

Digital Output Modbus Single-axis Inclinometer-BWM417H-180-485

Solar-thermal power generation is a much higher threshold than photo voltaic technology and less environmental pollution. It's the crown jewel of the new energy sector. By 2050, according to the IEA, the world's photo voltaic power generation will be able to operate at 982GW, with China expected to reach 118GW. At present the country "energy" much starker choices-and graver consequences-in planning of science and technology "has been issued, the first batch of solar-thermal power generation demonstration project, a total of 20, with about 1.35 GW, including 9 tower power plant, 7 trough power station and 4 Fresnel.



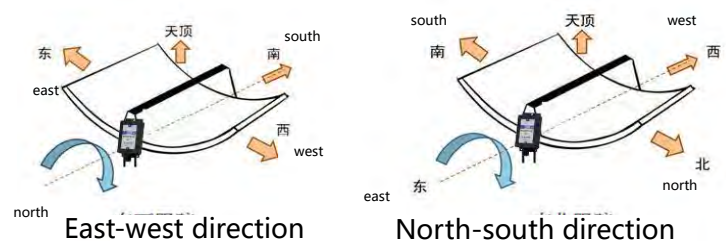
On the basis of automatic solar tracking system, Bewis developed the BWM417H, combining the inclinometer with the mechanical device to achieve the solar tracking, which improve the tracking efficiency, realizes the angle automatic correction, it also solve the problem that accumulated error increasing with time, Bewis provide the mature technical solution for solar energy efficient automatic tracking control systems.



Product photography

Product features :

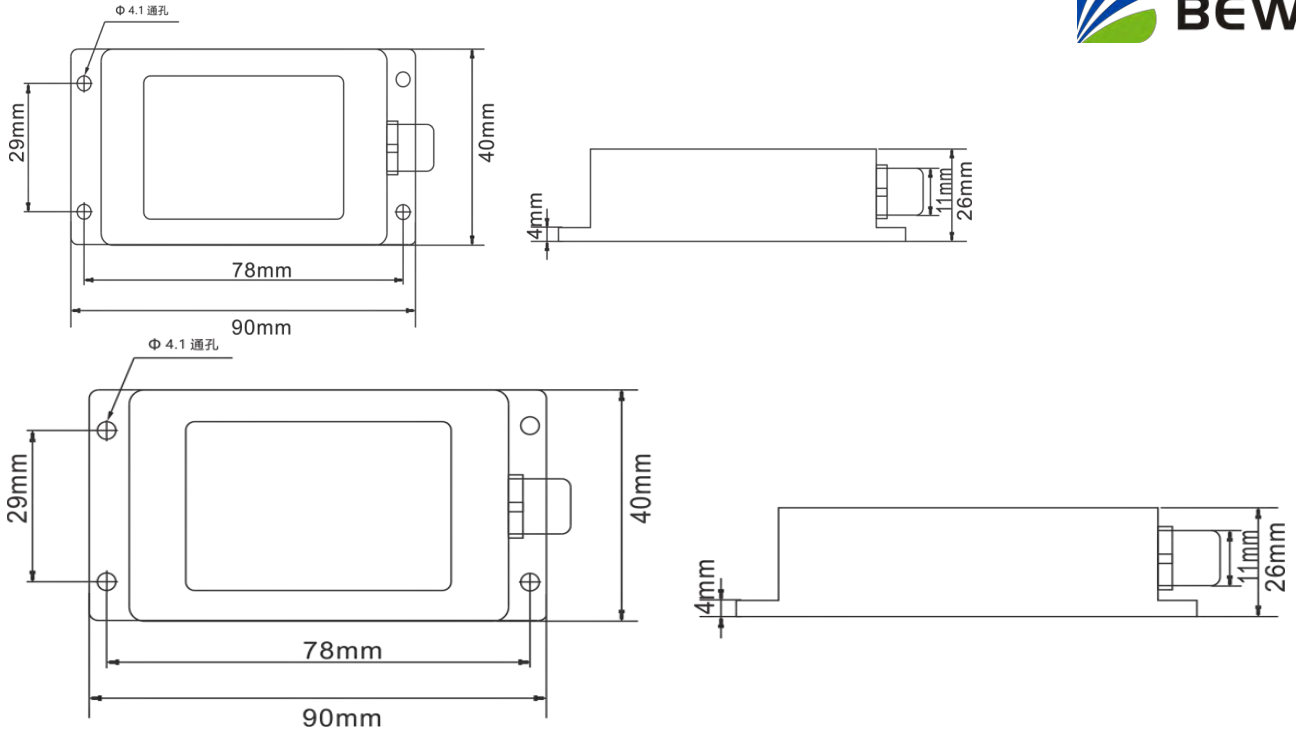
- The highest accuracy is 0.01° in normal temperature range
- Small temperature drift, zero temperature drift is $\pm 0.0007^\circ / ^\circ\text{C}$
- The accuracy 0.05° is permitted in $-20^\circ \sim +50^\circ$ temperature range
- Install easily, intelligent compensation to eliminate the installation errors
- 90° installed vertically, one-click set the relative zero point
- Tracking measurement range $\pm 180^\circ$, wide Angle range
- Working temperature of $40^\circ\text{C} \sim +85^\circ\text{C}$
- Aviation plug for easy maintenance and replace
- Strong resistance to external electromagnetic interference
- IP67 protection level to adapt to the china northwest climate in China



