



Sun Trackers

For solar tracking and two-axis positioning operations

Solar radiation is normally measured using a pyranometer mounted horizontally, that sees the whole hemisphere above it and responds to radiation from both the sun and the sky, the Global Horizontal Irradiance (GHI). However, it is often necessary to accurately measure the Direct Normal Irradiance (DNI) of the beam from the sun; particularly in solar energy, meteorology and climatology applications.

A pyrhelimeter has a view slightly larger than the sun and its aureole and does not see the rest of the sky. To make DNI measurements it must point precisely at the sun and this is achieved using an automatic two-axis sun tracker. The sun tracker provides a stable mounting for the pyrhelimeter and moves horizontally (azimuth) and vertically (zenith) to follow the solar arc throughout the year.

Precision stepping motors controlled by a micro-processor drive through belts or gears to provide movement with the desired torque and accuracy. An on-board programme uses

accurate longitude, latitude, altitude, date, and time information for the measurement site to calculate the sun's position. Older designs need to have this information entered manually using a computer and software; but newer sun trackers, such as the SOLYS and the RaZON⁺, obtain the information automatically through GPS.

An optional shading assembly blocks the direct solar radiation from reaching a pyranometer mounted on the tracker so that the Diffuse Horizontal Irradiance (DHI) from the sky can be measured. Pyrgeometers for measuring far infrared thermal radiation from the sky are normally used shaded from the direct sun to minimise window and dome heating effects.

Kipp & Zonen's fully automatic sun trackers are widely used around the world in high quality solar radiation networks, such as the Baseline Surface Radiation Network (BSRN) of the World Climate Research Programme.

RaZON⁺ ALL-IN-ONE Solar Monitoring System



More accurate than our CMP11

RaZON⁺ is an ALL-IN-ONE Solar Monitoring System that accurately measures both direct normal irradiance (DNI) and diffuse horizontal irradiance (DHI). Even though the standard RaZON⁺ instrument specifications are first or second class, the calculated GHI is even more accurate than our SMP11 or SMP21 secondary standard pyranometers. The integrated PH1 pyrliometer is tested to be within 1% of our CHP1 and SHP1.

Integrated Logging, GPS and Wi-Fi Communication

All irradiance measurements in W/m², sunshine duration in hours, energy in kilowatt hours/m², solar position angles and status information is logged on the integrated logger. With the Wi-Fi connection you can easily set-up, configure and check the RaZON⁺ using any smart device like a tablet. RS-485 (Modbus or ASCII) and Ethernet are available for measurement data communication. The integrated GPS receiver provides accurate location information and accurate time stamps.

Anti-Soiling Design and Minimal Maintenance

The innovative features of the pyrliometer minimize the effects of soiling when operated unattended in remote locations, without compromising the high accuracy of the instrument. Both the pyrliometer and pyranometer are based on quartz diffuser technology. Thanks to the open collimator tube design and the quartz diffuser, the pyrliometer is resistant to the effects of soiling. Moreover, RaZON⁺ is based on a completely maintenance-free gear drive sun tracking mechanism.

Full Weather Station and On-Site Calibration

For beginning of 2017 a firmware upgrade will be available for the RaZON⁺. The already available Modbus input will then accept Compact Weather Stations, a tilted irradiance (POA) pyranometer or PV Panel Temperature sensor, making it the meteorological center of any Solar Power Plant.

Part number	Instrument
0381900	RaZON ⁺ ALL-IN-ONE Solar Monitoring System Shading assembly • PR1 Pyranometer • PH1 Pyrliometer
0382910	RaZON ⁺ Smart Solar Monitoring Base • SMP enabling kit
0382420	RaZON ⁺ tripod (optional)
0382430	RaZON ⁺ pole mount (optional)

Part number	Accessories
2523176	RaZON ⁺ Wi-Fi adapter Europe (AT, BE, CY, CZ, DK, EE, FI, FR, DE, GR, HU, IE, IT, LV, UA, LT, MT, NL, PL, PT, SK, SI, ES, GB, IS, LI, NO, CH, BG, RO, TR, RU)
2523177	RaZON ⁺ Wi-Fi adapter China

In all other countries Wi-Fi adapter Edimax EW-7811UN should be purchased locally in order to comply with local legislation

