each operation and it is housed in a **practical carrying case** to transport it together with all accessories necessary for measurements.

ORDER CODE ***HN000155*** | ***HN000157***

HT155|HT157

DIGITAL INTEGRATING SOUND LEVEL METERS TYPE 1

HT157 and HT155 are mobile integrating sound level meters Type 1 **(Class 1)** which can be used to **monitor** the **equivalent level of nose (Leq)**, measure **Peak values**, check **soundproofing levels**, **acoustic pollution**, etc. they are also indicated for **certification according** to the **laws** currently in force as regards **environmental noise measurements** and in **working environments**. These devices have a **wide measuring range (from 25 to 140dB)** and **multiple functions** such as **statistic analysis, 24H analysis, integration of Leq over time** , which are indispensable elements when measuring. These models also allows carrying out **detailed analyses of spectrum components of noise** using integrated **octave-band filters** and **1/3 octave-band filters** (only HT157) and they are provided with an **internal memory** to **save data** and with a **USB interface** for **transferring data to the PC** through **dedicated software** in a Windows environment with **possibility of numerical**, **graphic** and **statistic** display.
Sound level meters are provided with a practical and **resistant case** with a mobile calibrator for preliminary checks before each measurement is carried out.

Functions and characteristics

- Sound level meter category: Type (Class) 2
- Measuring range: 30 ÷ 130dB
- Noise measurement resolution: 0.1dB
- Dynamic range: 50dB
- Measurement of sound pressure level (SPL)
- A and C frequency weighting
- Integration over time: Fast / Slow
- Display of MAX / MIN values of SPL
- 1/2 inch condenser microphone
- Analogue AC and DC outputs (max 1V)
- Manual calibration with trimmer
- Provided mobile calibrator
- **Display: LCD 3½ digits**
- **Power supply: 1x9V batteries type IEC 6F22**
- **Reference standards: IEC 61672 type2**
- **Size (LxWxH): 289x80x32mm**
- **Weight (batteries included): 300g**

Accessories provided

HT150	Mobile calibrator with integrated battery
	Wind protection
	Screwdriver for manual calibration of sound level meter
	Jack for analogue AC/DC outputs
	Rigid Carrying case
	Battery for sound level meter
	User manual for sound level meter
	User manual for mobile calibrator
	4x1.5V alkaline batteries type A LR06
	User Manual

Optional accessories

HT150	Mobile calibrator with integrated battery

Functions and characteristics

	HT155	***HT157***
Sound level meter category	Tipo 1	Tipo 1
Noise measuring range	25÷140dB	25÷140dB
Noise measuring resolution	0.0÷10.1dB	0.0÷10.1dB
Dynamic range	> 90dB	> 90dB
Measurement of sound pressure level (SPL)	•	•
Measurement of equivalent noise levels (Leq)	•	•
Frequency weighting	A / C / Z	A / C / Z
Integration over time	F/S/ Impulse	F/S/ Impulse
Peak measurements (Peak-, Peak+)	•	•
Statistic analysis of noise type "A"	•	•
24H analysis of noise	•	•
Octave-band spectrum analysis	-	•
1/3 octave-band spectrum analysis	-	•
1/2 condenser microphone	•	•
Analogue AC output	•	•
Internal calibration in Class 1	•	•
Provided mobile calibrator	•	•
Internal memory for data saving	(128 groups)	(128 groups)
Interface with USB Pen Drive	•	•
USB interface for PC connection	•	•

Main features

Display:	LCD, dot-matrix (240x160pxl) with backlight
External power supply:	Adapter 100-240VAC/5VDC
Internal power supply:	4x1.5V alkaline batteries type AA LR6
Reference standards:	IEC 61672:2002 type1 IEC 61260:1995 type1 ***(HT157)*** IEC 60804:1985 type1 IEC 60651:1979 type1DLgs 477/91, 195/06
Size:	285x90x3
Weight (batteries included):	500 g

Accessories provided

HT151	Mobile calibrator Class 1
	Power supply 100-240VAC/5VDC with USB output
	Mini-USB/USB cable for PC connection
	USB Pen Drive (TRASCEND JF V30/2GB)
	USB cable for connecting the Pen Drive to the device
	Wind protection 60mm
	Windows software for data transfer
	Transport case
	4x1.5V alkaline batteries type A LR06
	User manual, Calibration certificate of sound level meter and calibrator

THERMOMETERS AND **THERMO-ANEMOMETERS**

COMPARISON TABLE **FUNCTIONS**

MAIN MEASUREMENTS	**HT4000**	**HT300**	**HT3320**	**HT3302**	**HT950N**
Distance / infrared spot ratio	-	-	50:1	12:1	-
Infrared temperature measuring range	-	-	-50 ÷ 1000°C -58°F ÷ 1832°F	-30 ÷ 500°C -22°F ÷ 932°F	-
Temperature measuring range with K-type probe	-	-200 ÷ 1370°C -328 ÷ 2498°F	-200 ÷ 1370°C -328 ÷ 2498°F	-	With probe Pt100 0 ÷ 200°C 32÷ 392°F
Temperature measurement with K-type probes	-	•*	•	-	-
Measurement of volumetric capacity (m3/s) and enthalpy (kW)	•	-	-	-	-
Measurement of air relative humidity in %RH	•	-	•	-	-
Measurement of wind speed in m/s	•	-	-	-	-
Measurement of atmospheric pressure hPa (mbar/mmHg)	•	-	-	-	-
4 inputs with Pt100 DIN with three wires available	-	-	-	-	•
3 outputs with independent relays 5A/250V	-	-	-	-	•
Integrated photo-camera (640x480pxl)	-	-	•	-	-
Image saving in JPG format	-	-	•	-	-
Video saving in 3GP format	-	-	•	-	-
Air temperature/humidity measurement with in-built sensor	•	-	•	-	-
Temperature measurement of dew point and wet bulb	-	-	•	-	-
Datalogger function for temperature measure recording	-	-	•	-	-
ADDITIONAL CHARACTERISTICS					
Emissivity adjustment of target	-	-	•	•	-
Setting of alarm thresholds on measurements	-	-	•	•	-
Continuous measurement	•	•	•	-	•
Class 2 integrated laser pointer	-	-	•	• (Class 3R)	-
Internal memory for measured data saving	-	-	•	-	-
SD Card slot for measure saving	-	-	•	-	-
PC connection through USB cable	-	-	•	-	-
Backlight	•	-	•	•	-
Autorange	•	•	•	•	•
Data HOLD	-	•	•	•	-
MAX/MIN/AVG	-	• Only MAX-MIN	•	•	• Only MAX
Selection of measuring unit	•	• °C \ °F	• °C \ °F	• °C \ °F	- Only °C
DC analogue output	-	-	-	-	-
Automatic compensation of cable resistance Pt100	-	-	-	-	•
Low battery indication	•	•	•	•	-
Auto Power OFF	•	•	•	•	-
Power supply	1x9V	1x9V	Rechargeable battery	3x1,5V AA	AC/DC 24 ÷ 240V 50/60Hz
Size in mm (LxWxH)	130 x 56 x 38	130 x 56 x 38	205 x 155 x 62	185 x 104 x 54	96 x 96 x 110
Weight in grams (batteries included)	160	170	410	380	800
Order Code	HN040000	HA000300	HA000179	HA003302	HA000950

* With optional TK probes (TK101 is provided)

ORDER CODE ***HN040000***

HT4000

MOBILE DIGITAL THERMO-ANEMOMETER

HT4000 is a **multifunction analyzer** of environmental parameters with **single probe** for measuring **air temperature**, **relative air humidity**, **wind speed**, **capacity**, **enthalpic consumption**, **dew point**. Especially indicated for tests on **air conditioning systems**.

Functions

- Measurement of air temperature in °C / °F
- Measurement of volumetric capacity (m3/s) and enthalpy (kW)
- Measurement of air relative humidity in %RH
- Measurement of wind speed in m/s
- AutoPowerOFF

Accessories provided

	Soft carrying bag
TK4000	External probe
	Battery
	User Manual

Main features

Measuring unit	Range	Measuring unit	Range
Wind speed with external probe			
m/s	0.4 ÷ 25	Km/hr (kph)	1.5 ÷ 90
mph	0.9 ÷ 55	Knots (kts)	0.8 ÷ 48
ft/min (fpm)	79 ÷ 4921	Beaufort	1 ÷ 10
Wind speed with external probe			
CMM	0 ÷ 9999	CFM	0 ÷ 9999
Air humidity with internal sensor			
%RH	0 ÷ 100	-	-
Air temperature with internal sensor			
°C	20 ÷ 60	°F	-4 ÷ 140
Atmospheric pressure with internal sensor			
hPa (mbar)	350 ÷ 1100	inHg	10.3 ÷ 32
mmHg	263 ÷ 825	-	-

Power supply: 1x9V battery type IEC6F22

Size (LxWxH):130x56x38mm

Weight (battery included): 160g

ORDER CODE ***HA003302***

HT3302

INFRARED THERMOMETER WITH LASER RETICLE PROJECTION

The model HT3302 is a portable digital thermometer that performs contactless **temperature measurements** on any object extremely fast.
The measurements are carried out with great precision thanks to the **integrated laser pointer** and and an optimal **Distance/ Measurement Spot ratio of 12:1**.
An interesting feature of this instrument is the **indication, projected onto the surface tested, of the exact area to be measured**.
Very often, when using this kind of equipment (i.e. equipped with laser pointer), it is incorrectly considered that the measured area is exactly that indicated by the laser pointer.
HT3302 is extremely easy to use with a **Joystick** that enables quick selection of internal functions.
The auto power off function allows the instrument to preserve the internal battery when the device is not used.

Functions

- Infrared temperature measurement up to 500° C
- Integrated laser pointer
- Laser pointers for instant location of distance/measurement spot
- Automatic read lock (HOLD)
- Auto Power OFF
- Distance/Measurement spot Ratio D:S = 12:1
- Measurements in °C/°F
- Object emissivity adjustable from 0.10 to 1.00
- Backlight LCD
- Built-in white LED lights
- Integrated blue LED lights with UV function
- Measurements of MAX, MIN, MAX-MIN, AVG values
- Upper (HIGH) and lower (LOW) alarm threshold settings
- Joystick for quick selection of internal functions
- Modern ergonomic design

Supplied accessories

Batteries
Transport bag
User manual

Main features

Laser Pointer:	Class 3R (according to EN60825-1:2014)
UV Pointer:	Group 1 (according to IEC62471)
Max operating altitude:	2000m
Safety:	IEC/EN61010-1
Vibrations:	2.5 g in accordance with IEC60068-2-6, 10÷200Hz
Shock:	50 g in accordance with IEC60068-2-27, 11ms
Drop test:	1.2m (4ft)
Display:	5-digit backlight LCD
Power supply:	3x1.5V alkaline battery type AA LR06
Battery life:	approximately 20 hours (laser and backlight on)
Auto Power OFF:	after 5 minutes of inactivity
Dimensions (L x P x H):	185 x 104 x 54mm
Weight (batteries included):	380g

Technical specifications

Infrared temperature measurement

- Reading range °C: -30° ÷ 500°C
- Reading range °F: -22° ÷ 932°F
- Resolution: 0.1 °C - 0.2 °F
- Standard accuracy: ±1.5°C o ±1.5%reading
- Response time: <500ms
- Spectral sensitivity: 8 ÷ 14µm
- D/S ratio: 12:1
- Emissivity range: 0.10 ÷ 1.00

ORDER CODE ***HA000179***

HT3320

PROFESSIONAL INFRARED VIDEO THERMOMETER

HT3320 is a mobile digital **video thermometer** provided with **integrated digital photo-camera** capable of measuring **temperature with no need for contact** with any target object, using their reflected infrared radiation, with a very quick performance of measurements. Measurements are carried out with high precision thanks to the integrated laser pointer and an **optimum Distance / Spot** ratio of **50:1**. The device can **save**in its **internal memory** or on external **micro SD card** JPG images and short **3GP videos** which correspond to the value of the measured IR temperature. It is possible to record temperature values with **programmable time intervals**. Each test result can be **downloaded onto the PC** with no need for any additional software, by simply connecting the device through the provided **USB** cable. Further measurements carried out by the device are **temperature/humidity of air** with internal sensor, **dew point/wet bulb temperature** and temperature with use of **k-type thermocouples**. HT3320 allows setting **MAX** and **MIN** alarm thresholds on the whole measuring range, with the activation of a **buzzer** in case they are exceeded. A comfortable LCD display with backlight makes it easy to read even in critical environments.
The auto power off function allows the device to preserve its internal battery when not in use.

Functions and characteristics

- Infrared temperature measurement from -50° to 1000°C
- Integrated photo-camera (640x480pxl)
- Distance / Spot ratio 50:1
- Saving of images in JPG format and videos in 3GP format.
- Air temperature/humidity measurement with in-built sensor
- Temperature measurement of dew point and wet bulb
- Temperature measurement by means of external K-type probe
- Datalogger function for temperature measure recording
- Internal memory and external SD Card for measure saving
- Emissivity adjustment, double laser pointer, continuous measurement
- Selection between measuring unit °C and °F
- Setting of Hi and Lo alarm thresholds on measurements
- Data HOLD, MAX/MIN/DIF/AVG functions
- PC connection through USB cable
- **Display: 2.2" (320x240pxl), backlight colour LCD display**
- **Power supply: 1x3.7V 1400mAh Li-ION battery**
- **Battery duration: approx. 4 hours in continuous operation**
- **External power supply: 100-240VAC 50/60Hz / 5VDC**
- **Auto Power OFF: programmable 3, 15, 60min, can be disabled**
- **Internal memory: 70MB (50kB/image; video 3.1MB/min)**
- **External memory: micro SD card (max 8GB)**
- **Operating temperature: 0°C to 50°C**
- **Operating and storage humidity: <90%HR**
- **Size (LxWxH): 205x155x62mm**
- **Weight (battery included): 410g**

Technical Specifications

Infrared temperature measurement
- Measuring range °C: -50° ÷ 1000°C
- Measuring range °F: -58° ÷ 1832°F
- Resolution: 0.1°C / 0.1°F
- Basic accuracy: ± (1%reading + 1.0°C), ± (1%reading + 1.8°F)

Temperature measurement with K-type probe
- Measuring range °C: -50 ÷ 1370°C
- Measuring range °F: -58 ÷ 2498°F
- Resolution: 0.1°C / 0.1°F
- Basic accuracy: ± (0.5%reading + 1.5°C), ± (0.5%reading + 2.7°F)

Accessories provided

TK101	K-type wire probe
	Rechargeable Li-ION battery
	Battery charger power supply, USB cable
	Tripod, Transport case and User manual

Optional accessories

For optional accessories, please refer to the table.

ORDER CODE ***HA000300***

HT300

THERMOMETER FOR MEASURING TEMPERATURE WITH K/J-TYPE PROBE

HT300 is a mobile **compact digital thermometer**, the ideal solution for **each temperature measurement with contact**, inside **liquids** or in **air** with use of **K-type or J-type probes** directly connected to the input through a standard connector. This device allows measuring temperature both in **°C** and in **°F**, it is provided with a wide display for easy reading, it is provided with **HOLD** function, **MAX/MIN**, **relative measurement** and can be used in **domestic and** industrial **environments** for many applications.

TK101 (provided)

TK107 (Optional)

TK108 (Optional)

TK109 (Optional)

TK110 (Optional)

TK111 (Optional)

Functions

- Measuring channels at input K/J-type probes
- Autorange
- Selection of temperature measuring unit °C /°F
- MAX/MIN, Data HOLD
- Relative measurement
- Wide custom LCD display, Auto Power OFF
- Low battery indication

Main features

Display:	5-digit LCD, decimal sign and point
Internal power supply:	1 battery 9V NEDA 1604 IEC 6F22 JIS 006P
Auto power OFF:	after 15 minutes' idling
Size:	130x56x38mm
Weight (batteries included):	170g

Accessories provided

TK101	K-type wire probe
	Soft carrying bag, battery and user manual

Technical Specifications

Temperature with K-type probe
- Measuring range °C: -200 ÷ 1370°C
- Measuring range °F: -328 ÷ 2498°F
- Resolution: 0.1°C / 0.1°F
- Basic accuracy: ±(0.05% reading + 0.7 °C), ±(0.05% reading + 1.4 °F)

Temperature with J-type probe
- Measuring range °C: -200 ÷ 1050°C
- Measuring range °F: -328 ÷ 1922°F
- Resolution: 0.1°C / 0.1°F
- Basic accuracy: ±(0.05% reading + 0.7 °C), ±(0.05% reading + 1.4 °F)

Optional accessories

TK107	"K"-type thermocouple for air and gas temperature
TK108	"K"-type thermocouple for internal temperatures of liquids and semi-solid substances
TK109	"K"-type thermocouple for internal temperatures of liquid and solid substances, fruit and food
TK110	"K"-type thermocouple for surface temperatures
TK111	"K"-type thermocouple for temperatures of surfaces with 90° fixed tip

ORDER CODE ***HA000950***

HT950N

TEMPERATURE CONTROL UNIT
MT/BT TRANSFORMERS

The HT950N control unit has been developed for the control of **temperature in internal circuits** with **MT/BT transformers** in **oil** or **air** with the purpose of **preventing breaks** or **overheating**. HT950N, configured as a standard sized board (96x96mm), received up to **4 input signals** coming from the same number of **Pt100 DIN** with 3 wires and measures temperature **up to 200°C**.

Functions

- Temperature measurement ranging from 0°C to 200°C
- 4 inputs with PT100 DIN 4 with three wires available
- 3 outputs with independent relays 5A/250V
- 4 programmable temperature thresholds for alarm activation
- Recording of MAX temperature on each input channel
- Automatic compensation of cable resistance PT100
- Visual indications with red LED display
- Membrane keypad for maximum mechanical protection
- AC/DC power power supply

Accessories provided

Extractable connector for PT100, relay inputs and power supply, 8 pieces
Filter for power supply cable
Fastening hook to board with screws, 2 pieces
User Manual

COMPARISON TABLE **OF ACCESSORIES**

	HT4000	HT3302	HT300	HT3320	HT950N
TK101 **Thermocouple with wire, K-type** Operating temp. - 20 ÷ 250°C *ORDER CODE* ***HA000108***	-	-	S	S	-
TK107 **"K"-type thermocouple for temperatures of air and gas** Operating temp. - 40 ÷ 800°C *ORDER CODE* ***HA110000***	-	-	0	0	-
TK108 **"K"-type thermocouple for internal temperatures of liquids and semi-solid substances** Operating temp. - 40 ÷ 800°C *ORDER CODE* ***HA110001***	-	-	0	0	-
TK109 **"K"-type thermocouple for internal temperatures of liquid substances, solid substances, fruit and food.** Operating temp. - 40 ÷ 800°C *ORDER CODE* ***HA110002***	-	-	0	0	-
TK110 **"K"-type thermocouple for temperatures of surfaces** Operating temp. - 40 ÷ 400°C *ORDER CODE* ***HA110003***	-	-	0	0	-
TK111 **"K"-type thermocouple for temperatures of surfaces with 90° fixed tip** Operating temp. - 40 ÷ 400°C *ORDER CODE* ***HA110004***	-	-	0	0	-

S = Standard **0** = Optional

LAN TESTERS

COMPARISON TABLE **FUNCTIONS**

MAIN MEASUREMENTS	**QUICKLAN6050**	**QUICKLAN6055**
Cable mapping on LAN networks	•	•
Tests on twisted pair cables RJ45 type UTP, STP and FTP	•	•
Verification on COAX cables	•	-
Errors of open pairs	•	•
Errors of short-circuited pairs	•	•
Errors of exchanged pairs	•	•
Errors of inverted pairs	•	•
Errors of split pairs	•	•
Generic errors (MISWIRE)	•	•
Measurement of cable length	•	-
Cable length measuring range	1÷350m	-

ADDITIONAL CHARACTERISTICS		
Display indication of error type	•	•
Test indication **OK** - **NOT OK**	•	•
Remote unit recognition	•	•
Internal memory for measured data saving	•	-
Memory locations	99	-
Recalling and deletion of saved data	•	-
AutoPowerOFF	•	•
Low battery indication	•	•
Power supply	6x 1.5V AAA	1x 9V
Size (LxWxH) (mm)	150x72x35	128x67x39
Weight in grams (batteries included)	215	165
Order Code	HV006050	HV006055

ORDER CODE ***HV006050 | HV006055***

QUICKLAN6050 QUICKLAN6055

WIRE MAPPERS FOR CABLE TESTS IN LOCAL AREA NETWORKS

Mobile devices QUICKLAN6050 and QUICKLAN6055 are capable of detecting and indicating at the display the presence of **incorrect connections** on LAN cables (**crossed**, **reversed**, **split**, **open**, **short-circuited** , pairs, etc.) both of type **UTP** (not screened) and of type **STP** or **FTP** (shielded or failed). Model **HT6050**also allows **measuring cable length** and **saving** the results of the tests in its **internal memory**. Each model is provided with more **remote units** and is capable of recognizing further (optional) ones, in order to create an efficient **localization action on different spots** inside a patch panel, carrying out tests very quickly with the aid of a **single operator**. HT6050 and HT6055 are the ideal solution for any installer who needs simple and efficient devices to carry out preliminary checks and verifications on installations of **LAN** cables with connectors type **RJ45**.

Functions

	HT6050	*HT6055*
Cable mapping on LAN networks	•	•
Checks on twisted pair cables RJ45 type UTP, STP and FTP	•	•
Verification on COAX cables	•	
Errors of open pairs	•	•
Errors of short-circuited pairs	•	•
Errors of exchanged pairs	•	•
Errors of inverted pairs	•	•
Errors of split pairs	•	•
Generic errors (MISWIRE)		•
Display indication of error type	•	•
Indication of test passed/failed	•	•
Remote unit recognition	•(4)	•(8)
Measurement of cable length	•	-
Cable length measuring range	1 ÷ 350m	-
Internal memory for measured data saving	•	-
Memory locations	99	-
Recalling and deletion of saved data	•	-
AutoPowerOFF	•	•
Low battery indication	•	•

Main features

	HT6050	*HT6055*
Input connectors	RJ45, BNC	RJ45
Protection: against voltages	(50V)	(30V)
Power supply (alkaline batteries)	6x1.5V type AAA	1x9V type 6F22
Size (LxWxH):	150x72x35mm	128x672x39mm
Weight (batteries included):	215g	165g

Accessories provided

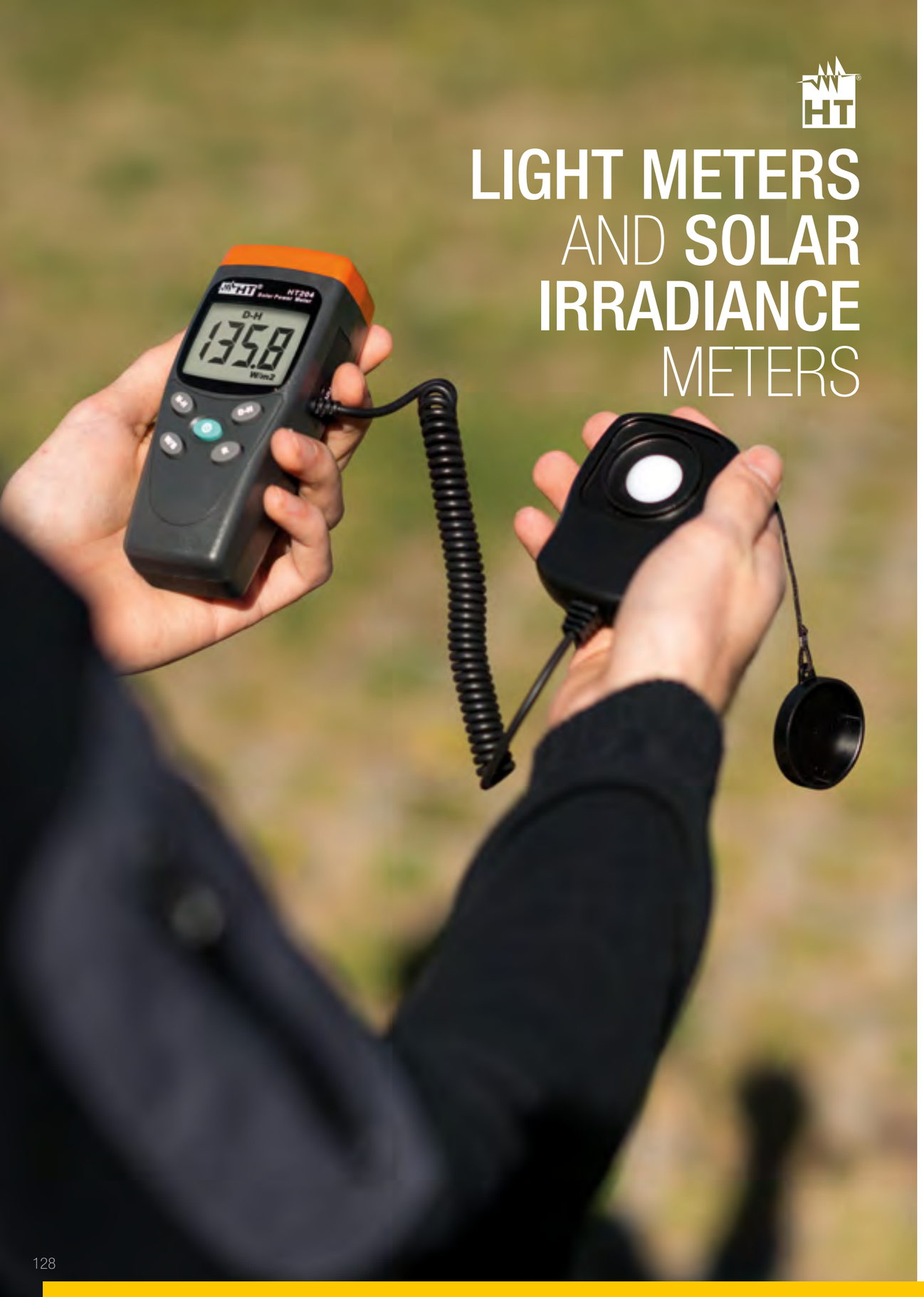
6050MARKER01	Remote unit #1 ***(only HT6050)***
CH1, CH2	Remote unit #1 and #2 ***(only HT6055)***
	2 patch cables FTP RJ45-RJ45, 20cm ***(only HT6050)***
	3 patch cables FTP RJ45-RJ45, 20cm ***(only HT6055)***
	Soft carrying bag
	User Manual
	Batteries

For optional accessories, please refer to the table here to the side.

COMPARISON TABLE **OF ACCESSORIES**

	QUICKLAN6050	QUICKLAN6055
REMOTE UNIT #1 *ORDER CODE 6050* ***HA000389*** *ORDER CODE 6055* ***HA000CH1***	**S** 6050MARKER01	**S** CH1
REMOTE UNIT #2 *ORDER CODE* ***HA000CH2***	-	**S** CH2
YAAMS0000000 Patch cable LAN RJ45 *ORDER CODE* ***HA000141***	**S** 2 pieces	**S** 3 pieces
REM1 Remote unit #1 + patch cable *ORDER CODE* ***HA000381***	-	**0**
REM2 Remote unit #2 + patch cable *ORDER CODE* ***HA000382***	-	**0**
REM3 Remote unit #3 + patch cable *ORDER CODE* ***HA000383***	-	**0**
REM4 Remote unit #4 + patch cable *ORDER CODE* ***HA000384***	-	**0**
REM5 Remote unit #5 + patch cable *ORDER CODE* ***HA000385***	-	**0**
REM6 Remote unit #6 + patch cable *ORDER CODE* ***HA000386***	-	**0**
REM7 Remote unit #7 + patch cable *ORDER CODE* ***HA000387***	-	**0**
REM8 Remote unit #8 + patch cable *ORDER CODE* ***HA000388***	-	**0**
REM38 Set of remote units #3 to #8 + patch cables *ORDER CODE* ***HA000380***	-	**0**
6050MARKER0204 Set of remote units #2, #3, #4 *ORDER CODE* ***HA006050***	**0**	-

S = Standard **0** = Optional



LIGHT METERS AND SOLAR IRRADIANCE METERS

COMPARISON TABLE **FUNCTIONS**

MAIN MEASUREMENTS	**HT309**	**HT307**	**HT204**
Measuring range	0.01÷400klux 0.01÷40kFc	0.01÷200klux 0.01÷20kFc	1÷1999W/m² 1÷634 BTU/(ft2*h)
Measurement of illuminance in Lux/Fc	•	•	-
Measurement of LED sources' illuminance	•	-	-
Luminous intensity measurement (Cd)	•	-	-
Solar irradiation measurement W/m² and BTU/(ft2*h)	-	-	•
ADDITIONAL CHARACTERISTICS			
Internal memory for measured data saving	•	-	-
Zeroing	•	•	•
Manual measuring range	-	-	•
Autorange	•	-	-
Data HOLD	•	•	•
MAX/MIN/AVG	•	• No AVG	• No AVG
Selection of measuring unit	Lux-Fc-Cd	Lux-Fc	W/m² - BTU/(ft2*h)
DC analogue output	-	•	-
Auto Power OFF	•	-	-
Reference standard	Class A JIS C 1609:1993 + CNS 5119	Class A JIS C 1609:1993	-
Power supply	1x 9V	1x 9V	1x 9V
Size (LxWxH) (mm)	130x55x38	172x55x38	130x55x38
Weight (batteries included):	150g	250g	150g
Order Code	HA003090	HA000309	HA000157

ORDER CODE ***HA003090*** | ***HA000309***

HT309|HT307

PORTABLE LIGHT METERS

Models HT307 and HT309 are digital light meters used to **measure illuminance** up to 20kLux (HT307) and 400kLux (HT309) through a silicon photodiode sensor. **Model HT309 also allows** measuring illuminance of **LED sources with various colours** by setting the relevant correction factors, further to measuring luminous intensity (expressed in Candles or Lux).

