

SOLAR RADIATION SENSOR

RY-EBN-1

MANUAL



INTRODUCTION

RY-EBN-1 is mainly used to measure the solar short wave radiation in the wavelength range of 400-1100nm. It is simple and cost-effective, and can be used continuously all day long, and can be inverted or tilted. It is widely used in solar energy monitoring of plant growth, soil water evaporation and transpiration loss in heat transfer box.

Typical applications: ecological radiation monitoring of agriculture and forestry, research on solar thermal utilization

Tourism environmental protection ecology, agrometeorological research, crop growth monitoring, greenhouse control.

PRINCIPLE

RY-EBN-1 is used to measure the short wave radiation of the sun. It uses a silicon light detector to produce a voltage output signal proportional to the incident light. In order to reduce cosine error,

a cosine corrector is installed in the instrument. The sensor can be directly connected with a digital voltmeter or a digital collector to measure the radiation intensity. The unit of output is $W \cdot m^{-2}$. Output radiation ($W \cdot m^{-2}$) = measured output voltage signal value (μV) \div sensitivity coefficient ($\mu V \cdot W^{-1} \cdot m^2$), each radiometer gives its own sensitivity coefficient.

FEATURES

- * Conform to WMO World Meteorological Organization (CIMO Guide)
- * Suitable for all kinds of harsh environments
- * High cost performance
- * High sensitivity
- * Passive precise measurement
- * Simple structure, easy to use

TECHNICAL SPECIFICATION

- Spectral range: 0-2000W/m²
- Wavelength range: 400-1100nm
- Measurement accuracy: 5% (ambient temperature 25 °C , compared with splite2, radiation 700W / m²)
- Sensitivity: 200~800 $\mu V \cdot W^{-1} \cdot m^2$

● Output:

RY-EBN-1	RY-EBN-1+RY-ST	RY-EBN-1+RY-ST
Raw output 0-2000mv	4-20mA (External transmission)	RS485modbus(Exte rnal transmission)

- Respond time: <1s (99%)
- Cosine Correction: <10% (80°)
- Nonlinear: $\leq \pm 3\%$
- Stability: $\leq \pm 3\%$ (Annual stability)
- working environment: Temperature -30~60°C、 Work humidity: <90%
- Standard line length: 1.5m
- Farthest lead wire: Current200m、 RS485 100 m、 voltage 50m
- Ingress Protection: IP65
- Weight: about 120g

COMMUNICATION PROTOCOL

Communication specification

9600,8,1,N,N

Read data command

Host send command format

Device address Function code Start register address No. of registers CRC check

xx 03 0000 0001 CRCloCRChi

Slave response command format:

Device address Function code Data length Data CRC check

xx 03 02 00yy CRCloCRChi

Example:

Command: FF 03 00 00 00 01 91 D4

Respond: FF 03 02 00 11 51 9C

Radiation = 00 11 = 17 = 17 W/m²

Unified format of data package

(XX: Slave station No. 0x01-0xff; crclo crchi: CRC check code low byte first, high byte last)

Write station number command

Host send command format:

Device address Function code Start register address No. of registers Data length

Data CRC check

00 10 0001 0001 02 00xx CRCloCRChi (XX=0X01-0XFF)

Slave response command format:

Device address Function code Start register address No. of registers CRC check

00 10 0001 0001 CRCloCRChi

Example: (address changed to 33)

Command 00 10 00 01 00 01 02 00 33 EA 04

Respond 00 10 00 01 00 01 51 D8

Read station number command (fixed command)

Host send command format:

Device address Function code Start register address No. of registers CRC check

00 03 0001 0001 CRCloCRChi

Slave response command format:

Device address Function code Data length Data CRC check

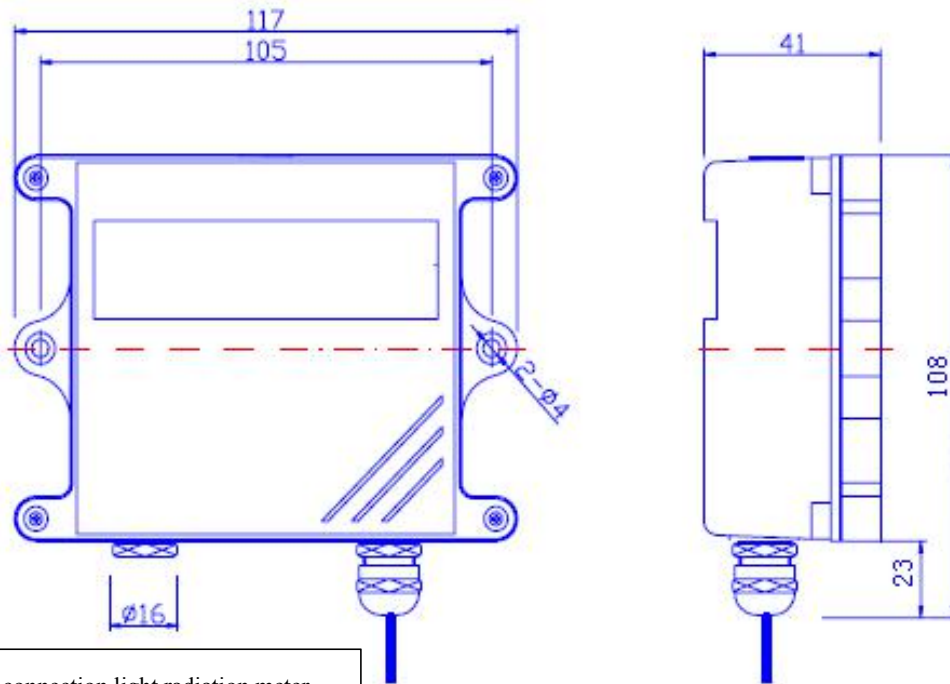
00 03 02 00xx CRCloCRChi (XX=01-ff)

Example: (address:FF)

Command 00 03 00 01 00 01 D4 1B

Respond 00 03 02 00 FF C5 C4

RADIATION SENSOR



3-core aviation socket connection light radiation meter

Interface mode	Voltage type	Current type	RS485/RS232
Model	RY-ST		
Output	1-5V	4—20mA	modbus
Accuracy	5%		
Communication protocol	Provide simple protocol or standard MODBUS protocol		
Simple monitoring software	Electronic		
Line	3 line	3 line	4 line
Power	9-18v dc power supply, recommended to use 12V, can be increased to 24V as required		
Temperature	-30~+60℃		

Ingress Protection	IP65
Fixed form	Outdoor, mounting plate installed on sensor cross arm can be provided
Storage conditions	T: -40~+60°C RH: 20%~90%RH

WARRANTY & SERVICE

Warranty commitment: the warranty period is 12 months from the delivery period (except for the product problems caused by the failure to operate according to the corresponding technical requirements or other human behaviors).

After sales commitment: users can consult relevant technical problems by phone and get clear solutions. If it is a quality problem, it can be returned to the factory for maintenance or replacement.

Service Phone: 0310-8033736