

PVPM 1540X (1500VDC, 40ADC, 60kW)

IV-Curve Tracer / PV-Tester for bifacial and monofacial PV-Systems

Whether large utility-scale plants, **bifacial systems**, or modern **high-efficiency PV modules**: this mobile measurement system captures the I-V curve within seconds and calculates all relevant parameters directly on site – from **peak power** to series and parallel resistances. No laboratory. No waiting time. No detours. Just fast, precise, and reliable results exactly where they are needed.

With the **PVPM 1540X** you know immediately

- whether strings or arrays reach the expected performance
- whether faults, shading, or degradation are affecting the yield
- whether cleaning, replacement, or further analysis is really worthwhile

And with the PC software **Curvealyzer®**, fully **automated measurement reports** are generated within seconds. Measurement, analysis, and documentation merge seamlessly into one workflow – **saving time, reducing costs**, and making your results clear, traceable, easy to document, and instantly shareable.

This consistent and efficient workflow builds trust and provides you, your team, and your customers with **maximum confidence** in every decision.



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 database in the Curvealyzer® software with **more than 120,000 entries**, as well as customer and project databases for structured workflows
- Powerful Curvealyzer® PC software for measurement data analysis, including **automatic report generation**, file export, and visualization

Intuitive & ready for field use:

- Intuitive touchscreen operation paired with a high-contrast, high-resolution 4.3" color TFT display
- Robust **PELI™ case** for reliable performance under demanding field conditions



Full scope of delivery:

Delivered including one calibrated irradiance sensor, module temp. sensor, all required cables, alligator clips, test probes, etc.



Built to Be Different

Built for High Performance:

- Supports high-efficiency modules – handles up to 1500 VDC & 40 ADC and is ready for bifacial PV-Systems with up to three irradiance reference sensors (optional)
- Built-in safety features including an integrated DC fuse and external load disconnect switch
- Delivered pre-assembled and ready to use – just connect the parts and start your project right away.

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 in Germany
- Benefit from our fast and reliable support, as well as comprehensive service

Technical Data (subject to change)

HOUSING: The PVPM 1540X 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 100 kHz / 12-bit resolution for accurate signal capture
 - **Measurement accuracy:** Better than 1% for IV curve / ±5% for peak power (Ppk) ($\eta < 19\%$)
 - **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)
 - **Irr. reference sensor with integrated temp. sensor** – measures irradiance and temp. of the reference cell
 - **Optional:** Two additional irradiance sensors for capturing rear-side irradiance in **bifacial module testing**
 - **Module temperature measurement** via external sensor (DS18B20 probe)

Measuring Ranges	Voltage [VDC]	Current [ADC]	Temperature [°C]	Irradiance [W/m²]
PVPM1540X	25 / 100 / 500 / 1500	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 9 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 (**ModBus**) with stainless steel clamp holder, integrated cell temperature sensor, 10 m cable
- Module temperature sensor (DS18B20, Tmod)
- **PVe backpack** or aluminum case for accessories and sensors
- External charger (90–264 V AC) & USB cable
- Test probes, crocodile clips, MC4 release tool
- **Curvealyzer®** Control software for MS Windows®
- Printed manual & calibration certificates

OPTIONALLY AVAILABLE

- **Two additional** irradiance sensors for capturing rear-side irradiance in **bifacial module testing**
Complete set
Article No.: *PVPM1540X-BiFi-Set*
- Individually adapted test leads and extension cables

WARRANTY

- We grant a warranty of 12 months starting from date of purchase on production and material defects