



## TEST EQUIPMENT RENTAL SERVICES

When you rent Test Equipment from TDC, we want you to know that you will have a dedicated personal service from start to finish. Our Customer Service team is here to support you throughout your rental period.

TDC are independent specialists promoting all high quality manufacturers and instrument types. Equipment can be delivered Next Day or Same Day to suit your requirements.

When you are finished, simply contact us to arrange your equipment collection or alternatively you can despatch it back to us – we make it easy.

## RENTING FROM TDC JUST MAKES SENSE

By using TDC Test Equipment Rental Solutions, you benefit from our extensive rental inventory that is second to none. We constantly refresh our equipment range with branded equipment manufacturers such as Megger, FLUKE, Chauvin Arnoux, OMICRON, FLIR, b2 HVA, Agilent Technologies, Dranetz BMI, Fujikura, JDSU, Ametek Jofra, GE DRUCK, RAE Systems, TSI Airflow, Rohde & Schwarz, NORBAR, PANAMETRICS, Tektronix and many more.

You can utilise our rental equipment to suit your own requirements, from one week to as many months as you need. You only pay for what you use down to the day. Renting with TDC is straightforward and easy. Our expert Sales and Applications Engineers will find the best solution to suit your application.

Delivery & Collection is arranged by us - we make it hassle free and easy.

## TDC 6 POINT RENTAL GUARANTEE - OUR REPUTATION MATTERS



### 1 SAME DAY DISPATCH

Many of our customers operate to very strict deadlines. Providing the order is placed and confirmed before 3pm, your equipment will be despatched the same day.



### 2 QUALITY

All Equipment is checked prior to dispatch to ensure it is servicable and in safe working order. Certification checks are standard.



### 3 SUPPORT

We will provide you with enough information to make an informed choice of the correct equipment required for your application.



### 4 PRICE

We offer a simple price match promise. We'll match any genuine competitor quote.



### 5 CUSTOMER SERVICE

We can promise that throughout your rental period, we will do our utmost to provide you with the best customer service. All information we provide is in good faith and free of charge. We will provide a quote for any consultancy or professional advice that may be required.



### 6 REPUTATION

We know we are only as good as our last job. We don't just want regular customers - we want to build loyal customers.



For all enquiries, please contact: Gordon Thow (Test Equipment Rental Manager)

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**TEST EQUIPMENT RENTAL SERVICES**

**GREEN TEST FTV 100**

**Datasheet**

# *Energy efficiency on your installation*

## Solar Power Installation Analyser



*Easy to read even  
in bright sunlight  
thanks to its  
anti-reflective  
treatment!*

- **Electrical** power surveys
- **Solar-panel** efficiency calculations
- **DC/AC inverter** efficiency calculations

## Specially designed for solar power installations!

With the spread of solar power installations, professionals in the sector, installers, maintenance technicians and auditing organizations need a simple and effective test and measurement instrument, as the users sell on the electricity produced.