Specifications	
Pointing accuracy	0.2°
Payload	Sufficient for 1 pyranometer and 1 pyrliometer
Angular velocity	30°/s
Rotation	110° zenith, 600° azimuth
Protection against over rotation	Physical limit stops
Supply voltage	20 to 30 VDC
Power	13 W
Operating temperature range	-20 °C to +50 °C
Weight	9 kg
Dimensions (WxDxH)	60x60x48 cm
Accuracy of bubble level	< 0.1°
Ingress Protection (IP) rating	65
CE/FCC compliance	Yes
RoHS	Yes
Transmission	Gear drives
Power connections	DC power
Communication interface	RS-485 Modbus® for external sensor/system RS-485 to host, Modbus® or ASCII Ethernet RJ-45 web based Modbus® TCP Wi-Fi (accessory adapter)
Data logging	1 s sampling, 1 minute average logging
GPS, location and time/date	Standard
Installation	Plug-and-play, Wi-Fi enabled device used
Functional self-test	Standard
Test/diagnostic facility	Standard via Ethernet connection
Sun tracking mode	Standard
PC system requirements	Ethernet connection, web browser
Firmware update possible	Flash memory
Maintenance	No scheduled maintenance required Annual inspection recommended
Restart after power interruption	Automatic

PR1 Smart Pyranometer	
Classification to ISO 9060:1990	Second Class
Response time (95%)	< 0.2 s
Response time (63%)	< 0.1 s
Spectral range (50% points)	310 to 2700 nm
Zero offsets	
(a) thermal radiation (at 200 W/m ²)	1 W/m ²
(b) temperature change (5 K/h)	1 W/m ²
Non-linearity (100 to 1000 W/m ²)	< 0.3%
Directional response (up to 80° with 1000 W/m ² beam)	< 20 W/m ²
Temperature response	< 1% (-20°C to +50°C)
Field of view	180°
Measurement range	0 to 1500 W/m ²
Operating temperature range	-40 °C to +80 °C
Ingress Protection (IP) rating	67

PH1 Smart Pyrliometer	
Classification to ISO 9060:1990	Second Class
Response time (95%)	< 0.2 s
Response time (63%)	< 0.1 s
Spectral range (50% points)	310 to 2700 nm
Zero offsets	
(b) temperature change (5 K/h)	1 W/m ²
Non-linearity (100 to 1000 W/m ²)	< 0.3%
Temperature response	< 1% (-20°C to +50°C)
Field of view	5° ±0.2°
Slope angle	1° ±0.2°
Measurement range	0 to 1500 W/m ²
Operating temperature range	-40 °C to +80 °C
Ingress Protection (IP) rating	67

SOLYS2



SOLYS2 is a cost-effective and simple sun tracking solution. It does not require a computer and software for installation because the integrated GPS automatically configures location and time data. Multi-colour LEDs indicate the operating status.

SOLYS2 has both an isolated 4-wire RS-485 port and an Ethernet port for communication with the SOLYSMonitor Windows™ software, or with data acquisition systems. RS-485 is particularly suited to a permanent remote access connection to regularly obtain the calculated sun position (zenith and azimuth angles) and the GPS time. The information can be used to control solar energy system sun trackers or to update data logger clocks.

The high-efficiency belt drive system requires no maintenance and the low consumption makes it ideal for use with solar and battery power systems. The 'sleep mode' reduces power by 50 % at night-time. The SOLYS2 can operate from AC or DC power and can automatically switch from AC to back-up DC in the case of a mains power outage.

SOLYS2 is supplied with a cast aluminium tripod stand and with the mountings for a Kipp & Zonen pyrheliometer already fitted. The tracker does not suffer from internal clock drift because time is updated by the GPS receiver, so if the support for the tripod is stable and secure the tracker will point accurately at the sun using the internally calculated position. However, it is not always possible to achieve this stability under changing environmental conditions and a sun sensor kit is available to provide active tracking correction for movements of the support platform. These corrections are stored in the tracker log files.

A second side plate can be fitted and mounting kits are available for a range of direct radiation instruments. Top mounting plates are available for global radiometers. A shading assembly for the measurement of diffuse radiation allows SOLYS2 to be configured as a complete solar monitoring station.

SOLYS2 is ideal for concentrating photovoltaic (CPV) and solar thermal energy applications and also meets the requirements of the Baseline Surface Radiation Network (BSRN) of the World Climate Research (WCRP).

