



Somebody imagines the future. **TIS keeps it under control.**

Instruments for the performance, verification, maintenance & safety testing of PV & EV systems.



Distributing to the electrical sector



Version 4

testinstrumentsolutions.co.uk



PVCHECKS-PRO PLUS

Professional Solar PV Commissioning
Tester 1500V and 40Amp



PVCHECKS-PRO is a one-stop test solution to meet the IEC 62446-1 standards for category 1 tests. PVCHECKS-PRO performs on single-face (SF) as well as on bifacial (BF) photovoltaic systems all tests required by the IEC 62446-1 to commission a photovoltaic installation in automatic sequence. Therefore, by a single GO-key stroke PVCHECKS-PRO measures and tests:

- Continuity of protective earthing and/or equipotential bonding conductors, where fitted
- Polarity test
- String open-circuit voltage test up to 1500V
- String short-circuit current test up to 40A
- Insulation resistance of the DC circuits by generating up to 1500V even on live circuits
- GFL (Ground Fault Locator) to identify a faulty panel in a string

UK
CA

**Kit supplied with one
SOLAR-03 and one HT305**



**2 Extra HT305s Needed
to test Bi-Facial Solar
Photovoltaic Panels**



- Continuity of protective conductors at 200mA
- Polarity
- Open circuit voltage (Voc) of PV modules and strings: 1500V
- Short circuit current (Isc) on PV modules and strings: 40 Amp
- PV string / field insulation with test voltages: 250V, 500V, 1000V & 1500V DC
- Use of SOLAR-03 remote unit with Bluetooth connection
- Measurement of direct (front side) irradiation with reference cell (with supplied SOLAR 03 & HT305 Reference Cell)
- Temperature measurement of cell and environment (with the supplied PT305 Temperature Probe)
- Measurement of polarisation index (P.I)
- Dielectric absorption ratio (D.A.R)
- GFL function to locate the fault position in the string
- CAT III 1000V AC, CAT III 1500V DC Measurement category
- Backlit LCD display
- Internal memory: 999 locations
- Integrated Wi-fi connection and compatibility with HTANALYSIS App
- Optical / USB serial port for PC connection
- Custom management of internal PV module database
- Auto power off
- Help on line on the display
- Size (LxWxH): 235 x 165 x 75mm
- Weight (batteries included): 1200 grams

PVCHECKS ONE PLUS

Solar Multifunction Commissioning Tester

PVCHECKS-ONE PLUS: The All-in-One Frontline Testing Solution

The PVCHECKS-ONE is a comprehensive, all-in-one meter designed to support the commissioning, verification, and troubleshooting of photovoltaic (PV) installations. Combining high-performance measurement capabilities with advanced diagnostic functions, it enables technicians to quickly assess system integrity, identify issues, and ensure reliable operation.

Thanks to its cutting-edge technology, technicians can easily perform commissioning tests in full compliance with IEC/EN62446-1 Category 1 requirements, while efficiently identifying ground faults during troubleshooting. With its fully automated test sequences, PVCHECKS-ONE ensures comprehensive certification of the performance and safety of both Monofacial and Bifacial PV modules. The instrument also introduces two innovative features that further enhance testing experience and operational efficiency:

- AUTOSTART/AUTOSAVE function
- Insulation testing on PV strings with DC optimizers

AUTOSTART & AUTOSAVE FUNCTION

The automatic sequential testing is engineered to maximize the throughput by reducing the time needed to test each PV string. PVCHECKS-ONE connects directly to the bus bars inside the combiner box, allowing seamless operation. Starting with all string fuses or switches open, the technician simply enables one string at a time. As soon as PVCHECKS-ONE detects voltage at its inputs, it automatically initiates the test sequence—performing the five measurements required by IEC/EN62446-1 and storing all results in its internal memory. When the fuses or switches of the tested string are reopened and those of the next string are closed, PVCHECKS-ONE immediately begins the next test cycle. No manual action is required; the instrument handles the entire process autonomously for fast, reliable, and efficient testing.



