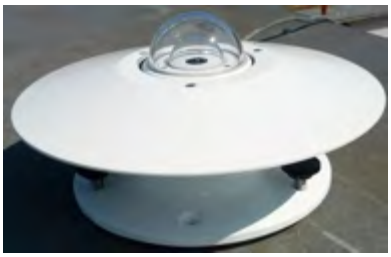
STANDARD PRECISION PYRANOMETER MODEL SSP



Base on the design of the distinguished PSP Pyranometer, the new SPP has faster response time, a reduced nighttime termal offset, an improved cosine response and a better temperatura dependence**.** This makes the SPP the ideal instrument for high quality network measurements and as a transfer standard for calibration of other pyranometers. A termistor is included for measuring instrument temperature

GLOBAL PRECISION PYRANOMETER MODEL GPP

In 2013, Eppley introduced the ISO 9060 Secondary Standard SPP Pyranometer to replace the venerable PSP. For 2014, the design team was tasked with making a pryranometer targeted for the PV/CSP Industry that was "as good or better at a lower cost" and the GPP was introduced in 2015.

BLACK AND WHITE PYRANOMETER "THE DIFFUSE PYRANOMETER" MODEL 8- 48

The Black & White Pyranometer, Model 8-48 is most often used in the highest quality networks as a Diffuse (shaded) instrument. While "all black" pyranometers such as the **SPP, GPP** (and PSP) are preferred for Global, Reflected or TPA measurements due to their better cosine response and time response, these do not significantly matter to a shaded pyraometer and the as Black & White has no offset that naturally occur in the all-black pyranometers, it makes it more suitable for Diffuse measurements.

PRECISION INFRARED RADIOMETER MODEL PIR

The Precision Infrated Radiometer, Pyrgeometer, is intended for unidirectional operation in the measurement, separately, of downwelling or upwalling longwave irradiance. Unlike instruments that measure the shortwave (short) irradiance, there is no official ISO/WMO classification of pyrgeometers which are designed to measure the longwave (infrared) irradiance from the sky. The PIR comprises the same wirewound thermopile detector and temperature compensation circuitry as found in the **SPP pyranometers.** This thermopile detector is used to measure the "net radiation" of the PIR and a case thermistor (YSI 44031) is used to determine the outgoing radiation from the case. A dome thermistor is also included if one wishes to measure the dome temperature as compared to the case temperature to make any "corrections" to the final result.

VENTILATOR
MODEL VEN

Snow, rain, dew, dirt, dust, salt, etc. can buildup on hemispheres of the Pyranometers and Pyrgeometers and can affect the measurements. Therefore, instrumens that cannot be inspected and claned regularly may wish to include a Ventilator to blow a teady stream of air over the hemispheres to reduce this buildup. This is particularly true in remote stations where maintenance is rarely performed. In fact, researchers in Artic/Antarctic regions have even implemented heaters to help reduce ice and grime buildup.

A “muffin” fan in the base continuosly blows air both the instrument case and the instrument dome. The clear plastic upper housing allows the instrument, connector, and desiccator window to be easily viewed. A White enameled guard disk, leveling screws and hold down holes are provided. The 8 inch diameter, 5.75 inch hign ventilator weighs 5.5 pounds.

The VEN can be supplied with AC (110 or 220 volts) or DC (12 or 24 volts) fans. Recent research has shown that VEN will increase the nighttime offset of the Pyranometers as the instrument case will be warmed by the fan. Many researchers have decided to use a 12 VDC (high flow) fan to reduce this offset.

TOTAL ULTRAVIOLET RADIOMETER MODEL TUVR

The Total Ultraviolet Radiometer is a rugged, relatively simple detector for the measurement of solar UV radiation, ease of operation combined with performance accuracy comparable with pyranometers intended for the recording of the total shortwave radiation (0.295 to 0.385 µm) make this instrumentan attractive instrument for UV measurement.

This instrument utilizes a hermetically sealed selenium barrier-layer cell which is protected by a quartz window. It is operated at low light levels and under conditions of mínimum electrical current drain, in order to ensure a high degree of performance stability over lengthy periods of exposure. A specially designed teflón diffuser not only reduces the radiant flux to aceptable levels but also provides close adherence to the Lambert cosine law. An encapsulated narrow bandpass (interference) filter limits the spectral response of the photocell to the wavelength interval 0.295 to 0.385 µm, with negligible secondary transmission.

NORMAL INCIDENCE PYRHELLIOMETER MODEL sNIP

A Pyrheliometer mounted on a solar tracker is used to measure the **Direct Beam Solar Irradiance (DNI)** from the sun. Historically, the preferred field of view for Pyrheliometers was based on a 10:1 ratio which equated to approximately 5.7° . due in part to the commercialization of the Eppley AHF Cavity Radiometer as a Primary Standard and advances in accuracy of Automatic Solar Trackers (such as the Eppley SMT Tracker), the preferred FOV for pyrheliometers is now 5°. The new Eppley sNIP has a 5° FOV. In fact, it has the exact same geometric dimensions as used in the AHF. Additionally, internar changes were employed to increase the response time and reduce conduction and convection issues and a thermistor is included for those who wich to measure the instrument temperature.

AUTOMATIC SOLAR TRACKER MODEL SMT

The Eppley Solar Tracker, Model SMT was developed to allow convenient automatic pointing of normal incidence solar radiation measuring instruments (sNIP, AHF) at the sun. Due to its robust design, users hace continued to expect solar trackers to do more and more and the SMT does not disappoint. Eppley offers an optional Shade Disk Kit that allows for shading and ventilation of pyranometers and pyrgeometers. During intercomparisons, it is common to see four or more AHF Cavity Radiometers on a single tracker.

SHADE DISK KIT
MODEL SDK

Designed to mount onto the Eppley SMT Tracker, this assemblu allows for the ventilation and shading of up to two Pyranometers or pyrgeometers.

The instruments are mounted in Ventilation units built into the mounting plate above and to the rear of the tracker housing to provide a clear field of view. The shading disks (options for one or two) cast a proper shadow on the instruments as the tracker follows the sun by using the elevation drive of the tracker to perform the shading disk tracking. The standard 10 to 1 ratio is maintained by using the 6 cm diameter disck at a distance of 60 cm from the reveivers of the global instruments.

A typical layout for the Meteorologist would be tos hade an **8-48 pyranometer (Diffuse)** and a PIR (incoming longwave) while a PV Performance Station would opt for a single shade arm for an **8-48 (Diffuse)** and use the second position for an **SPP (Global).**