

# MTX-Sensor Solar Radiation

## M200-03 - Modbus

It is produced based thermopile principle; sensing elements are made by winding plated thermopiles with multi contacts. Its surface is coated by black coating with high absorption rate. Hot contacts on the sensors surface, while the cold junction is located within the body, temperature difference between the hot and cold junction generates electromotive force, the thermoelectric effect is proportional to the solar radiation. In order to reduce the ambient temperature effect, temperature compensation circuit designed here to reduce the effects to products properties.



### FEATURES

- Conform to the WMO standard
- Suitable for harsh environment
- With horizontal bubble
- High sensitivity
- Double transmission glass
- Visual desiccant window
- Easy installation

### APPLICATIONS

- Solar energy & photovoltaic power generation
- Agriculture and forestry monitoring
- Crop growth monitoring
- Tourism eco
- Weather stations

## SPECIFICATIONS

<b>Spectral range</b>	300-3200nm
<b>Supply</b>	5V,12-24VDC*
<b>Range</b>	0-2000W/m <sup>2</sup>
<b>Output</b>	0-20mV,0-5V,4-20mA,RS485
<b>Sensitivity</b>	7-14μVxW-1xm <sup>2</sup>
<b>Internal resistance</b>	350Ω
<b>Non-linearity</b>	<±2%
<b>Measuring angle</b>	2π solid angle
<b>Response time</b>	≤20s(99%)
<b>Zero drift (temperature drift:5k/h)</b>	±5W/m <sup>2</sup>

<b>Stability</b>	±2%/year
<b>Cosine correction</b>	≤±7% (solar elevation angle=10°)
<b>Temperature effect</b>	±2% (-10°C+40°C)
<b>Operating temperature</b>	-40°C+80°C
<b>Recalibration interval</b>	2 years
<b>Desiccant</b>	Silica gel desiccant
<b>Weight (unpacked)</b>	2.5kg
<b>Pack</b>	Aluminum alloy instrument box
<b>Dimension</b>	ø185x120mm
<b>Installation bracket (optional)</b>	Horizontal bracket or adjustable angle bracket
<b>Ingress Protection</b>	IP65
<b>Storage Condition</b>	10°C-60°C@20%-90%RH

## OUTPUT CHARACTERISTICS

- **0-20mV**

Solar radiation values(W/m<sup>2</sup>)= Voltage output value(μV)/sensitivity coefficient(μV\*W<sup>-1</sup>\*m<sup>2</sup>).  
Each product is with one sensitivity coefficient respectively (It is mentioned on the product's label).

- **0-5V**

Solar radiation values(W/m<sup>2</sup>)=(V/5)\*2000 (Where V is output voltage value,unit:V).

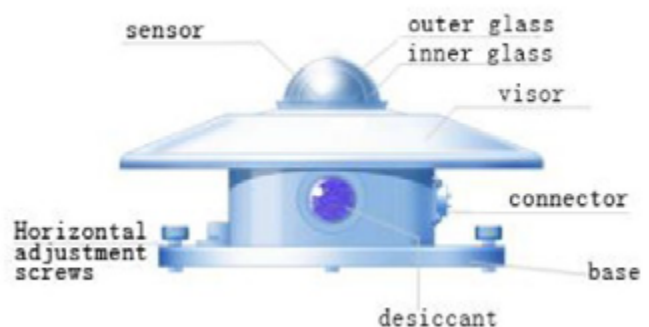
- **4-20mA**

Solar radiation values(W/m<sup>2</sup>)=((I-4)/16)\*2000(Where I is output current value,unit:mA).

- **RS485**

MODBUS-RTU.

## DIMENSION



## MOUNTING & MAINTENANCE

- The sensor should be installed in the open air without any shield above the sensing surface.
- The sensor connector should be faced to the north, fix it after the horizontal position is well adjusted.
- Please check the filter cover regularly & make sure it is clean.
- Please do not remove or loose the filter cover, otherwise the accuracy will be affected.
- Please make sure the desiccant to be dry (if the color of desiccant is changed from blue to red or white, it should be replaced, it is recommended to replace the desiccant every 6 month).
- Protection cover is not necessary in general rainfall, but if prolonged heavy rains or hail, the protective cover is recommended to be installed.
- The sensitivity is recommended to be re-calibrated after two years use.

## SPECTRAL RESPONSE

