

MBMet 500 Series

Solar Irradiance Sensor

Versatile All-in-One Solution

Overview

The MBMet-500 Series offers cost-effective and accurate measurement of solar irradiance. It provides multiple measurement options and is ideal for monitoring photovoltaic (PV) systems, including both rooftop and ground-mounted installations. Designed with a sensor element that closely replicates the characteristics of a photovoltaic (PV) module, the sensor delivers a spectral response and incident angle behavior highly comparable to actual PV arrays. This makes the MBMet-500 Series highly suitable for performance monitoring and analysis of PV systems.

The series supports both analog (4–20 mA) and digital (RS-485) output options, ensuring easy integration with a wide range of monitoring and control systems.



2 YEARS
STANDARD
WARRANTY



A IEC-60751
CLASS
COMPLIANT



A IEC-61724-1
CLASS
COMPLIANT

Benefits and Features



Temperature
compensated
Solar Irradiance
measurement



Site Configurable
Temperature
Units



Robust Cast
Aluminium IP-65
Enclosure



Built-in EMI/EMC
Surge Protection



Optional External
PV Module
Temperature and
Air Temperature
Sensor

TECHNICAL SPECIFICATIONS

INPUT VOLTAGE	9-32 VDC
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SOLAR IRRADIATION

Sensor Type	Monocrystalline Silicon (85mm x 64mm)
Measuring Range	0-1500 W/m ²
Accuracy	±3% of reading
Resolution	1
Response Time	2-3 seconds
Stability	0.5% per annum

AMBIENT AIR TEMPERATURE (EXTERNAL SENSOR WITH THREE METERS SILICON CABLE) 500C

Sensor Type	RTD PT100
Measuring Range	-40°C to 90°C
Accuracy	±0.3% FS
Resolution	0.1
Response Time	3-5 seconds

CELL TEMPERATURE

Measuring Range	-40°C to 90°C
Accuracy	±0.3% FS
Resolution	0.1
Response Time	2-3 seconds

AMBIENT AIR TEMPERATURE (INTEGRATED SENSOR) 500B AND 500E

Sensor Type	RTD PT100
Measuring Range	-40°C to 90°C
Accuracy	±0.3% FS
Resolution	0.1
Response Time	3-5 seconds

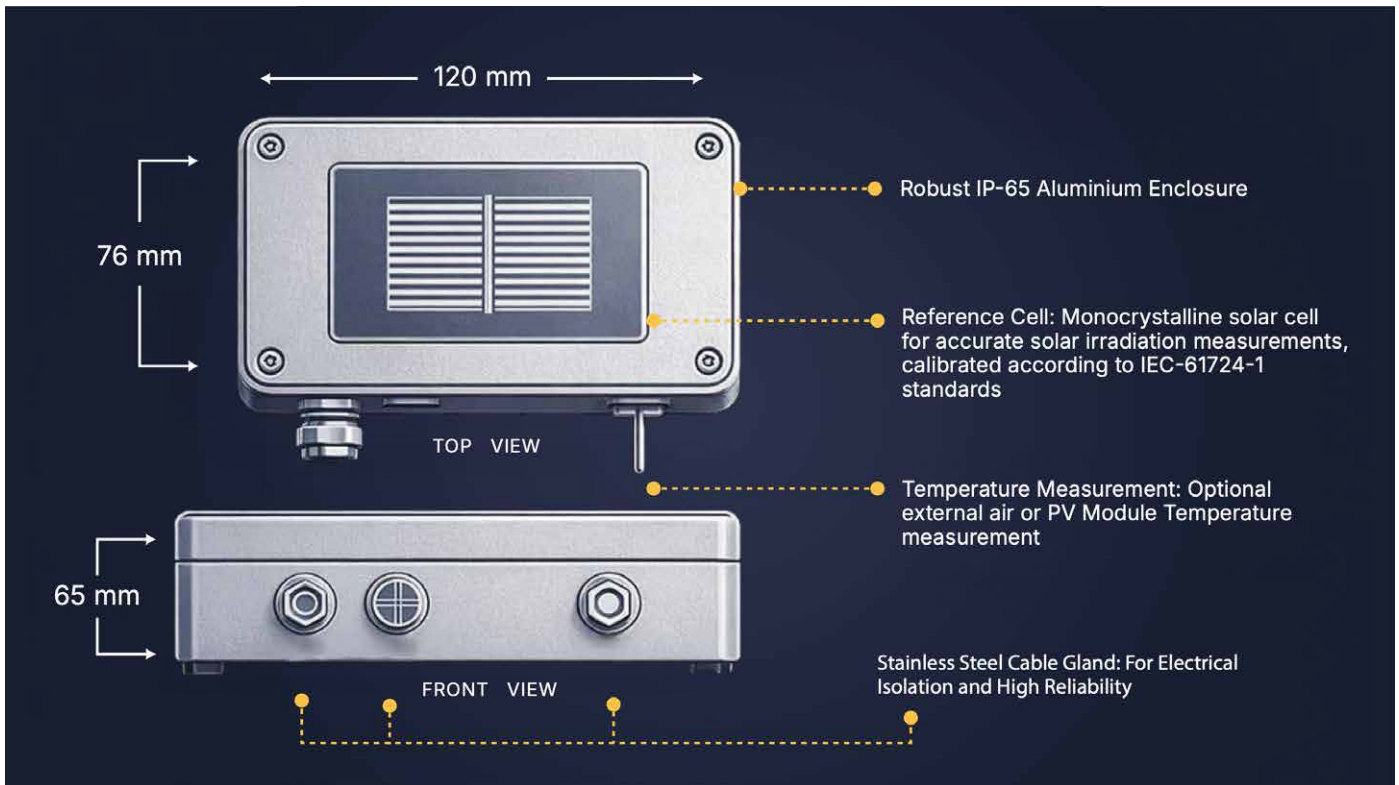
PV MODULE TEMPERATURE (EXTERNER SENSOR WITH THREE METERS SILICON CABLE) 500D AND 500E