Functions and characteristics

	HT307	***HT309***
Measuring range of Illuminance (Lux/Fc)	0.01÷200kLux 0.01 ÷ 20kFc	0.01÷400kLux 0.01 ÷ 40kFc
Luminous intensity measurement (Cd)	-	•
Measurement of LED sources' illuminance	-	•
Basic accuracy	±3%reading	±3%reading
Zeroing	Manual with trimmer	Digital
Autorange	-	•
Spectrum response correction	•	•
Data HOLD, MAX/MIN	•	• (also AVG)
Internal memory	-	•
Analogue DC output	•	-
Auto Power OFF	-	•
Reference standard	Classe A JIS C 1609:1993	Classe A JIS C 1609:1993 + CNS 5119

Accessories provided

- Jack for connection to DC analogue output ***(only HT307)***
- Screwdriver for trimmer adjustment ***(only HT307)***
- Soft carrying bag
- Test certification
- Battery
- User Manual

ORDER CODE ***HA000157***

HT204

PORTABLE SOLAR METER

HT204 is a **digital solar irradiance meter** for measurements of **solar irradiation** up to **2000W/m²**, which can be used as an inspection device, typically in **photovoltaic installations**.

Functions and characteristics

- Measuring range: 1÷1999W/m² 1÷634 BTU/(ft2*h)
- Resolution: 1W/m² 1BTU/(ft2*h)
- Accuracy: > between 10 W/m² and 5%reading
  > between 1BTU/(ft2*h) and 5%reading
- Selection of the measuring unit: W/m² and BTU/(ft2*h)
- Zeroing: Manual with trimmer
- Manual change of scale
- Data HOLD / MAX/MIN

Accessories provided

- Transport case
- CE declaration of conformity
- Battery
- User Manual

LASER DISTANCE METERS

COMPARISON TABLE **FUNCTIONS**

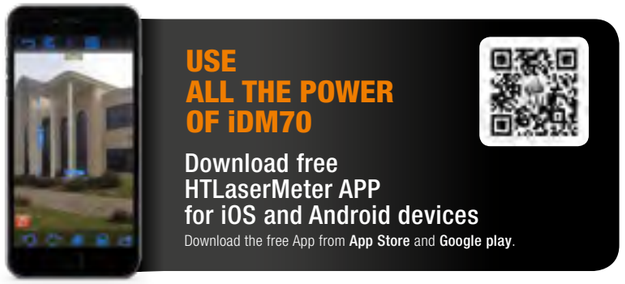
MAIN MEASUREMENTS	**iDM70**	**DM40**
Distance measuring range	0.05 ÷70m	0.05 ÷40m
Measurement of area and volume	•	•
Measurement of heights by indirect method of the Pythagorean theorem.	•	•
Measurement of tilt and distance	•	-
Continuous (dynamic) 2-spot and 3-spot measurements	•	•
Partial operations (additions/subtractions) with internal memory	•	•
ADDITIONAL CHARACTERISTICS		
Connection to iOS/Android devices through HTLaserMeter App	•	-
Activation of the laser pointer for measurement	•	•
Setting of measuring reference	•	•
Setting of timer for measurements	•	-
Selection of measuring unit	m - ft	m - ft
Backlight	•	•
Air bubble level	•	-
Hole for tripod insertion	•	-
Activation of buzzer upon key pressing	•	-
Auto Power OFF	•	•
Activation	2x 1.5V AA	2x 1.5V AAA
Size (LxWxH) (mm)	135x53x30	110x48x28
Weight (batteries included):	160g	135g
Order Code	HA000700	HA004000

ORDER CODE ***HA000700***

iDM70

LASER DISTANCE METER WITH 70M RANGE, INCLINOMETER AND BLUETOOTH INTERFACE FOR CONNECTION TO IOS AND ANDROID DEVICES

Model iDM70 is a professional laser distance meter designed for **measuring distances** between two spots in a simple, quick and efficient manner thanks to the integrated laser pointer. Its **small size** makes it a fully mobile device which can be used in any conditions and for any application (**construction**, **electric**, **do-it-yourself sector**, etc.) in which it is necessary to measure a linear length. This device also allows **calculating areas** and **volumes** and carrying out the **indirect measurement of heights** in **2 spots** and **3 spots** with the use of the **trigonometric method** and the mathematical principle of the **Pythagorean theorem**. The **measurement of the tilt** with respect to the horizontal line, a **timer on measurements** and a **small air bubble level** for a **perfect alignment to the targets** are among the available functions. Management of simple operations with the **internal memory** (sums and subtractions) and the presence of the **backlight function** of the display complete the available functions for the device. The HTLaserMeter App is also available **for free** for **iOS** and **Android** and is capable of **connecting** in **real time** to iDM70 and to carry out **measurements** associated to **pictures** in order to subsequently trace the lines within it.



Functions

- Direct measurement of distance from 0.05m to 70m
- Measurement resolution: 0,001m
- Measurement of area and volume
- Measurement of heights by indirect method of the Pythagorean theorem.
- Measurement of tilt and distance
- Continuous (dynamic) 2-spot and 3-spot measurements
- Activation of the laser pointer for measurements
- Setting of measuring reference
- Setting of timer for measurements
- Selection of the measuring unit in “m” o “ft”
- Partial operations (additions/subtractions) with internal memory
- Connection to iOS/Android devices through Bluetooth
- Air bubble level
- Hole for tripod insertion
- Backlight
- Activation of buzzer upon key pressing
- Auto Power OFF

Main features

Power supply:	2x1.5V alkaline batteries type AA LR06
Duration:	max 8000 measurements
Display:	5-digit LCD display with backlight
Memory:	20 locations + external through App
Interface:	Bluetooth™ compatible with iOS - Android
Mechanical protection:	IP54
Laser pointer:	class 2 according to IEC/EN60825-1
Size (LxWxH):	135x53x30mm
Weight (batteries included):	160 kg

Accessories provided

Soft carrying bag, battery and user manual

User manual HT LaserMeter APP

ORDER CODE ***HA004000***

DM40

COMPACT LASER DISTANCE METER WITH 40M MEASURING RANGE

Model DM40 has been designed for **measuring distances** between two spots in a simple, quick and efficient manner thanks to the integrated laser pointer. Its **small size** makes it a fully mobile device that can be used in any conditions and for any application (**construction**, **electric**, **do-it-yourself sector**, etc.) in which it is necessary to measure a linear length. This device also allows **calculating areas** and **volumes** and carrying out the indirect measurement of heights with the use of the mathematical principle of the **Pythagorean theorem**. Management of simple operations with the **internal memory** (sums and subtractions) and the presence of the backlight function of the display complete the available functions for the device.

Functions

- Direct measurement of distance from 0.05m to 40m
- Measurement resolution: 0,001m
- Measurement of area and volume
- Measurement of heights by indirect method of the Pythagorean theorem.
- Continuous (dynamic) measurements
- Activation of the laser pointer for measurements
- Setting of measuring reference
- Selection of the measuring unit in “m” o “ft”
- Partial operations (additions/subtractions) with internal memory
- Backlight
- Auto Power OFF

Main features

Power supply:	2x1.5V alkaline batteries type AAA LR03
Duration:	max 5000 measurements
Display:	5-digit LCD display with backlight
Memory:	20 locations
Mechanical protection:	IP54
Laser pointer:	class 2 according to IEC/EN60825-1
Size (LxWxH):	110x48x28mm
Weight (batteries included):	135 kg

Accessories provided

Soft carrying bag

Non-slip strap

Batteries

User Manual

PORTABLE WORKING LAMPS

ORDER CODE ***HA000760*** | ***HA000759***

XLITE | MINILITE

MULTIFUNCTION LED LAMPS
WITH BUILT-IN MAGNETS

XLITE and MINILITE are two work lights equipped with **last generation LED bulbs** to ensure a usage time definitely **longer than common halogen lights**. XLITE model is equipped with a **rechargeable battery** and **battery charger** for **cars/power network** to ensure utmost versatility of use in any situation. In addition, both types of lights feature a **powerful magnet** that enables anchoring them to any **metal surface** such as an **electrical panel**.

XLITE Functions

- LED COB Technology
- Built-in rechargeable battery
- Magnet on the back
- Top hook

MINILITE Functions

- High-efficiency LED technology
- Adjustable light beam for the main bulb
- Side LED bulb with 2 modes:
  Steady white light, blink red light
- Magnet on top
- Pocket hook

Supplied accessories

Battery charger 100-240V 50/60Hz (Euro Plug) ***(XLITE)***

Car battery charger ***(XLITE)***

Main features

XLITE	
Lighting range:	11 metres
Output power:	130 Lumen
Power supply:	Rechargeable Li-ION battery 1800mAh 100-240V 50/60Hz battery charger (Euro Plug)
Autonomy	
Dimensions (LxWxH):	320 x 45 x 12mm
Weight:	0.11 Kg
MINILITE	
Lighting range:	30 meters (the main bulb)
Output power:	200 lumens (main bulb)
Power supply:	3x 1.5V AAA
Dimensions (LxW):	125 x 32mm
Weight:	0.147 kg

BURIED CABLE LOCALIZER AND REVOLUTION COUNTER

ORDER CODE ***HN500000***

HT-5000

PROFESSIONAL METAL TUBE
AND BURIED CABLES TRACER

Civil engineering work is accelerated, earth-moving machines are used efficiently and the risk of accidents is minimised thanks to the HT-5000. This unit is especially designed **to know the position and the depth of underground pipes and cables or cabling plans in a very quick and easy way**. The model is composed by a **Transmitter** and a **Receiver** and the principle used is the propagation of a electromagnetic field inside a object crossed by a signal generated with a direct coupling (finding energized or not energized objects with accessible parts) and inductive coupling (signal spread by transmitter by integrated antenna) for finding of not accessible parts (e.g: earthmoving areas). The tracing can be performed also in passive mode by the use of receiver only in order to locate cable or pipes crossed by 50/60Hz electrical current or radiofrequency signals. Both transmitter and receiver are designed with **IP56** (protection by dust and water) for typical external "in field" environment and a wide number of optional accessories are available also for finding of non metal objects. Most of the times that device is used to **locate buried cables** and **iron pipelines**.

Functions

- Inductive pairing with 33kHz signal via antenna
- Direct 33kHz pairing with external accessories
- Selectable transmission power
- Intermittent or continuous signal
- Passive search mode without transmitter
- Automatic depth measurement
- Manual or automatic setting of sensitivity
- Headset socket for noisy environments

Accessories provided

Transmitter TX5000 and receiver RX5000
Set of measuring cables with alligator clips
Metal probe
Batteries for transmitter and receiver, Soft carrying bag and user manual

Optional accessories

820005314	Clamp 100mm diameter for inductive pairing
GOK50-R	Kit of flexible probes for non-metallic objects
890008852	Set of cables (Shuko plug + cable with RJ11 + coax cable)

Main features

Transmitter TX5000	
Transmission power:	0.1W / 0.5W
Signal frequency:	33kHz
Mechanical protection:	IP56 (dust and water)
Power supply:	6x1.5V batteries type IEC LR20
Size (LxWxH):	260 x 140 x 255mm
Weight (batteries included):	1.7 kg
Receiver RX5000	
Frequency range:	15kHz ÷ 23kHz, 50/60Hz (electric power)
Depth range:	0.3m ÷ 7m
Mechanical protection:	IP56 (dust and water)
Power supply:	10x1.5V batteries type AA IEC LR6
Size (LxWxH):	600 x 252 x 99mm
Weight (batteries included):	2.5 kg

ORDER CODE ***HA02234N***

HT2234N

PORTABLE REVOLUTION COUNTER

HT2234N is a **digital revolution counter** for measuring the speed of **rotating mechanical parts** (**discs**, **drive shafts**, etc…) both **with** and **without contact**, making use of a light beam transmitted and reflected by the target.

KITHT2234N Set of rubber spare parts + reflecting band

Functions

- Measurement of speed of rotating parts in RPMs (rev/min) with and without contact
- Events counter
- Laser pointer
- MAX / MIN / HOLD
- AutoPowerOFF

Accessories provided

Mechanical adapter + fastening screw
Rubber protection ring
Rubber terminals in different shapes
Reflecting band
Soft carrying bag
Batteries
User manual

Main features

Meas. range of speed without contact:	10.00 ÷ 99999 rev/min
Meas. range of speed without contact:	20.00 ÷ 29999 rev/min
Resolution:	0.01 ÷ 1rev/min
Accuracy:	±(0.04%reading + 2digits)
Meas. range of events counter:	0 ÷ 99999
Response time:	0.7s (>60 rev/min)
Distance from target:	50 ÷ 300mm
Display:	LCD, 5 digits, 99999 dots
AutoPowerOFF:	after 30min
Power supply:	4x1.5V batteries A
Size (LxWxH):	172x63x36 mm
Weight (batteries included):	approx 190g

Optional accessories

KITHT2234N	Set of rubber spare parts + reflecting band + fastening screw

PROCESS CALIBRATORS

COMPARISON TABLE **FUNCTIONS**

	HT8051	HT8000	HT8100
CALIBRATION MEASUREMENTS			
TRMS	•	•	•
DC 4-20mA current measurement	•	•	•
DC 0-10V voltage measurement	•	•	•
DC 4-20mA current generation	•	•	•
DC 0-10V voltage generation	•	•	-
Measurement of output current of transducers	•	•	•
Simulation of an external transducer	•	•	•
Loop supply with minimum voltage 24V	•	•	•
Generation of selectable ramp	•	•	•
Load of 250Ω for testing HART transducers	-	-	•
MULTIMETER MEASUREMENTS			
AC/DC voltage	• MAX 10VDC	• MAX 10VDC	•
AC+DC voltage	-	-	•
AC/DC current	• MAX 24mADC	• MAX 24mADC	• 1A
AC+DC current	-	-	•
Resistance and buzzer continuity	-	-	•
Frequency	-	-	•
Diode test	-	-	•
ADDITIONAL CHARACTERISTICS			
Protection category	CAT IV 600V	CAT IV 600V	CAT IV 600V
Measuring spots	-	-	50000
Backlight	•	•	•
Autorange	-	-	•
Auto power off	•	•	•
Data HOLD function	-	-	•
MIN/MAX function	-	-	•
AVG function	-	-	•
Relative measurement	-	-	•
Memory for data saving	-	-	•
Activation	1x7.4/8.4V 600mAh Li-ION	1x9V 6F22	4x1.5V AA
Size (LxWxH) (mm)	195x92x55	195x92x55	207x95x52
Weight (batteries included):	400g	400g	630g
Safety	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1
Order Code	HV080510	HR000003	HV008100

ORDER CODE ***HV080510*** | ***HR000003***

HT8051 | HT8000

PROFESSIONAL PROCESS CALIBRATORS

HT8051 and HT8000 are professional process calibrators able to generate and measure DC current and voltage signals up to 10V and 24mA easy, by setting the values, thanks to the innovative setting dial. For current measurement and generation you can also set data to be displayed as a percentage corresponding to the values set **(0% = 4mA, 100% = 20mA)**. Voltage and current signal generation is also possible using up to **3 selectable ramps**. The model also measures the current consumption of external transducers directly powered by the instrument, and simulate the presence of a transducer with adjustable current throughout its reading range. The instruments are designed in accordance with **safety standard IEC/EN61010-1** with double insulated motor and every function can be selected via the dedicated keys on the front panel. The instruments are the perfect solution for typical industrial automation applications and laboratory activities.

Functions

- Generation of voltage signal with amplitude up to 10VDC
- Measurement of voltage up to 10VDC
- Generation of current signal with amplitude up to 24mA DC
- Measurement of current up to 24mA DC
- Generation of voltage and current signals by means of 3 selectable ramps
- High-sensitivity adjustment selector
- Display of current as a percentage (4-20mA)
- Measurement of transducers output current (Loop)
- Simulation of an external transducer
- Shortcut function keys
- Powering with rechargeable Li-ION battery

DC voltage (generated and measured)
- Reading range: 0.01mV ÷ 10V
- Resolution: 0.01mV ÷ 0.001V
- Standard accuracy: ± (0.02% reading + 4digits)
- Protection: 30VDC

DC voltage (generated and measured)
- Reading range: 0.001mA ÷ 24mA
- Percentage: -25% ÷ 125%
- Resolution: 0.001mA
- Standard accuracy: ± (0.02% reading + 4digits)
- Protection: 30mADC

Output voltage and current ramps
- (slow linear ramp): Goes from 0% →100% → 0% in 40s
- (quick linear ramp): Goes from 0% →100% → 0% in 15s
- (step ramp): Goes 0% →100% → 0% through steps of 25% with ramps of 5s

Main features

Display:	5 LCD + secondary display,
Power supply:	1x7.4V rechargeable Li-ION battery ***(HT8051)*** 1x9v alkaline battery IEC 6F22 ***(HT8000)***
External battery charger:	230VAC/50Hz – 12VDC ***(HT8051)***
Autonomy:	about 8 hours in generation (@ 12mA, 500Ω)
Auto Power OFF:	after 20 minutes (adjustable) of non-use
Safety:	IEC/EN61010-1
Insulation:	double insulation
Level of pollution:	2
Measurement category:	CAT I 30V
Dimensions (LxWxH):	195x92x55mm
Weight (battery included):	400g

Supplied accessories

KIT0075	Couple of leads, two crocodile clip terminals
	Protective cover
	Rechargeable battery, External battery charger
	User manual and hard case for transport

CAT IV 600V

CAT III 1000V

TRMS

ORDER CODE ***HV008100***

HT8100

PROFESSIONAL PROCESS
CALIBRATOR/MULTIMETER

Model HT8100 is a professional device which groups measurements such as **TRMS multimeter** and function of **process calibrator** capable of **generating current signals DC 0-20mA** and **4-20mA**. As a digital multimeter, the device mainly carries out **AC/DC voltage** and **AC/DC current measurements**. In its function as a current generator (values can be displayed also in a percentage format) options 0-20mA and 4-20mA are available, with manual and automatic settings of **thresholds on the output signal**. This model also allows measuring the **current absorbed by** external **transducers directly powering them** and **simulating the presence of a transducer with adjustable current** in its whole measuring range. HT8100 is capable of saving the results of measurements in its **internal memory** and has been designed in compliance with **safety standard IEC/EN61010-1** in CAT III 1000V and **CAT IV 600V** with double protective insulation. Each function can be selected through the appropriate buttons found on the front panel. This device is the ideal solution for typical industrial automation applications.

Functions

- DC/AC TRMS voltage and current
- AC+DC measurements
- Automatic recognition of AC/DC signals
- Resistance, continuity test, diode test
- Frequency
- DC current generation up to 20mA DC
- Percentage display (0-20mA, 4-20mA)
- Measurement of output current of transducers (Loop)
- Simulation of an external transducer
- Input protective fuses
- Memory for measured data saving
- MAX/MIN/AVG, Data HOLD
- Relative measurement
- Automatic/Manual Range
- Auto Backlight, Auto Power OFF

Main features

Display:	LCD, 5 digits, 50000 dots
Power supply:	4x1.5V alkaline batteries type AA LR6
Battery life:	120 hours
Auto Power OFF:	after 20 minutes' idling
Safety:	IEC/EN61010-1
Measurement category:	CAT III 1000V, CAT IV 600V
Insulation:	double insulation
Pollution level:	2
Max height:	2000m
Size (LxWxH):	207x95x52mm
Weight (batteries included):	630g

Accessories provided

YAAMK0000HT0	Pair of 4mm test leads
YAAMK0001HT0	Pair of alligator clips
	Belt with magnetic terminal
	Protective case, battery and user manual

Technical Specifications

DC voltage
- Measuring range: 0.001mV ÷ 1000V
- Resolution: 0.001mV ÷ 1.V
- Basic accuracy: ±(0.05%reading + 5 digits)
- Protection: 1000V DC/ACrms

AC TRMS voltage
- Measuring range: 0,001mV ÷ 1000V
- Resolution: 0.001mV ÷ 1.V
- Basic accuracy: ±(0.5%reading + 20 digits)
- Protection: 1000V DC/ACrms

DC current (measured)
- Measuring range: 0.001mA ÷ 1A
- Resolution: 0,001mA
- Basic accuracy: ±(0.05%reading + 5 digits)
- Protection: Fuse F440mA/1000V

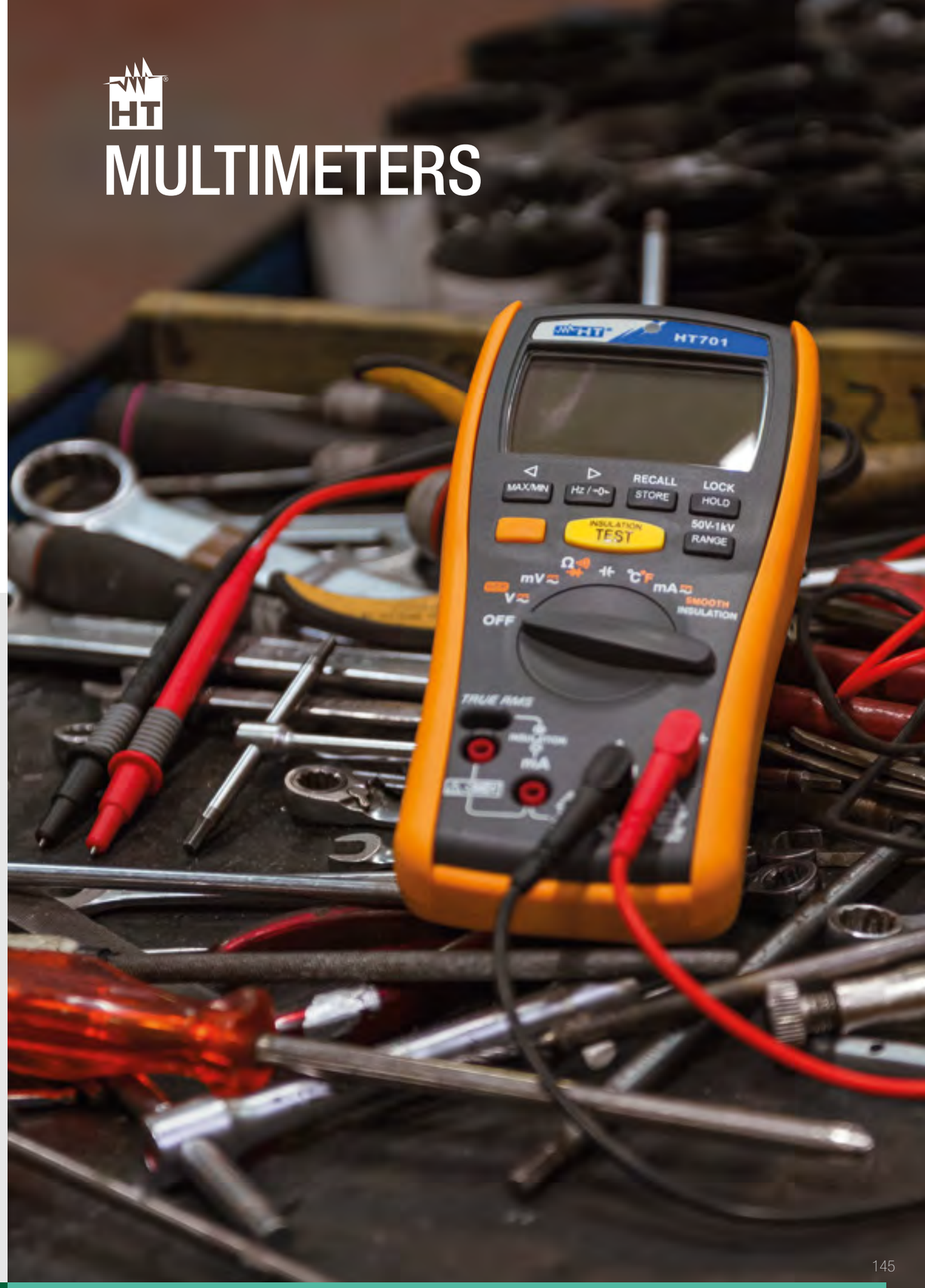
DC current (generated)
- Measuring range: 0.000mA ÷ 20,000mA
- Resolution: 0.001mA
- Basic accuracy: ±0.002mA
- Protection: Fuse F440mA/1000V

AC TRMS current (measured)
- Measuring range: 0,001mA ÷ 1A
- Resolution: 0,001mA
- Basic accuracy: ±(1%reading + 20 digits)
- Protection: Fuse F440mA/1000V

Resistance and Continuity test
- Measuring range: 0.1Ω ÷ 50MΩ
- Resolution: 0.01Ω ÷ 1kΩ
- Basic accuracy: ±(0.2%reading + 10 digits)
- Continuity test:<30Ω
- Protection: 1000V DC/ACrms

Frequency
- Measuring range: 5Hz ÷ 100kHz
- Resolution: 0.01Hz ÷ 10Hz
- Basic accuracy: ±(3 digits)
- Protection: 1000V DC/ACrms

MULTIMETERS



COMPARISON TABLE **FUNCTIONS**

MAIN MEASUREMENTS	HT701	HT401	HT60	HT61	HT62	HT63	HT64	IRON METER	HT12	HT210	HT21	HT25N	HT14D	HT603	HT712	HT710	HT9	HT8	HT6
TRMS	•	•	•	•	•	•	•	•	-	-	-	-	-	-	•	-	-	-	-
AC/DC voltage	•	• AC+DC	•	•	•	•	• AC+DC	•	•	•	•	•	•	•	•	•	•	•	•
AC/DC current	•	• AC+DC	-	•	•	•	•	•	•	-	-	• DC	• DC	-	-	-	-	-	-
Lettura 4-20mA%	-	-	-	-	-	•	•	-	-	-	-	-	-	-	-	-	-	-	-
Frequency	•	•	•	•	•	•	•	•	•	•	•	-	-	•	•	•	-	-	-
Resistance	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-
Continuity with buzzer	•	•	•	•	•	•	•	•	•	•	•	•	-	•	•	•	•	•	•
Capacity	•	•	•	-	•	•	•	•	-	•	•	-	-	•	-	-	-	-	-
Diode test	•	•	•	•	•	•	•	•	-	•	•	•	•	•	-	•	•	•	•
Ciclo di lavoro (Duty Cycle %)	-	-	•	•	•	•	•	•	-	•	•	-	-	•	-	-	-	-	-
Duty Cycle (%)	•	•	•	-	•	•	•	-	-	•	-	-	-	-	-	-	-	-	-
Measurement of insulation up to 1000V	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phase sequence	-	-	-	-	-	-	-	-	-	-	-	-	-	-	• + Concordance	-	•	•	•
Test lamps with internal gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-
Torcia a LED integrata	-	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	•	•	•

ADDITIONAL CHARACTERISTICS

Protection category	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT IV 600V	CAT IV 600V	CAT IV 600V	CAT IV 600V	CAT IV 600V	CAT III 600V	CAT III 300V CAT II 600V	CAT III 600V	CAT III 600V	CAT III 600V	CAT III 300V CAT II 600V	CAT III 300V CAT II 600V	CAT IV 600V	CAT IV 600V	CAT IV 600V CAT III 690V	CAT IV 600V CAT III 690V	CAT IV 600V CAT III 690V
Measuring spots	10000	6000	4000	6000	6000	60.000	6000	4000	3400	4000	4000	2000	2000	5000	4000	4000	6900	6900	Indicazioni a LED
Backlight	•	•	•	•	•	•	•	•	-	•	•	•	-	-	-	-	-	-	-
Bargraph	•	•	-	•	•	•	•	-	•	-	-	-	-	-	-	-	-	-	-
Autorange	•	•	•	•	•	•	•	•	•	•	•	-	-	•	•	•	-	-	-
Auto power off	•	•	•	•	•	•	•	•	•	•	•	-	-	•	•	•	•	•	•
Data HOLD function	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
MIN/MAX/AVG function	•	• MIN/MAX	-	• MIN/MAX	• MIN/MAX	• MIN/MAX	•	• MIN/MAX	-	-	-	-	-	-	-	-	-	-	-
PEAK function	-	•	-	-	-	• (1ms)	• (1ms)	-	-	-	-	-	-	-	-	-	-	-	-
Automatic recognition of AC/DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-	-
Relative measurement	•	-	•	•	•	•	•	-	-	•	•	-	-	•	-	•	-	-	-
Data logger e grafico	-	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-
Memoria per salvataggio dati	•	-	-	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-
Alimentazione	4x 1.5V AA	1x 9V 6F22	1x 9V 6F22	1x 9V 6F22	1x 9V 6F22	4x 1.5V AAA	1x7.4V batteria ricaricabile Li-ION	2x 1.5V AAA	2x 1.5V AAA	1x 9V 6F22	1x 9V 6F22	1x 9V 6F22	1x 12V MS21 / MN21	2x 1.5V LR34	2x 1.5V AAA	2x 1.5V AAA	2x 1.5V AA	2x 1.5V AA	2x 1.5V AA
Size in mm (L x W x H)	207x95x52	190x94x48	175x85x55	175x85x55	175x85x55	175x85x55	175x85x55	120x85x45	128x87x24	138x68x37	138x68x37	150x70x48	105x50x25	112x56x12	250x51x30	250x51x30	255x60x35	255x60x35	255x60x35
Weight in grams	630	460	400	400	400	400	400	200	210	210	210	255	100	115	150	150	170	170	170
Safety	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1
Order Code	HR000701	HR000401	HR000004	HR000001	HR000002	HR000003	HR000010	HR000005	HR000012	HR000210	HR000021	HR00025N	HR00014D	HR000603	HR000712	HR000710	HR000009	HR000008	HR000006

CAT IV 600V

CAT III 1000V

TRMS

ORDER CODE ***HR000701***

HT701

PROFESSIONAL MULTIMETER
FOR INSULATION MEASUREMENT

Professional **TRMS** multimeter with **10.000 measuring spots** and measurement of **insulation resistance** with **selectable test voltage** between **50**, **100**, **250**, **500**, **1000VDC**. HT701 is capable of saving the results of measurements in its **internal memory** and has been designed in compliance with **safety standard IEC/EN61010-1** in CAT III 1000V and **CAT IV 600V** with double protective insulation.