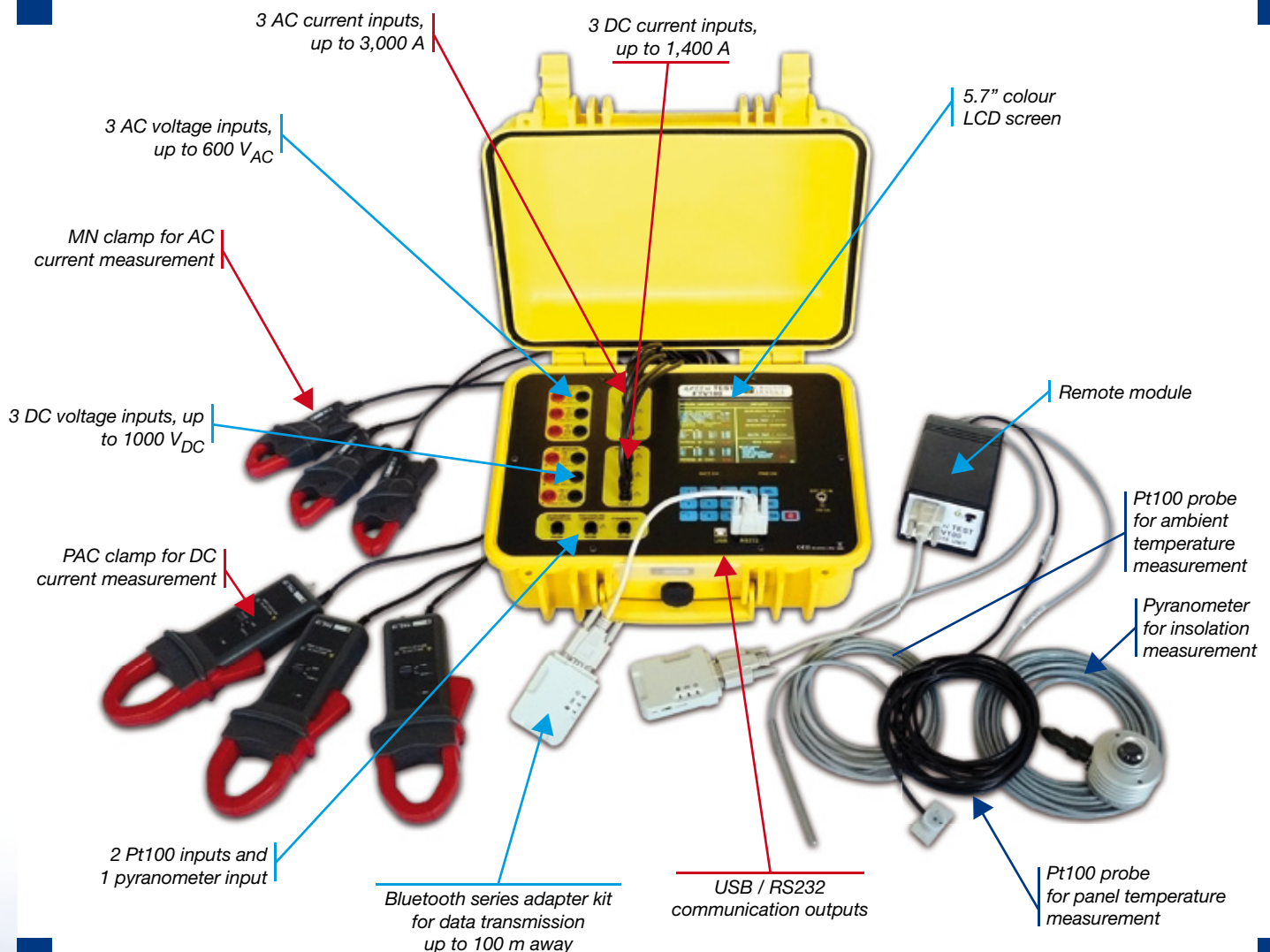
The payback time for the installation will vary according to the actual efficiency of the solar power installation. In an installation, each row of solar panels is designed to achieve a specific level of efficiency which is indicated on the datasheet concerning the panel.

When this reference value is reached, it means the installation is operating correctly. If not, it means there is a malfunction on the panel or on one of its components.

**Major advantage:** the FTV-100 can be used to perform these measurements simultaneously on 1, 2 or 3 rows of panels set up in parallel.

### The solution : the GREENTEST- FTV 100

This instrument can simultaneously measure and display all the physical and electrical parameters of solar power installations. It also stores them at the same time.



