

MULTIFUNCTION TESTER 5 IN 1 FOR MAINTENANCE OF PHOTOVOLTAIC SYSTEMS



PERFORMANCE, MAINTENANCE AND ELECTRICAL SAFETY FOR SINGLE-PHASE, THREE-PHASE AND MULTI-STRING PHOTOVOLTAIC SYSTEMS

- Touch-screen display with Optical Bonding
- 5 measurements in 1 instrument
 - Conversion efficiency
 - I-V curve (with rapid test)
 - Continuity
 - Insulation of the solar generation system
 - Data logger
- Management and direct creation of reports from the instrument
- Remote unit with Wi-Fi transmission (radiation / temperature)
- VNC for remote display and control sharing
- USB and Wi-Fi interface
- Compliancy with international standards



EN61010
EN61557
EN61724

EN62446
EN60891

EN60904
CEI82-25

600V
CAT IV

IP
54



Wi
Fi

Measure up

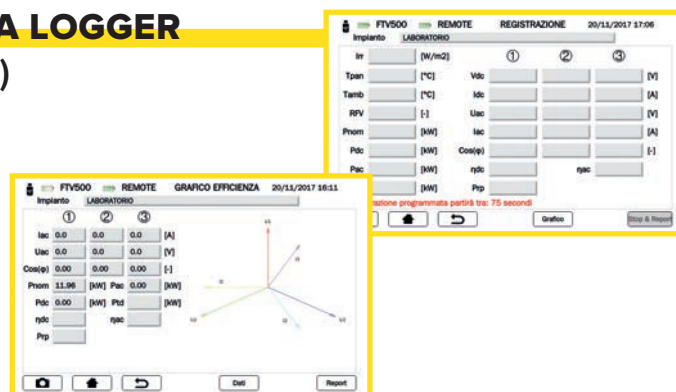


The **PHOTOVOLTAIC-TEST FTV500** is a portable instrument designed to meet all the needs of the technicians and the professionals involved during the commissioning, testing and maintenance of photovoltaic systems.

This instrument measures and analyses all the characteristic parameters of both single-phase and **three-phase systems (3 DC clamps + 3 AC clamps)**, according to the applicable international standards. The large memory, the data logger function, the remote control through Virtual Network Computing technology allow the **PHOTOVOLTAIC-TEST FTV500** to be a portable field instrument as well as a complete system for your periodic maintenance campaigns.

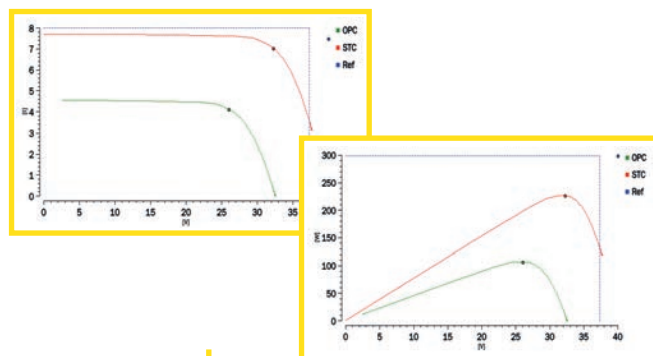
EFFICIENCY, PERFORMANCE AND DATA LOGGER (CEI82-25, EN61724, EN62446)

3 DC inputs and 3 AC voltage and current inputs, for the detailed measurement of the PV installation, including the DC/AC conversion performances, the active and theoretical power, the power factor and the phase graph at the inverter outputs. Every parameter is correlated with the irradiation quantities, room/module temperature, which are read by the remote unit. Test results are compared with regulatory references.