Part number	Instrument
0367900-001	SOLYS2 Sun Tracker + SOLYS Tripod Floor Stand Including SOLYS Tripod Floor Stand and mounting for CHP1/SHP1 pyrheliometer

Specifications	
Pointing accuracy	< 0.1 ° passive tracking < 0.02 ° active tracking (sun sensor)
Torque *	> 20 Nm (at max. load & angular velocity) > 23 Nm (at max. load when sun tracking)
Payload (balanced)	20 kg
Communication	Ethernet RJ45 DHCP client, manual configuration ICMP, web interface, mDNS, NTP service, UDP, track commands, status info RS-485 4-wire isolated port Status and recovery info and interface configuration
SOLYSMonitor Software, Windows™	Included, but not required for set-up View or log tracker status, sun position, tracker Pointing position, GPS date and time
Transmission	Inverted tooth belts, no maintenance
Location, time/date information, setup	Automatic by integrated GPS
Indicators	Power, internal temperature and status LEDs
Mounting base	Tripod stand included
Zenith axis fittings	One side plate and CHP1/SHP1 pyrheliometer mounting kit included
Sun sensor for active tracking	Optional accessory
Heater for low temperature operation	Standard (operates on AC power only)
Supply voltage	18 to 30 VDC and 100 to 240 VAC, 50/60 Hz (switches to DC power as back-up)
Power consumption	21 W (reduces to 13 W at night) 100 W extra with heater on (AC only)
Min. operating temperature	-20 °C (DC) -40 °C (AC, heater on)
Max. operating temperature	+50 °C +55 °C (with optional sun shield)
Storage temperature range	-40 °C to +50 °C
Humidity range	0 to 100 % non-condensing
Ingress Protection (IP) rating	65

* The standard torque setting is ideal for all normal measurement applications, but it is adjustable in firmware. Torque can be reduced to save power, or increased to a maximum of 30 Nm when sun tracking.

Part number	Accessories
0367703	Shading Ball Assembly Including 2 shading balls, large top plate and second side plate
0353704	Shading Ball and Rod Extra, for third position on shading assembly
0353710	Heavy Duty Tripod Floor Stand
0353750	Height Extension Tube for Heavy Duty Tripod Floor Stand
0367707	Sun Sensor Kit For active tracking of the sun position
0381700	SOLYS Sun Shield Kit Increases maximum operating temperature by 5°C
0367708	Side Mounting Plate For second side of zenith shaft
0367709	Large Top Mounting Plate For up to 3 global radiometers (ventilated or un-ventilated)
0367712	Small Top Mounting Plate For 1 global radiometer (ventilated or un-ventilated)
0367718	Adjustable Tilt Radiometer Mounting Kit To mount a CMP/SMP series pyranometer to a top plate of a SOLYS to measure tilted diffuse radiation Zenith angle can be adjusted from 0° to 90° with graduated scale
0367713	Tilted Radiometer Mounting Kit * To mount a CMP/SMP series pyranometer to a side plate of a SOLYS
0367710	Pyrheliometer Mounting Kit * To fit a second CHP1/SHP1 pyrheliometer
0367714	PGS-100 Mounting Kit * To fit 1 x Prede PGS-100 Spectral Sun Photometer
0367704	PMO6 Mounting Kit * To fit 1 x PMOD-WRC PMO6 absolute cavity pyrheliometer
0367705	SPO2 Mounting Kit * To fit 1 x Middleton Solar SPO2 (-L) sun photometer
0367706	HF/AHF Mounting Kit * To fit 1 x Eppley HF or AHF absolute cavity pyrheliometer
0367717	NIP Mounting Kit To fit 1 x Eppley NIP pyrheliometer, either as an extension to the standard CHP1/SHP1 mountings, or directly to a side plate

* Note: This mounting kit also requires a side mounting plate (0367708)

SOLYS Gear Drive



SOLYS Gear Drive is a high end sun tracker for all weather conditions and locations. It builds on the features of the SOLYS2 and has enhanced capabilities that make it suitable for use with heavy loads and in the harshest climates.

The mechanical structure of arms and pivots that comprise a shading assembly can accumulate ice and snow in extreme conditions and, together with the radiometers, it can impose considerable loads on the tracker in high winds. SOLYS Gear Drive has the power to point accurately at the sun in very high winds, and to break the ice that can build up overnight when the tracker is 'sleeping'.

The high precision gear drive system requires no maintenance and is much more powerful than the belt drive system of the SOLYS2. The maximum payload is increased to 80 kg and the torque is raised to 60 Nm, allowing SOLYS Gear Drive to carry multiple and/or heavy instruments and other loads. The shading assembly and other mounting accessories from the SOLYS2 can all be fitted.