Kit supplied with one SOLAR-03 and one HT305



2 Extra HT305s Needed to test Bi-Facial Solar Photovoltaic Panels



- Continuity of protective conductors at 200mA
- Insulation measurement with test voltage 250V, 500V & 1000V DC
- NEW OPT Insulation measurement with DC Optimisers present
- Open circuit voltage (Voc) measurement up to 1000V DC
- Short circuit current (Isc) measurement up to 30A
- Measurement of Irradiance using the HT305 Reference cell & Solar-03 communication meter supplied
- Measurement of Bi-facial solar photovoltaic panels using 2 extra optional HT305 Reference cells
- Measurement of Temperature through the PT305 Temperature probe supplied
- IVCK Measurement with the press of one button
- GFL (Ground Fault Locator) to identify faulty solar panels in a string from 4 panels up to 60 panels
- DMM Feature to measure DC voltage and AC TRMS voltage
- 240 X 240 COG LCD screen with backlight
- Internal database of panels maximum 64
- Memory maximum 999 tests
- Power supply 6 x 1.5V AA alkaline batteries or 6 x 1.2V AA NiMH rechargeable batteries
- PC Communication Optical USB & WiFi
- Solar-03 Communication Bluetooth range up to 100 Metres clear site
- Conforms to BSEN 62446-1
- CAT III 1000V
- IP40

IV-600

Advanced Multifunction Instrument for I-V Curve Measurements up to 1500V and 40A



IV600 allows field tracing of I-V curve of modules and strings up to 1500V and 40A. Once traced the I-V curve, thanks to the user updatable database of modules, IV600 compares the measured data to the nominal values as provided by the manufacturer of the module/string under test to return a clear OK/NOT OK response.

Communication to the remote unit SOLAR-03 is granted up to 100m (in free field), and the logging function in case the communication was impossible (obstacles such as floor, concrete structures, etc.), it is always possible to trace the I-V curve regardless the environment the installation is in.

IV600 traces the I-V curve of mono-facial and bi-facial modules. According to IEC technical specification TS 60904-1-2, in addition to the front-side radiation, IV600 measures the back-side radiation by two different sensors (to consider the rear side irradiance nonuniformity). IV600 drives up to 3 solar radiation reference cells, but no more tons of parameters to set and high risk of misconfiguration.

IV600 automatically recognizes the calibration parameters of the reference cells connected. Running out of battery power is every professional's worst nightmare. Finding yourself without battery power in the middle of nowhere with a job to be delivered within hours would put anyone in trouble. Thanks to the patented BMS (Battery Management System), IV600 recharges its own batteries by recovering the power absorbed while tracing the I-V curve.

With IV600 it is possible to reach the PV field with fully flat batteries, start the measuring campaign, and end it with fully charged batteries. BMS turned the worst nightmare into the best dream ever! Reversing graphics to read the display properly even while hanging the instrument upside-down to the module rails, Wi-Fi connection to smartphones and tablets, and the microSD card slot to expand the memory complete the functions that IV600 provides.

- I-V Curve tracing of PV modules and strings: 1500V 40A
- Open circuit voltage VOC of PV modules and strings: 1500V
- Short circuit current ISC on PV modules and strings: 40A
- Quick IVCK test for measuring VOC and ISC on PV modules: 1500V 40A
- Use of SOLAR-03 remote unit with Bluetooth connection
- Measurement of direct (front side) irradiation with reference cell
- Measurement of albedo (back side irradiation) with up to 2 optional extra HT305 reference cells
- Temperature measurement of cell and environment with the supplied PT305 Temperature Probe
- BMS (battery management system) to recover testing energy and recharge the batteries
- Rechargeable or alkaline AA battery powered
- Mains power supply and battery cover
- PV power supply
- Seamless measuring mode to start the curve tracing automatically
- CAT III 1500V DC
- Backlit LCD colour display with touchscreen
- Intuitive memory: 9999 I-V curves
- External memory: micro SD
- PC Interface with software for Windows & Mac
- Integrated Wi-fi for connection to smartphones and tablets
- Auto power off
- Help on line on the display
- Size (LxWxH): 335 x 289 x 155mm
- Weight: 6kg

PV-ISOTEST

Multifunction For Checking Electrical Safety & Performance Of A Photovoltaic System



UK
CA

PV-ISOTEST represents a real innovation in the panorama of PV verification and testing instrumentation. PV-ISOTEST measures the insulation resistance of a single module, a string or even an entire photovoltaic field up to 1,500 V DC according to IEC/EN62446 standard.