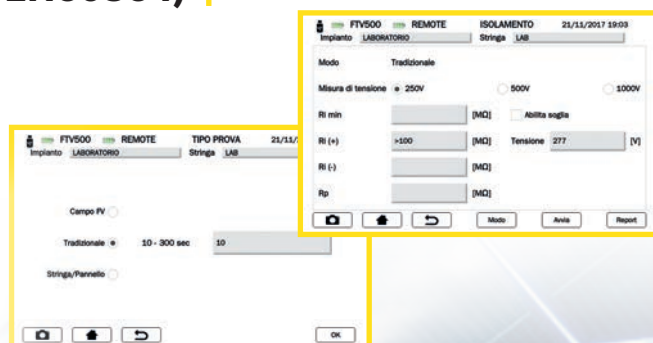
I-V CURVE, I-V RAPID TEST (EN62446, EN60891)

Analysis of the I-V characteristic curve of the modules / strings, comparison with the STC reference values of the manufacturer. The instrument manages the measurement autonomously, with a 4-terminals connection, and displays in a short time the graph of the characteristic curves (voltage/current/power), the main characteristic parameters and the test results compared with the STC values, which are drawn from a database of solar modules updated by the user. Rapid Test is also available, measuring only the open-circuit voltage and the short-circuit current of single modules or strings in parallel.



INSULATION RESISTANCE / CONTINUITY (EN62446, CEI82-25, EN61557, CEI64-8, EN60364)

Electrical safety checks of the photovoltaic system (module, string or entire system), measurement of **traditional** insulation resistance (megohmmeter) or with **plant in operating condition** with no need for an external switch to short-circuit the positive and negative poles. Selection of the test voltage (250-500-1.000 VDC) and programming of a threshold alarm for pass-failed results, allowing for an immediate outcome of the verification. Check of continuity of protective conductors with a 200 mA current, as required by international standards.



