Operating Instructions

Vibrating wire rebar gauge

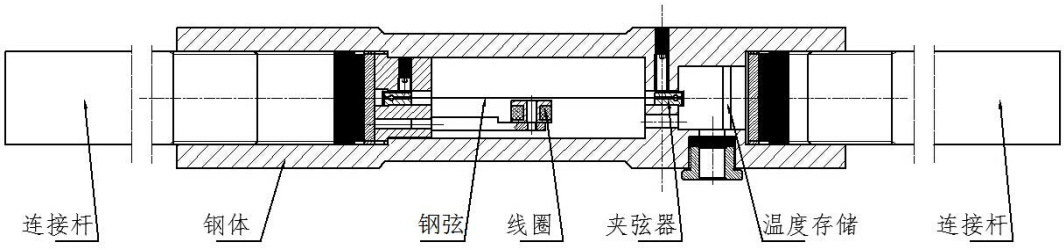
Weihai Gemho Digital Mining Technology Co., Ltd.

Product description

Vibrating wire rebar gauge, also called rebar stress gauge (as shown in Figure 1-1 below), is an instrument installed on concrete stressed steel bars to monitor rebar stress. It is embedded in various building foundations, diaphragm walls, tunnel linings, bridges, side walls, etc. In concrete engineering structures such as slopes, docks, docks, gates, etc., the steel stress of concrete internal structures is measured

How the product works

The vibrating wire rebar meter is mainly composed of coils, steel strings and stressed steel bodies, as shown in Figure 2-1. When stress occurs, the stressed steel body of the vibrating wire rebar meter generates strain and transmits it to the steel string, so that the force on the steel string changes, and the natural frequency changes accordingly. The measuring instrument excites the steel string through the coil and detects the The frequency of the induction signal is converted to the vibrating wire load force rebar gauge of the measured structure. It is a vibrating wire sensor for measuring the stress of the rebar or the bolt. Rock stress gauge.



Main Specifications

Spec	Range	（KN）	0～75	0～105	0～136	0～160
	Measurement accuracy (F.S)		±0.1%			
	Working temperature (℃)		-20～+70			
	Temperature measurement accuracy (℃)		±0.5			
	Insulation resistance MΩ		≥50			

Note: Size and performance parameters are conventional product parameters, other parameters can be customized according to demand.

Product performance characteristics

1. Imported steel strings are used, with stable temperature performance, long service life and good product consistency;

2. Built-in intelligent temperature sensor, which is convenient for temperature compensation and improves the accuracy and reliability of monitoring data;

3. Adopt IP68 standard design, excellent waterproof performance;

4. Using standard hydraulic cables, the system is more reliable.

Product Instructions

Line sequence description

The rebar meter uses a two-core shielded cable, and if equipped with a temperature sensor, a four-core shielded cable.

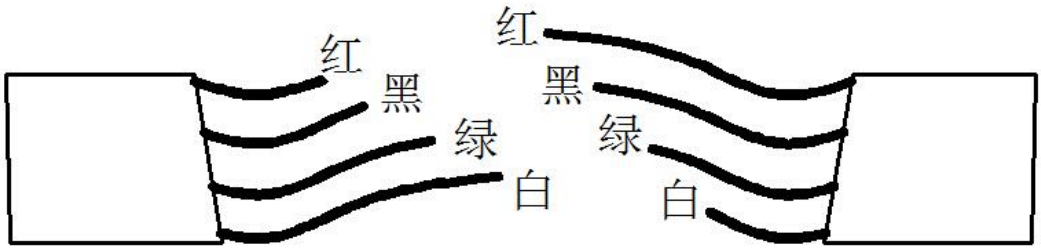
Sensor Cable Color	Green	White	Red	Black

Line order definition	temperature +	temperature-	frequency	frequency

Wiring Prep

Peel off the outer insulating layer of the connector, and the four-core wires differ by 1cm in order of length, and strip off the wire

ends.



Handling of unstable temperature signals

When the temperature signal is unstable on site, the shielded wire exposed at any terminal can be connected to the negative temperature terminal. The specific connection method is shown in Figure 5-2.

Note: This method is only suitable for use when the temperature data is abnormal, and does not need to be changed under normal circumstances.

