

# PYRANOMETER



MS-020VM  
(Standard-housing)



The irradiance of the sun is an important factor to be measured in agriculture, photovoltaics, solar energy collection and for meteorological purposes. MESA offers two series of sensors, that are the most commonly required: Pyranometers that can measure the solar irradiance within a wavelength of 400 to 1100 nm, and PAR-sensors (Photosynthetically Active Radiation) configured to detect the number of photons (in the wavelength of 400 to 700 nm) responsible for plant grows.

GENERAL

**MEASUREMENT TECHNIC** MESA selected silicon transducers, specially treated filters and distinct domed glass transducer cover makes our irradiance sensors extremely stable and precise instruments. Nearly meeting the WMO's Primary Standard accuracy guide lines.

**ASSEMBLY** Each sensor is integrated in a weatherproof aluminium housing. An optional stainless steel mounting plate with integrated spirit levels available. Adjusting is made by turning the bolt head before fixing with two screws.

**OUTPUT** For flexible interfacing to any data collection device: datalogger, PC, etc., the MS-series sensors have an integrated amplifier that supplies a linear voltage output of 0...1, 2.5 or 4 volt full scale. The MS-series sensors are powered by an unregulated 5...15 V dc @ 5 mA, making these sensors ideal for remote operation.



MS-PAR  
(Mounting plate with liquid level)

All pyranometers are calibrated under clear natural sky at approx. 20°C ambient temperature against a thermopile-pyranometer (first class). The date of the last calibration is marked on the housing of each sensor.

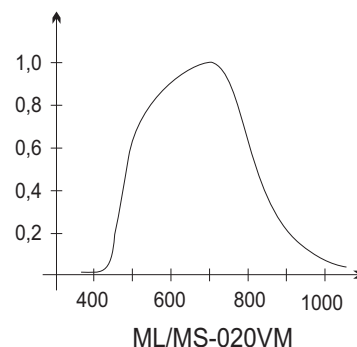
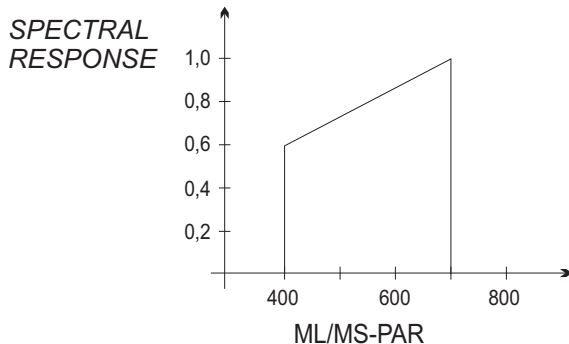
CALIBRATION

**PYRANOMETER** To ML-020VM & MS-020VM measure global irradiance and are commonly used in applications including: agriculture, photovoltaic plants, meteorology, site evaluation programs and science.

- Small temperature dependence
- Integrated amplifier for voltage output
- 0..20 or 4..20 mA output signal (option)
- Long-term stability
- Cosine corrected
- Meets CE requirements

BENEFITS

**PAR-SENSORS** The ML-PAR and MS-PAR are most commonly used to measure Photosynthetically Active Radiation (PAR) in green houses, growth chambers, photosynthesis related studies in agriculture.

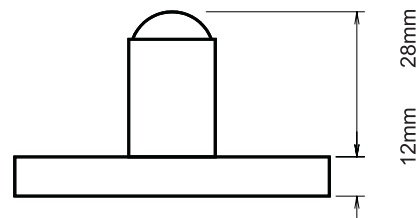
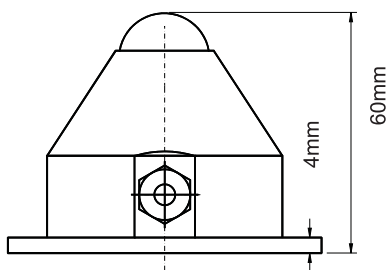
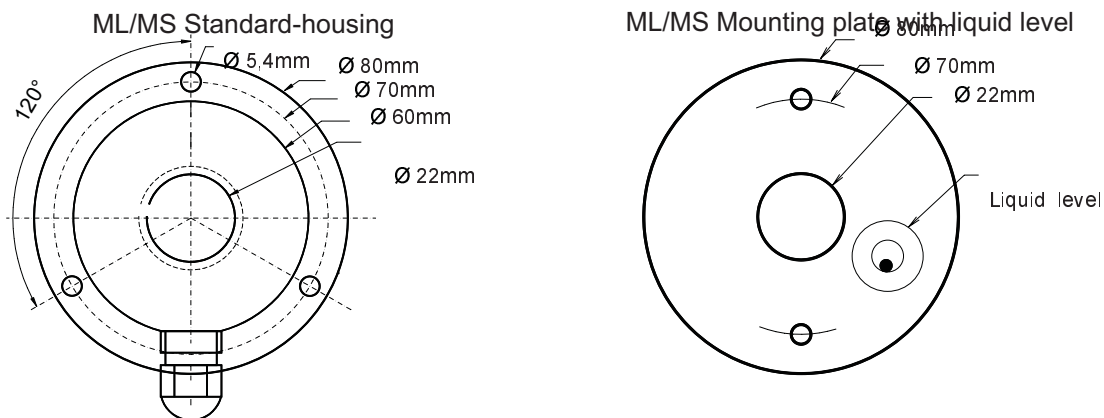


DATA

	ML-020VM	MS-020VM	ML-PAR	MS-PAR
Measuring range	0..1400 W/m <sup>2</sup>	0..1400 W/m <sup>2</sup>	0..3000 μmol/sm <sup>2</sup>	0..3000 μmol/sm <sup>2</sup>
Output	0..10 mV	0..1V 0..2,5V 0..4V 0..20mA <sup>*)</sup> 4..20mA <sup>*)</sup> at <250Ohm load	0..10 mV	0..1V 0..2,5V 0..4V 0..20mA <sup>*)</sup> 4..20mA <sup>*)</sup> at <250Ohm load
Resistance	220Ohm		220Ohm	
Temperature drift	<0,1%/K	<0,15%/K	<0,1%/K	<0,15%/K
Spectral response	400..1100nm	400..1100nm	400..700nm	400..700nm
Long-term stability	<2%/Year	<2%/Year	<2%/Year	<2%/Year
Delay	<50ms	<50ms	<50ms	<50ms
Power Supply	-	7..28V/5mA	-	7..28V/5mA
Temperature range	-25°..+60°C	-25°..+60°C	-25°..+60°C	-25°..+60°C
Offset	-	<0,2%@0W/m <sup>2</sup>	-	<0,2%@0μmol/sm <sup>2</sup>
Cosinus error	<10%@80°	<10%@80°	<10%@80°	<10%@80°
Weight	250gr	250gr	250gr	250gr
Cable <sup>*)</sup>	2m 2x0,22mm <sup>2</sup>	2m 4x0,22mm <sup>2</sup>	2m 2x0,22mm <sup>2</sup>	2m 4x0,22mm <sup>2</sup>

\*) wiring is described at bottom side of the sensor

DRAWINGS



ORDERING INFORMATION

ML-020VM (X)  
MS-020VM (X/ Y)  
ML-PAR (X)  
MS-PAR (X/Y)

X = S for Standard-housing  
D for Mounting plate with spirit level  
Y = Output signal e.g. 0..4V or 4..20mA

Pyranometer with 0..20 or 4..20mA output signal available in standard-housing only



MESA



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Technical Data is subject to change  
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