

PVPM 1040X (1000VDC, 40ADC, 40kW)

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

Our performance recommendation for solar installers primarily working with residential systems for private customers.

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.

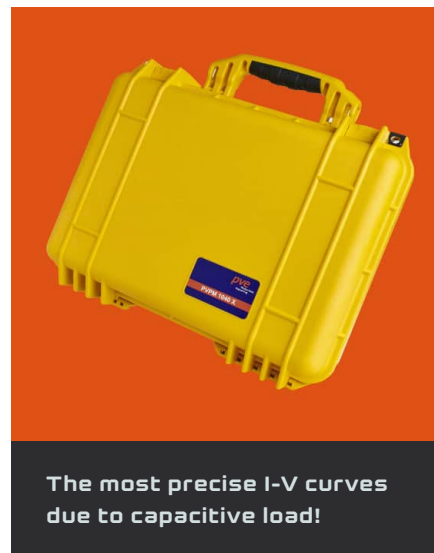
Powered by a patented method developed in collaboration with the University of Applied Sciences in Dortmund, the PVPM 1040X simplifies what was once a complex lab process – making it accessible anywhere, anytime.

With the PVPM 1040X, 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 1000 V & 40 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

PVPM 1040X

Technical Data (subject to change)

HOUSING: The PVPM 1040X 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]
PVPM1040X	25 / 100 / 500 / 1000	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

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 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 (1500 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>)