BWM417H application in Trough project

Digital Output Modbus Single-axis Inclinometer- Technical Indicators

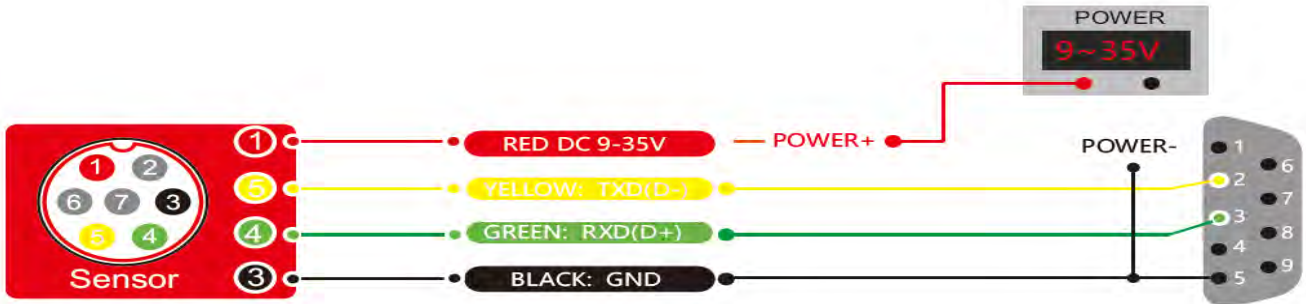
Electrical characteristic					
Parameters	Conditions	Min	Typical	Max	Units
Power supply		10	12	35	V
Operating current	Non-loaded		40		mA
Operating temperature		-40		+85	°C
Store temperature		-55		+100	°C
Performance index					
parameters	Conditions	BWM417H			unit
Measuring range		±180°			°
Measuring axis		X			
Zero temperature drift	-40°C ~ 85°C	±0.0007			°/°C
Sensitivity error	25°C	±0.5°			%
Frequency response	DC response	100			Hz
Resolution		0.001			°
Accuracy	indoor	0.01			°
Shock resistance	2000g,0.5ms,3 times/axis				
Net weight	150g (package excluded)				
EMC	GBT17636				
Insulation resistance	≥100MΩ				



Electrical Connections

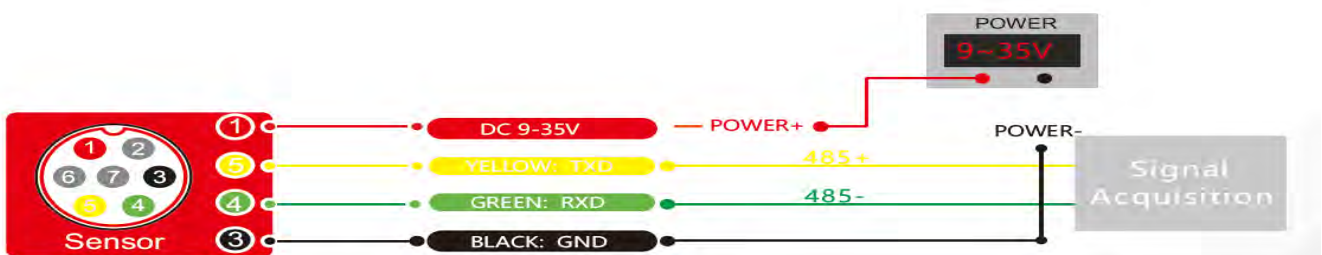
RS 232 Wiring Diagram

RED	BLUE	BLACK	GREEN	YELLOW
1	2	3	4	5
DC 9-35V	NA	GND	Receive RXD	Transmit TXD



RS 485 Wiring Diagram

RED	BLUE	BLACK	GREEN	YELLOW
1	2	3	4	5
DC 9-35V	NA	GND	Receive RXD (485-)	Transmit TXD (485+)



Digital Output Modbus Single-axis Inclinometer-Successful Cases

Gold Vanadium Energy Axe 50MW molten salt trough type photothermal power station

The designed annual power generation capacity is 256 million kWh, with a total investment of \$350 million. It adopts high-temperature molten salt power generation technology. On September 14, 2016, it was listed as one of the first photothermal demonstration projects announced by the National Energy Administration (one of the seven trough projects). Project relies on Axe County The 40-mile desert has abundant light and heat resources, flat terrain, abundant water sources and convenient transportation advantages. The project construction is progressing smoothly.

Shenzhen Golden Vanadium Energy Technology Co., Ltd. is the world's first high-temperature molten salt trough solar power generation demonstration circuit, which realizes grid-connected power generation in Akese Gobi, Gansu.

Bewis and Tianjin Binhai CSP Investment Co., Ltd. (hereinafter referred to as CSPBH) signed the cooperation agreement in August 2017.

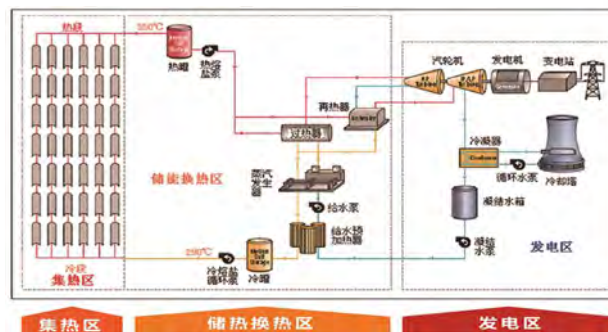
Bewis will provide all the tilt sensor products for the 50MW project of the Golden Vanadium Energy Axe trough molten salt photothermal power station .

The test on Bewis sensor for almost one year, and compared with more than 30 manufacturers in China and abroad.

finally the BWM417H designed and produced by Bewis only win the chance



Project field



The schematic diagram of the molten salt trough photo-thermal power system



Heat concentration zone



Energy storage for heat transfer area