PR701
Remote switch probe for insulation measurements

Functions

- DC/AC TRMS voltage
- DC/AC TRMS current
- Insulation with test voltage up to 1000VDC
- Resistance and Continuity test
- Frequency
- Diode test
- Capacity
- Temperature with K-type probe
- Internal memory for measured data saving
- Data HOLD, MAX/MIN, Relative measurement
- Automatic/Manual Range
- Backlight, Bargraph
- Auto Power OFF

Main features

Display:	LCD, 10000 dots
Power supply:	4x1.5V alkaline batteries type AA LR6
Auto Power OFF:	after 20 minutes' idling
Safety:	IEC/EN61010-1, IEC/EN61557-1-2
Measurement category:	CAT III 1000V, CAT IV 600V
Insulation:	double insulation
Pollution level:	2
Max height:	2000m
Size (LxWxH):	207x95x52mm
Weight (batteries included):	630g

Accessories provided

4413-2	Pair of test leads
YAAMK0001HT0	Pair of alligator clips
PR701	Probe for insulation measurement
TK101	K-type wire probe
T10	Adapter for K-type probes
	Belt with magnetic terminal
	Protective case, battery and user manual
	For optional accessories, please refer to the table.

Technical Specifications

DC voltage
- Measuring range: 0.01mV ÷ 1000V
- Resolution: 0.01mV ÷ 0.1V
- Basic accuracy: ±(0.08%reading + 2 digits)
- Protection: 1000V DC/ACrms

AC TRMS voltage
- Measuring range: 0.01mV ÷ 1000V
- Resolution: 0.01mV ÷ 0.1V
- Basic accuracy: ±(0.9%reading + 3 digits)
- Protection: 1000V DC/ACrms

DC current
- Measuring range: 0.01mA ÷ 400mA
- Resolution: 0.01mA ÷ 0.1A
- Basic accuracy: ±(0.2%reading + 2 digits)
- Protection: Fuse F440mA/1000V

AC TRMS current
- Measuring range: 0.01mA ÷ 400mA
- Resolution: 0.01mA ÷ 0.1mA
- Basic accuracy: ±(1.5%reading + 2 digits)
- Protection: Fuse F440mA/1000V

Resistance and Continuity test
- Measuring range: 0.1Ω ÷ 40MΩ
- Resolution: 0.1Ω ÷ 0.01MΩ
- Basic accuracy: ±(0.5%reading + 2 digits)
- Continuity test:<30Ω
- Protection: 1000V DC/ACrms

Frequency
- Measuring range: 0.01Hz ÷ 100kHz
- Resolution: 0.01Hz ÷ 0.01kHz
- Basic accuracy: ±(0.1%reading + 5 digits)
- Protection: 1000V DC/ACrms

Capacity
- Measuring range: 0.001µF ÷ 40mF
- Resolution: 0.001µF ÷ 0.01mF
- Basic accuracy: ±(1.2%reading + 2 digits)
- Protection: 1000V DC/ACrms

Temperature with K-type probe
- Measuring range: -200°C ÷ 1200°C
- Resolution: 0.1°C
- Basic accuracy: ±(1.0%reading + 1°C)
- Protection: 1000V DC/ACrms

Insulation measurement
- Test voltage: 50,100,250,500,1000VDC
- Measuring range: 2MΩ ÷ 22GΩ
- Resolution: 0.001MΩ ÷ 0.1GΩ
- Basic accuracy: ±(1.5%reading + 5 digits)
- Protection: 600V DC/ACrms

CAT IV 600V

CAT III 1000V

TRMS

LoZ

ORDER CODE ***HR000401***

HT401

PROFESSIONAL MULTIMETER
FOR AC+DC TRMS MEASUREMENT
AND LoZ INPUT

Professional digital multimeter in **TRMS** with **6000 measuring spots** which mainly carries out measurements of **AC/DC voltage** and **AC/DC current**. Among the many functions of the device there are the **AC+DC** mode, used to consider also **continuous components possibly overlapping the alternate signal** and AC voltage measurements in conditions of **low impedance (LoZ) in order to reduce** the **influences** when measuring **between adjacent conductors**.

Functions

- DC/AC TRMS voltage
- DC/AC TRMS current
- AC+DC measurements
- AC voltage measurement with low impedance "LoZ"
- "VoltSense" for AC voltage detection without contact
- Resistance and Continuity test
- Frequency
- Diode test
- Capacity
- Temperature with K-type probe
- Data HOLD, MAX/MIN/PEAK
- Relative measurement
- Automatic/Manual Range
- Backlight, Bargraph
- Auto Power OFF

Main features

Display:	LCD, 4 digits, 6000 dots
Power supply:	1x9V alkaline battery type 6F22
Battery life:	150 hours
Auto Power OFF:	after 20 minutes' idling
Safety:	IEC/EN61010-1
Measurement category:	CAT III 1000V, CAT IV 600V
Insulation:	Double insulation
Pollution level:	2
Max height:	2000m
Size (LxWxH):	190x94x48mm
Weight (batteries included):	460g

Accessories provided

4413-2	Pair of test leads
TK101	K-type wire probe
T10	Adapter for K-type probes
	Protective case, battery and user manual
	For optional accessories, please refer to the table.

Technical Specifications

DC voltage
- Measuring range: 0.01mV ÷ 1000V
- Resolution: 0.01mV ÷ 0.1V
- Basic accuracy: ±(0.08%reading + 2 digits)
- Protection: 1000V DC/ACrms

AC TRMS voltage
- Measuring range: 0.01mV ÷ 1000V
- Resolution: 0.01mV ÷ 0.1V
- Basic accuracy: ±(0.8%reading + 5 digits)
- Protection: 1000V DC/ACrms

DC current
- Measuring range: 0.01mA ÷ 10A
- Resolution: 0.01mA ÷ 0.01A
- Basic accuracy: ±(0.8%reading + 3 digits)
- Protection: Fuse F440mA/1000V - Fuse F11A/1000V

AC TRMS current
- Measuring range: 0.01mA ÷ 10A
- Resolution: 0.01mA ÷ 10A
- Basic accuracy: ±(1.2%reading + 3 digits)
- Protection: Fuse F440mA/1000V - Fuse F11A/1000V

Resistance and Continuity test
- Measuring range: 0.1Ω ÷ 40MΩ
- Resolution: 0.1Ω ÷ 0.01MΩ
- Basic accuracy: ±(0.8%reading + 2 digits)
- Continuity test:<30Ω
- Protection: 1000V DC/ACrms

Frequency
- Measuring range: 0.01Hz ÷ 100kHz
- Resolution: 0.01Hz ÷ 0.01kHz
- Basic accuracy: ±(0.1%reading + 2 digits)
- Protection: 1000V DC/ACrms

Capacity
- Measuring range: 0.001µF ÷ 10mF
- Resolution: 0.001µF ÷ 0.01mF
- Basic accuracy: ±(1.2%reading + 2 digits)
- Protection: 1000V DC/ACrms

Temperature with K-type probe
- Measuring range: -40°C ÷ 400°C
- Resolution: 0.1°C
- Basic accuracy: ±(1.0%reading + 10 digits)
- Protection: 1000V DC/ACrms

ORDER CODE ***HR000010*** | ***HR000003*** | ***HR000002*** | ***HR000001*** | ***HR000004***

HT64 | HT63 | HT62 | HT61 | HT60

CAT IV 600V

TRMS

SERIES OF TRMS / CAT IV PROFESSIONAL DIGITAL MULTIMETERS WITH DATA LOGGER FUNCTIONS (HT64)

The new series of HT professional multimeters is the result of an important research conducted at the most demanding users of this kind of equipment, namely laboratories where the choice of a measuring instrument is subject to strict tests concerning **precision, reliability and safety of measurements even in extreme conditions**.
Therefore, a complete range multimeters, all able to measure in **TRMS**, all within **CAT IV 600V**, **autorange** function available on all models, with backlight display.
The design is extremely modern and attractive, but also **ergonomic**, to ensure **maximum ease of use**. **Display with high resolution**, even in **color version**, for the premium model **HT64**.
In the summary table you can find all the features that make this innovative set of professional instruments unique and valuable.

Functions

	HT64	***HT63***	***HT62***	***HT61***	***HT60***
TRMS Measurements	•	•	•	•	•
Color display	•	-	-	-	-
AC/DC Voltage	• AC+DC	•	•	•	•
AC/DC Current	•	•	•	•	-
Resistance/Continuity Test	•	•	•	•	•
Frequency	•	•	•	•	•
Capacity	•	•	•		•
Duty cycle	•	•	•	•	•
Diode test	•	•	•	•	•
Temperature probe type K	•	•	•	-	•
Reading 4-20mA%	•	•	-	-	-
Data HOLD	•	•	•	•	•
MAX/MIN/AVG	•	• Max/Min	• Max/Min	• Max/Min	-
PEAK	• 1ms	• 1ms	-	-	-
Relative Measurement	•	•	•	•	•
Autorange	•	•	•	•	•
Backlight	•	•	•	•	•
Bargraph	•	•	•	•	-
Data loggers and graph	•	-	-	-	-
Internal memory	•	-	-	-	-
Auto Power OFF	•	•	•	•	•

Main features

Display:	4 digit LCD, 4000 pixels ***(HT60)*** 4½ digit LCD, 6000 pixels ***(HT61, HT62)*** 4½ digit LCD, 60000 pixels ***(HT63)*** Color 4 4½ digit TFT, 6000 pixels ***(HT64)***
Power supply:	1x9v battery type 6F22 ***(HT60, HT61, HT62)*** 4x1.5 V batteries type AAA LR03 ***(HT63)*** 1x7.4V rechargeable Li-ION battery ***(HT64)***
Auto Power OFF:	after 30 minutes of non-use ***(HT60)*** after 15 minutes of non-use ***(HT61, HT62, HT63)*** 5min ÷ 60 min of non-use ***(HT64)***
Safety:	IEC/EN61010-1
Measurement category:	CAT IV 600V – CAT III 1000V
Level of pollution:	2
Max operating altitude:	2000m
Dimensions (LxWxH):	175x85x55mm
Weight (batteries included):	about 400 g

Supplied accessories

KIT4000A	Pair of test leads
TK101	Type K wire probe ***(HT60, HT62, HT63, HT64)***
T10	Type K Probe adapter
A64	Power supply + adapter ***(HT64)***
	Batteries, user manual and transport bag

Technical specifications

	HT64	***HT63***	***HT62***	***HT61***	***HT60***
DC Voltage					
Reading range:	0.1mV ÷ 1000V	0.1mV ÷ 1000V	0.1mV ÷ 1000V	0.1mV ÷ 1000V	1mV ÷ 600V
Standard accuracy:	± (0.1%reading + 5digits)	± (0.9%reading + 5digits)	± (1.0%reading + 2digits)	± (1.0%reading + 2digits)	± (1.2%reading + 2digits)
AC Voltage					
Reading range:	0.1mV ÷ 1000V	0.1mV ÷ 1000V	1mV ÷ 1000V	1mV ÷ 1000V	1mV ÷ 600V
Standard accuracy:	± (0.9%reading + 5digits)	±(1.0%reading + 5digits)	±(1.0%reading + 8digits)	±(1.0%reading + 8digits)	±(1.2%reading + 4digits)
DC Current					
Reading range:	0.1μA ÷ 10A	0.1μA ÷ 10A	0.1μA ÷ 10A	0.1μA ÷ 10A	-
Standard accuracy:	± (0.9%reading + 5digits)	± (1.5%reading + 5digits)	± (1.0%reading + 3digits)	± (1.0%reading + 3digits)	-
AC Current					
Reading range:	0.1μA ÷ 10A	0.1μA ÷ 10A	0.1μA ÷ 10A	0.1μA ÷ 10A	-
Standard accuracy:	±(1.2%reading + 5digits)	± (2.5%reading + 5digits)	± (1.5%reading + 3digits)	± (1.5%reading + 3digits)	-
Resistance and continuity test					
Reading range:	0.1Ω ÷ 60MΩ	0.1Ω ÷ 60MΩ	0.1Ω ÷ 60MΩ	0.1Ω ÷ 60MΩ	0.1Ω ÷ 40MΩ
Standard accuracy:	± (0.8%reading + 5digits)	±(1.2%reading + 5digits)	±(1.0%reading + 4digits)	±(1.0%reading + 4digits)	± (1.0%reading + 2digits)
Buzzer:	<25Ω	<35Ω	<100Ω	<100Ω	<30Ω
Frequency					
Reading range:	0.001Hz ÷ 1MHz	0.001Hz ÷ 1MHz	0.001Hz ÷ 1MHz	0.001Hz ÷ 1MHz	0.001Hz ÷ 10MHz
Standard accuracy:	± (0.09%reading + 5digits)	± (1.0%reading + 2digits)	± (0.1%reading + 1digit)	± (0.1%reading + 2digits)	± (1.2%reading + 3digits)
Capacity					
Reading range:	0.01nF ÷ 6mF	0.01nF ÷ 6mF	0.01nF ÷ 1000μF	-	0.01nF ÷ 100μF
Standard accuracy:	±(1.2%reading + 8digits)	±(2.5%reading + 10digits)	±(3.5%reading + 4digits)	-	± (3.0%reading + 5digits)
Duty Cycle					
Reading range:	0.1% ÷ 99.9%	20% ÷ 80%	0.1% ÷ 99.9%	0.1% ÷ 99.9%	0.5% ÷ 99.9%
Standard accuracy:	± (1.2%reading + 2digits)	±(1.0%reading + 5digits)	± (1.2%reading + 2digits)	± (1.2%reading + 2digits)	± (1.2%reading + 2digits)
Temperature probe type K					
Reading range:	-40°C ÷ 1350°C	0.1% ÷ 99.9%	-45°C ÷ 750°C	-	-20°C ÷ 760°C
Standard accuracy:	± (1.0% reading + 3°C)	± (2.0% reading + 3°C)	± (3.5% reading + 5°C)	-	± (3.0% reading + 5°C)

ORDER CODE ***HR000210*** | ***HR000021*** | ***HR00025N***

HT210 | HT21 | HT25N

CAT III 600V

COMPACT DIGITAL MULTIMETERS IN CAT III

Models HT21, HT210 and HT25N are compact digital multimeters capable of carrying out mainly measurements of **AC/DC voltage** up to **600V** and **DC current** up to **10A** (HT25N) with complementary functions of **Resistance**, **Continuity test**, **Diode test** and **9V** and **1.5V alkaline battery tests**. These devices have been designed in compliance with **safety standard IEC/EN61010-1** with double protective insulation in **CAT III 600V**. They are provided with a wide LCD display with backlight and each function can be selected through its relevant switch. A further function of this device is Data HOLD to freeze data on the display and REL for relative measurements. HT210 also offers the possibility of measuring **temperature with the provided K-type probe**, but also with the optional TK1xx probes.

Functions

	HT21	HT210	HT25N
AC / DC voltage	•	•	•
DC current	-	-	•
Resistance / Continuity test	•	•	•
Frequency	•	•	-
Capacity	•	•	-
Diode test	•	•	•
Duty Cycle	•	•	-
Temperature with K-type probe	-	•	-
Battery test 1.5V/9V	-	-	•
Data HOLD	•	•	•
Relative measurement	•	•	-
Backlight	•	•	•
Auto Power OFF	•	•	•

Main features

Display:	LCD, 3½ digits, 2000 dots with backlight
Power supply:	1x9V batteries type IEC 6F22
Auto Power OFF:	after 30 minutes' idling
Safety:	IEC/EN 61010-1
Measurement category:	CAT III 600V
Pollution level:	2
Insulation:	double insulation
Size (LxWxH):	138x68x37mm ***(HT21-210)*** 150x70x48mm ***(HT25N)***
Weight (batteries included):	210g ***(HT21-210)***, 255g ***(HT25N)***

Accessories provided

KIT4000A	Pair of test leads
	Adapter T10 + K-type wire probe ***(HT210)***
	Soft carrying bag for ***(HT21-HT210)***
	Batteries and user manual
	For optional accessories, please refer to the table.

Technical Specifications

	HT21 - HT210	HT25N
DC voltage		
Measuring range:	20mV ÷ 600V	1mV ÷ 600V
Resolution:	0.1mV÷1V	0.1mV÷1V
Basic accuracy:	±(1.5%rdg + 2digits)	±(1%reading + 3digits)
Protection:	600VDC	200Vrms for scale 200.0mV 600V AC/DC
AC voltage		
Measuring range:	20mV ÷ 600V	1V ÷ 600V
Resolution:	0,001÷1V	0.1V ÷ 1V
Basic accuracy:	±(2%rdg + 2digits)	±(1.5%reading +12digits)
Protection:	600VAC	600VAC
DC current		
Measuring range:	-	2mA ÷ 10A
Resolution:	-	1µA ÷ 0.01A
Basic accuracy:	-	±(2.5%reading+2digits)
Protection:	-	Quick fuse 200mA / 600V Quick fuse 10A / 600V for scale 10A
Battery test		
Measuring range:	-	1.5 / 9V
Resolution:	-	1.5V=1mV / 9V=10mV
Basic accuracy:	-	±(1.5%reading +3digits)
Protection:	-	1.5V=100mA / 9V=6mA

	HT21 - HT210	HT25N
Resistance and Continuity test		
Measuring range:	2Ω ÷ 40MΩ	1Ω ÷ 2MΩ
Resolution:	0.1Ω ÷ 0.01MΩ	0.1Ω ÷ 1KΩ
Basic accuracy:	±(1%reading + 2digits)	±(1.5%reading + 2digits)
Continuity test	<150Ω	<30Ω
Protection:	250Vrms	250Vrms < 15sec
Frequency		
Measuring range:	25mHz ÷10MHz	-
Resolution:	0,001Hz ÷10KHz	-
Basic accuracy:	±(1.2%reading + 3digits)	-
Protection:	250Vrms	-
Capacity		
Measuring range:	0.2nF ÷ 100µF	-
Resolution:	0.01nF ÷ 0.1µF	-
Diode test		
Resolution:	1mV	1mA
MAX Open-circuit voltage:	1.5VDC	2.8VDC
Basic accuracy:	±(10%reading+5digits)	ND
Duty Cycle		
Measuring range:	0.5 ÷ 99%	-
Resolution:	0.1%	-
Basic accuracy:	±(1.2%reading + 2digits)	-
Protection:	250Vrms	-
Temperature with K probe (HT210)		
Measuring range:	-20°C ÷ 760°C	-
Resolution:	0.1°C ÷ 1°C	-
Basic accuracy:	±(3%reading + 5°C)	-

CAT III 300V

CAT III 600V

ORDER CODE **HR00014D** | **HR000603**

HT14D | HT603

POCKET DIGITAL MULTIMETERS

Model HT14D is a **compact** digital multimeter capable of carrying out mainly measurements of **AC/DC voltage** up to **500V** and **DC current** up to **200mA** with complementary functions of **Resistance**, **Diode test** and **9V alkaline battery test**. This device has been designed in compliance with **safety standard IEC/EN61010-1** with double protective insulation in **CAT III 300V**. HT14D is provided with a wide **LCD display** and each function may be selected through its relevant switch. A further function of this device is **Data HOLD** to freeze data on the display. Model **HT603** is an **extremely compact** digital multimeter of modern design and very easy to use, thanks to the comfortable case which contains the integrated measuring leads. The device allows carrying out measurements of **AC/DC voltage**, **Resistance**, **Continuity test**, **Frequency**, **Duty Cycle**, **Diode test** and **Capacity**.

Functions

	HT14D	HT603
DC/AC voltage	•	•
DC current	•	-
Resistance and Continuity test	•	•
Frequency	-	•
Capacity	-	•
Duty Cycle	-	•
Diode test	•	•
Battery test 9V	•	-
Data HOLD	•	•
Relative measurement	-	•
AutoPowerOFF	•	•

Main features

Display:	LCD, 3 ½ digits, 2000 dots ***(HT14D)*** LCD, 4 digits, 4000 dots ***(HT603)***
Power supply:	2x1.5V batteries type LR44 ***(HT603)*** 1x 12V batteries type MS21/MN21 ***(HT14D)***
Auto Power OFF:	after 30 minutes' idling ***(HT603)***
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution level:	2
Size (LxWxH):	112x56x12mm ***(HT603)*** 105x50x25mm ***(HT14D)***
Weight (batteries included):	100g ***(HT14D)*** 115g ***(HT603)***

Accessories provided

KIT4000A	Measuring leads ***(HT14D)***
	Batteries and user manual

Technical Specifications

	HT14D	HT603
DC voltage		
Measuring range:	200mV ÷ 500V	400mV ÷ 600V
Resolution:	0.1mV ÷ 1V	0.1mV ÷ 1V
Basic accuracy:	±(0.5%rdg + 2digits)	±(0.6%rdg + 2digits)
AC voltage		
Range:	1V ÷ 500V	400mV ÷ 600V
Resolution:	0.1V ÷ 1V	0.1mV ÷ 1V
Basic accuracy:	±(1.2%rdg + 10digits)	±(1.5%rdg + 2digits)
Resistance and Continuity test		
Measuring range:	1Ω ÷ 2000Ω	2Ω ÷ 40MΩ
Resolution:	0.1Ω ÷ 1kΩ	0.1Ω ÷ 0.01MΩ
Basic accuracy:	±(0.8%rdg + 4digits)	±(0.9%rdg + 2digits)
Continuity:		<50Ω
DC current		
Measuring range:	2000µA ÷ 200mA	-
Resolution:	1µA ÷ 0.1mA	-
Basic accuracy:	±(1.2%rdg + 2digits)	-
Frequency		
Measuring range:	-	0.001Hz ÷ 5MHz
Resolution:	-	0.001Hz ÷ 0.001MHz
Duty Cycle		
Measuring range:	-	0.1% ÷ 99.9%
Resolution:	-	0.1%
Basic accuracy:	-	±(0.5%reading +3digits)
Capacity		
Measuring range:	-	50nF ÷ 100µF
Resolution:	-	0.01nF ÷ 0.1µF
Basic accuracy:	-	±(2.9%reading+5digits)

CAT IV 600V

TRMS HT712

YouTube

ORDER CODE **HR000712** | **HR000710**

HT712 | HT710

DIGITAL MULTIMETERS WITH MEASUREMENT OF VOLTAGE AND PHASE SEQUENCE WITH 1 LEAD

Models HT710 and HT712 are designed to **practically** and **functionally** performing the basic functions of a common digital tester in an **extremely easy** and **quick** way thanks to its narrow and long structure. Model **HT710** carries out measurements of **AC/DC voltage**, **Frequency**, **Resistance** and **Continuity test**. Model **HT712** also allows performing measurements of **Voltage** and **Frequency** and **Phase Sequence** with the **innovative** and **patented method** with **1 terminal** also **directly on the isolating sheaths of the cables**.

Functions

	HT712	HT710
TRMS measurement	•	-
DC/AC voltage	•	•
AC voltage with 1 terminal	•	-
Automatic recognition of AC/DC	•	-
Resistance and Continuity test	•	•
Frequency	•	•
Frequency with 1 terminal	•	-
Diode test	-	•
Phase sequence with 1 terminal	•	-
Data HOLD	•	•
LED indications OK/FAIL	•	-
Autorange	•	-
Relative measurement	-	•
Measurement category (@ 600V)	CAT IV	CAT IV
AutoPowerOFF	•	•

Main features

Display:	LCD, 3 ¾ digits, 4000 dots
Power supply:	2x1.5V batteries type AAA
Auto Power OFF:	after 5 minutes' idling
Safety:	IEC/EN 61010-1
Insulation:	double insulation
Pollution level:	2
Size (LxWxH):	250x51x30mm
Weight (batteries included):	150g

Technical Specifications

	HT712	HT710
DC voltage		
Measuring range:	0.5V ÷ 600V	0.1mV ÷ 600V
Resolution:	0.1V	0.1mV ÷ 1V
Basic accuracy:	±(0.8%rdg + 1digit)	±(0.8%rdg + 2digits)
AC voltage with 2 terminals		
Measuring range:	1.5V ÷ 600V	1mV ÷ 600V
Resolution:	0.1V	1mV ÷1V
Basic accuracy:	±(1.5%rdg + 5digits)	±(1.0%rdg + 2digits)
Resist. and Continuity test		
Measuring range:	1Ω ÷ 1500Ω	0.1Ω ÷ 40MΩ
Resolution:	1Ω	0.1Ω ÷ 0.01MΩ
Basic accuracy:	±(1.0%rdg + 5digits)	±(1.0%rdg + 3digits)
Continuity:	<100Ω	<100Ω
Frequency with 2 terminals		
Measuring range:	40Hz ÷69Hz	0,001Hz ÷9,999kHz
Resolution:	0.1Hz	0,001Hz ÷0,001kHz
Basic accuracy:	±(0.5%rdg + 1digit)	±(0.8%rdg + 2digits)
Phase sequence with 1 terminal		
Measuring range:	100V ÷ 600V	-
Resolution:	1V	-

Accessories provided

P711EU	Red measuring lead
P710EU	Black measuring lead
B700	Holster
	ISO9000 calibration certificate ***(only HT712)***
	Batteries and user manual

CAT IV 600V

CAT III 690V

YouTube

ORDER CODE ***HR000009*** | ***HR000008*** | ***HR000006***

HT9 | HT8 | HT6

TWO-POLE MULTIFUNCTION TESTERS

Devices HT9, HT8 and HT6 are designed to carry out the basic measurements of a digital tester in a practical, quick and functional way thanks to their narrow and long structure, which allows carrying out measurements in any operating conditions. Model **HT9** carries out measurements of **AC/DC voltage**, **Continuity tests with buzzer**, **Diode test** and **Phase sequence** with **LED** indications and **display reading**. **HT9** also carries out **functional tests** on **internal gas lamps**. **HT8** carries out measurements of **AC/DC voltage**, **Continuity tests with buzzer**, **Diode test** and **Phase sequence** with **LED** indications and **Display reading**. **HT6** carries out measurements of **AC/DC voltage**, **Continuity tests with buzzer**, **Diode test** and **Phase sequence** with **LED** indication. These devices are provided with a white LED torch for use in poorly lit environments and complies with **safety** requirements of standards **IEC/EN61243-3:2010**, **IEC/EN61010-1** and **IEC/61010-2-030** in **CAT IV 600V**, **CAT III 690V**.

Use of the integrated LED torch.

Phase detection function through conductive button.

Multimeter function with display and LED indication.

Measurement of phase sequence.

Functions

	HT9	HT8	HT6
AC/DC voltage up to 690V	•	•	•
AC voltage with 1 terminal	•	•	•
Phase sequence	•	•	•
Continuity test with buzzer	•	•	•
Diode test	•	•	•
LED indications and sound notifications	•	•	•
LCD display	•	•	-
Integrated torch	•	•	•
Operation test of neon and fluorescent tubes	•	•	•
Operation test of sodium-vapor lamp	•	-	-
Operation test of mercury-vapor lamp	•	-	-
Operation test of halogen lamps	•	-	-
Check of non-electronic reactors and starters	•	-	-

Main features

Display:	LCD, 4digits, 6900 dots ***(HT9-HT8)***
Power supply:	2x1.5V battery type AAA LR03
Safety:	IEC/EN61010-1, IEC/EN61010-2-030 ***(HT9-HT8)***, IEC/EN61243-3:2010
Measurement category:	CAT IV 600V – CAT III 690V
Pollution level:	2
Insulation:	double insulation
Size (LxWxH):	255x60x35mm
Weight (batteries included):	170g

Technical Specifications

	HT9 - HT8	HT6
DC/AC voltage		
Measuring range:	10V ÷ 690V	12V ÷ 690V
Frequency band:	16Hz ÷ 400Hz	16Hz ÷ 400Hz
Resolution:	0.1V	1V
Basic accuracy:	±(3%reading + 5digits)	in compliance with EN61243-3
Protection against overcharge:	690VDC/AC	690VDC/AC
AC voltage with 1 terminal		
Measuring range:	100V ÷ 690V	100V ÷ 690V
Frequency band:	50Hz ÷ 60Hz	50Hz ÷ 60Hz
Protection against overcharge:	690VAC	690VAC
Phase sequence		
Measuring range:	120V ÷ 400V (Phase-Earth)	120V ÷ 400V (Phase-Earth)
Frequency band:	50Hz ÷ 60Hz	50Hz ÷ 60Hz
Protection against overcharge:	690VAC	690VAC
Continuity test with LED and buzzer		
Measuring range:	0Ω ÷ 500kΩ	0Ω ÷ 500kΩ
Test current:	<7μA	<7μA
Lamp test *(only HT9)*		
Voltage with new battery:	approx. 3kV / 240kHz	-
Range intensity (200-280kHz):	Approx. 100μV/m	-

Accessories provided

	Protection cap for lead, 2 pieces
	Adapter 4mm for lead, 2 pieces
PR9	Mobile lead
	Batteries and user manual

Optional accessories

PR9	Mobile lead

CAT III 600V

TRMS

ORDER CODE **HR000005**

IRONMETER

TRMS MULTIMETER
WITH INTEGRATED LED FLASHLIGHT

IRONMETER is a veritable construction site tester with a sturdy casing able to withstand **shocks of all kinds**, always ready to get up after a fall, (even from 10 meters height) and continue to operate with the same accuracy and reliability. It has **all the features required for typical daily usage** but with **integrated LED flashlight** to illuminate in spaces with poor lighting.

