

# PVPM 2540X (250VDC, 40ADC, 10kW)

## Peak Power Measuring Device and IV-Curve Tracer For Photovoltaic Generators

Our performance recommendation for high performance single module measurements or smaller PV-strings.

The PVPM series devices enable the measurement of the I-V curve of photovoltaic modules and strings. Using a patented method, the device can directly calculate and display key values such as peak power, series resistance (Rs), and parallel resistance (Rp) based on the measured I-V curve, right at the installation site.

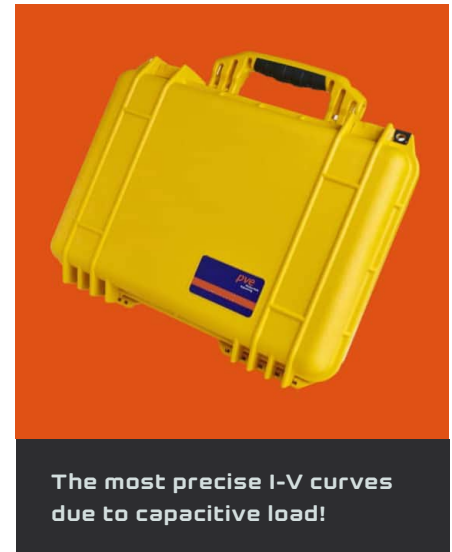
Powered by a patented method developed in collaboration with the University of Applied Sciences in Dortmund, the PVPM 2540X simplifies what was once a complex lab process – making it accessible anywhere, anytime.

With the PVPM 2540X, you instantly know:

- Assess module and string performance on-site
- Identify defects, shading, or degradation affecting output
- Decide if cleaning, replacement, or further investigation is needed

No additional equipment is required, and data is easily transferred to a PC via a standard USB interface.

Its intuitive, menu-driven interface ensures that it's simple to use, even without prior training.



### The PVE Advantage

#### Precise & Fast Measurements:

- Accurate I-V curve measurement using capacitive load – ideal for detailed, reliable analysis
- Continuous measurement with freely adjustable time intervals via additional PC software

#### Comprehensive Data Management:

- Integrated module and customer/project databases for quick reference and organized workflows
- Isolated USB interface for secure data transfer and in-depth PC analysis
- Powerful PC software for analysis, auto-reporting, export functions, and project tracking

#### Intuitive & Field-Ready:

- Intuitive touchscreen operation paired with a high-contrast, high-resolution color TFT display
- Rugged and durable, with a waterproof plastic housing and full sealing against dust, water, and dirt
- Housed in a military-grade PELI™ case for extra protection on the field



#### Full scope of delivery:

Delivered including calibrated irradiance sensor, temperature sensor, all required cables, alligator clips, test probes...



### Built to Be Different

#### Built for High Performance:

- Supports a wide range of modules – handles up to 250 V & 40 A
- Built-in safety features including an external load disconnect switch
- Highly flexible – works with a variety of sensors (M&T, NES, ISET...) for mono- and polycrystalline modules

#### Reliable & Future-Proof:

- Integrated 32-bit industrial-grade miniature PC and internal Li-Ion battery with integrated charge controller
- External wide-range power adapter (100–240 V) for global operation, offering both charging and continuous operation with Europlug to C7
- Modular design and short lead times thanks to optimized supply chains
- Made in Germany – developed and manufactured to the highest standards, backed by fast, reliable support and comprehensive service

# Technical Data (subject to change)

## HOUSING:

The PVPM 2540X is protected by a sturdy, military-grade PELI™ case – watertight, crushproof, and dustproof (IP67 when closed). It features easy-open double-step latches, an automatic pressure equalization valve, and a comfortable, rubber-coated handle for safe transport. The durable plastic foil front plate provides easy access to all connectors, which are conveniently arranged and fully accessible from the front.

## MEASUREMENT AND EVALUATION UNIT:

- **Industrial-grade embedded PC** with 512 MB flash storage – holds thousands of measurements
- **No moving parts** – no fans, no hard drives, no mechanical failure points
- **High-speed data acquisition:** Sampling rate up to 100kHz / 12-bit resolution for accurate signal capture
- **Measurement accuracy:** Better than 1% for IV curve /  $\pm 5\%$  for peak power (Ppk)
- **4-wire (Kelvin) measurement** – minimizes voltage drop errors and ensures precise readings
- **Fast measurement cycle:** 0.02 to 2 seconds per IV curve (100 data points)
- **Reference sensor with integrated Pt1000** – measures both irradiance and temperature
- **Module temperature measurement** via sensor on the rear side
- **Compatible with third-party reference sensors** (e.g. Fraunhofer ISE models – see price list)

Measuring Ranges	Voltage [VDC]	Current [ADC]	Temperature [°C]	Irradiance [W/m <sup>2</sup> ]
PVPM2540X	25 / 50 / 100 / 250	2 / 5 / 10 / 40	-40°C - +120°C with Pt1000	0 - 1300 (Standard Sensor)

**Flexible measuring ranges:** Voltage and current ranges can be freely combined

**Automatic range selection:** The device selects the optimal measuring range for each test

## DISPLAY:

- Easy to read color TFT touchscreen even in bright outdoor conditions
- LED backlight, high contrast
- Resolution: 480 × 272 pixels

## POWER SUPPLY:

- **Li-Ion battery:** 11.25 V / 8.8 Ah / 99.6 Wh, up to 8 h continuous operation, flight approved
- **External power adapter:** 90–264 V AC, 47–63 Hz, 40 W, UL-approved
- **Charging:** Internal auto charge controller with overcharge protection
- **Status display:** LED charge indicator on front panel
- **Mains mode:** Continuous operation during charging

## OPERATION:

- Intuitive touch menu for direct control via the integrated display
- Optional PC operation using MS-Windows® software
- Full measurement control and analysis via isolated USB connection

## DIMENSIONS:

→ Width: 40.6cm, height: 17.5cm, depth: 33cm, weight: about 8kg

## OPERATING CONDITIONS

	Temperature	Humidity
Operation	0°C to 50°C	10% to 90% (non-condensing)
Storage	-10°C to 85°C	5% to 95%

max. height of use 2000m (6562ft) above sea level

## SCOPE OF SUPPLY

- Measuring device in PELI® case (impact-resistant, IP67 closed)
- 10 m 4-wire measuring cable with MC4 connectors
- LTSX safety switch (min. 1000 VDC)
- Monocryst. irradiance sensor with clamp holder, Pt1000, 10m cable
- Module temperature sensor (PT100, Tmod)
- Aluminum accessory case or optional PVE backpack
- External charger (90–264 V AC) & USB cable
- Test probes, crocodile clips, MC4 release tool
- Control software for MS Windows® XP–11
- Printed manual & calibration certificates

## OPTIONALLY AVAILABLE

- Individually adapted test leads and extension cables
- Calibrated irradiance reference Sensors for several module technologies (e.g. polycrystalline)

## WARRANTY

- We grant a warranty of 24 months starting from date of purchase on production and material defects as well as free updates of the evaluation software  
(download from Internet: <https://t1p.de/mqd7>)