5 MEASUREMENTS 1 INSTRUMENT

FAULT INVESTIGATION

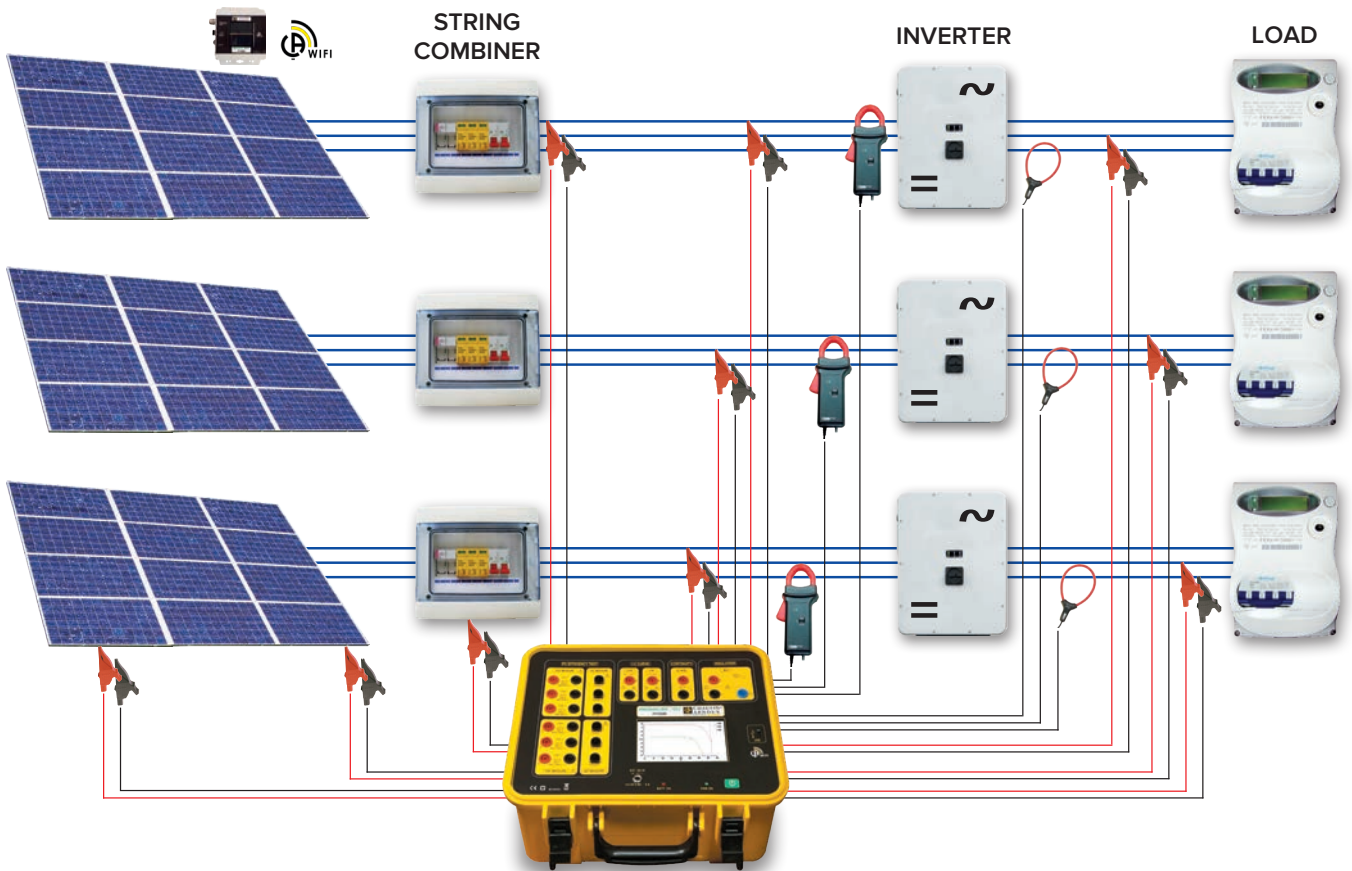
I-V Curve
Insulation
Continuity

ELECTRICAL SAFETY CHECK

Insulation
Continuity

SYSTEM PERFORMANCE (PRp)

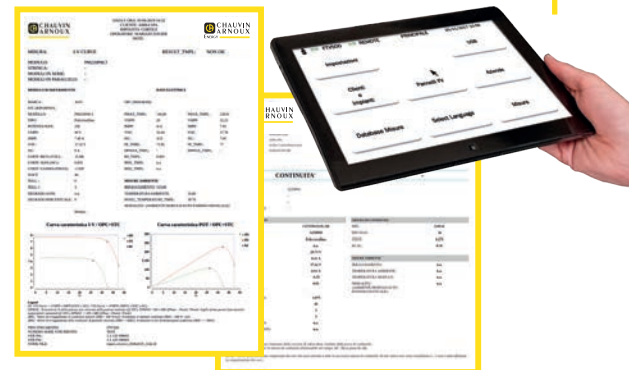
DC / AC Efficiency
Monitoring



REMOTE CONTROL, WI-FI & VNC TECHNOLOGY, TEST REPORT

The **PHOTOVOLTAIC TEST FTV500** is the first portable multifunction instrument with **VNC (Virtual Network Computing)** technology that allows remote control and management of all measurement functions, directly from your smartphone / PC / Tablet. Associated with Wi-Fi transmission, it also becomes ideal for remote assistance or to support technicians in the field from your office.

The memory of the instrument allows recordings of over 10,000 measurements and the immediate creation of reports with a simple click. Through a USB-key the whole database can be downloaded and made available.



REMOTE UNIT

The remote unit of the **PHOTOVOLTAIC TEST FTV500** collects the readings of the environmental parameters (irradiation, ambient temperature / module) in real time and then uses them for the analysis of results. Thanks to the Wi-Fi technology, the remote unit seamlessly transmits the data to the instrument, at a distance of up to over 200 m in open field, and it allows, in case of interruption of the transmission signal, to function as a data logger and store the acquired measurements, to then re-synchronize and transmit them to the instrument when the conditions return to normal. A patented fixing system offers installation stability and measurement reliability.