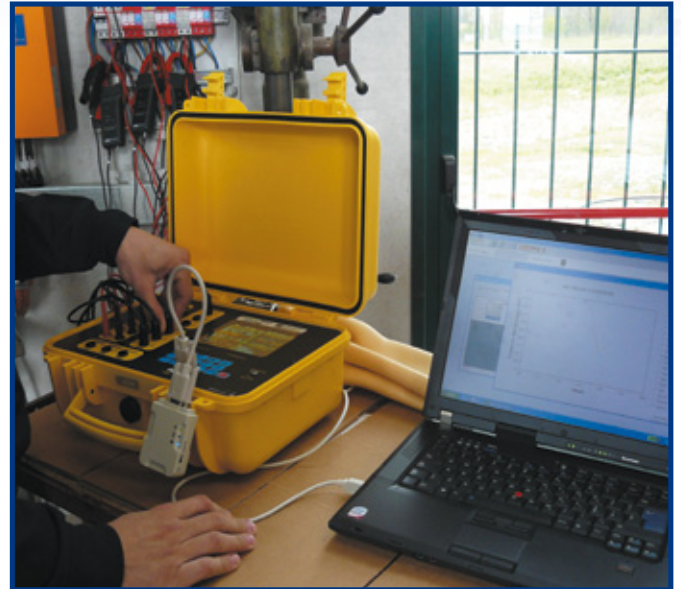
## Simple to use & set up

The **GREENTEST** is particularly simple to set up. For obvious safety reasons, you must first disconnect the panel (fuses, lightning arrester, etc.). You can then check the specifications of the panel's inverter, as indicated on the panel.

You install your **physical measurement sensors** (ambient temperature, panel temperature and insolation) as close as possible to the panels and connect the **current clamp** with its leads for the voltage measurements: an AC clamp for the measurements on the distribution network and a DC clamp for the measurements on the solar-panel outputs.

You then configure the instrument and enter the parameters (panel manufacturer).

These values are subsequently used as a reference to check the panel's efficiency.



**All the measurements are performed simultaneously:** voltage, current, power, temperature, etc.

Depending on the type of installation, you will need one or more current clamps.

To meet this requirement, 2 preconfigured versions of the FTV-100 are available:

- with 1 current clamp
- with 3 current clamps



The **GREENTEST** comes with a set of communication accessories which are particularly useful for transmitting measurement results on large installations. A «REMOTE» module allows real-time data transmission up to 100 m away.

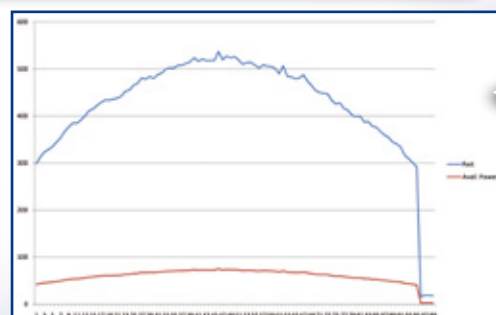
It operates either with a Bluetooth series adapter kit over distances of up to 100 m or with a 15 m serial cable with a 9-pin male/male RS232 connector.

*Opposite: The remote module, the Pt100 probe and the pyranometer are positioned on the solar panels installed on the roof of a house. This photo is provided as an illustration only in order to show the physical measurement equipment. In a real-life context, these accessories will be set up to one side so that they do not overshadow the panels and thus reduce their efficiency.*

## Measurements, processing and analysis

The **GREENTEST Report** software can be used initially to calibrate the instrument. It acquires all the measurements in real time. The display of the measurement curves allows users to check at a glance whether the panel is operating correctly or not. A graphic analysis function is available, in particular on the insolation/power curves, and it is also possible to print out a measurement report.

Firmware updates are also applied via this software.



