RK200-03 Pyranometer

Class A/B

Class C

Overview

RK200-03 Pyranometer is produced based on the thermopile principle; sensing elements are made by wound plated thermopiles with muttsple 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 an 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 minmize its impact on the product's performance.The RK200-03 series pyranometer has been certified by the National Meteorological Administration and the National Institute of Metrology(NIM).

Features

- Conform to the WMO standard
- Conform to the IEC61724-1 standard
- Suitable for harsh environment
- Equipped with a horizontal indicator device
- 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

Technical Parameter

Item	Technical Specification					
ISO9060:2018	Class A		Class B		Class C	
ISO9060:1990	Secondary standard		First class		Second class	
Spectral range	280~3000 nm		280~3000 nm		300-3200nm	
Output	0-20mV	4-20mA,RS485	0-20mV	4-20mA,RS485	0-20mV	4-20mA,0-5V, RS485,SDI-12
Supply	/	12-24VDC	/	12-24VDC	/	12-24VDC,5VDC
Range	0-4000W/m^2		0-2000W/m^2		0-2000W/m^2	
Sensitivity	7-14μV/(W/m²)		7-14μV/(W/m²)		7-14μV/(W/m²)	
Non-linearity	<±0.5%(100~1000W/m²)		±1%(100~1000W/m²)		<±3%	
Response time	≤15s(95%)		≤30s(95%)		≤60s(95%)	
Zero drift(temperature drift:5k/h)	<±2W/m²		<±4W/m²		±8W/m^2	
Stability	<±0.8%/year		<±1.5%/year		<±3%/year	
Directional response	±10W/m²		±20W/m²		≤±30W/m^2	
Temperature effect	<2%(-10~40℃)		<4%(-10~40℃)		<8%(-10℃-+40℃)	
Operating temperature	-40℃-+80℃		-40℃-+80℃		-40℃-+80℃	
Recalibration interval	2 years		2 years		2 years	
Calibration basis	ISO9847		ISO9847		ISO9847	

Technical Parameter

Item	Technical Specification		
ISO9060:2018	Class A	Class B	Class C
ISO9060:1990	Secondary standard	First class	Second class
Weight(unpacked)	0.8kg	0.8kg	1.2kg
Dimension	154*101.5mm	154*101.5mm	ø185*120mm
Transmission module	4-20mA/RS485:external	4-20mA: external RS485:built-in	RS485/SDI-12:built-in 4-20mA/0-5V:external
Desiccant	Built-in	Built-in	Built-in
Installation bracket(optional)	Horizontal bracket or adjustable	Horizontal bracket or adjustable	Horizontal bracket or adjustable
Ingress protection	IP67	IP67	IP67
Storage condition	10℃-60℃@20%-90%RH	10℃-60℃@20%-90%RH	10℃-60℃@20%-90%RH

Output Characteristics

0-20mV

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

0-5V

Solar radiation values(W/m^2)=(V/5)*2000(Where V is output voltage value,unit:V)

4-20mA

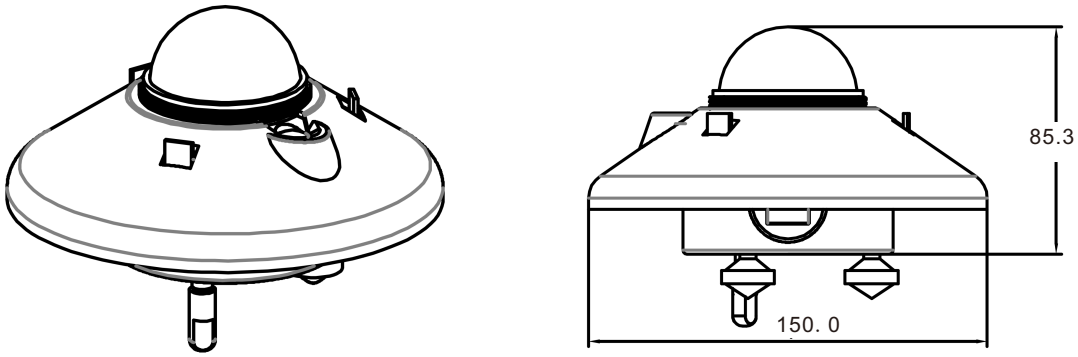
Solar radiation values(W/m^2)=((I-4)/16)*2000(Where I is output current value,unit:mA)

