

# SMUs and Multiplexers

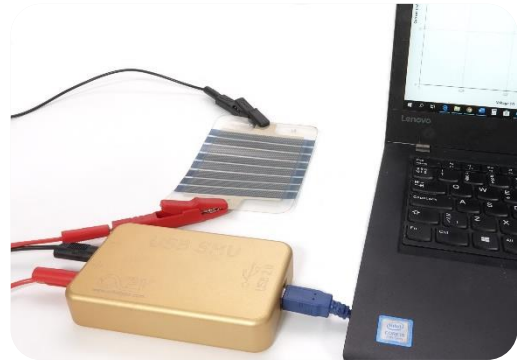
infiniPV ApS offers a versatile range of source/sink measure units (SMUs) enabling testing of many solar cells in the same setup (from 1 to 40 channels) using a unique series multiplexers (MUXs) that cover from low voltage to high voltage 1kV or above. It is all controlled by powerful software enabling determination of power conversion efficiency and follow performance over time when solar cells are subjected to different test conditions following for instance the ISOS testing protocols in connection with our ISOSun series of solar simulators. Our multiplexed units enable access to the device under test at all times (except when periodically tested by the SMU). This allows the user to control the electrical conditions of the devices under test at all times. This could be electrical stress through forward or reverse bias, a short circuit, open circuit, or a load. It is also possible to add maximum power point tracking units (MPPTUs) to each channel such that the device on that channel is subject to maximum power point tracking. When combined with our ISOSun, ISOS-L-3 chamber, weather station and software a complete turnkey system is at hand.



## Key highlights:

infiniPV SMUs are unique on several fronts:

- Available in many sizes to meet specific needs
- From volts to kilovolts and from  $\mu$ Amperes to Amperes
- From a single channel to 40 channel multiplexing
- Active loads with Maximum Power Point Tracking
- Designed for continuous operation for many years
- Fully CE-approved and compliant
- Rugged aluminium cabinets that are easily mechanically fixed to other components
- Standalone touchscreen control and PC interface on all models
- Equipment that does not interfere with adjacent equipment or experiments
- Additional 8-channel weather input platform comprising wind speed, wind direction, 2 x humidity, 2 x temperature, AM15.D and AM1.5G (sensors not included)
- Weather input is easily software configured to accepts a large range of weather probes (resistive, voltage, current, source V / measure I, source I / measure V)
- Fast industry 4.0 ready test software packages and interfacing to robotics
- Free software available online with the most recent additions



## SMU Selection Guide

There are five overall SMU options: **USB SMU**, **Low voltage SMU**, **High voltage SMU**, **High power SMU** and **ISOS testing SMU**. Each option offers a high degree of customization.

	USB SMU	Low voltage SMU	High voltage SMU	High power SMU	ISOS testing SMU
Voltage range [V]	-4 to +4	-4 to +4	0 to 1000	up to 600	-20 to +20
Current range [mA]	-40 to +4	-40 to +4	-60 to 0	0 to 2500	0 to 1000
IV scan in	3 <sup>rd</sup> to 4 <sup>th</sup> Quadrant	3 <sup>rd</sup> to 4 <sup>th</sup> Quadrant	4 <sup>th</sup> Quadrant	4 <sup>th</sup> Quadrant	All Quadrants
Resolution	16 bit	16 bit	12 bit	12 bit	16 bit
Source/Sink Limit	40 mA	40 mA	<250 mA	<5 A*	1 A
No of channels	1-16	1 or 16	1 or 16	1 or 16	40
Multiplexed	Optional	Yes	Yes	Yes	Yes
Weather channels	No	Temp. and humidity	No	No	8 channels for indoor and outdoor weather measurements
Active load option (4V/40MA)	Yes	Yes	Yes	Yes	No
Touch screen control	No	Yes	Yes	Yes	No
PC control	Yes	Yes	Yes	Yes	Yes
Software	IV characterization and lifetime measurement with MPPT option	IV characterization and lifetime measurement with MPPT option	IV characterization and lifetime measurement with MPPT option	IV characterization and lifetime measurement with MPPT option	IV characterization and lifetime measurement
Stand alone	Yes	No	No	No	No

\*Depending on version

## Service and support:

We offer service using phone or skype on a 24/7 basis and we guarantee shipping of spare parts to Europe, US and RoW within 2 working days using DHL (islands and remote areas excluded).