

- Specifications to ISO 9060 and WMO standards
- ISO 9060 Secondary Standard
- IEC 17025 calibration
- 5-year warranty



EKO MS-series pyranometers comply with the ISO 9060 and WMO standards and are very reliable. The MS-802 highest class ISO Secondary Standard is used for the most demanding applications in PV, Meteorology, field research and solar radiation monitoring of global, tilted and diffuse irradiance.

EKO MS-80 is a thermopile type pyranometer which has a 180 degree field-of-view for measuring the hemispheric solar radiation with a cosine-weighting function. Depending on the model either one or two transparent glass domes protect the sensor efficiently from thermal effects. All EKO pyranometers are IEC 17025 calibrated.

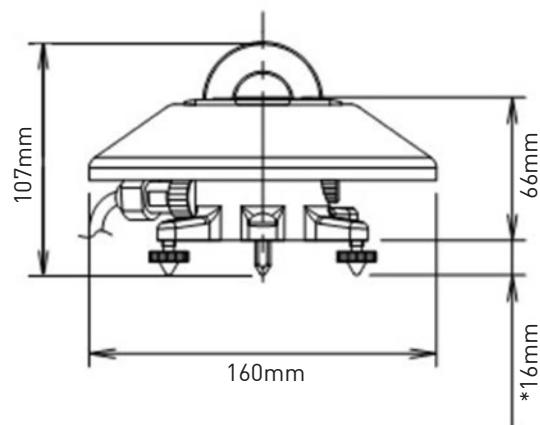
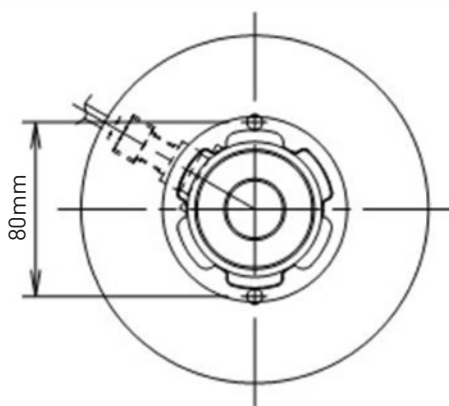
### Measurement principle

#### MS-802 - ISO 9060 "Secondary Standard"

Thermopile, which has a flat spectral response at all wavelengths, is integrated as a sensor. Thermopiles generate electricity by thermo-electric effect, which is caused by the temperature difference between hot and cold junctions. Solar irradiance is obtained by measuring voltage from the thermopile sensor.

Glass dome to reject infrared radiation of wavelength above  $3\mu\text{m}$  is necessary for thermopile-type sensors. Otherwise, these sensors would detect all infrared radiation as well as solar radiation. Double-dome construction is designed to eliminate secondary thermal radiation effects caused by cooling of the outer dome.

### Dimensional drawings



\*Length of fixed leg is indicated

### Calculation of irradiance

$$E = U / S$$

**E** [W/m<sup>2</sup>] = Irradiance

**U** [μV] = Output Voltage

**S** [μV/W/m<sup>2</sup>] = Sensitivity

**Specifications**

Pyranometer MS-802	
Classification	ISO 9060 Secondary Standard
Sensitivity	~ 7 $\mu\text{V}/\text{W}/\text{m}^2$ (see calibration protocol)
Spectral range (50% points)	285 ... 2800 nm
Max. irradiance	2000 $\text{W}/\text{m}^2$
Typical signal output for atmospheric applications	0 ... 10 mV
Response time (95%)	< 5 s
Zero offset	
(a) thermal radiation (200 $\text{W}/\text{m}^2$ )	< 6 $\text{W}/\text{m}^2$
(b) temperature change (5k/hr)	$\pm 2 \text{ W}/\text{m}^2$
Non-linearity (100 ... 1000 $\text{W}/\text{m}^2$ )	$\pm 0.2 \%$
Temperature dependence of sensitivity (-10 ... +40°C)	< 1 %
Operating temperature	-40 ... +80 °C
Cable length	10 m
Protection class	IP67
Warranty	5 years
Manufacturer	EKO Instruments

Delivery includes IEC 17025 calibration certificate.

**Sensor connection to Ammonit Meteo-40 data logger**
**MS-802**

Sensor	Plug PIN No.	Wire Colour (EKO)	Meteo-40 Analog Voltage
Solar irradiance	1	white (+)	Ax
Output voltage	2	black (-)	Bx
		shield	Main Ground (GND)

