

# PVPM 1500X (1500VDC, 20ADC, 30kW)

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

When it comes to photovoltaic performance, one thing matters above all: reliable data. That's exactly what the PVPM 1500X delivers.

Whether you're dealing with smaller or medium-sized systems – this portable device measures the I-V curve in seconds and calculates key values like peak power, series and parallel resistance right on site. No lab. No waiting. Just fast, accurate results.

Powered by a patented method developed in collaboration with the University of Applied Sciences in Dortmund, the PVPM 1500X simplifies what was once a complex lab process – making it accessible anywhere, anytime.

With the PVPM 1500X, you instantly know:

- Whether modules or strings are performing as expected
- If defects, shading, or degradation are affecting output
- Whether cleaning, replacement, or further investigation is worth it

It saves time, builds trust – and brings peace of mind to you, your team, and your customers.



The most precise I-V curves due to capacitive load!

## 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 high-efficiency modules – handles up to 1500 V & 20 A
- Built-in safety features including an integrated DC fuse and 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 1500X 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 / ±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/m²]             |
|------------------|-----------------------|-----------------|-------------------------------|-------------------------------|
| PVPM1500X        | 25 / 100 / 500 / 1500 | 2 / 5 / 10 / 20 | -40°C - +120°C<br>with Pt1000 | 0 - 1300<br>(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

**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

**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

**DIMENSIONS:**

→ Width: 40.6cm, height: 17.5cm, depth: 33cm, weight: about 8.5kg

| 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 (1500 V DC)
  - 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>)