Functions

- TRMS Measurements
- AC/DC Voltage
- AC/DC Current
- Resistance/Continuity Test
- Frequency
- Capacitance, Diode test
- Duty cycle
- Built-in flashlight
- Data HOLD, MAX/MIN
- Autorange
- Backlight
- Auto Power OFF

Main features

Power supply:	2x1.5 V batteries type AAA LR03
Display:	4 digit LCD, 4000 pixels
Auto Power OFF	after 15 minutes of non-use
Safety:	IEC/EN61010-1
Measurement category:	CAT III 600V
Level of pollution:	2
Max operating altitude:	2000m
Dimensions (LxWxH):	120x85x45mm
Weight (batteries included):	approximately 200 g

Supplied accessories

KIT4000A	Test leads
	Batteries, user manual and transport bag

Technical specifications

DC Voltage
- Reading range: 0.1mV ÷ 600V
- Resolution: 0.1mV ÷1V
- Standard accuracy: ± (1.0% reading + 3digits)
- Protection: 600VDC/ACrms

AC TRMS Voltage
- Reading range: 1mV ÷ 600V
- Resolution: 1mV ÷ 1V
- Standard accuracy: ± (1.0% reading + 3digits)
- Protection: 600VDC/ACrms

DC Current
- Reading range: 0.1µA ÷ 10A
- Resolution: 0.1µA ÷ 0.01A
- Standard accuracy: ± (1.0% reading + 3digits)
- Protection: F500mA/600V, F10A/600V fuses

AC TRMS Current
- Reading range: 0.1µA ÷ 10A
- Resolution: 0.1µA ÷ 0.01A
- Standard accuracy: ± (1.0% reading + 3digits)
- Protection: F500mA/600V, F10A/600V fuses

Resistance and continuity test
- Reading range: 0.1Ω ÷ 40MΩ
- Resolution: 0.1Ω ÷ 0.01MΩ
- Standard accuracy: ± (1.5% reading + 5digits)
- Continuity test: <50Ω
- Protection: 600VDC/ACrms

Frequency
- Reading range: 10Hz ÷ 10kHz
- Resolution: 0.01Hz
- Standard accuracy: ± (1.2% reading)
- Protection: 600VDC/ACrms

Duty cycle
- Reading range: 0.1% ÷ 99.9%
- Resolution: 0.1%
- Standard accuracy: ± (1.2% reading + 2digits)
- Protection: 600VDC/ACrms

Capacity
- Reading range: 0.01nF ÷ 4000µF
- Resolution: 0.01nF ÷ 1µF
- Standard accuracy: ± (3.0% reading+5digits)
- Protection: 600VDC/ACrms

CAT III 300V
CAT III 600V

ORDER CODE **HR000012**

HT12

POCKET DIGITAL MULTIMETER
WITH INTEGRATED AC/DC 60A
FORK CLAMP METER

Model HT12 is a **super compact** digital multimeter capable of carrying out measurements of **Voltage up to 600V**, **AC/DC current** up to **60A** with **integrated clamp sensor** and complementary functions of **Resistance**, **Continuity test** and **Frequency**. This device has been designed in compliance with **safety standard IEC/EN61010-1** with double protective insulation in **CAT III 300V**, CAT II 600V. Further functions are **Data HOLD** to freeze data on the display and the **Auto Power OFF** function after 10 minutes' idling, in order to preserve the internal battery. The device is housed in a **protective case** which is also used to rewind the test leads.

Functions

- DC/AC voltage
- AC/DC current integrated clamp sensor
- Resistance and continuity test with buzzer
- Current and voltage frequency
- Data HOLD
- Automatic / manual selection of measuring range
- Auto Power OFF

Main features

Display:	LCD, 3¾ digits, 3400 dots
Power supply:	2x1.5V battery type AAA LR03
Auto Power OFF:	after 10 minutes' idling
Safety:	IEC/EN 61010-1
Measurement category:	CAT III 300V, CAT II 600V
Pollution level:	2
Insulation:	double insulation
Size (LxWxH):	128x87x24mm
Weight (batteries included):	210g

Accessories provided

Anti-shock protection shell
Integrated measuring leads and clamp meter
Batteries and user manual

Technical Specifications

DC voltage
- Measuring range: 0mV ÷ 600V
- Resolution: 0.001mV ÷ 0.1V
- Basic accuracy: ±(1.5%reading + 4digits)
- Protection against overcharge: 720VDC/AC for 10 seconds

AC voltage
- Measuring range: 0V ÷ 600V
- Frequency band: 50Hz ÷ 400Hz
- Resolution: 0,001V ÷ 1V
- Basic accuracy: ±(1.5%reading + 5 digits)
- Protection against overcharge: 720VDC/AC for 10 seconds

AC/DC current integrated clamp sensor
- Measuring range: 0A ÷ 60A
- Resolution: 0.1A
- Frequency range: 50Hz ÷ 60Hz
- Basic accuracy: ±(2%reading + 5digits)
- Protection against overcharge: 72A DC/AC for 10 seconds

Resistance and Continuity test
- Measuring range: 0Ω ÷ 34MΩ
- Resolution: 0.1Ω ÷ 0.01MΩ
- Basic accuracy: ±(1%reading + 3digits)
- Protection against overcharge: 720VDC/AC for 10 seconds
- Continuity buzzer: R<30Ω ± 10Ω

Frequency
- Current measuring range: 0Hz ÷ 10kHz
- Voltage measuring range: 0Hz ÷ 300kHz
- Basic accuracy: ±(0.1%reading + 1digit)
- Resolution: 0,001kHz ÷ 0.01MHz
- Protection against current overcharge: 72A DC/AC for 10 seconds
- Protection against voltage overcharge: 720VDC/AC for 10 seconds

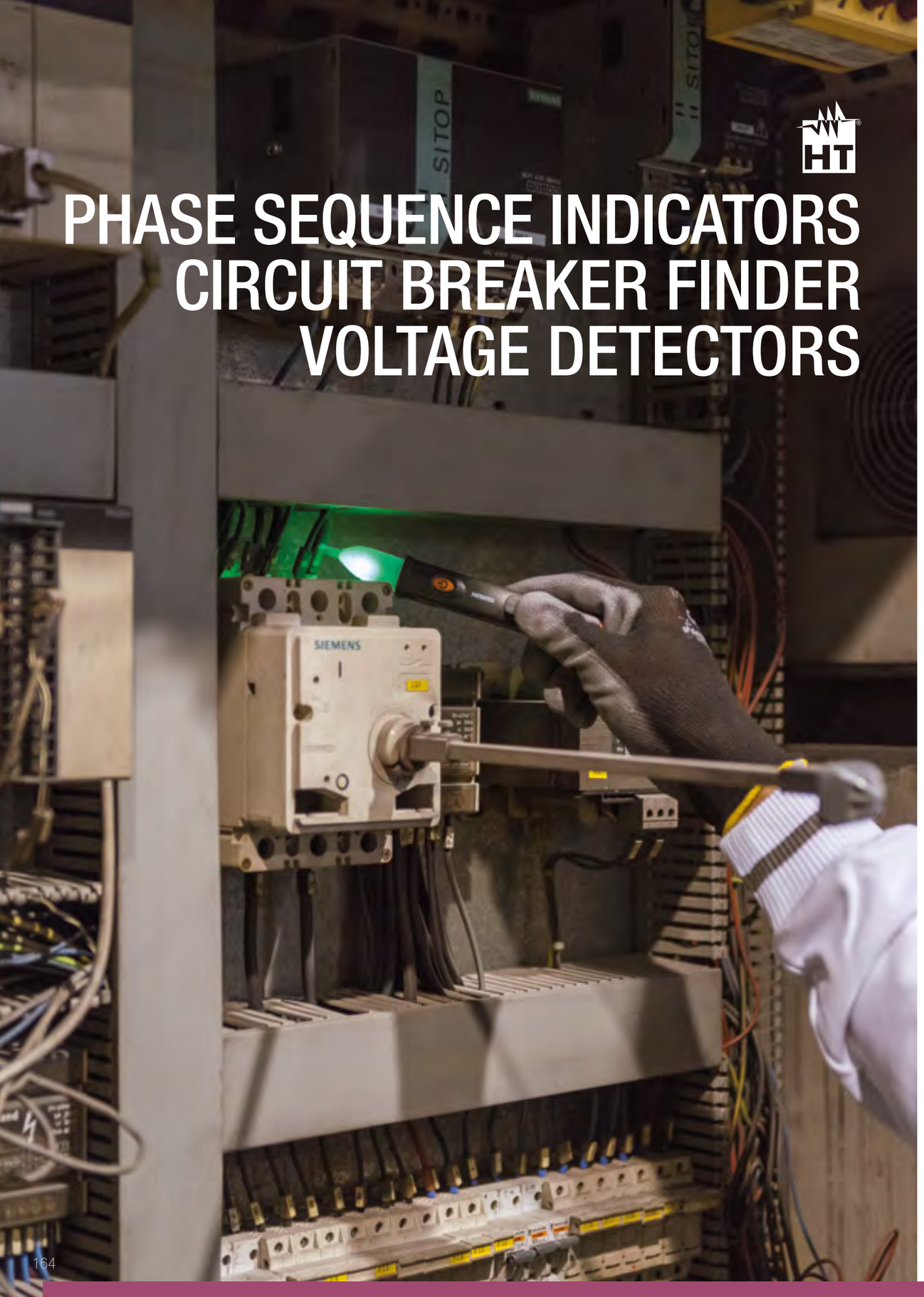
COMPARISON TABLE **OF ACCESSORIES**

	HT701	HT401	HT60	HT61	HT62	HT63	HT64	IRON METER	HT12	HT210	HT21	HT25N	HT14D	HT603	HT712	HT710	HT9	HT8	HT6
T10 Adapter for K-type probes for multimeters *ORDER CODE* ***HA100010***	S	S	S	-	S	S	S	-	-	S	-	-	-	-	-	-	-	-	-
TK101 K-type wire thermocouple Measuring range: - 20 ÷ 250°C *ORDER CODE* ***HA000108***	S	S	S	-	S	S	S	-	-	S	-	-	-	-	-	-	-	-	-
TK107 K-type thermocouple for air and gas temperature Measuring range: - 40 ÷ 800°C *ORDER CODE* ***HA110000***	0	0	0	-	0	0	0	-	-	0	-	-	-	-	-	-	-	-	-
TK108 K-type thermocouple for internal temperatures of liquids and semi-solid substances Measuring range: - 40 ÷ 800°C *ORDER CODE* ***HA110001***	0	0	0	-	0	0	0	-	-	0	-	-	-	-	-	-	-	-	-
TK109 K-type thermocouple for internal temperatures of liquid and solid substances, fruit and food Measuring range: - 40 ÷ 800°C *ORDER CODE* ***HA110002***	0	0	0	-	0	0	0	-	-	0	-	-	-	-	-	-	-	-	-
TK110 "K"-type thermocouple for surface temperatures Measuring range: - 40 ÷ 400°C *ORDER CODE* ***HA110003***	0	0	0	-	0	0	0	-	-	0	-	-	-	-	-	-	-	-	-
TK111 "K"-type thermocouple for surface temperatures with 90° fixed tip Measuring range: - 40 ÷ 400°C *ORDER CODE* ***HA110004***	0	0	0	-	0	0	0	-	-	0	-	-	-	-	-	-	-	-	-
A64 Battery charger for HT64	-	-	-	-	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-
B80 Soft carrying bag for multimeter and leads *ORDER CODE* ***HA001180***	-	0	0	0	0	0	0	0	-	0	0	0	-	-	-	-	-	-	-
P710EU Cable length 1.10m with 4mm lead *ORDER CODE* ***HA071000***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	S	S	-	-	-
P711EU Red upper lead 4mm *ORDER CODE* ***HA071200***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	S	S	-	-	-

S = Standard **0** = Optional * for USB connection, the adapter C2009 is necessary

	HT701	HT401	HT60	HT61	HT62	HT63	HT64	IRON METER	HT12	HT210	HT21	HT25N	HT14D	HT603	HT712	HT710	HT9	HT8	HT6
4413-2 Pair of leads with 4mm tip and protection, red/black and 90° banana plug *ORDER CODE **HA441200***	S	S	0	0	0	0	0	0	-	0	0	S	0	-	-	-	-	-	-
KIT4000A Pair of leads with 2mm tip, red/black and 90° banana plug *ORDER CODE **HA000174***	0	0	S	S	S	S	S	S	-	S	S	0	S	-	-	-	-	-	-
4717-S-IEC100# Leads with retractable safety tip # = black N - B (blue) - R (red) *ORDER CODE **4717-S-IEC100#***	0	0	0	0	0	0	0	0	-	0	0	0	0	-	0	0	-	-	-
404-IEC# Measuring lead with protection cap diameter 4mm # = colour N (black) - B (blue) - V (green) *ORDER CODE **HA40400#***	0**	0**	0**	0**	0**	0**	0**	0**	-	0**	0**	0**	0**	-	0**	0**	-	-	-
5004-IEC# Insulated alligator clip for 4mm banana cables # = colour N (black) - B (blue) - V (green) - R (red) *ORDER CODE **HA50040#***	0**	0**	0**	0**	0**	0**	0**	0**	-	0**	0**	0**	0**	-	0**	0**	-	-	-
6007-IEC# Flexible alligator clip (6A) for 4mm banana cables # = colour N (black) - R (red) *ORDER CODE **HA60070#***	0**	0**	0**	0**	0**	0**	0**	0**	-	0**	0**	0**	0**	-	0**	0**	-	-	-
6009-IEC# Rigid alligator clip (20A) for 4mm banana cables # = colour N (black) - R (red) *ORDER CODE **HA60090#***	0**	0**	0**	0**	0**	0**	0**	0**	-	0**	0**	0**	0**	-	0**	0**	-	-	-
5001-# Cable with 4mm banana-banana connector, 1.5m long # = colour N (black) - B (blue) - V (green) - R (red) *ORDER CODE **HA05001#***	0	0	0	0	0	0	0	0	-	0	0	0	0	-	0	0	-	-	-
425 Kit consisting in 2 4mm banana-banana cables, 2 leads 404-IECN+R and 2 rigid alligator clips (20A) *ORDER CODE **HA425000***	0	0	0	0	0	0	0	0	-	0	0	0	0	-	0	0	-	-	-
44100 Set of 2 4mm banana-banana cables, 2 leads 402-IECN+R, 2 alligator clips 6009-IECN+R + 2 long clamp terminals and a set of alligator clips KITMPPDCC *ORDER CODE **HA441000***	0	0	0	0	0	0	0	0	-	0	0	0	0	-	0	0	-	-	-
PR701 Remote leas with test starting button *ORDER CODE **HA000701***	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PR9 Mobile lead for HT6-HT8-HT9 *ORDER CODE **HA000426***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	S	S	S

S = Standard **0** = Optional ** Cable with 4mm banana necessary (e.g. 5001-#)



PHASE SEQUENCE INDICATORS CIRCUIT BREAKER FINDER VOLTAGE DETECTORS

COMPARISON TABLE **FUNCTIONS**

MAIN MEASUREMENTS	**HT82**	**HT70**	**HT20S**	**HT38**	**HT5**
Measuring range	40÷600VAC 15÷400Hz	100÷1000VAC 50÷60Hz	100÷1000VAC 50÷60Hz	200÷250VAC 50Hz	60÷250VAC 50÷60Hz
Circuit breaker localization	-	-	-	•	-
Detection of AC voltage without contact, also on insulating sheaths	-	•	•	-	-
Indications “R” and “L” on the display to measure phase sequence	•	-	-	-	-
Phase sequence and phase concordance without contact also on insulating sheaths	-	•	-	-	-
LED and sound indications	-	•	•	•	•
ADDITIONAL MEASUREMENTS					
Test of neon tube internal gas	-	-	-	-	•
Test of internal gas of compact fluorescent lamps	-	-	-	-	•
Test of internal gas of energy-saving lamps	-	-	-	-	•
Test of internal gas of high and low-pressure sodium-vapor lamps	-	-	-	-	•
Test of internal gas of halogen lamps	-	-	-	-	•
Test of internal gas of mercury-vapor lamps	-	-	-	-	•
Phase detector function with contact for AC voltage 60-250V 50/60Hz	-	-	-	-	•
Continuity test on non-electronic starters/reactors	-	-	-	-	•
Diode test	-	-	-	-	•
ADDITIONAL CHARACTERISTICS					
LCD display	•	-	-	-	-
Sound indications with buzzer	-	•	•	•	•
Practical breast pocket holder	-	•	•	-	-
Anti-shock protection sheath	•	-	-	-	-
Integrated torch	-	-	•	-	•
Safety	CAT III 600V	CAT IV 1000V	CAT IV 1000V	CAT III 250V	CAT III 300V
Reference standard for safety	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1
Power supply	from power	2x 1.5V AAA	2x 1.5V AAA	Dalla rete (HT38T) 1X 9V (HT38R)	1X 9V
Size (LxWxH) (mm)	130X69X22	160X26X20	160X26X20	95x60x30	255X60X40
Weight in grams	130	48	48	140	170
Order Code	HA000156	HR000070	HR000296	HR000038	HA000138

CAT III 600V

ORDER CODE ***HA000156***

HT82

PHASE SEQUENCE

HT82 is a mobile device to display the **phase sequence** with **3 terminals** in a generic **three-phase** system. The device provides an **"R" indication** in case of **correct phase sequence** or **"L" indication** in case of **incorrect phase sequence**.

KIT82 Kit of 3 cables + 3 alligator clips

Functions

- Indications "R" and "L" on the display to measure phase sequence

Main features

Power supply:	from power 40V ÷ 600V / 15-400Hz
Display:	LCD display
Pollution level:	2
Safety:	IEC/EN61010-1
Measurement category:	CAT III 600V
Size (LxWxH):	130x69x22mm
Weight (batteries included):	130 g

Accessories provided

KIT82	Set of 3 cables + 3 alligator clips
	Bag and user manual

Optional accessories

404-IEC#	Measuring lead with safety cap, diameter 4mm
5004-IEC#	Insulated alligator clip (20A) for 4mm banana cables
5001-#	Cable with 4mm banana-banana connector, 1.5m long

CAT IV 1000V

YouTube

ORDER CODE ***HR000070*** | ***HR000296***

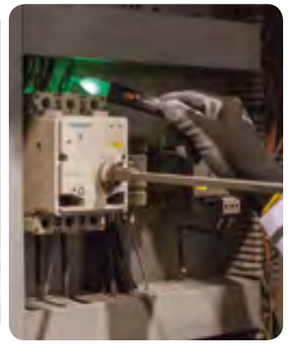
HT70 | HT20S

VOLTAGE DETECTOR WITH MEASUREMENT OF PHASE SEQUENCE (HT70)

HT70 is a practical innovative device capable of carrying out, further to the **phase detection function**, a **phase sequence** and **phase conformity test** with **LED** indications and **buzzer**, also on the **insulating sheath of the conductors**. The result of the test is indicated by the **red LED (incorrect phase sequence)** or the **green LED (correct phase sequence)** turning on, by simply moving the sensor first on the L1 and then on the L2 phase. HT20s is instead the model dedicated only to **searching live cables**. Also carries out measurements on insulating sheath of cables and therefore **without direct contact with live parts**.

Step1 - Take HT70 and rest it on the assumed phase L1 of the three-phase system (on the conductor or sheath) for **at least 5s** and wait for the **red LED** to flash together with the buzzer sounding.

Step2 - Now rest and keep HT70 on the assumed phase L2 (on the conductor or sheath) for **at least another 5s** and wait for the **LED** to flash together with the buzzer sounding.



Step3 - If the **green LED** turns on with steady light, phase sequence is **correct**. If, however, the **red LED** flashes, phase sequence **is incorrect**.

Functions

	HT70	*HT20s*
AC voltage detection	•	•
Led and buzzer indication	•	•
Battery check with LED indication	•	•
Phase sequence detection	•	-
Pocket clip	•	•

Main features

AC reference voltage:	100V ÷ 1000V to earth
Frequency:	50/60Hz
Power supply:	2x1.5V alkaline batteries type AAA NEDA24A LR03
Pollution level:	2
Safety:	IEC/EN61010-1
Measurement category:	CAT IV 1000V
Size (LxWxH):	160x26x20mm
Weight (batteries included):	48 g

Accessories provided

Battery
User manual

CAT III 600V

ORDER CODE ***HR000038***

HT38

CIRCUIT BREAKER FINDER

HT38 belongs to that category of instruments (not necessarily meters) that make the job easier for all engineers that need to **detect reference switches** in power lines. The instrument consists of two elements: HT38T which, once plugged in, generates a signal and a receiver HT38R, that recognizes the signal, **indicates the reference switch via a LED and a sound**.

Functions

- LED visual indication and sound signalling with variable tone
- Location of security devices
- Use in circuits with voltage up to 250VAC to ground
- low battery level LED signalling
- Auto Power OFF

Supplied accessories

HT38T Transmitter
HT38R Receiver
Battery (receiver)
Transport bag
User manual

Main features of HT38T

Power supply:	230VAC, 50Hz
Max signal output current:	<20mA
External connection:	integrated Schuko Europlug plug
Operating temperature:	0°C ÷ 40°C (32°F ÷ 104°F)
Operating humidity:	<80%RH
Storage temperature:	0°C ÷ 50°C (32°F ÷ 122°F)
Storage humidity:	<95%RH
Dimensions (L x P x H):	95x60x30mm
Weight:	140 g

Main features of HT38R

Safety:	IEC/EN61010-1
EMC:	IEC/EN61326-1
Insulation:	double insulation
Pollution Level:	2
Measurement category:	CAT III 250V
Max operating altitude:	2000m

CAT II 300V

YouTube

ORDER CODE ***HA000138***

HT5

VOLTAGE DETECTOR WITH TEST OF GAS-FILLED LAMPS

Model HT5 is a practical mobile device for **quickly carrying out tests on the operation of low-pressure**, **sodium-vapor -pressure** and **high-pressure internal gas lamps**, by simply touching the lamp's surface. Other available characteristics are the **phase detector function**, **Continuity test** and **Diode test**.

Functions and characteristics

- Operation test of neon and fluorescent tubes
- Operation test of neon lamps with E27 coupling
- Operation test of sodium-vapor lamps
- Operation test of halogen lamps
- Phase detector function for AC voltage 60-250V 50/60Hz
- Continuity test with buzzer
- Diode test
- LED indications and sound notifications
- Integrated torch

Main features

Power supply:	1x9V batteries type IEC 6F22
Safety:	IEC/EN61010-1
Measurement category:	CAT III 300V
Size (LxWxH):	255x60x40mm
Weight (batteries included):	170g

Accessories provided

Batteries
User manual

CLAMP METERS

Power clamps

Who?

- Technicians and maintenance operators in the industry sector
- Power Quality Professionals
- Energy managers
- Maintenance operator in the photovoltaic field

Where?

- Transformer cabinets
- Electric switchboars
- Electric motors
- Measurements near inverters
- Photovoltaic installations

Why?

They carry out the main function of mobile equipment and, in this case, offer the possibility of quickly displaying quantities such as **Power, Cosphi, Harmonics, Inrush Currents (INRUSH)** which are functions generally carried out by proper power analyzers.

AC/DC clamps

Who?

- Installers and electricians of industrial and domestic electric systems
- Maintenance operators in the electric sector in general, and in the photovoltaic field

Where?

- Domestic and industrial electric systems
- Electric panels
- Electric motors
- Photovoltaic installations

Why?

Ordinary and preventive maintenance of distribution (also photovoltaic) systems is mainly based on ammetric absorption; in industrial systems it is good practice to use **TRMS** equipment.

Leakage clamps

Who?

- Installers and maintenance operators in the domestic and industrial sector
- Safety verification authorities of domestic and industrial electric systems

Where?

- Electric panels
- Electric motors
- Earthing systems

Why?

A correct mapping of all leakage currents to earth can only be carried out with clamps like HT77N, capable of detecting currents as small as **µA**, and HT78 which, due to the exceptional size of its jaws, is suitable for tests on very big loads.

COMPARISON TABLE **FUNCTIONS**

	HT9022	HT9021	HT9020	HT9019	HT9015	HT9014	HT9012	HT4022	HT4020	HT4013	HT4012	HT4011	HT4010	HT78	HT77N	F3000	HT100	HT7003
MAIN MEASUREMENTS																		
TRMS	•	•	•	•	•	•	-	•	•	-	-	-	-	•	•	•	•	-
Current measuring range:	1000A	1000A	1000A	1000A	600A	600A	600A	400A	400A	400A	400A	400A	600A	3000A	100A	3000A	200A	300A
AC/DC current	• AC+DC	•	• AC+DC	• AC	•	• AC	• AC	• AC	• AC	•	• AC	• AC	• AC	• AC	• AC	• AC	• AC	• AC
AC/DC voltage	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	•	-
Leakage current	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	-	-	-
Frequency	•	•	•	-	•	•	-	•	•	•	-	•	-	-	-	-	-	-
Resistance and continuity test with buzzer	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	•	-
Capacity	-	•	-	-	•	•	-	-	-	•	-	•	-	-	-	-	-	-
Diode test	-	•	-	-	•	•	•	-	-	•	•	•	•	-	-	-	•	-
Duty Cycle (%)	-	-	-	-	•	•	-	-	-	•	-	•	-	-	-	-	-	-
Temperature with K-type probe	-	•	-	-	•	•	-	-	-	•	-	•	-	-	-	-	-	-
Phase sequence and phase concordance	•	-	•	-	-	-	-	•	•	-	-	-	-	-	-	-	-	-
Automatic recognition of internal functions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-
POWER ANALYSIS																		
AC/DC voltage, current measurement/recording	•	-	•*	-	-	-	-	•*	•*	-	-	-	-	-	-	-	-	-
Measurement/recording of Active, Reactive, Apparent AC/DC Power	•	-	•*	-	-	-	-	•*	•*	-	-	-	-	-	-	-	-	-
Measurement/recording of Active, Reactive, Apparent AC/DC Energy	•	-	•*	-	-	-	-	•*	•*	-	-	-	-	-	-	-	-	-
Measurement/recording of Cosphi, Power Factor	•	-	•*	-	-	-	-	•*	•*	-	-	-	-	-	-	-	-	-
Measurement/recording of V-I harmonics up to the 25th with THD% calculation	•	-	•*	-	-	-	-	-	•*	-	-	-	-	-	-	-	-	-
Inrush current measurement (INRUSH)	•	-	• Dynamic INRUSH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADDITIONAL CHARACTERISTICS																		
Measurement category:	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT III 600V	CAT III 600V	CAT III 600V	CAT III 600V	CAT III 600V	CAT III 600V	CAT III 600V CAT III 300V	CAT III 300V	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT III 300V
Maximum diameter for clamp	45mm	45mm	45mm	45mm	30mm	30mm	30mm	30mm	30mm	30mm	30mm	30mm	30mm	108mm	40mm	110mm	16mm	27mm
Measuring spots	-	6000	-	6000	6000	6000	2000	10000	10000	4000	2000	4000	2000	3200	6000	3000	10000	4000
Backlight	•	•	•	•	•	•	•	•	•	-	-	-	•	-	•	•	•	-
Bargraph	-	•	-	•	•	•	-	•	•	-	-	-	-	-	•	-	-	-
Autorange	•	•	•	•	•	•	•	•	•	-	•	•	•	-	•	•	•	•
Auto power off	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Detection of AC voltage without contact	•	•	•	•	•	•	•	-	-	•	-	•	•	-	-	-	•	-
Data HOLD function	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
MIN/MAX function	•	•	•	•	•	•	• MAX	•	•	-	-	-	• MAX	-	-	-	-	-
AVG function (AVERAGE)	-	-	-	-	-	-	-	•	•	-	-	-	-	-	-	-	-	-
PEAK function	•	•	•	•	•	•	-	•	•	-	-	-	-	-	•	-	-	-
Relative measurement (ZERO)	-	•	-	-	•	•	-	-	-	•	-	•	-	-	-	-	-	-
Low-pass filter to eliminate harmonic components	-	-	-	-	-	-	-	-	-	-	-	-	-	• 150Hz	• 100Hz	-	-	-
Analogue output	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	-
Recording of electric parameters over time	•	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Memory for data saving	•	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC / Smartphone or Tablet interface	• Bluetooth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Power supply	2x 1.5V AAA	1x 9V 6F22	2x 1.5V AAA	1x 9V 6F22	1x 9V 6F22	1x 9V 6F22	1x 9V 6F22	2x 1.5V AAA	2x 1.5V AAA	2x 1.5V AAA	2x 1.5V AAA	2x 1.5V AAA	1x 9V 6F22	2x 1.5V AAA	2x 1.5V AAA	2x 1.5V AAA	2x 1.5V AAA	1x 3V CR2032
Size in mm (L x W x H)	252x88x44	252x88x44	252x88x44	252x88x44	215x74x43	215x74x43	215x74x43	205x64x39	205x64x39	200x66x37	205x64x39	200x66x37	197x70x40	341x194x52	200 x 70 x 40	280x120x25	193 x 54 x 31	150x52x24
Weight in grams (batteries included)	420	442	420	402	285	285	285	280	280	205	280	205	180	1900	265	170	280g	110
Reference standard for safety	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1	IEC/ EN61010-1
Codice Metel	HP009022	HP009021	HP009020	HP009019	HP009015	HP009014	HP009012	HP004022	HP004020	HP004013	HP004012	HP004011	HP004010	HP000078	HP00077N	HP030000	HP000100	HP007003

* Only measurement in real time

CAT IV 600V
CAT III 1000V
TRMS

DYNAMIC INRUSH
HT9020

ORDER CODE ***HP009022*** | ***HP009020***

HT9022 | HT9020

PROFESSIONAL CLAMP METERS
WITH POWER/HARMONIC MEASUREMENT
AND BLUETOOTH CONNECTION (HT9022)

Power clamp meters HT9022 and HT9020 have been designed for measuring DC, AC+DC TRMS current up to 1000A to obtain CAT IV 600V in compliance with standard IEC/EN61010-1. They also measure **Active, Reactive and Apparent Power, Energy, voltage/current harmonic analysis up to the 25th with THD% calculation** in balanced single-phase or three-phase systems. They also allow testing phase sequence and concordance with the 1-terminal measuring method. It is also possible to detect the events linked to **motor starting (INRUSH) currents**. **HT9022**, compared to HT9020, also allows **recording** each measured electric parameter over time, with the possibility of transferring data via **Bluetooth** to **Android** devices through the **HTAnalysis** App or onto PC through the TOPVIEW software. The clamps are provided with a wide graphic dot-matrix screen (128x128pxl) with backlight, in order to allow reading data even in poorly lit environments. Auto power off function preserves internal battery.