TECHNICAL SPECIFICATIONS

VOLTAGE			
Range / Resolution / Accuracy	DC: from 3 to 999,9V / 0,1V / 1%		AC: from 3 to 700,0V / 0,1V / 1,5%
CURRENT			
Range / Resolution / Accuracy	DC: from 1 to 1.400A / 0,1-1A / 1%		AC: from 1 to 3.000A / 0,1-1A / 1%
ENVIRONMENTAL MEASUREMENTS (REMOTE UNIT)			
IRRADIATION			
Range / Resolution / Accuracy	from 50 to 2.000 W/m ² / 0,1 W/m ² / 2,5%		Reference cell
AMBIENT TEMPERATURE			
Range / Resolution / Accuracy	from -20°C to + 150°C / 0,1°C / 1%		Pt100 sensor on remote unit
MODULE TEMPERATURE			
Range / Resolution / Accuracy			
I-V CURVE (OPC & STC)			
Range / Resolution / Accuracy	DC Voltage from 0,005 to 1000V 0,005-0,1V / 1%	DC Current from 0,005 to 15A (max 20A) 0,005-0,1A / 1%	Power from 5 to 9999W DC / 1W / 1,5%
CONTINUITY			
Range / Resolution / Accuracy	from 0,01 to 99 Ω / 0,01-1 Ω / 2% / test current > 200mA according to EN 61557-4		
INSULATION			
Range / Resolution / Accuracy	Traditional test method from 0,25 to 199,9 MΩ / 0,01-1 MΩ / 5% / Selectable test voltage 250-500-1000 V		
Range / Resolution	Test method with live conductors, no need for voltage interruption between positive and negative pole from 0,25 to 99,9 MΩ / 0,01-1 MΩ / Selectable test voltage 250-500-1000 V		
OTHER FUNCTIONS			
EFFICIENCY DC / AC (real time measurement)	Irradiation, temperature (ambient/module), AC/DC power (actual and theoretical available), Power factor, AC/DC voltage, AC/DC current, performance ratio PRp and AC/DC efficiency, vector diagram V-I		
LOGGING (recording with a programmable cadence and duration)	Irradiation, temperature (ambient/module), AC/DC power (actual and theoretical available), Power factor, AC/DC voltage, AC/DC current, performance ratio PRp and AC/DC efficiency		

GENERAL SPECIFICATIONS

Display	TFT 16.7M colours with Optical Bonding glass, touch screen, dimensions 5", resolution 800x480
Remote unit	Wi-Fi real-time transmission, real-time and data logging mode / synchronisation when signal is lost
Interface	Instrument: Wi-Fi transmission and VNC remote control (Virtual Network Computing), USB Remote unit: Wi-Fi transmission
Memory	Programmable internal database: sites/installations/companies/modules/measurements, with tree structure Autonomy: over 10.000 blocks for all measurements, 600.000 measurements for data logging
Power Supply / Autonomy	Instrument: Li-Ion rechargeable batteries with power supply 100-240V 50-60Hz / 15 hours at stand-by (programmable) Remote unit: Li-Ion rechargeable batteries with power supply and USB cable / 15 hours at standby
Degree of protection	Instrument: IP54 with lid closed - IP52 with lid opened Remote unit: IP67
Electrical safety	Double insulation, EN61010-1, from Cat. II 1000V to Cat. IV 600V depending on the measurement
Standards	EN62446, EN60891, EN60904-5, EN61557-2, EN61557-4, CEI82-25, CEI64-8, EN61724
Dimensions / Weight	Instrument: 340 x 300 x 200 mm / about 6 Kg Remote unit: 160 x 120 x 63 mm / about 1 Kg

STATE OF DELIVERY AND REFERENCES

PHOTOVOLTAIC TEST FTV500 P01129600

Instrument delivered with 1 carrying bag, power supply/battery charger, remote unit + power cable / USB charger, AC clamp MiniFlex MA500 (x3), DC clamp PAC500 (x3), cables 3m red and black (x6), cables I-V red and black, crocodile clips red and black (x2), Flexible female rod 4 mm (x6), inclinometer, set of 12 colored insert/rings, certificate of conformity, user manual digital file format.

Remote unit FTV500 P01102184

AC Clamp type Miniflex MA500 P01120600

DC Clamp type PAC500 P01120480

Inclinometer P01102115



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