

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

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

When it comes to photovoltaic performance, one thing matters above all: reliable data. That's exactly what the PVPM 1540X delivers.

Whether you're dealing with utility-scale arrays, **bifacial modules or high efficiency technology** – this portable device measures the IV 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 1540X simplifies what was once a complex lab process – making it accessible anywhere, anytime.

With the PVPM 1540X, 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

And with the PC software Curvealyzer®, you can automatically generate a comprehensive report within seconds – saving time, reducing costs, and making your findings easy to document and share.

This streamlined workflow builds trust and gives you, your team, and your customers full peace of mind.



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 (>120k modules) 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-report generator**, data export functions, and project tracking

Intuitive & Field-Ready:

- Intuitive touchscreen operation paired with a high-contrast, high-resolution 4.3" color TFT display
- Rugged and built to last, featuring a fully sealed, waterproof **PELI™** housing that keeps dust, water, and dirt out – ensuring reliable performance in 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 to the highest standards, backed by fast, reliable support and 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)
 - 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 24 months starting from date of purchase on production and material defects as well as free updates of the Curvealyzer® software