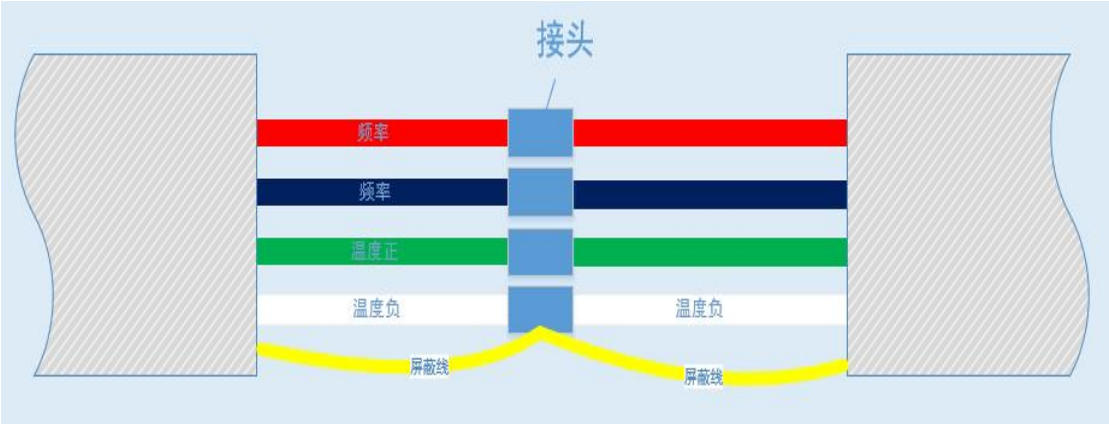


Figure 5-2 Schematic diagram of the connection method of the rebar gauge

Data processing

(1) Stress and strain detection of reinforced concrete

Calculation formula: - (1)

k: steel modulus coefficient; : current frequency of steel bar meter;

: initial frequency of rebar meter; : temperature compensation coefficient;

current temperature; : initial temperature

Cross-sectional area of a single steel bar (the steel bar meter measures the axial force of the support, fill in when this formula is selected; it is not necessary to fill in when the stress is measured)

(2) Axial force detection of reinforced concrete support

a. Add sensor, type selection: data, formula selection formula (1), pay attention to fill in;

b. Add sensor, type selection: combination, formula selection formula (2);

Calculation formula:,——(2)

elastic modulus of concrete; : elastic modulus of reinforcement;

net cross-sectional area of concrete; : total area of reinforcement;

Product main accessories

Item	Description	Qty	Remark
1	Product certification	1	
2	user's manual	1	

Precautions for use

1. Because this product is a precision instrument, you should avoid falling and other phenomena. If the product cannot be used due to severe falls, please contact the after-sales service department of our company, and do not disassemble the machine by yourself.

2. Because the product needs to be installed on site, it may be affected by harsh environments. It should be installed in an environment protected from rain and lightning as much as possible to avoid equipment damage due to lightning strikes. If necessary, the product integration environment should be grounded to lead the lightning strike current to the ground to protect the equipment.

3. Before you use this product, please read the relevant information provided in this guide carefully. When accepting the product, please check whether the certificate, manual and other information are complete.

4. After unpacking, the instrument should be stored in a dry, ventilated and non-corrosive place. It should be handled with care and avoid violent vibration. Dust, humidity, and severe temperature changes can affect the life of this product, so avoid placing it in these places.

5. If the instrument is faulty or damaged to varying degrees, please do not try to repair it yourself, you should contact the company's after-sales personnel for repair, and do not open the device by yourself.

Reliability Limits and Warranty Period Coverage

Weihai Gemho Digital Mining Technology Co., Ltd. is responsible for implementing free warranty for faults or defects caused by quality reasons. The scope of the warranty is the electrical components in the whole machine. Consumable or fragile

components such as communication cables, aerial plug cables, and power adapters are not covered by the warranty.

When one of the following situations occurs, this product does not implement free warranty, and is responsible for maintenance and charges as appropriate:

1. beyond the warranty period;

2. Normal wear or consumption;

3. Damages caused by failure to use, maintain, or improperly maintain or store in accordance with the requirements of the product instructions for use;

4. Unauthorized maintenance or self-maintenance;

5. Damage caused by force majeure;

6. Damaged due to human reasons.

7. Free one-year warranty for quality problems such as electrical faults caused by non-human damage.

For the power supply requirements of the external sensors and equipment of the product, please refer to the description of the product technical specification table.

Weihai Jinghe Digital Mining Technology Co., Ltd. does not guarantee that the equipment can work normally in environments or conditions other than these conditions or the performance parameters are lower than the technical specification table.

We reserve the right to modify the instruction manual and change the product design at any time without notifying the user.