Cloud HT9022 | HTAnalysis™ HT9022 | Bluetooth™ HT9022 | YouTube

Functions

- DC, AC + DC TRMS current up to 1000A
- DC, AC + DC TRMS voltage up to 1000A
- Frequency with test leads and clamp jaws
- Phase sequence / phase concordance
- Resistance and Continuity test
- Measurement/recording of DC power and energy ***(HT9022)***
- Active, reactive, apparent power meas./rec. on single-phase systems ***(HT9022)***
- Active, reactive, apparent energy meas./rec. on single-phase systems ***(HT9022)***
- Power factor measurement/recording on single-phase systems ***(HT9022)***
- Voltage/current harmonic meas./rec. up to the 25th and THD% ***(HT9022)***
- Measurement of DC power and energy ***(HT9020)***
- Active, reactive, apparent power measurement on single-phase systems ***(HT9020)***
- Active, reactive, apparent energy measurement on single-phase systems ***(HT9020)***
- Power factor measurement on single-phase systems ***(HT9020)***
- Voltage/current harmonic measurement up to the 25th and THD% ***(HT9020)***
- Motor starting (INRUSH) current detection
- Data logger function with programmable PI ***(HT9022)***
- Autorange
- Backlight
- Auto Power OFF
- Data HOLD, MAX/MIN/CREST
- Bluetooth for connection to PC and Android devices ***(HT9022)***

Main features

Display:	dot-matrix 128x128pxl with backlight
Power supply:	2x1.5V batteries type AAA
Duration:	> 50 hours
Internal memory:	2MBytes ***(HT9022)*** (approx. 2 days @ IP=15min and 60 parameters)
PC interface:	Bluetooth ***(HT9022)***
Safety:	IEC/EN61010-1
Insulation:	Double insulation
Pollution level:	2
Measurement category:	CAT IV 600V to earth, max 1000V between inputs
Max diameter of cable:	45mm
Size (LxWxH):	252x88x44mm
Weight (batteries included):	0.42kg

Accessories provided

YAAMK0000HT0	Pair of test leads
YAAMK0001HT0	Pair of alligator clips
TOPVIEWS	Windows software for PC connection
	Bluetooth/USB adapter for PC connection
YABRS0000NN0	Soft carrying bag
	Batteries
	User manual on CD-ROM
	ISO9000 calibration certificate
	Quick user guide

CAT IV 600V
CAT III 1000V
TRMS

ORDER CODE ***HP009021***

HT9021

AC/DC TRMS CAT IV 600V CLAMP METER
WITH TEMPERATURE MEASUREMENT

HT9021 has been designed to measure **AC/DC current up to 1000A in TRMS** reaching **CAT IV 600V** and **CAT III 1000V** in compliance with **safety standard IEC/EN61010-1**. The clamp is provided with a display with **6000 measuring spots** with **backlight** and **bargraph** to allow for a simple reading even in poorly lit environments. HT9021 also carries out **measurements of voltage up to 1000V**, **Resistance**, **Frequency**, **Capacity** and **Temperature with K-type probe**.

Functions

- TRMS measurements
- AC/DC voltage up to 1000V
- AC/DC current up to 1000A
- Resistance and Continuity test
- "Voltsense" for AC voltage recognition
- Frequency with clamp jaws and leads
- Capacity, Duty cycle, Diode test
- Temperature with K-type probe
- Autorange, Data HOLD
- MAX/MIN, PEAK (<10ms)
- Relative measurements
- Backlight, Bargraph
- Auto Power OFF

Main features

Display:	LCD, 4 digits, 6000 dots
Conversion type:	TRMS
Power supply:	1x9V battery type IEC6F22
Auto Power OFF:	after 15 minutes' idling
Max diameter of clamp:	45mm
Safety:	IEC/EN61010-1
Measurement category:	CAT IV 600V – CAT III 1000V
Insulation:	double insulation
Pollution level:	2
Size (LxWxH):	252x88x42mm
Weight (batteries included):	420g

Technical Specifications

DC voltage (Autorange)
- Measuring range: 3mV ÷ 1000V
- Basic accuracy: ±(1.0%reading + 3digits)

AC TRMS voltage (Autorange)
- Measuring range: 0.03V ÷ 1000V
- Frequency range: 50Hz ÷ 400Hz
- Basic accuracy: ±(1.0%reading + 4digits)

DC current
- Measuring range: 0.3A ÷ 1000A
- Basic accuracy: ±(2.0%reading + 8digits)

AC TRMS current
- Measuring range: 0.3A ÷ 1000A
- Frequency range: 50Hz ÷ 400Hz
- Basic accuracy: ±(2.8%reading + 8digits)

Resistance and Continuity test
- Measuring range: 3Ω ÷ 60MΩ
- Basic accuracy: ±(1.0%reading + 5 digits)
- Buzzer: <50Ω

Frequency with clamp jaws and leads
- Measuring range: 0.5Hz÷ 60kHz
- Basic accuracy: ±(1.0%reading + 5digits)

Capacity
- Measuring range: 0.2nF ÷ 4mF
- Basic accuracy: ±(2.5%reading + 5digits)

Temperature with K-type probe
- Measuring range: -20°C ÷ 760°C;
- Basic accuracy: ±(2.0%reading + 3°C)

Accessories provided

YAAMK0000HT0	Pair of test leads
T10	Adapter for K-type wire probe
TK101	K-type wire probe
YABRS0000NN0	Soft carrying bag
	Batteries and user manual

CAT IV 600V
CAT III 1000V
TRMS

ORDER CODE ***HP009019***

HT9019

PROFESSIONAL CLAMP METERS
AC 1000A TRMS, CAT IV 600V

Professional clamp meter HT9019 has been designed to measure **AC current up to 1000A and AC/DC voltage up to 1000V** in **TRMS** to reach **CAT IV 600V** according to standard **IEC/EN61010-1**. The clamp is provided with a wide display with **6000 measuring spots**, **backlight** and analogue **bargraph** to allow for a simple reading even in poorly lit environments. Clamp HT9019 is also provided with the auto power off function to preserve its own battery.

Functions

- TRMS measurements
- AC current up to 1000A
- AC/DC voltage up to 1000V
- Resistance and Continuity test
- "Voltsense" for AC voltage detection
- Autorange
- Data HOLD
- MAX/MIN
- PEAK CURRENT (<10ms)
- Bargraph
- Backlight
- AutoPowerOFF

Main features

Display:	LCD, 4 digits, 6000 dots
Conversion type:	TRMS
Power supply:	1x9V batteries type IEC 6F22
Auto Power OFF:	after 15 minutes' idling
Clamp jaw internal diameter	45mm
Safety:	IEC/EN61010-1
Measurement category:	CAT IV 600V – CAT III 1000V
Insulation:	double insulation
Pollution level:	2
Size (LxWxH):	252x88x44mm
Weight (batteries included):	420g

Technical Specifications

DC voltage (Autorange)
- Measuring range: 3mV ÷ 1000V
- Resolution: 0.01mV ÷ 1V
- Basic accuracy: ±(1.0%reading + 3digits)
- Protection against overcharge: 1000VDC/ACrms

AC TRMS voltage (Autorange)
- Measuring range: 0.03V ÷ 1000V
- Frequency band: 50Hz ÷ 400Hz
- Resolution: 0.001V ÷ 1V
- Basic accuracy: ±(1.0%reading + 4digits)
- Protection against overcharge: 1000VDC/ACrms

AC TRMS current
- Measuring range: 0.3A ÷ 1000A
- Frequency band: 50Hz ÷ 400Hz
- Resolution: 0.01A ÷ 1A
- Basic accuracy: ±(2.8%reading +8digits)
- Protection against overcharge: 1000Arms

Resistance and Continuity test
- Measuring range: 3Ω ÷ 60MΩ
- Resolution: 0.1Ω ÷ 0.01MΩ
- Basic accuracy: ±(1.0%reading + 5digits)
- Continuity buzzer: <50Ω

Accessories provided

YAAMK0000HT0	Pair of test leads
YABRS0000NN0	Soft carrying bag
	Batteries and user manual

CAT IV 600V
CAT III 1000V
TRMS

ORDER CODE ***HP009015***

HT9015

AC/DC TRMS 600A CAT IV CLAMP METER
WITH TEMPERATURE MEASUREMENT

HT9015 has been designed to measure **AC/DC current up to 600A and AC/DC voltage up to 1000V** in **TRMS** reaching **CAT IV 600V** and **CAT III 1000V** in compliance with **safety standard IEC/EN61010-1**. The clamp is provided with a display with **6000 measuring spots** with **backlight** and **bargraph** to allow for a simple reading even in poorly lit environments. HT9015 also measures **Resistance**, **Frequency**, **Capacity** and **Temperature with K-type probe**.

Functions

- TRMS measurements
- AC/DC voltage up to 1000V
- AC/DC current up to 600A
- Resistance and Continuity test
- "Voltsense" for AC voltage recognition
- Frequency with clamp jaws and leads
- Capacity
- Duty cycle
- Diode test
- Temperature with K-type probe
- Autorange
- Data HOLD
- MAX/MIN
- PEAK (<10ms)
- Relative measurements
- Backlight and Bargraph
- Auto Power OFF

Main features

Display:	LCD, 4 digits, 6000 dots
Conversion type:	TRMS
Power supply:	1x9V battery type IEC6F22
Auto Power OFF:	after 15 minutes' idling
Max diameter of clamp:	30mm
Safety:	IEC/EN61010-1
Measurement category:	CAT IV 600V - CAT III 1000V
Insulation:	double insulation
Pollution level:	2
Size (LxWxH):	210x75x45mm
Weight (batteries included):	400g

Technical Specifications

DC voltage (Autorange)
- Measuring range: 3mV ÷ 1000V
- Basic accuracy: ±(1.0%reading + 3digits)

AC TRMS voltage (Autorange)
- Measuring range: 0.03V ÷ 1000V
- Frequency range: 50Hz ÷ 400Hz
- Basic accuracy: ±(1.0%reading + 4digits)

DC current
- Measuring range: 0.3A ÷ 600A
- Basic accuracy: ±(2.0%reading + 8digits)

AC TRMS current
- Measuring range: 0.3A ÷ 600A
- Frequency range: 50Hz ÷ 400Hz
- Basic accuracy: ±(2.8%reading + 8digits)

Resistance and Continuity test
- Measuring range: 3Ω ÷ 60MΩ
- Basic accuracy: ±(1.0%reading + 5 digits)
- Buzzer: <50Ω

Frequency with clamp jaws and leads
- Measuring range: 0.5Hz÷ 60kHz
- Basic accuracy: ±(1.0%reading + 5digits)

Capacity
- Measuring range: 0.2nF ÷ 4mF
- Basic accuracy: ±(2.5%reading + 5digits)

Temperature with K-type probe
- Measuring range: -20°C ÷ 760°C; -4°F ÷ 1400°F
- Basic accuracy: ±(2.0%reading + 6°F)

Accessories provided

YAAMK0000HT0	Pair of test leads
T10	Adapter for K-type wire probe
TK101	K-type wire probe
	Battery, User manual and Soft carrying bag

CAT IV 600V

CAT III 1000V

TRMS

ORDER CODE ***HP009014***

HT9014

PROFESSIONAL CLAMP METER AC 600A
TRMS, CAT IV 600V

Professional clamp meter HT9014 has been designed to measure **AC current up to 600A and AC/DC voltage up to 1000V TRMS** to reach **CAT IV 600V** and **CAT III 1000V** in compliance with standard **IEC/EN61010-1**. The clamp is provided with a wide **backlight display** with **6000 measuring spots** and an auto power off function to preserve its battery.

Functions

- Measurements in TRMS, DC/AC voltage, AC current
- Resistance / Continuity test, Frequency
- "Voltsense" sensor
- Diode test, Temperature with K-type probe
- Capacity, Duty Cycle
- Autorange, Data HOLD, MAX/MIN
- PEAK CURRENT (<10ms)
- Relative measurement, Bargraph, Backlight, AutoPowerOFF

Main features

Display:	LCD, 4 digits, 6000 dots
Conversion type:	TRMS
Power supply:	1x9V battery type IEC 622
Auto Power OFF:	after 30 minutes' idling
Clamp jaw internal diameter	30mm
Safety:	IEC/EN61010-1
Measurement category:	CAT IV 600V – CAT III 1000V
Size (LxWxH):	210x75x45mm
Weight (batteries included):	400g

Accessories provided

YAAMK0000HT0	Pair of test leads
T10	Adapter for K-type wire probe
TK101	K-type wire probe
	Battery, User manual and Soft carrying bag

Technical Specifications

DC voltage
- Measuring range: 3mV ÷ 1000V
- Resolution: 0.1V ÷ 1V
- Basic accuracy: ±(1.0%reading + 3digits)
- Protection: 1000VDC/AC

AC voltage
- Measuring range: 0.03V ÷ 1000V
- Frequency band: 50 ÷ 400Hz
- Resolution: 0.01V ÷ 1V
- Basic accuracy: ±(1.0%reading + 10digits)
- Protection: 600Vrms

AC current
- Measuring range: 0.3A ÷ 600A
- Frequency band: 50 ÷ 400Hz
- Resolution: 0.1A ÷ 1A
- Basic accuracy: ±(2.8%reading + 8digits)
- Protection: 600Arms

Resistance and Continuity test
- Measuring range: 3Ω ÷ 60kΩ
- Resolution: 0.1Ω ÷ 0.01kΩ
- Basic accuracy: ±(1.0%reading + 5digits)
- Continuity test: <60Ω

Capacity
- Measuring range: 0.2nF ÷ 4mF
- Resolution: 0.01μF ÷ 1μF
- Basic accuracy: ±(2.5%reading + 5digits)

Temperature with K-type probe
- Measuring range: -20°C ÷ 760°C
- Resolution: 0.1°C
- Basic accuracy: ±(2.0%reading + 3°C)

Frequency with test leads and clamp jaws
- Measuring range: 0.5Hz ÷ 60kHz
- Resolution: 0.01Hz ÷ 0.01kHz
- Basic accuracy: ±(1.0%reading + 5digits)
- Protection: 600A/600V

CAT IV 600V

CAT III 1000V

ORDER CODE ***HP009012***

HT9012

PROFESSIONAL CLAMP METER AC
600A, CAT IV 600V

Professional clamp meter HT9012 has been designed to measure **AC current up to 600A and AC/DC voltage up to 1000V** to reach **CAT IV 600V** and **CAT III 1000V** in compliance with standard **IEC/EN61010-1**. The clamp is provided with a wide **backlight display** with **6000 measuring spots** and an auto power off function to preserve its battery.

Functions

- DC/AC voltage
- AC current
- Resistance / Continuity test
- "Voltsense" sensor
- Diode test
- Data HOLD
- MAX function
- Backlight
- AutoPowerOFF

Main features

Display:	LCD, 3 1/2 digits, 2000 dots
Conversion type:	average value
Power supply:	1x9V battery type IEC 622
AutoPowerOFF:	after 30 minutes' idling
Clamp jaw internal diameter	30mm
Safety:	IEC/EN61010-1
Measurement category:	CAT IV 600V – CAT III 1000V
Size (LxWxH):	210x75x45mm
Weight (batteries included):	400g

Technical Specifications

DC voltage
- Measuring range: 1mV ÷ 1000V
- Resolution: 0.1mV ÷ 1V
- Basic accuracy: ±(1%reading + 3digits)
- Protection: 1000V DC/AC

AC voltage
- Measuring range: 1mV ÷ 1000V
- Frequency band: 50 ÷ 60Hz
- Resolution: 0.1mV ÷ 1V
- Basic accuracy: ±(1%reading + 4digits)
- Protection: 1000V DC/AC

AC current
- Measuring range: 0.01A ÷ 600A
- Frequency band: 50 ÷ 60Hz
- Resolution: 1mA ÷ 1A
- Basic accuracy: ±(2.5%reading + 4digits)
- Protection: 600Arms

Resistance and Continuity test
- Measuring range: 1Ω ÷ 20MΩ
- Resolution: 0.1Ω ÷ 0.01MΩ
- Basic accuracy: ±(1.0%reading + 5digits)
- Continuity buzzer: <100Ω

Accessories provided

YAAMK0000HT0	Pair of test leads
	Battery
	User manual and Soft carrying bag

TRMS

CAT III 600V

ORDER CODE ***HP004022*** | ***HP004020***

HT4022 | HT4020

AC TRMS 400A CLAMP METERS WITH POWER/ HARMONICS MEASUREMENT

Professional clamp meters HT4020 and HT4022 carry out measurements in **TRMS** of **AC current up to 400A**, **AC/DC voltage up to 600V**, **Frequency**, **Resistance**, **Continuity test**, **Active**, **Reactive**, **Apparent Power**, **Cosφ**, **Energy for balanced single-phase and/or three-phase systems, further to the detection of phase sequence by 1-terminal method**. Model **HT4022** also carries out the absolute/percentage measurement of **voltage and current harmonic components** with calculation of **THD%**. Each device **complies** with **IEC/EN61010-1** in **CAT III 600V** and is the ideal solution or troubleshooting typical problems in **industrial environments** such as **non-linear loads**, **frequency-controlled motors**.

Functions

	HT4022	HT4020
DC/AC TRMS voltage	•	•
AC TRMS current	•	•
Resistance and Continuity test	•	•
Frequency with test leads and clamp jaws	•	•
Active, Reactive, Apparent power	•	•
Active, Reactive, Apparent energy	•	•
Power factor and Cosφ	•	•
V/ I harmonics up to the 25th and THD%	•	-
Phase sequence with 1 terminal	•	•
Autorange	•	•
Data HOLD	•	•
MAX/MIN/AVG/PEAK	•	•
Backlight	•	•
AutoPowerOFF	•	•

Main features

Display:	LCD, 4 digits, 10000 dots
Conversion type:	TRMS, 64 samples in 20ms
Power supply:	2x1.5V batteries type AAA LR03
Auto Power OFF:	after 5 minutes' idling
Safety:	IEC/EN 61010-1
Measurement category:	CAT III 600V
Pollution level:	2
Insulation:	double insulation
Max height:	2000m
Clamp jaw internal diameter	30mm
Size (LxWxH):	205x64x39mm
Weight (batteries included):	approx 280g

Accessories provided

4413-2	Pair of test leads
YAAMK0001HT0	Pair of alligator clips
B80	Soft carrying bag
	Rubber cap for test lead
	ISO9000 calibration certificate
	Batteries and user manual

Technical Specifications

	HT4022	HT4020
DC voltage		
Measuring range:	0.1V ÷ 600V	0.1V ÷ 600V
Resolution:	0.1V	0.1V
Basic accuracy:	±(1.0%read. + 3digits)	±(1.0%read. + 3digits)
Protection:	600Vrms	600Vrms
AC TRMS voltage		
Measuring range:	1.6V ÷ 600V	1.6V ÷ 600V
Resolution:	0.1V	0.1V
Basic accuracy:	±(1.0%read. + 3digits)	±(1.0%read. + 3digits)
Protection:	600Vrms	600Vrms
AC TRMS current		
Measuring range:	0.1A ÷ 400A	0.1A ÷ 400A
Resolution:	0.1A	0.1A
Basic accuracy:	±(1.0%read. + 3digits)	±(1.0%read. + 3digits)
Protection:	600Arms	600Arms
Active, Reactive, Apparent AC power [kW, kVAR, kVA]		
Measuring range:	0.01 ÷ 1000	0.01 ÷ 1000
Resolution:	0.01 ÷ 0.1	0.01 ÷ 0.1
Basic accuracy:	±(3.5%read. + 3digits)	±(3.5%read. + 3digits)
Protection:	600V/600Arms	600V/600Arms

	HT4022	HT4020
Power factor and Cosφ		
Measuring range:	0.20 ÷ 1.00	0.20 ÷ 1.00
Resolution:	0.01	0.01
Basic accuracy:	±3°	±3°
voltage and current harmonics		
Harmonic order	1 ÷ 25	-
Resolution [V, A]	0.1	-
Basic accuracy:	±(10%read. + 5digits)	-
Resistance and Continuity test		
Measuring range:	0.1Ω ÷ 2kΩ	0.1Ω ÷ 2kΩ
Resolution:	0.1Ω ÷ 3Ω	0.1Ω ÷ 3Ω
Basic accuracy:	±(1.0%read. + 5digits)	±(1.0%read. + 5digits)
Continuity test	<40Ω	<40Ω
Protection:	600Vrms	600Vrms
Frequency with test leads and clamp jaws		
Measuring range:	40Hz ÷ 400Hz	40Hz ÷ 400Hz
Resolution:	0.1Hz	0.1Hz
Basic accuracy:	±(0.5%read.+ 1digit)	±(0.5%read.+ 1digit)
Protection:	600Vrms/600Arms	600Vrms/600Arms
Phase sequence with 1 terminal		
Measuring range:	50V ÷ 600V	50V ÷ 600V
Frequency range:	40Hz ÷ 69Hz	40Hz ÷ 69Hz
Protection:	600Vrms	600Vrms

CAT III 600V

ORDER CODE ***HP004013***

HT4013

CLAMP METER AC/DC 400A

Clamp meter HT4013 has been designed to measure **AC/DC current up to 400A and AC/DC voltage up to 600V** to reach **CAT III 600V** in compliance with standard **IEC/EN61010-1**. The clamp is provided with an internal sensor to detect AC voltage also without contact, through a red LED turning on. This model also carries out measurements of **Resistance**, **Continuity tests**, **Frequency**, **Capacity**, **Diode test**, **Duty Cycle** and **Temperature with K-type probe**, among others. The clamp is also provided with the auto power off function to preserve its own battery.

Functions

- AC/DC current up to 400A
- AC/DC voltage up to 600V
- "Voltsense" for AC voltage detection
- Resistance and continuity test with buzzer
- Frequency with leads, Capacity, Diode test
- Duty Cycle (%)
- Temperature with K-type probe
- Autorange, Data HOLD, MAX/MIN/Relative measurement

Main features

Display:	LCD, 4 digits, 4000 dots
Conversion type:	RMS
Power supply:	2x1.5V alkaline batteries type AAA LR03
Auto Power OFF:	after 30 minutes' idling
Max diameter of clamp:	30mm
Safety:	IEC/EN61010-1
Measurement category:	CAT III 600V
Insulation:	double insulation
Pollution level:	2
Size (LxWxH):	200x66x37mm
Weight (batteries included):	205g

Accessories provided

KIT4000A	Pair of leads with 2mm tip
T10	Adapter for K-type wire probe
TK101	K-type wire probe
	Battery, User manual and Soft carrying bag

Technical Specifications

DC voltage (Autorange)
- Measuring range: 2mV ÷ 600V
- Resolution: 0.1mV ÷ 1V
- Basic accuracy: ±(0.8%reading + 2digits)
- Protection against overcharge: 600VDC/ACrms

AC voltage (Autorange)
- Measuring range: 0.02V ÷ 600V
- Frequency band: 50Hz ÷ 400Hz
- Resolution: 0,001V ÷ 1V
- Basic accuracy: ±(1.5%reading + 5digits)
- Protection against overcharge: 600VDC/ACrms

AC/DC current
- Measuring range: 0.2A ÷ 400A
- Resolution: 0.01A ÷ 1A
- Frequency range: 50Hz ÷ 60Hz
- Basic accuracy: ±(2.5%reading + 5digits)
- Protection against overcharge: 400Arms

Resistance and Continuity test
- Measuring range: 2Ω ÷ 40MΩ
- Resolution: 0.1Ω ÷ 0.01MΩ
- Basic accuracy: ±(1.0%reading + 4digits)
- Protection against overcharge: 600VDC/ACrms
- Continuity buzzer: <30Ω

Capacity
- Measuring range: 0.2nF ÷ 100μF
- Resolution: 0.01nF ÷ 0.1μF
- Basic accuracy: ±(3.0%reading + 5digits)
- Protection against overcharge: 600VDC/ACrms

Frequency and Duty Cycle
- Measuring range: 10Hz ÷ 10kHz
- Resolution: 0.01Hz ÷ 0.01kHz
- Basic accuracy: ±(1.5%reading + 2digits)
- Protection against overcharge: 600VDC/ACrms
- Duty Cycle: Measuring range 0.5% ÷ 99%;

Temperature with K-type probe
- Measuring range: -20°C ÷ 760°C
- Resolution: 0.1°C ÷ 1°C
- Basic accuracy: ±(3%reading + 5°C)

CAT III 600V

ORDER CODE ***HP004012***

HT4012

CLAMP METER AC 400A

Clamp meter HT4012 can carry out measurements of **AC current up to 400 A** and **AC/DC voltage up to 600V**, **Resistance** and **Continuity**. Thanks to the practical patented **rubber protection** which covers the jaws **it is possible to insert a lead** into the free slot and, therefore, **by working with a single hand**, simple and quick measurements are guaranteed. This device complies with standard **IEC/EN61010-1** in **CAT III 600V** and it is the ideal solution for measurements to be carried out both in domestic and in industrial environments.

Functions

- AC/DC voltage
- AC current
- Resistance and Continuity test
- Diode test
- Data HOLD
- Manual change of scale
- AutoPowerOFF

Main features

Display:	LCD 3 1/2 digits, 2000 dots
Conversion type:	average value
Power supply:	2x1.5V batteries type AAA LR03
Auto Power OFF:	after 10 minutes' idling
Safety:	IEC/EN 61010-1
Measurement category:	CAT III 600V
Insulation:	Double insulation
Pollution level:	2
Max height:	2000m
Clamp jaw internal diameter:	30mm
Size (LxWxH):	205x64x39mm
Weight (batteries included):	approx 280g

Technical Specifications

DC voltage
- Measuring range: 10mV ÷ 600V
- Resolution: 1mV ÷1V
- Basic accuracy: ±(0.8%reading + 2digits)
- Protection: 600Vrms

AC voltage
- Measuring range: 10mV ÷ 600V
- Resolution: 1mV ÷ 1V
- Frequency band: 50 Hz ÷ 60Hz
- Basic accuracy: ±(1.0%reading + 3digits)
- Protection: 600Vrms

AC current
- Measuring range: 1A ÷ 400A
- Resolution: 0.1A ÷ 1A
- Frequency band: 50 Hz ÷ 60Hz
- Basic accuracy: ±(2.0%reading + 10digits)
- Protection: 600Arms

Resistance and continuity test with buzzer
- Measuring range: 1Ω ÷ 20MΩ
- Resolution: 0.1Ω ÷ 10kΩ
- Basic accuracy: ±(1.0%reading + 3digits)
- Continuity buzzer: <25Ω
- Protection: 600VAC/DCrms

Accessories provided

4413-2	Pair of test leads
B80	Soft carrying bag
	Rubber cap for lead, batteries and user manual

CAT III 600V

ORDER CODE ***HP004011***

HT4011

CLAMP METER AC 400A

Clamp meter HT4011 has been designed to measure **AC current up to 400A and AC/DC voltage up to 600V** to reach **CAT III 600V** in compliance with standard **IEC/EN61010-1**. The clamp is provided with an internal sensor to detect AC voltage also without contact, through a red LED turning on. HT4011 also carries out measurements of **Resistance**, **Continuity tests**, **Frequency**, **Capacity**, **Diode test**, **Duty Cycle** and **Temperature with K-type probe**, among others. The clamp is also provided with the auto power off function to preserve its own battery.