RS485

MODBUS-RTU

Dimensions

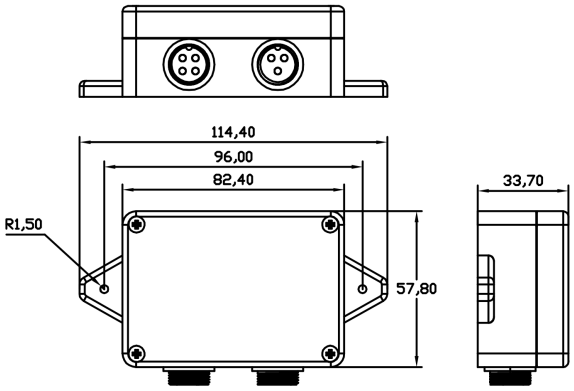
Unit:mm



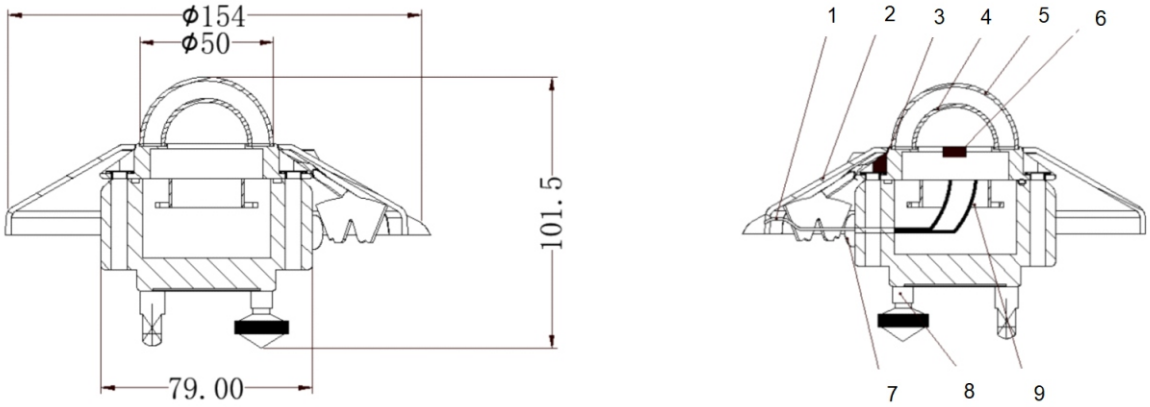
Class A Pyranometer 0-20mV

Dimensions

Unit:mm

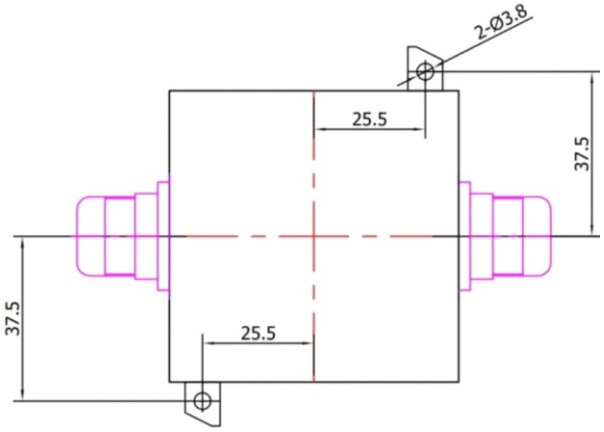


Class A Transmission module for RS485 or 4-20mA



Class B

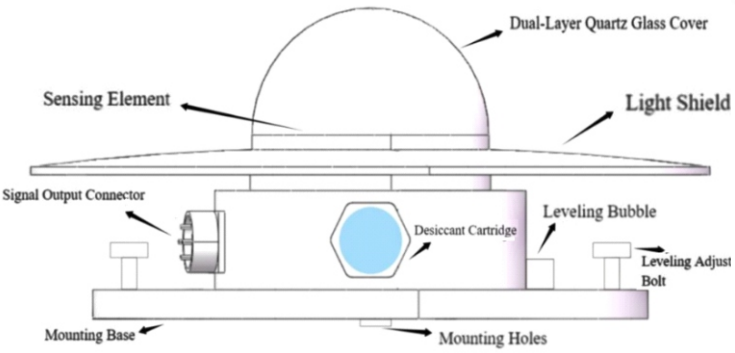
1	Cable	2	Sun shield	3	Bubble level	4	Inner glass dome
5	Outer glass dome	6	Thermopile detector	7	Connector	8	Adjustable leveling feet
9	PCBA						



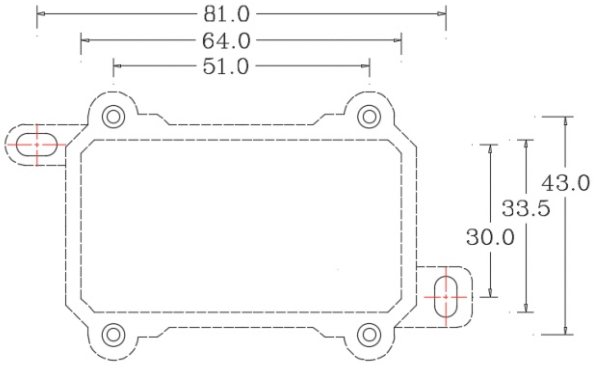
Class B Transmission module for 4-20mA

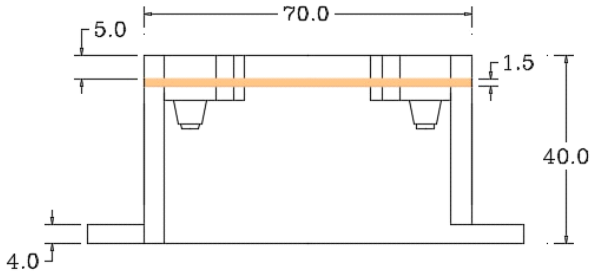
Dimensions

Unit:mm



Class C 0-20mV, RS485, 0-5V





Class C Transmission module for 4-20mA

Mounting & Maintenance

- The sensor should be installed in the open air without any shield above the sensing surface,items should be avoided from being placed between the path of sunlight and the instrument to prevent shadows from appearing on the instrument.
- Horizontal installation should adjust the horizontal position before fixing the sensor.
- It can be installed tilted or inverted as needed to measure tilted radiation or ground reflection radiation,When installed upside down, WMO recommends mounting it at least 1.5m above the ground.
- Please check the glass dome regularly & make sure it is clean.
- Please do not remove or loose the glass dome,otherwise the accuracy will be affected.
- Please make sure the desiccant to be dry .(If the desiccant changes color, replaced it immediately 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.

Parameter Selection Table

Remark	Series	Type	Grade	Supply	Output	Cable Length	
RK							
	200						
		03					
			A				
			B				
			C				
				A			5VDC
				B			12-24VDC
				X			Other
					A		4-20mA
					B		0-5V
					C		0-20mV(without power supply)
					D		RS485
					X		Other
						2500	Units:mm（typ）
						3000	Units:mm
						…	Units:mm

Example: RK200-03BBA2500 Class B,Supply: 12-24V, Output:4-20mA,Cable Length:2.5m.

Revision time	Reviser	Current Version	Remarks
20250331	Lee	V5. 0	