A large side mounting plate can be fitted to one, or both, sides of the SOLYS Gear Drive to enable the mounting of large instruments multiple pyrheliometers or absolute cavity radiometers.

SOLYS Gear Drive has the mountings for pyrheliometer already fitted and includes the sun sensor for active tracking. However, it does not include a tripod stand. It can be used with the cast aluminium SOLYS Tripod Floor Stand but, for use in extreme conditions and with high loads, the Heavy Duty Tripod Floor Stand is recommended. The height extension tube can also be used.

SOLYS Gear Drive has been tested and protected against the highest levels of ESD, EMC and surge disturbances that might be experienced.

For operation in extremely cold regions an insulated cold weather cover is available that allows use in temperatures down to -50 °C and with wind speeds up to 20 m/s. For very hot climates a sun shield can be fitted, extending the upper temperature range to +60 °C.

Part number	Instrument
0381900	SOLYS Gear Drive Sun Tracker • Sun Sensor

Specifications	
Pointing accuracy	< 0.02 ° active tracking
Torque	> 40 Nm (at max. load & angular velocity) > 60 Nm (at max. load when sun tracking)
Payload (balanced)	80 kg
Communication	Ethernet RJ45 DHCP client, manual configuration ICMP, web interface, mDNS, NTP service, UDP, track commands, status info RS-485 4-wire isolated port Status and recovery info and interface configuration
SOLYSMonitor Software, Windows™	Included, but not required for set-up View or log tracker status, sun position, tracker Pointing position, GPS date and time
Transmission	High precision reduction gears, no maintenance
Location, time/date information, setup	Automatic by integrated GPS
Indicators	Power, internal temperature and status LEDs
Mounting base	Optional tripod stand or heavy duty tripod
Sun sensor for active tracking	Included as standard
Zenith axis fittings included	One CHP1/SHP1 pyrheliometer mounting kit
Heater for low temperature operation	Standard (operates on AC power only)
Supply voltage	18 to 30 VDC and 100 to 240 VAC, 50/60 Hz (switches to DC power as back-up)
Power consumption	25 W (reduces to 13 W at night) 150 W extra with heater on (AC only)
Min. operating temperature	-20 °C (DC) -50 °C (AC, heater on) -50 °C and wind up to 20 m/s (AC, heater on and with optional cold cover)
Max. operating temperature	+55 °C +60 °C (with optional sun shield)
Storage temperature range	-50 °C to +60 °C
Humidity range	0 to 100 % non-condensing
Ingress Protection (IP) rating	65

Part number	Accessories
0367703	Shading Ball Assembly Including 2 shading balls, large top plate and second side plate
0353704	Shading Ball and Rod Extra, for third position on shading assembly
0353710	Heavy Duty Tripod Floor Stand
0367711	SOLYS Tripod Floor Stand
0353750	Height Extension Tube for Heavy Duty Tripod Floor Stand
0381700	SOLYS Sun Shield Kit Increases maximum operating temperature by 5°C
0016770	SOLYS Gear Drive Cold Cover Allows operation at -50 °C with 20 m/s wind-chill
0381702	SOLYS Gear Drive Large Side Mounting Plate To fit multiple pyrheliometers, absolute cavity radiometers or large instruments
0367708	Side Mounting Plate For second side of zenith shaft
0367709	Large Top Mounting Plate For up to 3 global radiometers (ventilated or un-ventilated)
0367712	Small Top Mounting Plate For 1 global radiometer (ventilated or un-ventilated)
0367718	Adjustable Tilt Radiometer Mounting Kit To mount a CMP/SMP series pyranometer to a top plate of a SOLYS to measure tilted diffuse radiation Zenith angle can be adjusted from 0° to 90° with graduated scale
0367713	Tilted Radiometer Mounting Kit * To mount a CMP/SMP series pyranometer to a side plate of a SOLYS
0367710	Pyrheliometer Mounting Kit * To fit a second CHP1/SHP1 pyrheliometer
0367714	PGS-100 Mounting Kit * To fit 1 x Prede PGS-100 Spectral Sun Photometer
0367704	PMO6 Mounting Kit * To fit 1 x PMOD-WRC PMO6 absolute cavity pyrheliometer
0367705	SPO2 Mounting Kit * To fit 1 x Middleton Solar SPO2 (-L) sun photometer
0367706	HF/AHF Mounting Kit * To fit 1 x Eppley HF or AHF absolute cavity pyrheliometer
0367717	NIP Mounting Kit To fit 1 x Eppley NIP pyrheliometer, either as an extension to the standard CHP1/SHP1 mountings, or directly to a side plate

* Note: This mounting kit also requires a side mounting plate (0367708)



Albedometer Kits

For global and reflected radiation measurement

The albedo of a surface is the extent to which it diffusely reflects short-wave radiation from the sun in the wavelength range from 300 nanometers (nm), or less, to 3000 nm. It is the ratio of the reflected radiation to the incoming radiation and varies from 0 (dark) to 1 (bright). As an indication, albedo is about 0.15 for grass, 0.5 for dry sand and 0.8 for fresh snow.