Traditional insulation meters would require a DC-rated switch-box to short-circuit the positive and negative terminals of the module/string/PV field under test. With the PV-ISOTEST the use of any external device is not required, PV-ISOTEST carries out the measurements in full autonomy and self-sufficiency.

In addition, through the new GFL (Ground Fault Locator) function, PV-ISOTEST indicates the position of any poor insulation on a string of the photovoltaic system, due, for example, to water or humidity leakage.

- TRMS AC voltage measurement: 1000V
- DC voltage measurement: 1500V
- Insulation resistance: 250V, 500V, 1000V & 1500V DC
- GFL function to locate the fault position in the string
- Measurement of polarization index (P.I)
- Dielectric absorption ratio (D.A.R)
- Continuity of protective conductors at 200mA
- Size (LxWxH): 235 x 165 x75mm
- CAT III 1500V DC / CAT III 1000V AC
- Weight: 1.2kg

SOLAR PRO – Coming Soon

Professional I-V Curve Tracer and Commissioning Tester
Up To 1500V And 40A

- Continuity of protective conductors at 200mA
- Polarity • Buzzer • Memory: 9999 tests
- PV Module type- all most common types of PV modules single face & bifacial
- Wireless environmental parameters measurement (free field, max 100m, bluetooth connection with SOLAR-03)
- Performance / acceptance tests @ OPC (operating conditions) I-V Curve
- Open circuit voltage (Voc) of PV modules and strings: 1500V
- Short circuit current (Isc) on PV modules and strings: 40 Amp
- PV string / field insulation with test voltages: 250V, 500V, 1000V & 1500V DC
- GFL function to locate the fault position in the string
- Insulation measurement (dual mode & timer)
- PV Module datasheet database: 40,000 internal
- Data transfer / communication port: USB-C & Wi-Fi
- Touch screen colour graphic LCD: 800 x 600 pixel
- Help on line display
- IP67 (closed) IP40 (open)



Kit supplied with one SOLAR-03 and one HT305

TIS 570

AC/DC Earth Leakage Clamp Meter to 0.1mA

- True RMS AC Voltage & AC Current
- **DC Voltage:** Range 0 - 300V, Resolution 0.01V Accuracy 1.0% + 2dgts
- **AC Voltage (TRMS):** Range 0 - 300V, Resolution 0.01V Accuracy 1.2% + 5dgts
- **DC Current:** Range 0 - 10A Resolution from 0.1mA Accuracy 1.0% + 10dgts
- **AC Current (TRMS):** Range 0 - 20A Resolution from 0.1mA Accuracy 1.0% + 5dgts
- **Resistance (Ω):** Range 0 - 500KΩ Resolution from 0.1Ω Accuracy 1.0% + 2dgts
- Continuity Buzzer 0 < 100Ω



HT9025

AC/DC Clampmeter With Data Logging Function

→ **TRMS**
AC+DC



AUTO RANGE

MAX
1500 V



TIS PV1
Solar Irradiance Meter

- Measuring Range 4000W/m², 1268 BTU
- Measuring Solar Radiation Emitted By the Sun
- 3 1/2 Digital LCD Display, Max Reading 3999

TIS MC4TL

MC4 to 4mm Test Leads



TIS PV2KIT/Elite

Elite Solar PV Kit

- Solar Irradiance Meter 4000W/m², 1268 BTU
- 1000Amp AC/DC Clampmeter DC Voltage 1000V AC Voltage 1000V with recording facility and Phase Rotation
- MC4 Test Leads & Carry Case



