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 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).

2 Years Standard Warranty

A Class IEC-60751 COMPLIANT

A Class IEC-61724-1 COMPLIANT

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^2
Accuracy	±2% of reading
Resolution	1
Response time	2-3 seconds
Stability	0.5% per annum

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

SENSOR TYPE	RTD PT100
MEASURING RANGE	-40°C to 90°C
ACCURACY	±0.3% FS
RESOLUTION	0.1
RESPONSE TIME	3-5 seconds

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

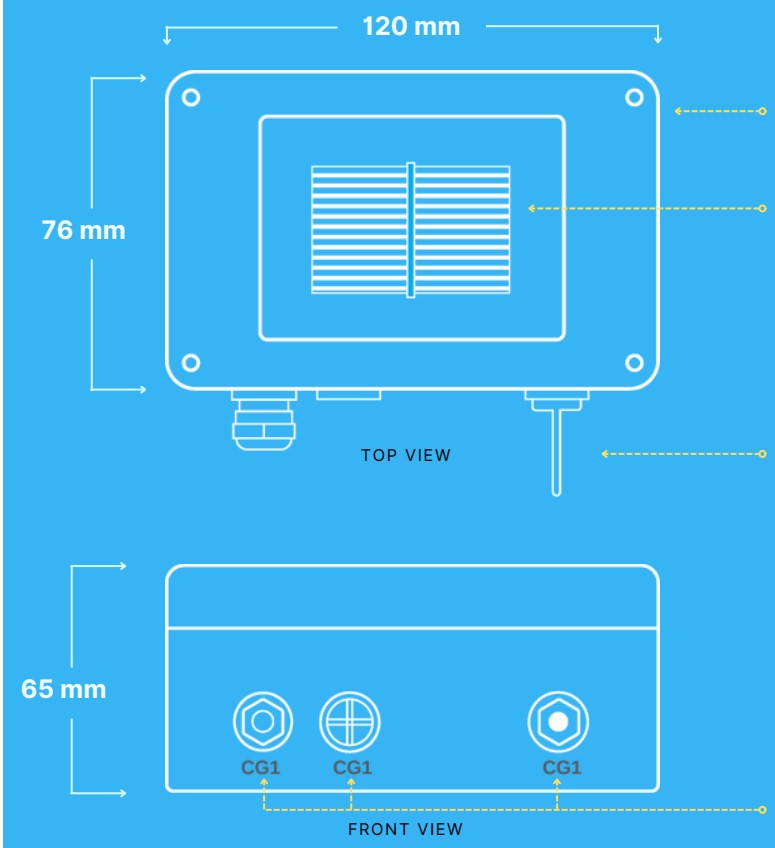
PV MODULE TEMPERATURE (EXTERNAL SENSOR WITH THREE METERS SILICON CABLE) 500D

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



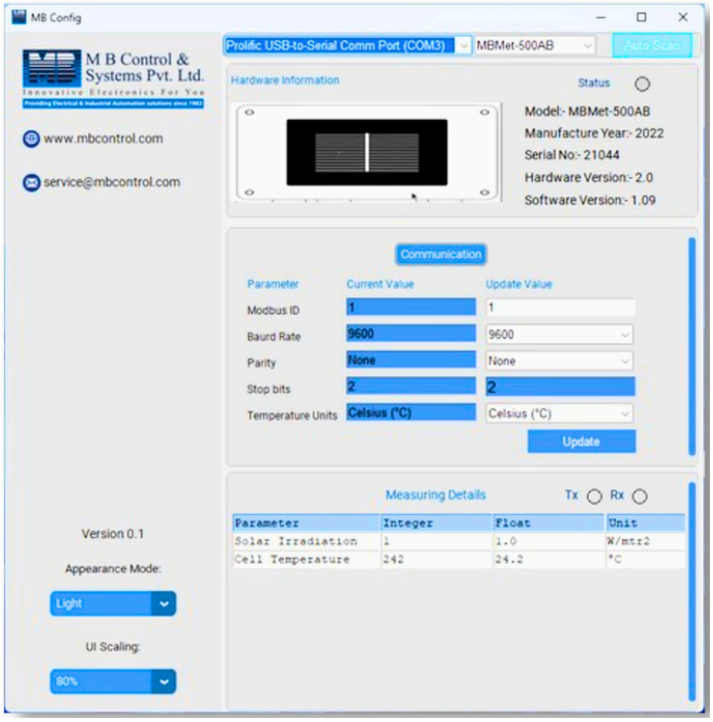
Robust IP-65 Cast Aluminum Enclosure.

Reference Cell: Monocrystalline solar cell for accurate solar irradiation measurements, calibrated according to IEC-61724-1 standards.

Temperature Measurement: Optional external Air or PV Module Temperature measurement.

Stainless Steel Cable Gland:
For Electrical Isolation and High Reliability.

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.

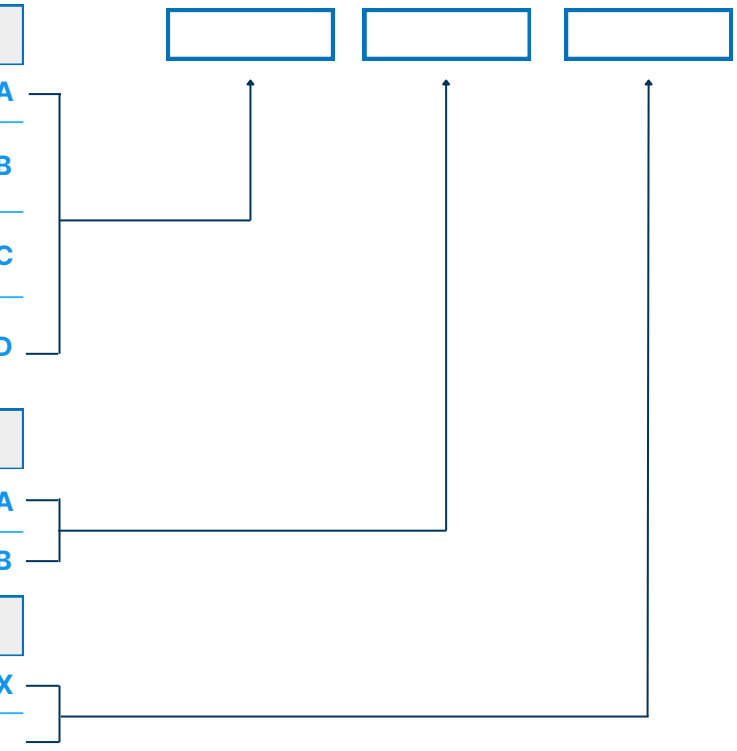
Ordering String

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

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

Cable Length	
No cable	X
Cable (in mm)	



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