An albedometer consists of two identical pyranometers that measure the incoming global solar radiation and the radiation reflected from the surface below. The two signal outputs are used to calculate the albedo and the net short-wave radiation.

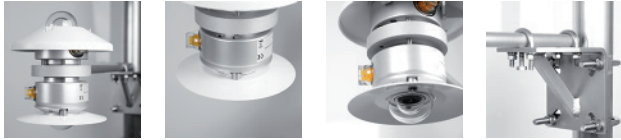
Kipp & Zonen albedometers are installed around the world for meteorology, hydrology, climate research, and agriculture. A particular use is for measuring the albedo of glaciers, snow and ice fields in climate change research.

Our albedometer kits are designed for a long operating life with simple maintenance. The two pyranometers are fitted to the plate of a mounting fixture that has a rod for easy attachment to a mast. The white sun shield of the lower pyranometer is removed and replaced by a glare screen that prevents direct illumination of the domes at sunrise and sunset.

The kits featured cover the most popular configurations, but other CMP and SMP pyranometers can be used. By changing the mounting fixture from a CMF1 to a CMF4, the CVF4 ventilation unit can be fitted.

Entry-level albedometers can be configured by using two SP Lite2, CMP3 or SMP3 pyranometers with the accessory mounting rod.

CMP6 Albedometer Kit



This ISO 9060:1990 First Class albedometer kit is a replacement for the CMA6 integrated albedometer that is now out of production. By using two separate pyranometers with a mounting fixture (plate and rod) and glare screen for the pyranometer there is a choice of configurations available. The CMB1 mounting bracket can be used to fix the rod to a pole or wall.

If the CMF1 mounting fixture is replaced by the CMF4 model, the CVF4 ventilation unit can be used with the upper and/or lower pyranometers. When a lower ventilation unit is used, the glare screen cannot be fitted.

Its good quality and cost-effectiveness make the CMP6 albedometer kit ideal for meteorology, hydrology and agricultural applications.

Specifications	
Classification to ISO 9060:1990	First Class
Sensitivity	5 to 20 $\mu\text{V}/\text{W}/\text{m}^2$
Impedance	20 to 200 Ω
Expected output range (0 to 1500 W/m^2)	0 to 30 mV (upper)
Expected output range (0 to 1000 W/m^2)	0 to 20 mV (lower)
Maximum operational irradiance	2000 W/m^2
Response time (63%)	< 6 s
Response time (95%)	< 18 s
Spectral range (20% points)	270 to 3000 nm
Spectral range (50% points)	285 to 2800 nm
Zero offsets (unventilated)	
(a) thermal radiation (at 200 W/m^2)	< 10 W/m^2
(b) temperature change (5 K/h)	< 4 W/m^2
Non-stability (change/year)	< 1%
Non-linearity (100 to 1000 W/m^2)	< 1%
Directional response (up to 80° with 1000 W/m^2 beam)	< 15 W/m^2
Spectral selectivity (350 to 1500 nm)	< 1%
Tilt response (0° to 90° at 1000 W/m^2)	< 1%
Temperature response	< 4% (-10°C to +40°C)
Field of view	180° (upper) 170° (lower)
Accuracy of bubble level	< 0.1°
Temperature sensor output	
Detector type	Thermopile
Operating temperature range	-40°C to +80°C
Storage temperature range	-40°C to +80°C
Humidity range	0 to 100%
MTBF (Mean Time Between Failures)	> 10 years
Ingress Protection (IP) rating	67

Part number	Instrument
0362955-002	CMP6 Albedometer Kit • 2 x CMP6 • CMF1 • Glare Screen Kit • 2 x 10 m cable
0362955-000	CMP6 Albedometer Kit • 2 x CMP6 • CMF1 • Glare Screen Kit • no plug, no cable