TIS PV2KIT

Solar PV Kit

- Solar Irradiance Meter 4000W/m², 1268 BTU
- 1000Amp AC/DC Clampmeter DC Voltage 1000V, AC Voltage 750V
- MC4 Test Leads & Carry Case



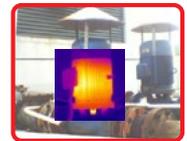
TIS 1900

160 x120 Pixel Digital Thermal Image Camera

- High Resolution IR Images 6,400 pixels (160 x 120) infrared resolution
- Visible Light Digital Camera 5 Megapixels digital camera resolution with flash provides sharp images regardless of lighting conditions
- Picture in Picture Displays thermal image super-imposed over a digital image
- LED Flashlight Allows the visual camera and fusion to be used in poorly lit environments
- Wide Temperature Range From -20°C to +350°C targeting electrical and industrial applications
- ±2% Accuracy Reliable temperature measurement
- Thumbnail view Easy to view and analyze images quickly
- Audio recorded with the video images A speaker to listen to audio recorded with the video image up to one hour video recording
- Li-ion Rechargeable Battery Lasts >4 hours continuous use; replaceable
- HDMI High resolution video output
- 8GB Micro SD Card Stores >6000 images
- Copy to USB Easy upload images from camera to USB memory card
- Area (Min/Max) Mode Shows the minimum or maximum temperature reading in the selected area



Full Infrared



Picture-in-Picture



Colour Alarms



Full Visible Light

160x120
PIXEL

TEMPERATURE RANGE
-20° ÷ 150°C
-0° ÷ 350°C

TIS MC4KIT

MC4 Solar Crimping Kit

- KN 00 21 15 LE
Tool Box Red
- KN 97 43 200 A
Knipex Crimp System Pliers for exchangeable crimping dies with multi-component grips 200mm
- KN 97 49 66 2
Set of Mounting Tools for solar cable connectors MC4 115mm
- KN 97 49 71
Crimping die for solar cable connectors MC4 (MC4 4.0mm - 10.0mm)
- KN 97 49 71 1
Locator for KN 97 49 71 (solar cable connectors MC4)



KN 97 91 04

Tools & Case For Photovoltaics



- Precision Insulation Stripper 12 12 11 with adapted blades for smaller stripping capacities 1.5 / 2.5 / 4.0 / 6.0 mm²
- With cable shears 95 16 165 for Cu cables up to Ø 15 mm
- With Crimp System Pliers 97 43 200 A for exchangeable crimping dies; crimping pressure has been set precisely (calibrated) in the factory
- Additional crimping dies available (optional)
- Hexagonal Key included for the change of crimping dies
- Shock-resistant plastic case
- Foam insert with recesses for tools, crimping dies (not included) and locators
- Dimensions, exterior (W x H x D): 345 x 80 x 280 mm



WH 38074

5 Piece Torque Screwdriver Set



- 1x Torque screwdriver TorqueVario®-S electric variably adjustable torque limit 0.8nM - 5nM (26626)
- 1x Setting tool for torque screwdriver with long handle 90 mm (26864)
- 1x Adapter TorqueVario-S electric for slimBits 6.0 mm (35870)
- 1x slimBit electric bit PlusMinus/Pozidriv SL/PZ1 x 75 mm (34589)
- 1x slimBit electric bit PlusMinus/Pozidriv SL/PZ2 x 75 mm (34590)



TIS MFTPRO+-EV

Complete EV Testing Kit

- Fully Guided EVSE Auto Sequence
- Earth Resistance Test 3 & 4 Wire
- TRMS For Accurate Measurements
- 6mA RDC-DD & 6mA Type B Test for EV Chargers
- Live Power Quality Measurement using the HT96U
- Results Downloadable
- Mode 2 & 3 Charging Stations
- PE & E Fault Simulation
- TIS EV-TEST100 CAT III 300V
- Plus much, much more



HT96U
(Optional)



PR400
(Optional)