Sensor Type	RTD PT100
Measuring Range	-40°C to 90°C
Accuracy	±0.3% FS
Resolution	0.1
Response Time	4-6 seconds

Parameter and Specification

PARAMETER	SPECIFICATION
Irradiation Sensor Enclosure	Cast Aluminium
Ingress Protection	IP65
Irradiation Sensor Enclosure Size	120 (L) x 76 (W) x 65 (H) mm
Weight	300 grams
Mounting Clamp (suitable for mounting on PV module side)	SS 304
Cable Terminals	1.5 sq. mm. copper
Integrated Ambient Temperature Sensor	40mm x 4mm (SS304) (Optional)
Cable Glands	M12 × 1.5mm
Ambient Operating Temperature	-30°C to 70°C
Ambient Operating Humidity	0 to 99% RH
Power Consumption (At 12 VDC)	(4-20mA) 50mW & (RS-485) 100mW

Feature Diagram

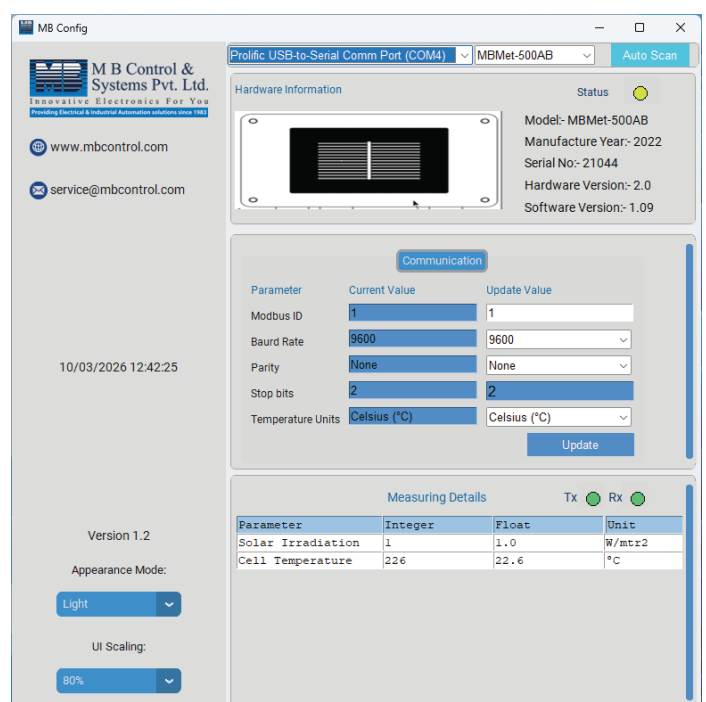


*For illustrative purposes only

Sensor Configuration Software

"MB Config", a configuration software designed specially for configuration and trouble-shooting all MBMet Sensors to it. All configuration settings, Modbus Frame Analysis, Heating Operation, Real-Time Data Viewing can be done seamlessly through this compact and powerful tool.

Scan the QR Code to Access and download the MB Config Software:



Ordering String

Order Code	A	B	C
MBMet 500			

Options	A
Solar Irradiation + Cell temperature	A
Solar Irradiation + Cell temperature + Integrated Ambient Temperature	B
Solar Irradiation with Cell temperature + External Ambient Temperature Sensor with three meters Silicon cable	C
Solar Irradiation with Cell temperature + External PV Module Temperature Sensor with three meters Silicon cable (MBMet-801B)	D
Solar Irradiation with Cell temperature + External PV Module Temperature Sensor with three meters silicon Cable (MBMet-801B) + Integrated Ambient Temperature Sensor	E

Output	B
Analog (4-20mA)	A
RS485 modbus	B

Cable Length	C
No Cable	X
10m Cable	10000
Customised Length Cable (in mm)*	

Example: MBMet-500-CB-10000

Measured Parameters: Solar Irradiation + Cell Temperature + External Ambient Temperature with three meters silicon cable.

Output: RS-485 with MODBUS RTU protocol. Output cable length : 10m.

Certifications

IEC-61000-4-18	Damped Oscillatory Wave Immunity Test
IEC-61000-4-8	Power Frequency Magnetic Field Immunity Test