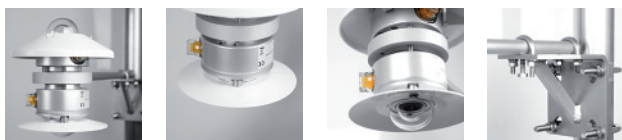
Part number	Options (configured/adjusted to suit instrument)
0365901	AMPBOX signal amplifier • gain adjusted
Note: CMP6 Albedometer Kit can be used with the AMPBOX but it has two individual outputs, so 2x AMPBOX are required	
Note: AMPBOX is adjusted so that 4 to 20 mA output = 0 to 1600 W/m^2	

Ventilated CMP6 First Class Albedometer Kit	
A ventilated ISO First Class Albedometer Kit can be assembled by ordering: 2x CMP6 Pyranometer + 1x CMF4 Mounting Fixture + 2x CVF4 Ventilation Unit	

Part number	Accessories
2643960	Desiccant Refill Pack Contains 10 sachets
0369701	CMB1 Mounting Bracket In combination with mounting rod for easy attachment to a pole or a wall

(*) This product will need to be registered by the end-user within 6 months of purchase to activate the warranty extension.

CMP11 Albedometer Kit



The CMP11 albedometer kit is a replacement for the CMA11 integrated albedometer that is now out of production. This CMP11 kit complies with the highest level of ISO pyranometer classification, Secondary Standard.

Using the CMF4 mounting fixture instead of the CMF1, the CVF4 ventilation unit can be used with the upper and/or lower pyranometers. When a lower ventilation unit is used, the glare screen cannot be fitted.

The CMP11 albedometer kit is a step up in performance from CMP6 kit and is recommended for scientific applications, for which accuracy needs to be according to the highest standards.

Specifications	
Classification to ISO 9060:1990	Secondary Standard
Sensitivity	7 to 14 $\mu\text{V}/\text{W}/\text{m}^2$
Impedance	10 to 100 Ω
Expected output range (0 to 1500 W/m^2)	0 to 20 mV
Expected output range (0 to 1000 W/m^2)	0 to 13 mV
Maximum operational irradiance	4000 W/m^2
Response time (63%)	< 1.7 s
Response time (95%)	< 5 s
Spectral range (20% points)	270 to 3000 nm
Spectral range (50% points)	285 to 2800 nm
Zero offsets (unventilated)	
(a) thermal radiation (at 200 W/m^2)	< 7 W/m^2
(b) temperature change (5 K/h)	< 2 W/m^2
Non-stability (change/year)	< 0.5%
Non-linearity (100 to 1000 W/m^2)	< 0.2%
Directional response (up to 80° with 1000 W/m^2 beam)	< 10 W/m^2
Spectral selectivity (350 to 1500 nm)	< 1%
Tilt response (0° to 90° at 1000 W/m^2)	< 0.2%
Temperature response	< 1% (-10°C to +40°C)
Field of view	180° (upper) 170° (lower)
Accuracy of bubble level	< 0.1°
Temperature sensor output	
Detector type	Thermopile
Operating temperature range	-40°C to +80°C
Storage temperature range	-40°C to +80°C
Humidity range	0 to 100%
MTBF (Mean Time Between Failures)	> 10 years
Ingress Protection (IP) rating	67

Part number	Instrument
0362965-002	CMP11 Albedometer Kit • 2 x CMP11 • CMF1 • Glare Screen Kit • 2 x 10 m cable
0362965-000	CMP11 Albedometer Kit • 2 x CMP11 • CMF1 • Glare Screen Kit • no plug, no cable

Part number	Options (configured/adjusted to suit instrument)
0365901	AMPBOX signal amplifier • gain adjusted
Note: CMP11 Albedometer Kit can be used with the AMPBOX but it has two individual outputs, so 2x AMPBOX are required	
Note: AMPBOX is adjusted so that 4 to 20 mA output = 0 to 1600 W/m^2	

Ventilated CMP11 First Class Albedometer Kit	
A ventilated ISO Secondary Standard Albedometer Kit can be assembled by ordering: 2x CMP11 Pyranometer + 1x CMF4 Mounting Fixture + 2x CVF4 Ventilation Unit	

Part number	Accessories
2643960	Desiccant Refill Pack Contains 10 sachets
0369701	CMB1 Mounting Bracket In combination with mounting rod for easy attachment to a pole or a wall

(*) This product will need to be registered by the end-user within 6 months of purchase to activate the warranty extension.