Functions

- AC current up to 400A
- AC/DC voltage up to 600V
- "Voltsense" for AC voltage detection
- Resistance and continuity test with buzzer
- Frequency with leads, Capacity, Diode test
- Duty Cycle (%)
- Temperature with K-type probe
- Autorange, Data HOLD, MAX/MIN/Relative measurement

Main features

Display:	LCD, 4 digits, 4000 dots
Conversion type:	average value
Power supply:	2x1.5V batteries type AAA LR03
Auto Power OFF:	after 30 minutes' idling
Max diameter of clamp:	30mm
Safety:	IEC/EN61010-1
Measurement category:	CAT III 600V
Insulation:	double insulation
Pollution level:	2
Size (LxWxH):	200x66x37mm
Weight (batteries included):	205g

Accessories provided

KIT4000A	Pair of leads with 2mm tip
T10	Adapter for K-type wire probe
TK101	K-type wire probe
	Battery, User manual and Soft carrying bag

Technical Specifications

DC voltage (Autorange)
- Measuring range: 400mV ÷ 600V
- Resolution: 0.1mV ÷ 0.1V
- Basic accuracy: ±(0.8%reading + 2digits)
- Protection against overcharge: 600VDC/ACrms

AC voltage (Autorange)
- Measuring range: 4V ÷ 600V
- Frequency band: 50Hz ÷ 400Hz
- Resolution: 0,001V ÷ 1V
- Basic accuracy: ±(1.8%reading + 8digits)
- Protection against overcharge: 600VDC/ACrms

AC current
- Measuring range: 0.2A ÷ 400A
- Resolution: 0.01A ÷ 1A
- Frequency range: 50Hz ÷ 60Hz
- Basic accuracy: ±(2.5%reading + 8digits)
- Protection against overcharge: 400Arms

Resistance and Continuity test
- Measuring range: 2Ω ÷ 40MΩ
- Resolution: 0.1Ω ÷ 0.01MΩ
- Basic accuracy: ±(1.0%reading + 5digits)
- Protection against overcharge: 600VDC/ACrms
- Continuity buzzer: <60Ω

Capacity
- Measuring range: 0.2nF ÷ 400μF
- Resolution: 0.01nF ÷ 0.1μF
- Basic accuracy: ±(3.0%reading + 5digits)
- Protection against overcharge: 600VDC/ACrms

Frequency and Duty Cycle
- Measuring range: 10Hz ÷ 10kHz
- Resolution: 0.01Hz ÷ 0.01kHz
- Basic accuracy: ±(1.5%reading + 2digits)
- Protection against overcharge: 600VDC/ACrms
- Duty Cycle: Measuring range 0.5% ÷ 99%;

Temperature with K-type probe
- Measuring range: -20°C ÷ 760°C
- Resolution: 0.1°C ÷ 1°C
- Basic accuracy: ±(3%reading + 5°C)

CAT III 600V

ORDER CODE ***HP004010***

HT4010

CLAMP METER AC 600A

Clamp meter HT4010 can carry out measurements of **AC current up to 600A** and **AC/DC voltage**, **Resistance**, **Continuity** and **Diode test**. The device is provided with an internal sensor capable o detecting, through a LED turning on and a buzzer sounding, the presence of AC voltage in a spot without contact. This device complies with standard **IEC/EN61010-1** in **CAT III 600V** and it is the ideal solution for measurements to be carried out both in domestic and in industrial environments.

Functions

- AC current up to 600A
- AC/DC voltage up to 600V
- Detection of AC voltage without contact
- Resistance / Continuity test
- Diode test
- Data HOLD
- MAX
- Backlight
- Auto Power OFF

Main features

Display:	LCD, 3 ½ digits, 2000 dots
Conversion type:	average value
Power supply:	1x9V battery type 6F22
Auto Power OFF:	after 15 minutes' idling
Clamp jaw internal diameter:	30mm
Safety:	EC/EN 61010-1
Measurement category:	CAT III 600V
Insulation:	double insulation
Pollution level:	2
Max height:	2000m
Size (LxWxH):	197x70x40mm
Weight (batteries included):	180g

Technical Specifications

DC voltage
- Measuring range: 1mV ÷ 600V
- Resolution: 0.1mV÷1V
- Basic accuracy: ±(0.8%reading + 2 digits)
- Protection against overcharge: 600Vrms

AC voltage
- Measuring range: 1mV ÷ 600V
- Resolution: 0.1mV÷1V
- Frequency band: 50Hz ÷ 60Hz
- Basic accuracy: ±(1.5%reading+ 3.5mV)
- Protection against overcharge: 600Vrms

AC current
- Measuring range: 0.01A ÷ 600A
- Resolution: 1mA ÷ 0.1A
- Frequency band: 50Hz ÷ 60Hz
- Basic accuracy: ±(2.5%reading + 4digits)
- Protection against overcharge: 600Arms

Resistance and continuity test with buzzer
- Measuring range: 1Ω ÷ 20MΩ
- Resolution: 0.1Ω ÷ 0.01MΩ
- Basic accuracy: ±(1.0%reading + 4digits)
- Continuity buzzer: <150Ω

Accessories provided

KIT4000A	Pair of test leads
	Soft carrying bag, battery and user manual

CAT III 300V

CAT III 600V (ONLY HT78)

TRMS

ORDER CODE **HP000078** | **HP00077N**

HT78 | HT77N

AC CLAMP METERS FOR LEAKAGE CURRENT MEASUREMENT

New models HT77N and HT78 are clamp meters designed **for an accurate measurement of very low values** of **AC currents** and, therefore, they are mainly employed in detecting and and defining **leakage currents** in **domestic and industrial electric systems**, which typically cause RCDs' tripping. Clamp meters are provided, among others, with an **integrated low-pass filter to eliminate harmonic components**. HT78 is provided with an analogue output in DC voltage for the connection with external dataloggers. HT78, thanks to its **big jaws (108mm)**, allows easily measuring leakage currents also on (single-phase and/or three-phase 4-wire) cables having **a big cross-section**.

Functions

	HT78	HT77N
TRMS measurement	•	•
AC current	• 3000A	• 100A
Low-pass filter	• (150Hz)	• (100Hz)
Analogue DC output	•	-
Data HOLD	•	•
Auto HOLD	•	•
Peak HOLD	-	•
Autorange	-	•
Bargraph	-	•
Backlight	-	•
Auto Power OFF	•	•

Technical Specifications

	HT78	HT77N
AC TRMS current		
Measuring range:	0.1mA ÷ 3000A	0.01mA ÷ 100A
Resolution:	0.1mA ÷ 1A	0,001mA ÷ 0.1A
Basic accuracy:	±(1.5%read. + 8digits)	±(1.0%read. + 8digits)
Protection:	3000Arms	max 120Arms
Analogue output		
Measuring range:	0.3,3.30,300.3kA	-
Full scale for any measuring range:	300mV	-
Basic accuracy:	±(1.5%FS)	-

Main features

Display:	LCD 4 digits, 6000 dots ***(HT77N)*** LCD 4 digits, 3200 dots ***(HT78)***
Conversion type	TRMS
Power supply:	2x1.5V batteries type AAA LR03
Auto Power OFF:	after 20 minutes' idling ***(HT77N)*** after 10 minutes' idling ***(HT78)***
Safety:	IEC/EN 61010-1
Measurement category:	CAT III 300V ***(HT77N)*** CAT II 600V, CAT III 300V ***(HT78)***
Insulation:	double insulation
Pollution level:	2
Max operating altitude:	2000m
Max cable diameter:	40mm ***(HT77)***, 108mm ***(HT78)***
Size (LxWxH):	202x75x42mm ***(HT77N)*** 341x194x52mm ***(HT78)***
Weight (batteries included):	265g ***(HT77N)***, 1.9kg ***(HT78)***

Accessories provided

- Soft carrying bag and batteries
- Non-slip strap ***(only HT78)***
- User Manual

CAT IV 600V

CAT III 1000V

TRMS

ORDER CODE **HP030000**

F3000

CLAMP METER WITH FLEXIBLE CLAMP JAWS AC 3000A

Professional clamp meter F3000 has been designed to measure **AC current up to 3000A** in **TRMS** in **total autorange** to reach **CAT IV 600V**, **CAT III 1000V** according to standard **IEC/EN61010-1**. The clamp is provided with innovative **flexible jaws** capable of reaching a **maximum diameter of 110mm** and allowing for an easy reading in any condition. The clamp is provided with a wide display with **3000 measuring spots**, **Data HOLD** function and **Backlight** to allow for a simple reading even in poorly lit environments. The clamp is also provided with the auto power off function to preserve its own battery.

Functions

- TRMS measurements
- AC TRMS current up to 3000A
- Flexible jaws with big diameter
- Autorange
- Data HOLD
- MAX/MIN
- Backlight
- Auto Power OFF

Main features

Display:	LCD, 4 digits, 3000 dots
Conversion type:	TRMS
Power supply:	2x1.5V alkaline batteries type AAA LR03
Auto Power OFF:	after 20 minutes' idling
Max diameter of clamp:	110mm
Safety:	IEC/EN61010-1
Measurement category:	CAT IV 600V – CAT III 1000V
Insulation:	double insulation
Pollution level:	2
Size (LxWxH):	280x120x25mm
Weight (batteries included):	170g

Technical Specifications

AC TRMS current

- Measuring range: 0.1A ÷ 3000A
- Resolution: 0.01 ÷ 1A
- Frequency range: 45Hz ÷ 500Hz
- Basic accuracy: ±(3%reading + 5digits)

Accessories provided

- Batteries
- Soft carrying bag
- User Manual

CAT IV 600V

CAT III 1000V

TRMS

ORDER CODE ***HP000100***

HT100

FORK CLAMP METER
AC 200A TRMS

Professional clamp meter HT100 is provided with automatic recognition of functions. The measurement of **AC current up to 200A and AC/DC voltage up to 1000V in TRMS** reacheas **CAT IV 600V** and **CAT III 1000V** in compliance with standard **IEC/EN61010-1**. The clamp is provided with **"open" jaws**, with a wide **display with 9999 measuring spots**, **"Voltsense"** phase detector function, **Data HOLD** and **backlight** to allow for a simple reading even in poorly lit environments. HT100 also carries out measurements of **Resistance**, **Continuity test** and **Diode test**. The clamp is also provided with the auto power off function to preserve its own battery.

Functions

- TRMS measurements
- AC TRMS current up to 200A
- DC/AC TRMS voltage up to 1000V
- "Voltsense" for AC voltage detection
- Resistance
- Continuity test with buzzer
- Diode test
- Autorange
- Autorecognition function
- Data HOLD
- Backlight
- Auto Power OFF

Main features

Display:	LCD, 4 digits, 10000 dots, backlight
Conversion type:	TRMS
Power supply:	2x1.5V alkaline batteries type AAA LR03
Auto Power OFF:	after 20 minutes' idling
Max diameter of clamp:	16mm
Safety:	IEC/EN61010-1
Measurement category:	CAT IV 600V, CAT III 600V
Insulation:	double insulation
Pollution level:	2
Size (LxWxH):	193x54x31mm
Weight (batteries included):	280g

Technical Specifications

DC voltage (Autorange)
- Measuring range: 2.2V ÷ 1000V
- Resolution: 0.1V
- Basic accuracy: ±(0.3%reading + 2digits)
- Protection against overcharge: 1000VDC/ACrms

AC TRMS voltage (Autorange)
- Measuring range: 1.3V ÷ 1000V
- Frequency band: 50Hz ÷ 500Hz
- Resolution: 0.1V
- Basic accuracy: ±(0.9%reading + 3digits)
- Protection against overcharge: 1000VDC/ACrms

AC TRMS current (Autorange)
- Measuring range: 1.5A ÷ 200A
- Resolution: 0.1A
- Frequency range: 50Hz ÷ 60Hz
- Basic accuracy: ±(3%reading + 5digits)
- Protection against overcharge: 200Arms

Resistance and Continuity test
- Measuring range: 0Ω ÷ 9999Ω
- Resolution: 1Ω
- Basic accuracy: ±(0.9%reading + 2digits)
- Protection against overcharge: 1000VDC/ACrms
- Continuity buzzer: <25Ω

Diode test
- Measuring range: 0.4V ÷ 0.8V
- Resolution: 0.1V
- Basic accuracy: ±(1%reading + 3digits)
- Protection against overcharge: 1000VDC/ACrms

Accessories provided

4413-2	Pair of test leads
	Batteries and user manual
	For optional accessories, please refer to the table.

CAT III 300V

ORDER CODE ***HP007003***

HT7003

POCKET CLAMP METER
FOR AC CURRENT UP TO 300A

Clamp meter HT7003 can carry out measurements of **AC current up to 200A in Autorange**, in compliance with **IEC/EN61010-1**, **CAT III 300V**. It is provided with **Data HOLD** function and is provided with auto power off function in order to preserve the internal battery when not in use. Thanks to its **extremely small size**, this model is very practical and it is the ideal solution for simple measurements in the most common domestic and industrial environments.

Functions

- AC current up to 300 A
- Autorange
- Auto Power OFF
- Data HOLD
- Low battery indication

Main features

Display:	LCD, 3¾ digits, 4000 dots
Conversion type:	RMS
Power supply:	1x3V battery type CR2032
Auto Power OFF:	after 12 minutes' idling
Clamp jaw internal diameter:	27mm
Safety:	IEC/EN 61010-1, IEC/EN61010-2-32
Measurement category:	CAT III 300V
Insulation:	double insulation
Pollution level:	2
Max height:	2000m
Size (LxWxH):	150x52x24mm
Weight (batteries included):	110g

Technical Specifications

AC current
- Measuring range: 0.2A ÷ 300A
- Resolution: 0.01A ÷ 0.1A
- Frequency band: 50Hz ÷ 60Hz
- Basic accuracy: ±(1.8%reading + 5digits)
- Protection against overcharge: 400Arms (60 seconds)

Accessories provided

Soft carrying bag
Batteries
User manual

COMPARISON TABLE **LINE**

	HT9022	HT9021	HT9020	HT9019	HT9015	HT9014	HT9012	HT4022	HT4020	HT4013	HT4012	HT4011	HT4010	HT78	HT77N	F3000	HT100	HT7003
T10 Adapter for K-type probes for multimeters *ORDER CODE* ***HA100010***	-	S	-	-	S	S	-	-	-	S	-	S	-	-	-	-	-	-
TK101 K-type wire thermocouple Measuring range: - 20 ÷ 250°C *ORDER CODE* ***HA000108***	-	S	-	-	S	S	-	-	-	S	-	S	-	-	-	-	-	-
TK107 K-type thermocouple for air and gas temperature Measuring range: - 40 ÷ 800°C *ORDER CODE* ***HA110000***	-	0	-	-	0	0	-	-	-	0	-	0	-	-	-	-	-	-
TK108 "K"-type thermocouple for internal temperatures of liquids and semi-solid substances Measuring range: - 40 ÷ 800°C *ORDER CODE* ***HA110001***	-	0	-	-	0	0	-	-	-	0	-	0	-	-	-	-	-	-
TK109 K-type thermocouple for internal temperatures of liquid and solid substances, fruit and food Measuring range: - 40 ÷ 800°C *ORDER CODE* ***HA110002***	-	0	-	-	0	0	-	-	-	0	-	0	-	-	-	-	-	-
TK110 "K"-type thermocouple for surface temperatures Measuring range: - 40 ÷ 400°C *ORDER CODE* ***HA110003***	-	0	-	-	0	0	-	-	-	0	-	0	-	-	-	-	-	-
TK111 "K"-type thermocouple for surface temperatures with 90° fixed tip Measuring range: - 40 ÷ 400°C *ORDER CODE* ***HA110004***	-	0	-	-	0	0	-	-	-	0	-	0	-	-	-	-	-	-
TOPVIEWS Data management software *ORDER CODE* ***HA000719***	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YABRS0000NN0 Soft carrying bag for clamp and accessories *ORDER CODE* ***HA000145***	S	S	S	S	-	-	-	-	-	-	-	-	-	-	-	S	-	-
B80 Soft carrying bag for multimeter and leads *ORDER CODE* ***HA001180***	-	-	-	-	S	S	S	S	S	S	S	S	S	-	S	-	S	-
YAAMK0000HT0 Pair of leads with 4mm tip and protection, red/black and 90° banana plug *ORDER CODE* ***HA000143***	S	S	S	S	S	S	S	S	S	0	S	0	0	-	-	-	0	-

S = Standard **0** = Optional

COMPARISON TABLE **OF ACCESSORIES**

	HT9022	HT9021	HT9020	HT9019	HT9015	HT9014	HT9012	HT4022	HT4020	HT4013	HT4012	HT4011	HT4010	HT78	HT77N	F3000	HT100	HT7003
YAAMK0001HT0 Pair of alligator clips, red/black 4mm *ORDER CODE **HA000144***	S	0	S	0	0	0	0	S	S	0	0	0	0	-	-	-	0	-
4413-2 Pair of leads with 4mm tip and protection, red/black and 90° banana plug *ORDER CODE **HA441200***	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	S	-
KIT4000A Pair of leads with 2mm tip, red/black and 90° banana plug *ORDER CODE **HA000174***	0	0	0	0	0	0	0	0	0	S	0	S	S	-	-	-	0	-
4717-S-IEC100# Leads with retractable safety tip # = black N - B (blue) - R (red) *ORDER CODE **HA47170#***	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	0	-
404-IEC# Connector for extension banana cable 4mm # = colour N (black) - B (blue) - V (green) *ORDER CODE **HA40200#***	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	-	-	-	0*	-
5004-IEC# Insulated alligator clip (20A) for 4mm banana cables # = colour N (black) - B (blue) - V (green) - R (red) *ORDER CODE **HA50040#***	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	-	-	-	0*	-
6007-IEC# Flexible alligator clip (6A) for 4mm banana cables # = colour N (black) - R (red) *ORDER CODE **HA60070#***	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	-	-	-	0*	-
6009-IEC# Rigid alligator clip (20A) for 4mm banana cables # = colour N (black) - R (red) *ORDER CODE **HA60090#***	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	-	-	-	0*	-
5001-# Cable with 4mm banana-banana connector, 1.5m long # = colour N (black) - B (blue) - V (green) - R (red) *ORDER CODE **HA05001#***	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	0	-
425 Kit consisting in 2 4mm banana-banana cables, 2 leads 404-IECN+R and 2 rigid alligator clips (20A) *ORDER CODE **HA425000***	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	0	-
44100 Set of 2 4mm banana-banana cables, 2 leads 402-IECN+R, 2 alligator clips 6009-IECN+R + 2 long clamp terminals and a set of alligator clips KITMPPDCC *ORDER CODE **HA441000***	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	0	-

S = Standard **0** = Optional * Cable with 4mm banana necessary (e.g. 5001-#)

ORDER CODE ***HVOTDEMO***

TESTBOARD

MULTIFUNCTION DEMONSTRATION CASE

TESTBOARD has been designed **for use with electric measuring devices, to learn how they operate,** and it is therefore essentially indicated for **didactic/ promotional** purposes. This model allows simulating a low-voltage electric system **(type TT or TN)**.
The case is provided with practical **commuters capable of activating OK/NO conditions** with regard to the insertion of the correct condition on measurement and its respective error condition.

Functions

- Tests on TT systems (Continuity of protection conductors, Insulation, RCD tests, Non-trip earth resistance, Earth resistance by 3-spot method, Direct and indirect leakage current)
- Tests on TN systems (Line/Loop impedance, Prospective short-circuit current)
- 4mm banana safety terminals
- 6 commuters for error condition selection
- Protection use on power supply
- Test plugs, type Shuko Europlug
- Test RCD adjustable in time and current
- Magneto-thermal switch type C10

Main features

Power supply	230V AC / 50Hz
Rated consumption:	60VA
Fuse on power supply:	type T 250V / 3.15A
Presence of PE conductor:	indications with green lights
Test RCD:	type A, AC standard, adjustable
Magneto-thermal switch:	type C10, 230V / 10A
Test sockets:	type F30, 250V/16A
Safety:	IEC/EN61010-1
Mechanical protection:	IP67 (closed case)
Size (LxWxH):	474x415x214mm
Weight:	7.6kg

Accessories provided

Power supply cable with Europlug plug
User manual

ACCESSORY LINE

LIST OF ACCESSORIES

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AC CLAMP TRANSDUCERS

ORDER CODE ***HP00096U | HP000972***

HT96U | HT97U

STANDARD CLAMPS
FOR AC CURRENT

Measuring range: 0.001÷1A (HT96U)
Measuring range: 0.01÷10A (HT97U)
Measuring range: 0.1÷100A (BOTH)
Measuring range: 1A÷1000A (BOTH)
Basic accuracy: ± 1.0% reading
Measurement category: CAT III 600V
Clamp jaw internal diameter: 54mm
Output connector: Hypertac

ORDER CODE ***HP003002 | HP003003***

HP30C2 | HP30C3

STANDARD CLAMPS
FOR AC CURRENT

Measuring range: 0.1A÷200A (HP30C2)
Measuring range: 1A÷2000A (HP30C2)
Measuring range: 1A÷3000A (HP30C3)
Basic accuracy: ±0.5% reading
Measurement category: CAT III 600V
Clamp jaw internal diameter: 70mm
Output connector Hypertac

ORDER CODE ***HP04005K***

HT4005K

STANDARD CLAMP
FOR AC CURRENT

Measuring range: 0.1÷200A
Basic accuracy: ±0.5%reading
Measurement category: CAT III 600V
Clamp jaw internal diameter 40mm
Output connector Hypertac

ORDER CODE ***HP04005N***

HT4005N

STANDARD CLAMP
FOR AC CURRENT

Measuring range: 0.005A÷5A
Measuring range: 0.1A÷100A
Clamp jaw internal diameter 20mm
Basic accuracy: ±1% of reading
Output connector: Hypertac

ORDER CODE ***HP0X3003***

HTFLEX3003

FLEXIBLE CLAMP
FOR AC CURRENT

Measuring range: 1.5A÷300A
Measuring range: 15A÷3000A
Basic accuracy: ±1.0%reading
Measurement category: CAT III 600V
Clamp jaw internal diameter 174mm
Output connector Hypertac

ORDER CODE ***HP00033E***

HTFLEX33E

FLEXIBLE CLAMP
FOR AC CURRENT

Measuring range: 3000A*
Basic accuracy: ±0.5%reading
Measurement category: CAT III 600V
Clamp jaw internal diameter 174mm
Output connector Hypertac

**Minimum range depending on instrument in use*

ORDER CODE ***HP00033L***

HTFLEX33L

FLEXIBLE CLAMP
FOR AC CURRENT

Measuring range: 3000A*
Basic accuracy: ±0.5%reading
Measurement category: CAT III 600V
Clamp jaw internal diameter 174mm
Output connector: Binder

**Minimum range depending on instrument in use*

ORDER CODE ***HP000035***

HTFLEX35

FLEXIBLE CLAMP
FOR AC CURRENT

Measuring range: 3000A*
Basic accuracy: ±0.5%reading
Measurement category: CAT III 600V
Clamp jaw internal diameter 274mm
Output connector Hypertac

**Minimum range depending on instrument in use*

› FOLLOWS

ORDER CODE ***HP004003***

HT4003

STANDARD CLAMP
FOR AC CURRENT

Measuring range: 1A ÷ 400A
Basic accuracy: ±1.5%reading+ 0.5A
Measurement category: CAT III 600V
Clamp jaw internal diameter: 30mm
Output connector 2x banana connector

DC CLAMP TRANSDUCERS

ORDER CODE ***HP00098U***

HT98U

STANDARD CLAMP
FOR DC CURRENT

Measuring range: 1÷1000A
Basic accuracy: ±(1.0%reading +0.5A)
Measurement category: CAT III 600V
Clamp jaw internal diameter 52mm
Output connector Hypertac

ORDER CODE ***HP0030D1***

HP30D1

STANDARD CLAMP
FOR DC CURRENT

Measuring range: 10÷1000A
Basic accuracy: ±(1.5%reading+ 2mV)
Measurement category: CAT III 600V
Clamp jaw internal diameter 83mm
Output connector Hypertac

ORDER CODE ***HP04004N***

HT4004N

STANDARD CLAMP
FOR DC CURRENT

Measuring range 0.01A ÷ 10A
Measuring range 0.1A ÷ 100A
Basic accuracy: ±1.0%reading
Measurement category: CAT III 300V
Clamp jaw internal diameter 32mm
Output connector Hypertac

ORDER CODE ***HP04004P***

HT4004P

STANDARD CLAMP
UNBATTERIED FOR DC CURRENT

Measuring range 0.01A ÷ 10A
Measuring range 0.1A ÷ 100A
Basic accuracy: ±1.0%reading
Measurement category: CAT III 300V
Clamp jaw internal diameter 32mm
Output connector Hypertac with 4 poles

ORDER CODE ***HP04004N***

HT4004

STANDARD CLAMP
FOR AC/DC CURRENT

Measuring range 0.01A ÷ 10A
Measuring range 0.1A ÷ 100A
Basic accuracy: ±1.0%reading
Measurement category: CAT III 600V
Clamp jaw internal diameter 32mm
Output connector Hypertac

PROBES FOR ENVIRONMENTAL MEASUREMENT

ORDER CODE ***HN005205***

HT52/05

PROBE FOR AIR TEMPERATURE / HUMIDITY

TEMPERATURE
Range: -20÷60°C, 4÷140°F
Accuracy: ±0.7°C, ±1.4°F
Type of sensor: capacitive

HUMIDITY
Range: 0÷100%RH
Accuracy: ±3%reading at 25°C
Type of sensor: capacitive

ORDER CODE ***HN005305***

HT53/05

LIGHT METER PROBE CLASS A

Sensor type: silicon photodiode
Ranges: 20 / 2000 / 20000lux
Response time: <100ms
Output signal: 20 lux: 0.01lux → 1mV
2000lux: 1lux → 1mV
20000lux: 10lux → 1mV
Accuracy: ±3%reading

ORDER CODE ***HA000234***

TK4000

PROBE FOR MEASURING WIND SPEED AND AIR TEMPERATURE FOR HT4000

ORDER CODE ***HA0304N0***

HT304N

REFERENCE CELL FOR IRRADIATION MEASUREMENT

Measuring range: 50÷1400W/m²
Basic accuracy: ± 3.0%reading
Type of cells:
Monocrystalline / Polycrystalline
Protection rating: IP65
Size: 120x85x40mm
Weight: 260g
Output connector Binder

ORDER CODE ***HA00304N***

T304N

FASTENING BRACKET FOR HT304N

T304N is the bracket which allows fastening the reference cell HT304N next to a photovoltaic module. By using T304N, the reference cell will have the same tilt angle of the photovoltaic panel, for a correct measurement of irradiation.

