

# MBMET 500 SERIES

## Silicon Irradiance Sensor

Versatile All-in-One Solution

### Overview

MBMet-500 series provides cost effective and accurate measurement of solar irradiation. The sensor provides multiple measurement options and is ideal for monitoring Photovoltaic (PV) systems - Rooftop or Ground mounted. The sensors are used.

The sensors are used to monitor and analyze performance of PV arrays. Spectral response of MBMet - 500 series is comparable to PV arrays.

Options are provided for measurement signal Outputs as analog (4-20mA) or digital (RS 485)



## Benefits and Features



Temperature  
compensated  
Solar Irradiation  
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

## SOLAR IRRADIATION

Sensor Type Monocrystalline Silicon  
(85mm x 64mm)

Measuring Range 0-1500 W/m<sup>2</sup>

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 (EXTERNAL SENSOR WITH THREE METERS SILICON CABLE) 500D and 500E

SENSOR TYPE RTD PT100

MEASURING RANGE -40°C TO 90°C

ACCURACY ±0.3% FS

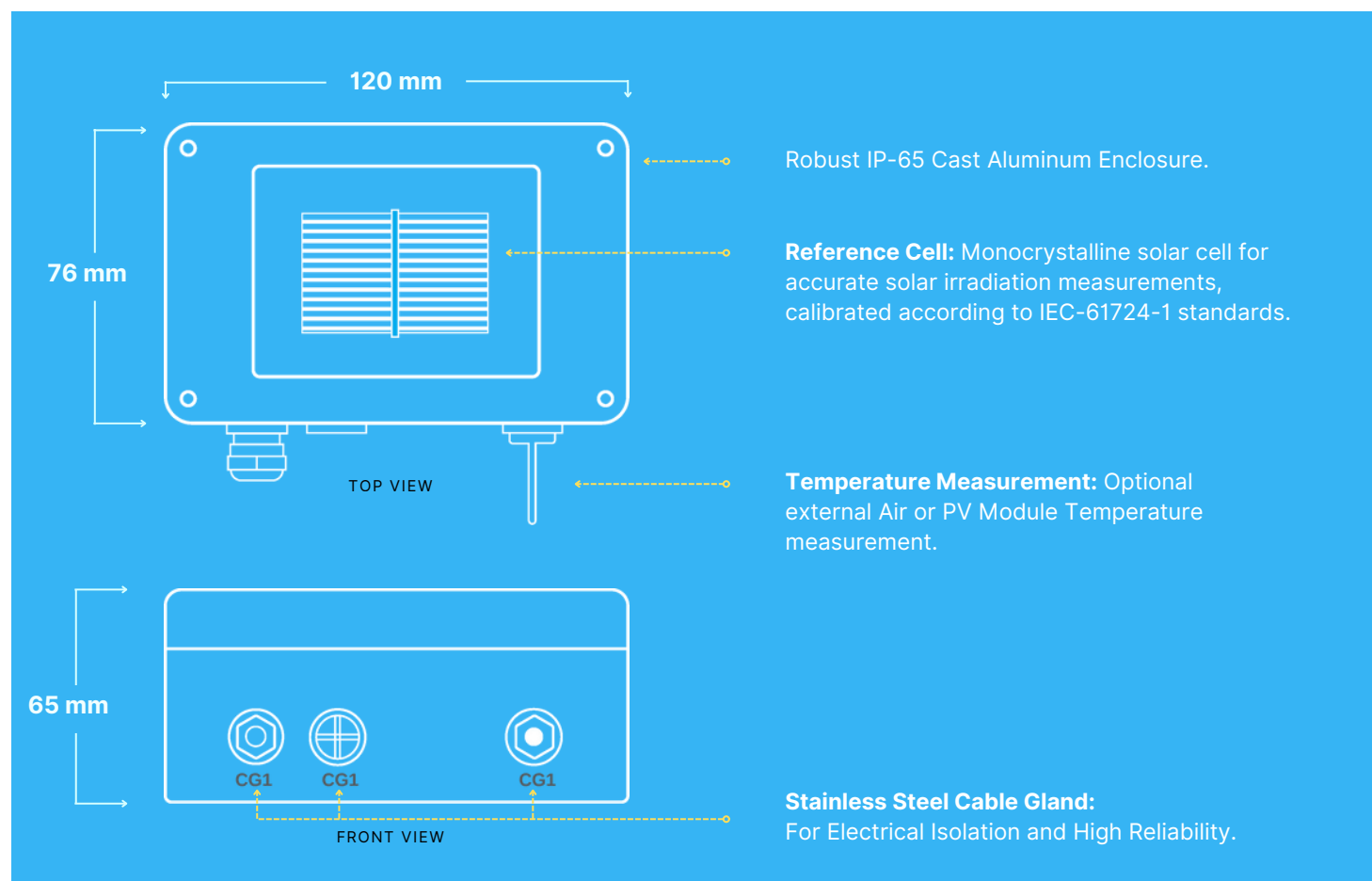
RESOLUTION 0.1

RESPONSE TIME 4-6 seconds

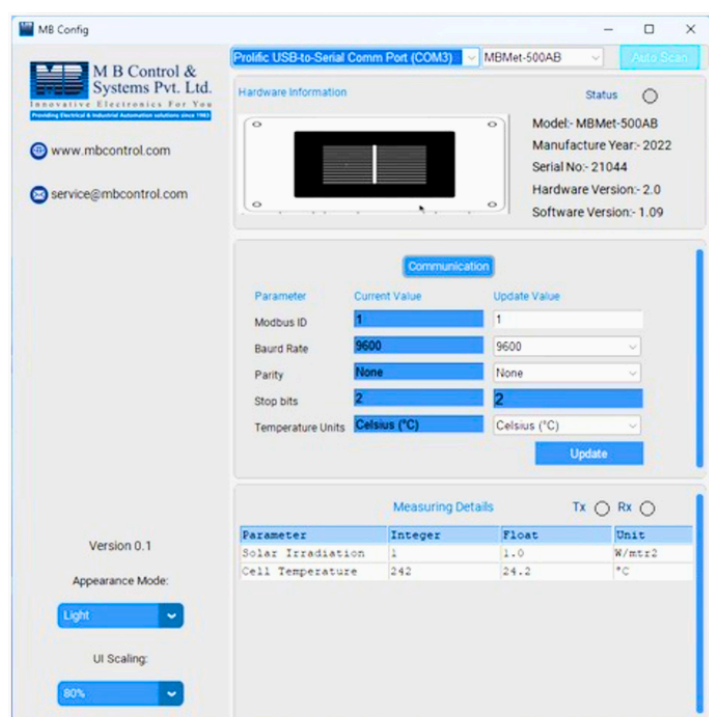
## Parameter and Specification

PARAMETER	SPECIFICATION
Irradiation Sensor Enclosure	Cast Aluminum
