

SK101R

Single-channel vibrating wire acquisition instrument

user's Guide

The main application of single-channel vibrating wire collector: automatic collection of all vibrating wire sensors, compatible with various single-coil vibrating wire sensors. The measurement accuracy is high, the anti-interference ability is strong, and the operation is stable.

1. Product Features

Waterproof design, can be directly applied to outdoor installation
Compatible with various types of vibrating wire sensors at home and abroad
The collector adopts standard MODBUS U RTU protocol
High measurement accuracy, resolution to 0.1Hz
Intelligent excitation algorithm, the fastest reading speed is 2Hz
Support temperature acquisition channel, resolution accuracy can reach 0.1 °C
Wide working voltage range, power supply reverse connection protection

2. Sensor calculation method

ε (micro strain) = $\text{Hz}^2 / 1000 \cdot K$

Hz: the frequency value read by the collector

K: Frequency mode coefficient, provided by sensor manufacturer

3. Technical spec

3.1 Main technical indicators

Range) (configurable): 400 – 6000Hz
Resolution: 0.1Hz
Full frequency scan time: <5s
Continuous measurement time (capture): <2s
Sensor excitation voltage: 5V
Temperature measurement range: -40 °C ~ 125 °C
Temperature sensor type: NTC (default 3K Ω)
Working mode: real-time online, polling and reading
Power supply range: 6 – 24VDC
Power consumption: ≤ 0.5W
Dimensions ((length × width × height)): 111 × 64 × 37 (mm)
Weight: about 60g

3.2. Mechanical characteristics

Housing material Aluminum alloy
Crimped wire Wire diameter 0.5 mm² to 1.5 mm²
Installation method: screw fixation

3.3. Environment

Working temperature -25 °C ~ 70 °C

Storage temperature--25 °C ~ 85°C

Humidity 55 ~ 95%, non-condensing

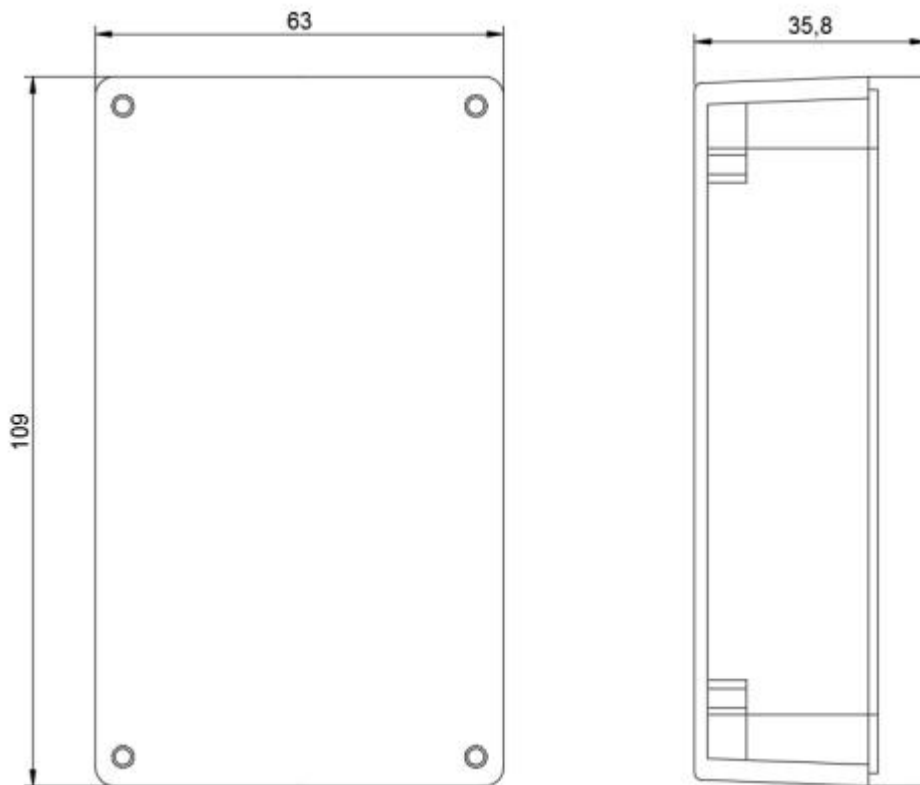
3.4. Use environment and precautions

Medium environment: not in corrosive, flammable, harmful gas, and metal
Work in dusty environments.

The user must be clear about the definition of the product wiring terminal and the power supply voltage when using it and wire according to the wiring diagram

4. Product wiring, installation and dimensions:

4.1. Dimensions



4.2. Terminal description:

Terminal 1 1

S+: positive pole of vibrating wire sensor coil S S--: negative pole of vibrating wire sensor coil

G G: Vibrating wire sensor wire shielding T+: Vibrating wire sensor temperature sensor positive

T T--: Vibrating wire sensor temperature sensor negative electrode

Terminal 2 2:

A/B: 5 RS485 communication interface

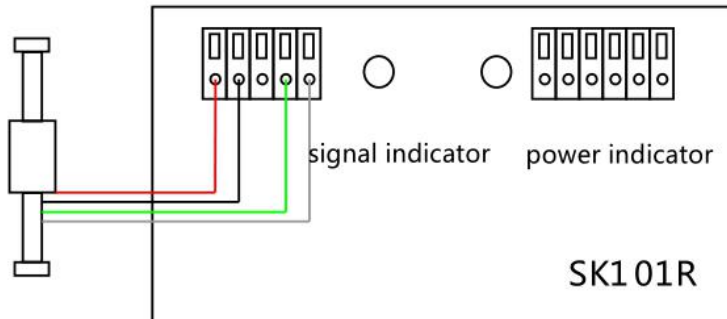
PG: 5 RS485 communication line shield

VCC: The positive pole of the power supply input port

G: Negative power supply input port

PG: Power ground

4.3.Wiring instructions



Red indicator light: power indicator yellow indicator light: reading signal indicator

5. Read data and process

Please confirm the Modbus address of the module before communication, the default communication configuration is: 9600, no

Check, 8 data bits, one stop bit, module default address 0x01, reading interval

It is recommended to be longer than 2s.

Register address	Function number	Function description	Read/ / Write
0x0000	03	Read sensor frequency	Read only
0x0001	03	Read sensor temperature	Read only

Example 1 (read positive temperature):

The host sends: 01 03 00 00 00 02 C4 0B (hexadecimal)

01 module address, 03 function number, 00 00 is the register start address, 00 02 is read Data quantity, C4 0B is CRC check code

Module return data: 01 03 04 2F 3A 03 1D 12 13 (hexadecimal)

2F 3A is the returned sensor frequency, converted to decimal 12090, divided by 10, the actual

Sensor readback frequency 1209.0Hz

Note: The sensor returns data 0, which means that the value has not been read

The sensor returns data 0xffff, indicating that the sensor is disconnected

03 1D is the returned temperature sensor data, converted to decimal 797

Temperature calculation formula = $(797-500)/10$, unit $^{\circ}\text{C}$, less than 0 is negative temperature

Note: The sensor returns data 0xffff, indicating that the sensor is disconnected

12 13 is the CRC check code

Note: After sending the read command, the sensor immediately executes the data read operation, and the data returns

Time 1-5s (please set the communication timeout time of the host computer to 5s