ORDER CODE ***HA000026***

M304

MECHANICAL INCLINOMETER

ORDER CODE ***HA000025***

C304

CONNECTION CABLE DEVICE / HT304N

Input connector: Binder
Output connector Hypertac
Length: 2.45m

ORDER CODE ***HA000120***

SOLAR02

REMOTE UNIT FOR MEASURING IRRADIATION, TEMPERATURE AND TILT ANGLE

Measuring range: 0÷1400W/m²
Basic accuracy: ± 1.0%reading
Internal memory: approx. 1.5 hours
(@ PI master device = 5s)
Protection rating: IP65
Size: 120x65x35mm
Weight: 215g
Input connectors: Hypertac

PROBES FOR TEMPERATURE MEASUREMENT

ORDER CODE ***HA00300N***

PT300N

PROBE FOR TEMPERATURE MEASUREMENT OF PHOTOVOLTAIC PANELS

Probe: Pt100
Operating temp.: -50°C÷105°C
Plug: Hypertac 3-pole
Accuracy: class B
(in compliance with IEC751)

ORDER CODE ***HA000108***

TK101

STANDARD CLAMPS FOR AC CURRENT

Probes: K-type thermocouple
Operating temp. -40÷800°C
Response time: 4s
Accuracy at 100°C: ±2.2 reading
(in compliance with IEC 584)

ORDER CODE ***HA110000***

TK107

TEMPERATURE OF AIR AND GAS

Probes: K-type thermocouple
Operating temp. -40÷800°C
Response time: 4s
Accuracy at 100°C: ±2.2 reading
(in compliance with IEC 584)

ORDER CODE ***HA110001***

TK108

INTERNAL TEMPERATURE OF LIQUIDS AND SEMI-SOLID SUBSTANCES

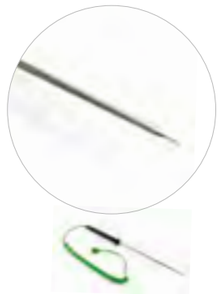
Probes: K-type thermocouple
Operating temp. -40÷800°C
Response time: 4s
Accuracy at 100°C: ±2.2 reading
(in compliance with IEC 584)

ORDER CODE ***HA110002***

TK109

INTERNAL TEMPERATURES OF LIQUID AND SOLID SUBSTANCES, FRUIT AND FOOD

Probes: K-type thermocouple
Operating temp. -40÷800°C
Response time: 4s
Accuracy at 100°C: ±2.2 reading
(in compliance with IEC 584)



ORDER CODE ***HA110003***

TK110

TEMPERATURE OF SURFACES

Probes: K-type thermocouple
Operating temp. -40÷800°C
Response time: 4s
Accuracy at 100°C: ±2.2 reading
(in compliance with IEC 584)

ORDER CODE ***HA110004***

TK111

TEMPERATURE OF SURFACES WITH 90° FIXED TIP

Probes: K-type thermocouple
Operating temp. -40÷800°C
Response time: 4s
Accuracy at 100°C: ±2.2 reading
(in compliance with IEC 584)

ORDER CODE ***HA010000***

PT1000

IMMERSION PROBE FOR LIQUIDS

Probes: PT100
Operating temp. 0÷600°C
Response time: 4s
Accuracy at 100°C: ±0.8°C
(in compliance with IEC 751)
Only compatible with HT410

STRAPS AND BELTS

ORDER CODE ***HA000052***

CN0050

SET OF STRAPS FOR SLINGING THE DEVICE OVER ONE'S SHOULDER

ORDER CODE ***HA000112***

SP-0400

SET OF STRAPS FOR SLINGING THE DEVICE OVER ONE'S SHOULDER

RIGID BAGS AND CASES

ORDER CODE ***HA000204***

VA6070

VA6070 is a practical rigid case which allows transporting and protecting your thermal camera. Compatible with thermal cameras such as THT47, THT60 and THT70, it is also suitable for transporting all provided accessories and possible optional optics in the appropriate dedicated compartment.
Case for carrying devices with the shape indicated to the side.

ORDER CODE ***HA050000***

VA500

VA500 is the ideal solution for those who want to protect their devices from water, dust and hostile environments. It is also suitable to contain all accessories for a perfect management of the job.
Case for carrying devices with the shape indicated to the side.

ORDER CODE ***HA000238***

VA501

VA501 has been designed to those who always want to have everything at hand. Further to the space for housing the device and its accessories such as measuring cables, earth rods, etc., this case is therefore the ideal solution for those who want to carry and protect their devices from water, dust and hostile environments. It contains also all relevant accessories.
Case for carrying devices with the shape indicated to the side.

› FOLLOWS

ORDER CODE ***HA000235***

VA502

VA502 is a case designed to contain two devices at the same time. Its interior has been designed to house PQA820\819 on the right and one of the measuring devices of series "MacrotestG" or similar on the left. VA502 is therefore the ideal solution for those who want to carry and protect their devices and accessories from water, dust and hostile environments.
Case for carrying devices with the shape indicated to the side.

ORDER CODE ***HA000236***

VA503

VA503 is a rigid case designed for photovoltaic sector users. Typically, this case is used to contain devices such as I-V400w + PVCHECKs in order to bring all necessary tools for troubleshooting on site together. It contains also all relevant accessories.
Case for carrying devices with the shape indicated to the side.

ORDER CODE ***HA000237***

VA504

VA504 has been designed to those who always want to have everything at hand. Further to the space for housing the device and its accessories such as measuring cables, earth rods, etc., VA504 is provided with an internal space for transporting and protecting also clamps for earth measurements such as T2000 or T2100. It is therefore the ideal solution for those who want to carry and protect their devices from water, dust and hostile environments.
Case for carrying devices with the shape indicated to the side.

ORDER CODE ***HA002051***

BORSA2051

Soft bag with two big compartments to transport devices and accessories.
Case for carrying devices with the shape indicated to the side.

› FOLLOWS

ORDER CODE ***HA750000***

BORSA75

Bag with three internal compartments, medium size, for transporting devices and accessories-
Case for carrying devices with the shape indicated to the side.

ORDER CODE ***HA002000***

BORSA2000

Bag for transporting small to medium-sized devices and accessories
Bag for carrying devices with the shape indicated to the side or with similar dimensions (reference HT701).

ORDER CODE ***HA001180***

B80

Bag for transporting small-sized multimeters, clamps and accessories
Bag for carrying devices with the shape indicated to the side or with similar dimensions (reference HT327 - HT9014)

ORDER CODE ***HA000145***

YABRS0000NN0

Bag for transporting medium to big-sized clamp meters and accessories
Bag for carrying devices with the shape indicated to the side or with similar dimensions (reference HT9022 - HT9015 - HT401).

› FOLLOWS

ORDER CODE ***HA000207***

BRS47

Soft bag for transporting THT32-47-60-70 with compartments for accessories.
Bag for carrying devices with the shape indicated to the side.
(reference THT32/47/60/70)

ORDER CODE ***HA000213***

B45

Soft bag for transporting THT47-60-70 with compartments for accessories.
Case for carrying devices with the shape indicated to the side.
(reference THT45)

LEADS

ORDER CODE ***HA000400***

PR400

REMOTE LEAD
WITH TEST STARTING BUTTON

Measurement category:
CAT IV 600V / CAT III 1000V
Overall length: 25cm
Tip length: 1.9cm
Tip diameter: 4mm

ORDER CODE ***HA000701***

PR701

REMOTE LEAD
WITH TEST STARTING
BUTTON FOR HT701

Measuring range: 10A / 1000V
Measurement category: CAT III 1000V
Overall length: 18.3cm
Tip length: 1.8cm
Tip diameter: 2mm

ORDER CODE ***HA40400#***

404-IEC#

 # = colour N (black) - B (blue) - V (green) - R (red)

MEASURING LEAD
WITH EXTRACTABLE
PROTECTION CAP

Measuring range: 36A / 1000V
Measurement category: CAT IV 600V / CAT III 1000V
Overall length: 11.5cm
Tip length: 1.9cm
Tip diameter: 4mm
Banana diameter: 4mm

ORDER CODE ***HA40200#***

402-IEC#

 # = colour N (black) - R (red)

MEASURING LEAD
WITH SLIM TIP

Measuring range: 16A / 1000V
Measurement category: CAT IV 600V
Overall length: 14cm
Tip length: 1.8cm
Tip diameter: 4mm
Banana diameter: 4mm

ORDER CODE ***HA431200***

4312-2

PAIR OF LEADS WITH 4MM TIP
AND RED/BLACK PROTECTION AND
STRAIGHT BANANA CONNECTOR

Measuring range: 20A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Lead overall length: 15.6cm
Tip length: 1.8cm
Tip diameter: 4mm
Length of retractable tip protection: 2cm
Cable length: 1.5m
Banana diameter: 4mm

ORDER CODE ***HA441200***

4413-2

PAIR OF LEADS WITH 4MM TIP
AND RED/BLACK PROTECTION AND
90° BANANA CONNECTOR

Measuring range: 20A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Lead overall length: 13.4cm
Tip length: 1.8cm
Tip diameter: 4mm
Cable length: 1m
Banana diameter: 4mm

ORDER CODE ***HA000174***

KIT4000A

PAIR OF LEADS WITH 2MM TIP,
COMPATIBLE WITH MULTIMETERS
AND CLAMP METERS

Measuring range: 10A / 1000V
Measurement category: CAT III 1000V
Lead overall length: 13.5cm
Tip length: 1.9cm
Tip diameter: 2mm
Cable length: 1.5m
Banana diameter: 4mm, 90°

ORDER CODE ***HA000143***

YAAMK0000HT0

PAIR OF LEADS WITH 4MM TIP,
COMPATIBLE WITH MULTIMETERS
AND CLAMP METERS

Measuring range: 10A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Lead overall length: 14.7cm
Tip length: 1.9cm
Tip diameter: 4mm
Cable length: 1.5m
Banana diameter: 4mm, 90°

Can only be used with alligator clips in YAAMK0001HT0

› FOLLOWS

ORDER CODE ***HA47170#***

4717-S-IEC100#

 # = colour N (black) - B (blue) - R (red)

LEADS WITH RETRACTABLE
PROTECTION CAP IP2X
AND PROTECTION FUSE

Measuring range: 20A / 1000V
Measurement category: CAT III 1000V
Lead overall length: 15.6cm
Tip length: 1.8cm
Tip diameter: 4mm
Length of retractable tip protection: 2cm
Cable length: 1.5m
Banana diameter: 4mm

ORDER CODE ***HA006060***

606-IECN

CONNECTOR
WITH MAGNETIC
TERMINAL

Measuring range: 4A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Magnetic tip length: 3.5cm
Banana diameter: 4mm

ADAPTERS

ORDER CODE ***HA10660#***

1066-IEC#

 # = colour N (black) - R (red)

CONNECTOR FOR EXTENSION
BANANA IN/OUT 4MM

Measuring range: 36A / 1000V
Measurement category:
CAT III 600V / CAT II 1000V
Overall length: 5.6cm
Diameter of input/output banana: 4mm

ORDER CODE ***HA00ACON***

ACON3F4M

HYPERTAC ADAPTER
3 POLES, FEMALE
4 POLES, MALE

ORDER CODE ***HA00NOCA***

NOCANBA

HYPERTAC ADAPTER
FEMALE
MALE BANANA

ORDER CODE ***HA00ABNA***

ABNACON

BANANA ADAPTER
FEMALE
MALE HYPERTAC

ORDER CODE ***HA000BIN***

ACONBIN

HYPERTAC ADAPTER
AND POLES, FEMALE
FEMALE BINDER

This adapter allows for the connection of standard clamps to devices like **PQA820/ PQA819**

ORDER CODE ***HA100010***

T10

ADAPTER
FOR CONNECTION
OF TK TEMPERATURE
PROBES

This adapter can be used with all multimeters and clamp meters capable of carrying out temperature measurements.

› FOLLOWS

ORDER CODE **HA000034**

KITPVMC4

SET OF ADAPTERS
BANANA - MC4
MALE/FEMALE

This pair of adapters allows for the connection o devices like **I-V400w** and **Solar I-Vw** to photovoltaic panels with connectors MC4.

ORDER CODE **HA000032**

KITPVMC3

SET OF ADAPTERS
BANANA - MC3
MALE/FEMALE

This pair of adapters allows for the connection of devices like **I-V400w** and **Solar I-Vw** to photovoltaic panels with connectors MC3.

ORDER CODE **HA000758**

KITPCMC4

SET OF ADAPTERS
BANANA - MC4
MALE/FEMALE

This pair of adapters allows for the connection of device **PVCHECKs** to photovoltaic panels with connectors MC4.

ORDER CODE **HA000757**

KITPCMC3

SET OF ADAPTERS
BANANA - MC4
MALE/FEMALE

This pair of adapters allows for the connection of device **PVCHECKs** to photovoltaic panels with connectors MC3.

MEASURING CABLES

ORDER CODE **HA05001#**

5001-#

 # = colour N (black) - B (blue) R (red) - V (green)

MEASURING CABLE
WITH LENGTH 1.5M
WITH VARIOUS COLOURS AVAILABLE

Measuring range: 10A / 1000V
Measurement category: CAT IV 600V / CAT III 1000V
Overall length: 1.5m
Banana diameter: 4mm

ORDER CODE **HA007000** = LENGTH 3MT
ORDER CODE **HA700005** = LENGTH5MT
ORDER CODE **HA700010** = LENGTH 10MT

C7000

CABLE FOR CONTINUITY
MEASUREMENT WITH CURRENT 10A
OR LOOP MEASUREMENT
WITH IMP57 WITH LENGTH 3M.

Measurement category:
CAT IV 600V / CAT III 1000V
Maximum opening of alligator clip: 2.5cm
Cable length: 3m
Banana diameter: 4mm

ORDER CODE **HA000753**

KITMPPACW

SET OF CABLES GREEN - BLUE
BROWN/BLACK
WITH 4MM BANANA CONNECTORS

Measuring range: 36A / 1000V
Measurement category: CAT III 1000V
Overall length: 2m
Banana diameter: 4mm

ORDER CODE **HA000755**

KITMPPDCW

PAIR OF RED/BLACK CABLES
WITH 4MM BANANA CONNECTORS

Measuring range: 36A / 1000V
Measurement category: CAT III 1000V
Overall length: 2m
Banana diameter: 4mm

› FOLLOWS

ORDER CODE **HA002075**

C2075

CABLE WITH BANANA
GREEN - BLACK
SHUKO PLUG

Measuring range: 16A / 300V
Measurement category: CAT III 300V
Overall length: 1.5m
Banana diameter: 4mm

ORDER CODE **HA02033X**

C2033X

CABLE WITH BANANA
GREEN - BLACK - BLUE
SHUKO PLUG

Measuring range: 16A / 300V
Measurement category: CAT III 300V
Overall length: 1.5m
Banana diameter: 4mm

ORDER CODE **HA014000**

KIT14000

SET OF CABLES OR INSULATION
MEASUREMENTS UP TO 5KV

Measuring range: 10A / 5000VDC
Measurement category:
CAT IV 600VAC, CAT III 1000V,
CAT I 5000VDC
Maximum opening of alligator clip: 2.3cm
Overall length: 2m
Banana diameter: 4mm

ORDER CODE **HA014000**

KITPVEXT25M

25M EXTENSION CABLE FOR
MEASURING I-V, ISC AND VOC

Measuring range: 20A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Extension cable connectors: 1066-IEC#
Banana diameter: 4mm

ALLIGATOR CLIPS

ORDER CODE **HA50040#**

5004-IEC#

 # = colour N (black) - B (blue) - R (red) - V (green)

ALLIGATOR CLIP FOR CABLES
WITH 4MM BANANA

Measuring range: 20A / 1000V
Measurement category: CAT III 1000V
Maximum opening of alligator clip:
2.3cm
Banana diameter: 4mm

ORDER CODE **HA000144**

YAAMK0001HT0

PAIR OF TEST LEADS
ALLIGATOR CLIPS
COLOUR RED/BLACK 4MM

Measuring range: 10A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Maximum opening of alligator clip: 3cm
Banana diameter: 4mm

Can only be used with YAAMK0000HT0 leads

ORDER CODE **HA000752**

KITMPPACC

STANDARD CLAMP
FOR DC CURRENT

Measuring range: 36A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Maximum opening of alligator clip:
4.1cm
Banana diameter: 4mm

ORDER CODE **HA000754**

KITMPPDCC

STANDARD CLAMP
FOR DC CURRENT

Measuring range: 36A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Maximum opening of alligator clip:
4.1cm
Banana diameter: 4mm

› FOLLOWS

ORDER CODE **HA000752**

COC4-UK

SET OF ALLIGATOR CLIPS
IN COLOURS GREEN
BLUE - RED - BLACK

Measuring range: 20A / 1000V
Measurement category: CAT III 1000V
Maximum opening of alligator clip: 2.3cm
Banana diameter: 4mm

ORDER CODE **HA60070#**

6007-IEC#

= colour N (black) - R (red)

FLEXIBLE ALLIGATOR
CLIP

Measuring range: 6A / 1000V
Measurement category: CAT III 1000V
Maximum opening of alligator clip: 2.6cm
Overall length: 17.5cm
Banana diameter: 4mm

ORDER CODE **HA60090#**

6009-IEC#

= colour N (black) - R (red)

RIGID ALLIGATOR CLIP

Measuring range: 20A / 1000V
Measurement category: CAT III 1000V
Maximum opening of alligator clip: 1.7cm
Overall length: 15.5cm
Banana diameter: 4mm

KITS

ORDER CODE **HA441000**

44100

SET OF 2 4MM BANANA-BANANA CABLES, 2 LEADS 402-IECN+R, 2 ALLIGATOR CLIPS 6009-IECN+R + 2 LONG CLAMP TERMINALS AND A SET OF ALLIGATOR CLIPS KITMPPDCC

For characteristics, please see the single items.

ORDER CODE **HA425000**

425

SET OF 2 4MM BANANA-BANANA CABLES, 2 LEADS WITH INTERCHANGEABLE TIP AND 2 FLEXIBLE CLAMP TERMINALS

Lead measuring range: 36A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Cable length: 1m
Maximum opening of tweezers: 6mm
Banana diameter: 4mm

ORDER CODE **HA000203**

UNIVERSALKITG3

SET OF 4 CABLES,
4 ALLIGATOR CLIPS
AND 3 LEADS BLACK
RED-GREEN-BLUE

Measuring range: 10A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Cable length: 2m
Maximum opening of alligator clip: 4cm
Banana diameter: 4mm

ORDER CODE **HA000201**

UNIVERSALKIT COMBI

SET OF 3 CABLES, 3 ALLIGATOR CLIPS AND 3 LEADS BLACK RED-GREEN-BLUE

Measuring range: 10A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Cable length: 2m
Maximum opening of alligator clip: 4cm
Banana diameter: 4mm

› FOLLOWS

ORDER CODE **HA000021**

KITGSC4

SET OF CABLED
AND ALLIGATOR CLIPS
BLACK-RED-GREEN-BLUE

Measuring range: 20A / 1000V
Measurement category:
CAT III 1000V
Cable length: 2m
Maximum opening of alligator clip: 2.3cm
Banana diameter: 4mm

ORDER CODE **HA008000**

KIT800

SET OF CABLES AND ALLIGATOR CLIPS BLACK-RED-GREEN-BLUE-BROWN

Measuring range: 36A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Cable length: 2m
Maximum opening of alligator clip: 4cm
Banana diameter: 4mm

ORDER CODE **HA000158**

KIT0075

SET OF LEADS AND ALLIGATOR CLIPS BLACK-GREEN

Measuring range: 10A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Cable length: 1.5m
Maximum opening of alligator clip: 3.5cm
Banana diameter: 4mm

ORDER CODE **HA000158**

KIT0070

SET OF 2 CABLES, 1 LEAD, 2 ALLIGATOR CLIPS RED-BLACK

Measuring range: 10A / 1000V
Measurement category:
CAT IV 600V / CAT III 1000V
Cable length: 1.5m
Maximum opening of alligator clip: 3.5cm
Banana diameter: 4mm

POWER SUPPLY, POWER SUPPLY CABLES, BATTERIES AND BATTERY CHARGERS

ORDER CODE **HA005000**

A0050

POWER SUPPLY
CATTERY CHARGER CAT IV

Power supply 230V 50Hz
Plug type: C CEE 7/16 (Europlug)
Output: 12VDC - 250mA - 3VA
Output connector: 28/3-10
Polarization: Negative in the middle

ORDER CODE **HA005500**

A0053

POWER SUPPLY
STANDARD BATTERY CHARGER

Power supply 115V 60Hz
Plug type: A NEMA 1-15
Output: 12VDC - 250mA - 3VA
Output connector: 28/3-10
Polarization: Negative in the middle

ORDER CODE **HA005500**

A0055

POWER SUPPLY
CATTERY CHARGER CAT IV

Power supply 230V 50/60Hz
Plug type: F+E CEE 7/7 Schuko
Output: 5VDC - 1.5A
Output connector: 28 in
Polarization: Positive in the middle

ORDER CODE **HA000208**

A007X

POWER SUPPLY
STANDARD BATTERY CHARGER

Power supply 100÷240V 50/60Hz
Plug type: A,C,G,I
Output: 12VDC - 250mA - 3VA
Polarization: Positive in the middle

› FOLLOWS

ORDER CODE **HA000211**

A0045

POWER SUPPLY
BATTERY CHARGER
+ UNIVERSAL PLUGS

Power supply:
100÷240V 50/60Hz 1.5A
Plug type: A,C,G,I
Output: 5VDC - 3500mA
Polarization: Positive in the middle

ORDER CODE **HA005500**

A0056

POWER SUPPLY / BATTERY
CHARGER CAT IV

Power supply 230V 50/60Hz
Plug type: NEMA 5-15
Output: 5VDC - 1.5A
Output connector: 28 in
Polarization: Positive in the middle

ORDER CODE **HA030000**

YABAT0003000

RECHARGEABLE BATTERY

Battery type: AA
Composition: Ni-MH
Rated voltage: 1.2V
Power: min 2000mAh

ORDER CODE **HA000146**

YABAT0003HT1

RECHARGEABLE BATTERY

Battery type: 18650
Composition: Li-ion
Rated voltage: 3.7V
Power: 2Ah

ORDER CODE **HA000212**

BAT45

RECHARGEABLE BATTERY

Battery type: 18650
Composition: Li-ion
Rated voltage: 3.7V
Power: 2.6Ah

ORDER CODE **HA040010**

YABAT0004001

EXTERNAL BATTERY CHARGER

Power supply: 100÷240V 50/60Hz
Supported batteries: AA, AAA
Battery Sockets: 6x AA/AAA
Plug type: IEC 60320 C-7 - Europlug
CEE 7/16 / NEMA 5-15
Output: 150mA

ORDER CODE **HA007051**

C7051

SUPPLY CABLE
FOR HT7051

Overall length: 2m
Connectors: Europlug with no earthing
Shuko CEE 7/17

ORDER CODE **HA000206**

BAT7X

RECHARGEABLE
BATTERY

Compatibility: THT47-60-70
Composition: Li-Polymer
Rated voltage: 7.4V
Power: 2700mAh

› FOLLOWS

ORDER CODE **HA000071**

C5700

BIPOLAR POWER SUPPLY
CABLE

Overall length: 2m
Connectors: IEC 60320 C-7 - Europlug CEE 7/16

ACCESSORIES FOR MEASURING EARTH RESISTANCE

ORDER CODE **HA100001**

KITTERRNE

SET OF 4 RODS
AND 4 CABLE COILS
BLUE-RED-GREEN-BLACK

Length of rods: 25cm
Blue cable length: 25m
Red cable length: 20m
Green-black cable length: 4.5m
Measurement category: CAT III 600V
Banana diameter: 4mm

ORDER CODE **HA000089**

KIT0071

SET OF 2 RODS AND 3 CABLE
COILS BLUE-RED-GREEN

Length of rods: 25cm
Blue cable length: 30m
Red cable length: 15m
Green cable length: 3m
Measurement category: CAT III 600V
Banana diameter: 4mm

ORDER CODE **HA000079**

R11

ROD FOR EARTH RESISTANCE
MEASUREMENT AND FOR
STEP AND CONTACT MEASUREMENT

Length of rod: 40.5cm

ORDER CODE **HA000078**

R10

ROD FOR EARTH RESISTANCE
MEASUREMENT

Length of rod: 25cm

ORDER CODE **HA000244**

C2100

CONNECTION CABLE
T2100 / MACROTESTG

Overall length: 1.5m
Connectors: Jack 3.5mm - Hypertac

ORDER CODE **HP002100**

T2100

CLAMP FOR MEASURING EARTH
RESISTANCE WITHOUT RODS

Resistance measuring range: 0.010÷1000Ω
Resolution: 0.001÷20Ω
Basic accuracy: ±0.01%reading + 0.01Ω
Measurement category: CAT III 150V
Clamp jaw internal diameter: 32mm
Output connector Jack 3.5mm
Size: 293 x 90 x 66mm
Weight, battery included: 1320gr

ACCESSORIES FOR LAN NETWORK TESTERS

ORDER CODE 6050 ***HA000389***
ORDER CODE 6055/M75 ***HA000CH1***

REMOTE UNIT #1

Type of connector remote unit #1
for **QUICKLAN6055/M75**: Ethernet RJ45

Type of connector remote unit #1
for **QUICKLAN6050**: Ethernet RJ45/BNC

ORDER CODE ***HA000CH2***

REMOTE UNIT #2

Type of connector remote unit #2
for **QUICKLAN6055/M75**:
Ethernet RJ45

ORDER CODE ***HA000141***

YAAMS0000000

PATCH CABLE LAN RJ45

Cable length: 20cm

ORDER CODE ***HA00038#***

REM#

 # = 1 (REM1) # = 2 (REM2)
 # = 3 (REM3) # = 4 (REM4)
 # = 5 (REM5) # = 6 (REM6)
 # = 7 (REM7) # = 8 (REM8)

REMOTE UNIT + PATCH CABLE

Length of patch cable RJ45: 20cm

REMOTE UNIT KIT

ORDER CODE ***HA006050***

6050MARKER0204

SET OF REMOTE UNITS #2, #3, #4

Type of connector remote units
for **QUICKLAN6050**: Ethernet RJ45/BNC

ORDER CODE ***HA000380***

REM38

SET OF REMOTE UNITS #3 TO #8
+ PATCH CABLES

Type of connector remote units
for **QUICKLAN6055/M75**: Ethernet RJ45
Cable length: 20cm

FULLTEST3 ACCESSORIES

ORDER CODE ***HA000199***

FT3HVTIP

HV CABLE
BANANA-BLACK LEAD

Overall length: 2m
Measurement category:
CAT I 5000VDC, CAT III 1000V,
CAT IV 600V
Banana diameter: 4mm

ORDER CODE ***HA000196***

FT3BARCR

BAR CODE READER
PRE-PROGRAMMED USB

Cable length: 1.8m

ORDER CODE ***HA000197***

FT3BRSN

SOFT BAG
FOR ACCESSORIES

ORDER CODE ***HA000198***

FT3HVPRB

SET OF 2 CABLES
BANANA-ALLIGATOR CLIP
BLACK

Measuring range: 10A / 5000VDC
Measurement category:
CAT IV 600V, CAT III 1000V,
CAT I 5000VDC
Maximum opening of alligator clip: 2.3cm
Overall length: 2m
Banana diameter: 4mm

ORDER CODE ***HA000194***

FT3RMTCT

REMOTE
START/STOP/SAVE
BUTTON

Cable length: 7m

ORDER CODE ***HA000192***

FT3KBDEN

USB 88-KEY KEYBOARD
WITH ENGLISH LAYOUT

ORDER CODE ***HA000193***

FT3REDLP

SIGNAL LAMP
TEST IN PROGRESS

Cable length: 7m

ORDER CODE ***HA000209***

FT3HVPRB1

1 CABLE BANANA-ALLIGATOR
+ 1 CABLE BANANA-LEAD

Measuring range: 10A / 5000VDC
Measurement category: CAT I 5000VDC
CAT IV 600V, CAT III 1000V
Maximum opening of alligator clip: 2.3cm
Overall length: 2m
Banana diameter: 4mm

› FOLLOWS

ORDER CODE ***HA000195***

FT3SFTSW

OPEN DOOR DETECTION DEVICE FOR VERIFICATION ROOM

Cable length: 7m

ORDER CODE ***HA000425***

FT3MPT2

USB THERMAL PRINTER WITH RECHARGEABLE BATTERY

Cable length: 1m

ORDER CODE ***HA000183***

2317-IECIV-200-R

TEST CABLE, RED, 2.5MMQ

Measuring range: 36A / 1000V
Measurement category: CAT IV 1000V
Overall length: 2m
Banana diameter: 4mm

2310-IECIV-200-#

 # = B (BLUE) ***ORDER CODE*** ***HA000048***
 # = V (GREEN) ***ORDER CODE*** ***HA000049***
 # = N (BLACK) ***ORDER CODE*** ***HA000047***

TEST CABLE, BLUE, 0.75MMQ

Measuring range: 12A / 1000V
Measurement category: CAT IV 1000V
Overall length: 2m
Banana diameter: 4mm

ORDER CODE ***HAC2009A***

C2009AD

ADAPTER FOR CONNECTION FULLTEST3 / IMP57

ORDER CODE ***HA50040#***

5004-IEC#

 # = colour N (black) - B (blue) - R (red) - V (green)

ALLIGATOR CLIP FOR CABLES WITH 4MM BANANA

Measuring range: 20A / 1000V
Measurement category: CAT III 1000V
Maximum opening of alligator clip: 2.3cm
Banana diameter: 4mm

ORDER CODE ***HA40400#***

404-IEC#

 # = colour N (black) - B (blue) - V (green) - R (red)

MEASURING LEAD WITH EXTRACTABLE PROTECTION CAP

Measuring range: 36A / 1000V
Measurement category: CAT IV 600V / CAT III 1000V
Overall length: 11.5cm
Tip length: 1.9cm
Tip diameter: 4mm
Banana diameter: 4mm

SOFTWARE, CABLES AND ADAPTERS FOR CONNECTION DEVICE/PC

ORDER CODE ***HA000199***

TOPVIEW2006

MULTI-LANGUAGE SOFTWARE TOPVIEWS FOR MANAGEMENT OF DEVICES AND REPORTS + CABLE C2006

Cable length: 1.5m
Output connector: USB
Compatibility: Windows XP-7-8-10

ORDER CODE ***HA000196***

TOPVIEW2007

MULTI-LANGUAGE SOFTWARE TOPVIEWS FOR MANAGEMENT OF DEVICES AND REPORTS + CABLE C2007

Cable length: 1.5m
Connectors: USB A - USB B
Compatibility: Windows XP-7-8-10

ORDER CODE ***HA000197***

TOPVIEWS

MULTI-LANGUAGE SOFTWARE FOR MANAGEMENT OF DEVICES AND REPORTS

Cable length: 1m
Output connector: USB
Compatibility:
Windows XP-7-8-10

ORDER CODE ***HA002001***

C2001

OPTICAL / RS-232 CABLE

Compatibility with models provided with optical and PC interface or devices with RS-232 port (example IMP57)

ORDER CODE ***HA002006***

C2006

USB CABLE + OPTICAL ADAPTER

Compatibility with models provided with optical interface.