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 x 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



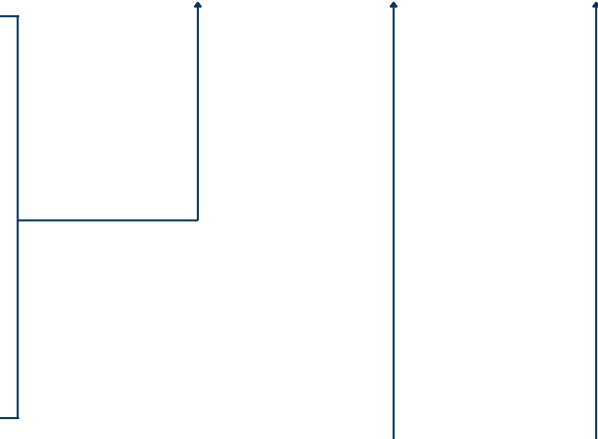


## Sensor Configuration Software



**Configuration Software:** "MB Config", a configuration software designed specially for configuration and trouble-shooting all MBMet Sensors. Users can download this Free to use software to a standard Laptop / PC and connect 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.

## Ordering String

### MBMet-500

Options				
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			
Communication				
Analog (4-20mA)	A			
RS485 modbus	B			
Cable Length				
No cable	X			
Cable (in mm)	Y			

**For example:** MBMet-500-CB **Measured Parameters:** Solar Irradiation + Cell Temperature + External Ambient Temperature with three meters Silicon cable **Output:** RS-485 with MODBUS RTU protocol

## Certifications

**IEC-61000-4-18** Damped Oscillatory Wave Immunity Test

**IEC-61000-4-8** Power Frequency Magnetic Field Immunity Test



## SEE ALSO

- MBMET 800 SERIES PV MODULE TEMPERATURE SENSOR MBLOGGER
- NANO AND 1000 SERIES DATALOGGERS PM180 SERIES POWER QUALITY
- METER MBMET 901 SERIES AIR TEMPERATURE, HUMIDITY & PRESSURE
- SENSOR PM130 SERIES MULTIFUNCTION METERS

MBMET-500 VERSION 2