Example of a power-insolation curve

# Technical Specifications

<b>Display</b>	Large 5.7" extra-bright digital colour LCD screen (320 x 240) with anti-reflective treatment		
<b>Inputs</b>			
	<b>Functions</b>	<b>Range</b>	<b>Accuracy</b>
<b>Pyranometer</b>	Solar irradiance measurement	0 to 2,000 W/m <sup>2</sup>	± 2 %
<b>Ambient temperature</b>	Pt 100 probe for measuring the ambient temperature	-30 to +80 °C	± 1 % ± 1 °C
<b>Temperature</b>	Pt 100 probe for measuring the temperature of the solar panels	-30 to +120 °C	± 1 % ± 1 °C
<b>DC voltage</b>	1 to 3 inputs	1,000 V <sub>DC</sub>	± 1 %
<b>DC current</b>	1 to 3 inputs	1,400 A <sub>DC</sub>	± 1 %
<b>AC voltage</b>	1 to 3 inputs	600 V <sub>AC</sub>	± 1 %
<b>AC current</b>	1 to 3 inputs	3,000 A <sub>AC</sub>	± 1 %
<b>Functions</b>			
<b>AC/DC power</b>	20,000 W <sub>DC</sub> / 1,200 W <sub>AC</sub>		< 2 %
<b>Calculation functions</b>	Efficiency of solar panels with compensation of the modules' temperature coefficient		
	Efficiency of DC / AC conversion by the inverter		
<b>Data recorder</b>	Up to 10 instrument configurations can be pre-recorded in the memory ( <i>measurements and measurement results</i> )		
<b>General Specifications</b>			
<b>Communication</b>	RS232 (to remote unit) + USB (to PC)		
<b>Internal power supply</b>	Built-in Li-Ion rechargeable battery (4.5 Ah) / Battery life 8h		
<b>External power supply</b>	Via 220 V <sub>AC</sub> – 50 Hz external power supply		
<b>Protection</b>	IP67 closed / IP54 open		
<b>Electrical safety</b>	IEC 61010-1 - 600 V CAT IV – 1,000 V CAT III		
<b>Dimensions / Weight</b>	360 x 304 x 194 mm / 3 kg ( <i>with battery</i> )		



REMOTE unit



Panel temperature probe



Ambient temperature probe



Bluetooth kit



Type C current clamp



PAC current clamp



Type D current clamp



MN current clamp

## To order

### GREENTEST FTV100, version with 1 DC input 1 PAC10-FTV DC + 3 MN-FTV AC type clamps

> P01160700

Delivered with IP67 site-proof case, 1 pyranometer for insolation measurement with 5 m cable, 1 Pt100 probe for ambient temperature with 3 m cable, 1 Pt100 probe for panel temperature with 3 m cable, 3 AC current clamps (MN-FTV) with 3 m cable, 1 DC current clamp (PAC10-FTV) with 3 m cable, 4 x 3 m leads with test probes, 1 rechargeable battery with mains adapter, data processing software, 1 carrying bag, 1 certificate of conformity, 1 SIT calibration certificate for the pyranometer.

### GREENTEST FTV100, version with 3 DC inputs

#### 3 PAC10-FTV DC current clamps + 3 MN-FTV AC clamps > P01160720

The same as the 1-DC-input version plus the kit for measurements on installations with 3 DC inputs.

## Accessories

### 3-DC-input installation measurement kit

> P01160710

Delivered with 2 PAC10-FTV current clamps and 3 m cable, 2 sets of leads with test probes (3 m)

### GREENTEST FTV100 REMOTE Unit

> P01160736

Delivered with 4 x 1.5 V batteries, 2 male/male RS232 connectors for soldering, 1 fastening strap

### "Cable" communication kit

> P01160737

15 m series cable, 9-pin male/male RS232 connectors

### "Bluetooth" communication kit

> P01160738

2 Bluetooth adapters (transmitter/receiver), 2 male/female RS232 series cables 20 cm long, adapter programming software

### PAC10-FTV PAC DC clamp (200 A<sub>DC</sub>)

> P01160734

### PAC20-FTV PAC DC clamp (1400 A<sub>DC</sub>)

> P01120092

### MN13-FTV MN AC clamp (200 A<sub>AC</sub>)

> P01160733

### C107-FTV Type C AC clamp (1000 A<sub>AC</sub>)

> P01120337

### D43-FTV Type D AC clamp (3000 A<sub>AC</sub>)

> P01120100

### Set of crocodile clips ø 4 mm (R/N)

> P01102052Z

### FTV100 battery

> P01160735

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To differentiate our organisation in order to achieve continuous, sustainable growth, TDC endeavours to fully understand and exceed the expectations of our customers, and to work proactively to deliver **Engineering Excellence**.



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