ORDER CODE ***HA002007***

C2007

USB CABLE TYPE A/B LENGTH 1.5M

ORDER CODE ***HA0C2009***

C2009

USB / RS-232 ADAPTER

KRAFTFORM® GRIP
THE SHAPE WHICH ADAPTS TO YOUR HAND

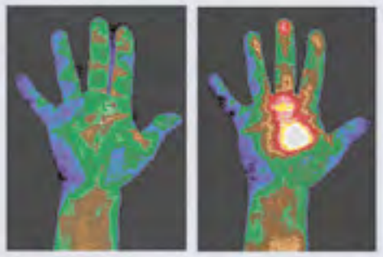
The wide contact surface generates a strong friction with the soft area and guarantees a high transmission of force when gripping.

The innovative logic which inspired the original shape of the Kraftform® grip (the grip adapts to the shape of your hand) has proven successful until today.

The wide grip takes the whole palm of your hand.
The mass of the grip in contact with your palm and the shape of the grip determine the torque. The big diameter of the grip allows for a high transmission of force.

Wide millings support the muscles of your hand.
Wide and slightly curved millings make up an optimum resting surface for the muscles of your hand and fingers. Thanks to the soft milling in elastomer, it is possible to take advantage of the entire force o the muscles of the index and of the middle finger, which are particularly strong.

An almost friction-free contact with the hard areas allows you to change your grip very quickly.

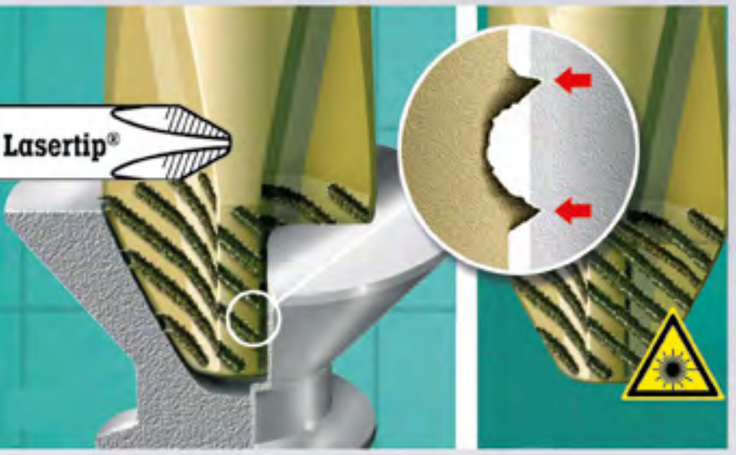


A thermal camera highlights the difference: the parts marked in red and white represent strong stressing.

LASERTIP® BLADE

THE LASER TECHNOLOGY PREVENTS THE BLADE FROM SLIDING AWAY FROM THE SCREW'S HEAD

The Lasertip® tip perfectly fits with the head of the screw, thus preventing the blade to slide away.



Thanks to the concentrated laser beam, a surface with sharp milling is obtained. This material is very resistant against abrasion. Through the laser treatment, the milled tracks reach hardness up to 1.000 HV 0.3.

The Lasertip® blade increases productivity.
Here are its advantages.

Higher safety
The blade does not slide away from the screw; therefore, no damage is done to the screw or to delicate surfaces. The danger of injury is reduced.

Higher strength
Higher torque transmission since the blade perfectly fits with the screw

Higher speed
It is not necessary to change grip while screwing. Remarkable reduction of pressure.

Higher number of screwings
The tool has a longer duration thanks to the laser treatment of the tip.

With Lasertip®, pressure applied is remarkably reduced. - it is possible to obtain this surprising effect through the Lasertip® treatment of the blade tip. The result is a micro-raw surface with border hardness up to 1.000 vickers, which perfectly matches the head of the screw. In this way, any damage to the surface of the screw, its expensive and problematic replacement as well as possible injury in case the blade slides away from the screw are prevented.

***GEF,** the successful screwdriver with **Kraftform®** grip and **Lasertip®** blade!*

SCREWDRIVERS WITH KRAFTFORM® GRIP AND LASERTIP® BLADE

160 i VDE flathead insulated screwdriver Kraftform® Plus

Applications: for slot screws
Blade: insulated
Tip: DIN 5264-A, ISO2380, conical tip, Lasertip®
Grip: Kraftform® with anti-rolling protection, multicomponent
Standard: IEC 60900 : 2004

Model			mm			Code METEL
0.6 x 3.5	0.6	3.5	100	81	5	HU000346
0.8 x 4.0 x 100	0.8	4.0	100	98	5	HU000347
1.0 x 5.5 x 125	1.0	5.5	125	98	5	HU000348
1.2 x 6.5 x 150	1.2	6.5	150	105	5	HU000349
1.2 x 8.0 x 175	1.2	8.0	175	112	5	HU000350

162 i PH VDE insulated screwdriver Phillips

Applications: for Phillips screws
Blade: insulated
Tip: DIN 5260-PH, ISO8764-PH, Lasertip®
Grip: Kraftform® with anti-rolling protection, multicomponent
Standard: IEC 60900 : 2004

Model		mm			Code METEL
PH0 x 80	PH0	80	81	5	HU000351
PH1 x 80	PH1	80	98	5	HU000352
PH2 x 100	PH2	100	105	5	HU000353
PH3 x 150	PH3	150	112	5	HU000354
PH4 x 200	PH4	200	112	2	HU000355

165 i PZ VDE insulated screwdriver Pozidriv

Applications: suitable for Pozidriv screws
Blade: insulated
Tip: ISO 8764-PZ, Lasertip®
Grip: Kraftform® with anti-rolling protection, multicomponent
Standard: IEC 60900 : 2004

Model		mm			Code METEL
PZ0 x 80	PZ0	80	81	5	HU000356
PZ1 x 80	PZ1	80	98	5	HU000357
PZ2 x 100	PZ2	100	105	5	HU000358
PZ3 x 150	PZ3	150	112	5	HU000359
PZ4 x 200	PZ4	200	112	2	HU000360

SCREWDRIVERS FOR THERMAL SWITCHES AND RCDS

162 i PH/S VDE insulated screwdriver for PlusMinus screws (Phillips/slot)

Applications: for PlusMinus screws (Phillips/slot)
Blade: insulated
Tip: PlusMinus (Phillips/slot)
Grip: Kraftform® with anti-rolling protection, multicomponent
Standard: IEC 60900 : 2004

Model		mm			Code METEL
PH/S1 x 80	#1	80	98	5	HU000361
PH/S2 x 100	#2	100	105	5	HU000362

165 i PZ/S VDE insulated screwdriver for PlusMinus screws (Pozidriv/slot)

Applications: for PlusMinus screws (Pozidriv/slot)
Blade: insulated
Tip: PlusMinus (Pozidriv/slot)
Grip: Kraftform® with anti-rolling protection, multicomponent
Standard: IEC 60900 : 2004

Model		mm			Code METEL
PZ/S1 x 80	#1	80	98	5	HU000363
PZ/S2 x 100	#2	100	105	5	HU000364

SET OF SCREWDRIVERS

Kit of 6 screwdrivers VDE 1000V

Kit consisting of:
4 insulated flathead screwdrivers
2 insulated Phillips screwdrivers

Model	Content	❒	Code METEL
K01S	160 i 06 x 3.5 160 i 08 x 4.0 160 i 1.0 x 5.5 160 i 1.2 x 6.5 162 i PH1 x 80 162 i PH2 x 100	5	HU000345

Kit of 4 screwdrivers VDE 1000V

Kit consisting of:
4 screwdrivers for RCDs

Model	Content	❒	Code METEL
K02S	PH/S1 x 80 PH/S2 x 100 PZ/S1 x 80 PZ/S2 x 100	5	HU000367

Kit of 4 insulated flathead screwdrivers

Kit consisting of:
4 insulated flathead screwdrivers

Model	Content	❒	Code METEL
K21	0.6 x 3.5 0.8 x 4.0 x 100 1.0 x 5.5 x 125 1.2 x 6.5 x 150	5	HU000498

Set of 4 screwdrivers

Kit consisting of:
2 insulated flathead screwdrivers
1 insulated Phillips screwdriver
1 insulated Pozidriv screwdriver

Model	Content	❒	Code METEL
K23	0.6 x 3.5 0.8 x 4.0 x 100 PH2 x 100 PZ2 x 100	5	HU000500

Set of 4 insulated screwdrivers

Kit consisting of:
2 insulated Phillips screwdrivers
2 insulated Pozidriv screwdrivers

Model	Content	❒	Code METEL
K24	PH1 x 80 PH2 x 80 PZ1 x 80 PZ2 x 100	5	HU000501

Set of 3 screwdrivers

Kit consisting of:
2 insulated flathead screwdrivers
1 insulated Phillips screwdriver

Model	Content	❒	Code METEL
K3	0.6 x 3.5 0.8 x 0.4 x 100 PH1 x 80	5	HU000394

INSERT HOLDERS AND ADAPTERS

Kraftform Kompakt® 20

Applications: for hexagonal inserts 1/4" DIN 3126 C + E 6.3
Unit: 1/4" hexagonal with quick-release insert holder Rapidaptor®
Grip: Kraftform® with anti-rolling protection, multi-components and with an integrated housing for inserts

Ideal for automatic screwing by screwer

Model	Content	❒	Code METEL
KK20	889/4R 1x1/4"x100 800/1Z 1x1/0x5.5x25 - 1x1.2x6.5x25 851/1ZPH 1xPH 1x25 - 1xPH 2x25 855/1ZPZ 1xPZ 1x25 - 1xPZ 2x25	1	HU000365

MULTIFUNCTION VDE CLAMPS

Multifunction VDE clamp with ergonomic grip

It is the ideal clamp for working on panels and electric installations. It performs several functions.
The special grip guarantees that it is simple to use and with minimum effort.
VDE insulation according to IEC60900.
Handles in non-slip material with two components

Model	mm	g	❒	Code METEL
290/200	200	295	3	HU000720

VDE clamp for electricians with ergonomic grip

Multifunction clamp, ideal for peeling and crimping electric cables from 1.5 to 2.5 mm².
Special grip to guarantee minimum effort.
VDE 1000V insulation according to IEC60900.
Handles in non-slip material with two components

Model	mm	g	❒	Code METEL
291/200	200	295	3	HU000721

Indestructible cable cutter for hard materials

Cable cutter with enhanced lever which offers high cutting performances.
Precision cutters for nails, bolts and similar materials.
Tool in special steel, oil forged and tempered.
Handles in non-slip material with two components

Model	mm	g	❒	Code METEL
292/200	200	340	3	HU000722

MULTIFUNCTION VDE CLAMPS

Multifunction VDE clamps with cable cutter - DIN ISO 5746

Model	mm	g	❒	Code METEL
265/160	165	200	3	HU000371
265/180	180	260	3	HU000372
265/200	205	285	3	HU000373

VDE clamps with middle round / straight jaws DIN ISO 5745

Model	mm	g	❒	Code METEL
235/160	170	165	3	HU000375
235/200	205	215	3	HU000376

VDE clamps with middle round / curved jaws 40° DIN ISO 5745

Model	mm	g	❒	Code METEL
236/160	170	165	3	HU000716
236/200	205	215	3	HU000377

VDE clamps with long flat jaws DIN ISO 5745

Model	mm	g	❒	Code METEL
215/160	160	145	3	HU000378

VDE HD clamps for diagonal cuts of rigid and flexible cables - DIN ISO 5749

Model	mm	g	❒	Code METEL
240/160	180	280	3	HU000382
240/180	200	305	3	HU000383

Precision cable cutter

High-precision sharp cable cutters, induction-tempered Ideal for continuous use at maximum performance.
Double-injection safety grip according to EN60900: in oil-bath tempered and hardened steel.

Model	mm	g	Ø	❒	Code METEL
220/170	160	225	16	3	HU000504
220/210	210	340	25	3	HU000385

Tube fastening VDE clamps with seven positions DIN ISO 8976

Model	mm	g	❒	Code METEL
280/250	250	3505	3	HU000384

Multipurpose cable duct cutting scissors

5 interchangeable cutting supports in tempered steel with secure fastening through Allen screw
Performance of straight, circular (max. diameter 25mm), 90° and e oblique cuts with adjustable direction
Ideal for perfect cuts on plastic (cable ducts, rigid PVC tubes, etc.), rubber (resin tubes, cables, etc.) and other surfaces (Plexiglas, nylon, etc.).

Model	mm	g	❐	Code METEL
F04	220	316	1	HU000292

Cable cutter VDE 1000V

Suitable for cutting cables and flexible cores in copper or aluminium
Ratchet mechanism

High cutting capacity

Model	mm	g	Ø	❐	Code METEL
SH320-1000V	260	600	32	1	HU000060
SH500-1000V	285	800	52	1	HU000040

Auto-adjusting cable peeler and cutter

Insulated cables in PVC 0.02-10 mm² / 34 -8 AWG
For flexible cables 10 mm² / 8 AWG
For rigid cables 1.5 mm² / 16 AWG

Model	Ø mm	❐	Code METEL
SF04	0.02 - 10 mm²	1	HU000387
L04 Interchangeable blades		1	HU000391

Cable peeler

Simple and reliable, this cable peeler allows peeling wires with PVC insulation from 0.03 up to 6mm²/AEG 30-10a. Adjustable length from 3 up to 16 mm. It is capable of cutting multiple wires, data transmission cables and telephone cables with 4-6-8 poles. Light and easy to use, with a low employment of strength thanks to its ergonomic design.
Provided with adjustment device to change the thickness of the wire's insulation. Damaging the conductor is impossible. Built in polyamide reinforced with glass fiber.

Model	Ø mm	❐	Code METEL
SF03	0.2 - 6 mm²	3	HU000087

Cable peelers and cutters 0,5 6mm²

Pressure adjustment of blades
For soft or hard sheaths
Knives in tempered steel
Harmless for conductors
Adjustment of the length of the wire to be peeled.

Model	Ø mm	❐	Code METEL
SF01	0.5 - 6 mm²	6	HU000039

Auto-adjusting cable peeler

Auto-adjusting cable peeler with rotating action, suitable for any kind of insulating sheath.
It allows carrying out circular, helical and longitudinal cuts.
It also allows carrying out internal peelings.
For cables up to 25 mm²

Model	Ø mm²	❐	Code METEL
PC03	4.5 - 25	1	HU000065
L03 Spare blades		1	HU000078

New-generation cable peeler

New-generation tool to peel 8-13 mm² cables and wires. It allows peeling cables along their length or circularly, allows accessing difficult points such as roofs and walls, distribution boards, switch panels, etc. It is suitable for all kinds of conductors 0.5 mm², 0.75 mm², 2.5 mm², 4.0 mm² and 6.0 mm² (24-10AWG). With in-built cable cutter, easily accessible for flexible conductors of max 6.0 mm², conductors of max 4.0 mm² (12AWG).

Model	Ø mm²	❐	Code METEL
S400	0.6 - 6	1	HU0000096

Cable peeler

Precise, quick and reliable to peel circular cables with a diameter of 4-28 mm². Provided with removable adapter in high-resistance plastic (POM). Thanks to the variable adjusting device of cutting depth, it does not damage the internal conductors.

Model	Ø mm²	❐	Code METEL
S28	4 - 28	1	HU000097
L28 spare blade		1	HU000098

Clamp for modular connectors

Bronzed steel. To cut, peel and fasten connectors RJ11, RJ12, RJ45 which are used in the field of data and telephone communications.

Model	mm	g	Ø mm²	❐	Code METEL
CM01	205	520	0.08 -10	1	HU000286

CRIMPERS AND TOOLS FOR THE PHOTOVOLTAIC FIELD

On crimping technique

Connections through crimping have replaced over time those through welding in many applications.

Crimping guarantees a better mechanical steadiness and is resistant to corrosion. Crimping may be carried out every time in a similar way, thus offering a longer duration of electric connections. However, in order to correctly carry out crimping, different factors must be taken into consideration: the conductor, the connector and the tool for crimping must fit together.

The minimum quality of a connection through crimping is defined by standards DIN EN 6035-2 IEC 512 and DIN EN 60999-1. In addition, manufacturers often define some crimping standards for the huge quantity of connectors and cables available on the market.
Our crimpers respect these characteristics, offering the user highly technological tools:
-obligatory closing system which guarantees that crimping is always completed
-handles in non-slip material with two components
-adjustable fastening strength and interchangeable dies for each specific connector
-fastening strength normally factory adjusted by the manufacturer.

The appropriate preparation of the part of conductor to be peeled is important as much as the correct positioning of the connector in the tool, in order to obtain precise connections. Also for this reason, cutting-edge tools are used in order to guarantee high levels of accuracy in preparing your connections.

Photovoltaic field and connectors

The use of solar energy to generate electricity has rapidly increased in the last few years.

With the development of panels with a higher and higher performance, solar energy is now giving its remarkable contribution to the development of renewable energy all over the world. This helps reducing the use of fossil fuels to generate energy and also providing electric energy to remote places.

The installation of a photovoltaic field is an investment of different decades, whose return strictly depends on the quality of the system itself. Long-lasting resistance to weathering and a good cable duration and of connectors are relevant factors in a system's performances.

Each panel must be properly connected, i.e. the cable must be as short as possible in order to prevent losses due to conductors. Crimping with our tools guarantees an optimum resistance to corrosion and infiltrations, minimizing energy losses even after several years. Connectors in photovoltaic systems are continuously evolving: that's why the installer must always be capable of installing and repairing.

To this purpose, we offer a wide range of tools for working on cables and solar connectors which will enable you to carry out operations in a professional way and in conditions of maximum safety. We constantly keep up to date with modern connectors and, therefore, we are able to offer different crimping dies.

With GEF tools, you will be able to install and repair today's and tomorrow's systems.

Q1 UNIVERSAL CRIMPER

Precision crimper, designed to guarantee crimping of most modern connectors.

Fastening strength enhanced by the innovative internal leverage system.

Interchangeable dies for any type of modern connector.

Practically parallel moving system of heads.

Optimum grip thanks to the non-slip handles and to weight distribution.

Possibility of crimping with a single hand thanks to the locators.
Body in bronzed chrome-vanadium steel.

Model	❒	Code METEL
Q1	1	HU000676

PACKING

Practical anti-shock case, without dies, without locators, with:

- crimper Q1
- L wrench for die assembly
- adjustable wrench

It can be interfaced as you like, according to your needs!

INTERCHANGEABLE DIES

It is not necessary to use a different tool for different connectors, thanks to the wide range of interchangeable dies it is possible to work on all modern connectors with the utmost precision.

FASTENING STRENGHT

The fastening strength can be adjusted through the relevant knob in order to satisfy the crimping specifications declared by the connectors' manufacturers.

LOCATOR

Thanks to the locator, the connector is always correctly fastened in the device. This guarantees better connections, similar to each other and with no need to use three hand for crimping.

EMERGENCY UNLOCKING

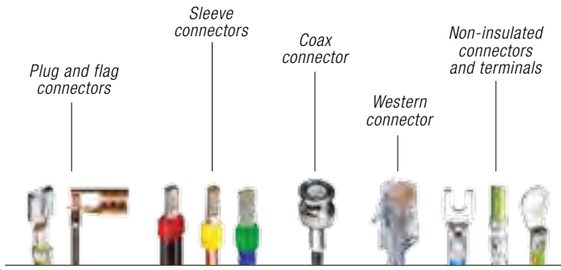
In order to remedy for an incorrect insertion of the connector, it is possible to unlock the tool while crimping through a screwdriver

DIES AND LOCATORS FOR Q1

PHOTOVOLTAIC SECTOR				
METEL		Type of connector	Die	
HU000662		MC4		Die for 2.5 - 4.0 - 6.0 mm² MC4 connectors
HU000661		MC4		Locator for 2.5 - 4.0 - 6.0 mm² MC4 connectors
HU000660		Tyco		Die for 1.5 - 2.5 - 4.0 - 6.0 mm² Tyco connectors
HU000559		Tyco		Locator for 1.5 - 2.5 - 4.0 - 6.0 mm² Tyco connectors
HU000690		Wieland		Die for 0.14 - 1.0 - 1.5 - 2.5 - 4 mm² Wieland terminals
HU0000691		Wieland		Die for 4.0 - 6.0 - 10 mm² Wieland connectors
HU000692		Huber & Suhner		Die for 2.5 - 4 mm² Huber & Suhner terminals
HU000671		Huber & Suhner		Die for 4.0 - 6.0 mm² Huber & Suhner connectors
HU000664		MC3		Die for 2.5 - 4.0 - 6.0 mm² MC3 connectors
HU000663		MC3		Locator for 2.5 - 4.0 - 6.0 mm² MC3 connectors

IMPORTANT: *further dies both for the photovoltaic and for the electro-technical sector are available upon demand.*

ELECTRO-TECHNICAL SECTOR			
METEL	Type of connector	Capacity mm²	Die
HU000683	Insulated terminals	0.5 -1.0 1.5-2.5 4.0-6.0	
HU000715	Insulated terminals	0.5 -1.0 1.5-2.5 4.0-6.0	
HU000677	Non-insulated terminals	4 6 10	
HU000678	Non-insulated terminals	0.5 -1.0 1.5-2.5 4.0-6.0 10	
HU000680	Non-insulated plug terminals	0.1- 0.25 0.5-1.0 0.5-1.0 1.5-2.5	
HU000682	Non-insulated plug terminals	0.5 -1.0 1.5-2.5 4.0 - 6.0	
HU000688	Flag terminals	0.5 -1.0 0.5 -1.0 1.25-2.5	
HU000689	Flag terminals	1.25 -2.5 3 -4 4-6	
HU000685	Insulated sleeve terminals	0.25 -0.75 1.0-1.5 2.5 - 4 - 6	
HU000686	Insulated sleeve terminals	10 16 25	
HU000684	Western plug (4 poles)	4-6-8 pin	



Q2 SPECIAL TOOL FOR ASSEMBLING MC3 (INSERT THE RUBBER CONNECTOR ONTO THE CRIMPED CABLE)

Q2 is a practical clamp for mounting connector MC3 once the terminal has been crimped to the cable. The 3 thimbles provided allow assembly on cables with different diameters (from 2.5 to 10 mm²). Thanks to its small size (325 mm) and its weight (460 g), this tool can be used directly on site and even on a roof. Lightweight and portable, it is made of anti-shock plastic.

Model	❐	Code METEL
Q2	1	HU000675

Mounting examples of MC3 with Q2

Prepare crimped connector MC3 and the insulating connector (male or female)

Choose the thimble according to cable diameter

With the right hand, completely insert the thimble connector.

Insert the thimble with the connector into the appropriate housing for the cable.

Press the clamp until the thimble is completely inserted in the connector and insert the crimped cable, and fasten it with the relevant cable holder.

Continue pressing the tool until no resistance is felt. Then remove the cable by extracting the relevant cable holder. By using this innovative tool it is possible to cable systems directly on site, thus saving installation times and costs.

ASSEMBLY OF MC3 **INNOVATIVE AND SIMPLE**

TOP QUALITY **MADE IN GERMANY**

Q3 AUTOMATIC CABLE PEELER FOR SPECIAL APPLICATIONS

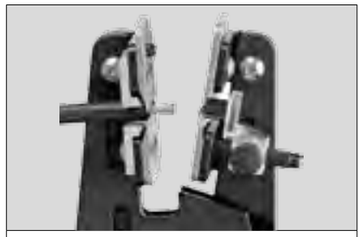
Special tool with cable holder to remove insulation in a precise manner.

For multiple and single cables up to 16mm².

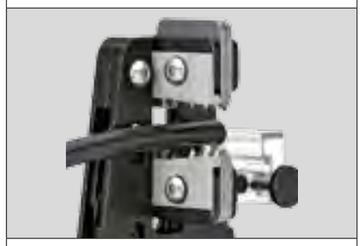
Applications for different types of insulation with different hardness.

No deformation of conductor thanks to the special geometry of the blades and to the cutting mechanics.
Interchangeable blades for different types of conductors.
Automatic release at the end of the operation.

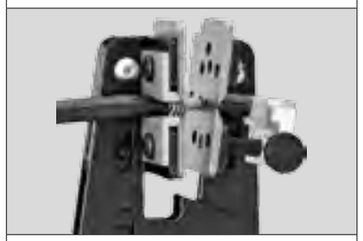
Model	❒	Code METEL
Q3	1	HU000712



Adjustment of the part to be removed.
Thanks to the adjustable cable holder, it is possible to define the part of insulation to be removed with millimetric precision.



Specific profiles for each blade
The wide range of interchangeable blades allows precisely working on many types of cables, with no danger of damaging the conductor part.



Automatic removal of insulation
The part of insulation is removed automatically at the end of the job, so that it is possible to respect the connector's specifications before crimping.

Part code	Type of application	Capacity mm²	Size: peeling - Ø	Blade profile
708 203 3 0	Blade for insulated cables in Teflon	2.5 - 10	4.45 3.50 2.70 2.30	
708 201 3 0	Blade for insulated cables in Teflon with cable guide	0.03 - 2.08	0.35 / 0.55 0.80 / 1.05 1.35 / 1.60 1.75	
708 205 3 0	Tool for multiple standard cables	0.14 - 6	0.70 / 1.35 1.70 / 2.30 2.70 / 3.50	
708 206 3 0	Blade for POF cables with 1.2 and 4 cores	1 wire 6.7 2 wires 6.2 4 wires 5.5	5.80 4.80 2.50 1.50	
708 209 3 0	Blade for per solar cables Radox 125	2.5 / 4.0 / 6	3.90 3.00 2.40	
708 212 3 0	Blade for special insulated cables in Teflon	AWG 20 - 10	1.00 / 1.20 1.40 / 1.80 2.40 / 2.80	
708 218 3 0	Blade for external sheath of ASI-BUS cables	2 x 1.5 10.2 x 4	oval shape 2 x R1.30 2 x 1.70	
708 226 3 0	Blade for solar cables	1.5 - 6.0	3.90 3.00 2.40 1.90	
708 223 3 0	Blade for PVC cables	6 10 16	5.70 4.45 3.50	
708 269 3 0	Blade for solar cables	4 6 10	3.0 3.9 5.0	

VARIOUS TOOLS

Universal mini-arc

Universal aluminium mini-arc with possibility of directing the blade to 6 cutting positions. Very small and light, provided with blade model PUK with high resistance

Model	↔ mm	g	❒	Code METEL
SH4010	260X100	130	3	HU000084
PUK blade with tempered teeth with high resistance.				
LH4000	147		12	HU000086

Hammer and mallet

German type, patented with safety handle protection collar. In C45 steel, tempered by electric induction.z Side polished and stove-enameled. Sharp-angled and polished surface. Handle protection sleeve, handle in shaped ash wood, locking system with steel wedge and epossidic resin.

Model	mm	↔ mm	g	❒	Code METEL
MT GR 300	22.5	300	300	3	HU000071

Hammer and mallet

Specific for the installer, with safety handle protection collar. In C45 steel, tempered by electric induction.z Side polished and stove-enameled. Sharp-angled and polished surface. Patented handle in three materials: nylon, handle protection sleeve in non-slip rubber, alumnium alloy core, locking system with steel wedge and epossidic resin.

Model	mm	↔ mm	g	❒	Code METEL
MTS GR 300	22.5	300	300	3	HU000073

Chisels

Model	↔ mm	❒	Code METEL
3612531	250	3	HU000425
3613031	300	10	HU000411

Aluminium level with two bubbles

Model	↔ mm	❒	Code METEL
92020	21	3	HU000417

Tape measure

Nylon tape, automatic back-winding, ABS resin unbreakable case. The tape can be blocked in any position and wound back by means of the appropriate button.

Model	↔ mm	❒	Code METEL
M5	5 m	3	HU000069
M8	8 m	3	HU000077

VARIOUS TOOLS

Universal wrench

in die-cast zinc. With adapter for 1/4" bits and insert with two screwdrivers. Weight 70 grams

Model	mm	mm	mm	mm	mm	mm	❐	Code METEL
400172	70 x 70	7-8	6	5	7-8	3-5	10	HU000038

Set of 9 Allen keys

Set of 9 Allen keys

Model	❐	Code METEL
950PKS/9SMN	3	HU00386

Professional cutter

With interchangeable and pre-carved adjustable sliding blade. Extra-light handle with non-slip grip.

Model	mm	g	❐	Code METEL
ZN02	180	150	5	HU000081
Set of 10 spare blades				
LZ2	-		1	HU000080

Roller wrench with ratchet function

Model	mm	g	❐	Code METEL
SAW-8D	250	-	1	HU000426

DRILLS AND SCREWERS

Set of hole saws

Complete with PVC box, size 300 x 180 x 65 mm

Model	Content	❐	Code METEL
KW04-9100	Hole saws Ø mm 16-20-25-32-40-50 Coupling KW04-9001 - 6,35 mm Coupling KW04-9002 - 11 mm KW04-9080 adapter Allen key	1	HU000285

Step tip

in super quick-HSS steel
Suitable for mobile drills
To drill and widen holes on metal sheets
Holes Ø mm 5-8-10-13-19-21-23-26-29-31-33-35
No. of steps 13, stem Ø 13 mm

Model	Content	❐	Code METEL
KW31-0318		1	HU000284

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proArte grafica F55938 6K-IT/4K-EN 23/12/2015 cat_catgen-en2016_1.00

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