TIS MFTPRO-EV

Complete EV Testing Kit

- Fully Guided EVSE Auto Sequence
- Multi Award Winning EVSE Test Kit
- TRMS For Accurate Measurements
- 6mA RDC-DD & 6mA Type B Test for EV Chargers
- Live Power Quality Measurement using the HT96U
- Results Downloadable
- Mode 2 & 3 Charging Stations
- PE & E Fault Simulation
- TIS EV-TEST100 CAT III 300V
- Plus much, much more



HT96U
(Optional)



PR400
(Optional)



TIS MFTECO-EV

Complete EV Testing Kit

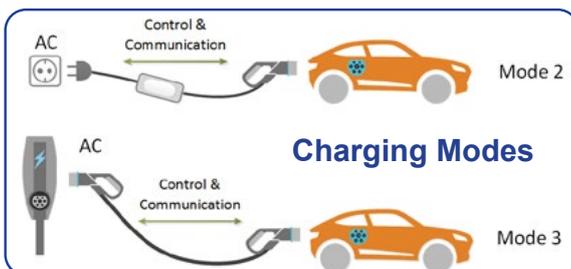
- EVSE Testing Compatible
- 6mA RDC-DD & 6mA Type B Test for EV Chargers
- 2 & 3 Wire Loop Test
- TRMS For Accurate Measurements
- Automatic Insulation Tests
- Mode 2 & 3 Charging Stations
- TIS EV-TEST100 CAT III 300V
- PE & E Fault Simulation



TIS EV-TEST100

EV Testing Adapter

- Mode 2 & 3 Charging Stations
- CAT III 300V Measurement category
- PE & E Fault Simulation
- Type 2 Connection
- Vehicle Status (CP) A,B,C & D
- Cable Coding Simulation (PP) 13A, 20A, 32A & 63A
- Simulation of Load



*When used as part of MFT-PRO - EV Kit



PQA820

Single & Three Phase Power Quality Analyser IP65

- AC TRMS Voltage In Single & Three Phase Systems
- AC TRMS Current In Single & Three Phase Systems
- Active, Reactive & Apparent Power/ Energy
- COSPHI and Power Factor
- Voltage Dips and Peaks 10ms
- Voltage / Current Waveforms
- Voltage / Current Vector Diagrams
- Periodical Recording with Selectable PI
- Voltage and Current Harmonic Analysis up to the 49th



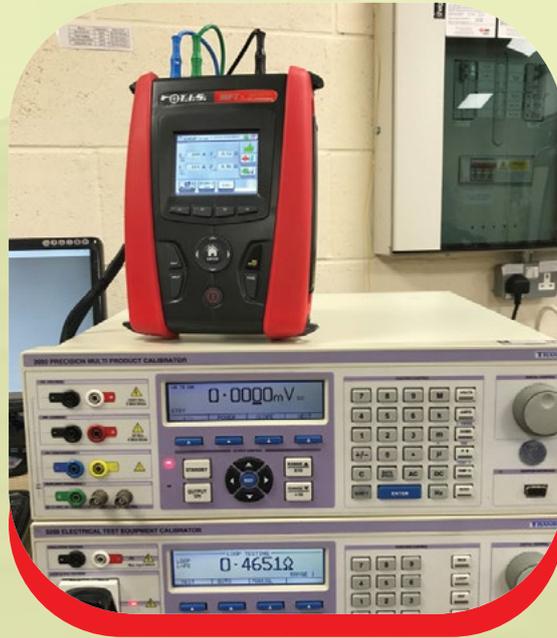
PQA924

Professional Class S Analyser

The PQA924 is designed to perform energy quality studies with automated measurements, a touch screen user interface and configuration, high accuracy specification & a simplified reporting platform.

- Records up to 3,177 Channels Current & Voltage events simultaneously
- Fast Transient Voltages
- Inrush Currents
- Up to 6 Channels on Flicker Data (Pst, Alt volages)
- Plus much more





For all your Solar & EV Calibration contact calibrations@tis-tic.co.uk

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