



H. E. SERVICES (PLANT HIRE) LTD
WORLD LEADERS IN DIGGER HIRE



V1.0

DISPLAY-CONTROLLER

SMI826P

Technical Manual



H. E. SERVICES (PLANT HIRE) LTD & RION QUALIFICATION CERTIFICATION

- Quality management system certification: GB/T19001-2016 idt ISO19001:2015 standard (Certificate No.: 128101)
- Quality management system certification: IATF16949: 2016 (Certificate No.: T178487)
- GJB9001C-2017 Standard Weaponry Quality Management System Certification (Registration number: 02622J31799R0M)
- Intellectual property management system certification: GB/T29490-2013 standard (Certificate No.: 41922IP00281-06R0M)
- High-tech Enterprise (Certificate No.: GR201844204379)
- ShenZhen Professional Dedicated Unique Innovative Enterprise(No.: SZ20210879)
- Revision time:2023-11-14

Note: Product functions, parameters, appearance, etc. will be adjusted as the technology upgrades.
Please contact our pre-sales business to confirm when purchasing.

SMI826P DISPLAY-CONTROLLER



► PRODUCT INTRODUCTION

SMI826P is a display with height and slew limit control jointly developed by H. E. Services and RION Tech. It is equipped with RION brand professional tilt sensor and GP206 Beidou system, which can monitor the height and slew angle data of display carrier in real time. The product has four relay alarm signal outputs, the user can set the alarm angle thresholds, and output the corresponding contactless relay signal (drive current 1A) when the safe inclination value is exceeded. **Relays signals when the device communicates abnormally**, the product design is precise, integrating comprehensive protection functions such as short circuit, instantaneous high voltage, polarity, and communication abnormal alarm, which is suitable for various harsh industrial environments. Product reliability and stability use industrial grade MCU, three protective PCB board, wide temperature metal casing and other measures to improve the industrial grade of the product .

► FEATURES

- ★ Night vision four-color screen
- ★ Can be equipped with 1/2/3 axis tilt sensor
- ★ Wide temperature work : -25 ~ +70℃
- ★ Support setting relative zero point
- ★ Metal case, brushed aluminum
- ★ IP54 protection grade
- ★ Connector with waterproof aviation plug
- ★ **Four modes available**

► APPLICATION

- ★ Excavators and construction machinery
- ★ Satellite communication vehicle attitude detection
- ★ Engineering machinery measurement of dip angle
- ★ Rail vehicle monitoring
- ★ Geological equipment tilt monitoring

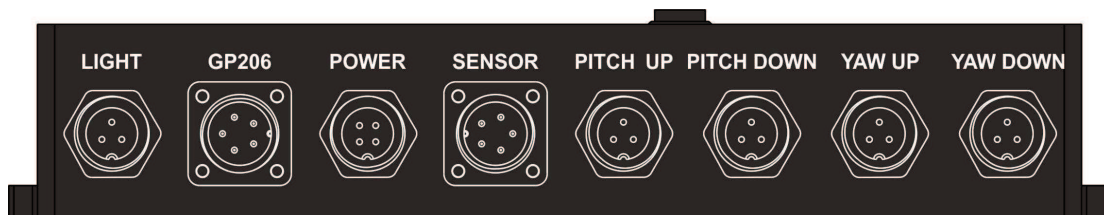


► ELECTRICAL PARAMETER

Parameter	Condition	Min Value	Typical Value	Max Value	Unit
Supply voltage	standard	9	24	36	V
Alarm current				500	mA
Working current	non-loaded		92	125	mA
working temp		-25		+70	°C
Storage temp		-25		+70	°C

► INTERFACE DEFINITION

PINS	SIGNAL DEFINITION	REMARKS
Signal light interface		
PIN1(RED)	DC9~36V	
PIN2(BLACK)	GND	
PIN3	NC	
GP206 interface		
PIN1	+9-36VDC	
PIN2	RS232_RX	
PIN3	RS232_TX	
PIN4	GND	
PIN5	NC	
Power interface		
PIN1(RED)	+9-36VDC	+24V
PIN2(BLACK)	GND	
PIN3	NC	
Tilt sensor interface		
PIN1	+9-36VDC	+24
PIN2	RXD	
PIN3	TXD	
PIN4	GND	
PIN5	NC	
Relay interface		
PIN1	Signal Output	
PIN2	COM	
PIN3	NC	



► SYSTEM CONFIGURATION

Configuration name	Parameter	Quantity
SMI826P Display-Controller	L192×W80×H34mm	1
GP206 Beidou Gps Position And Orientation Board	L120×W84×H43mm	1
HDA436T Dynamic Tilt Sensor	L72xW47xH22.5mm	1
Satellite antenna	Φ152*H175mm	2
Signal light cable	Cable length 10m	1
GP206 connection cable	Cable length 2m	1
HDA436T Tilt Sensor cable	Cable length 5m	1
SMI826P Power cable	Cable length 2m	1
Main Antenna cable	Cable length 10m	1
Secondary Antenna cable	Cable length 10m	1
Relay navigation plug	/	4



GP206 cable: ① The orange connector is connected to the GP206 product, ② gray connector is connected to the SMI826P display controller.

HDA436T Tilt Sensor cable: ③ The orange connector is connected to the HDA436T product, ④ gray connector is connected to the SMI826P display controller.

► INSTALLATION SCHEMATIC DESCRIPTION



INSTALLATION INSTRUCTIONS:

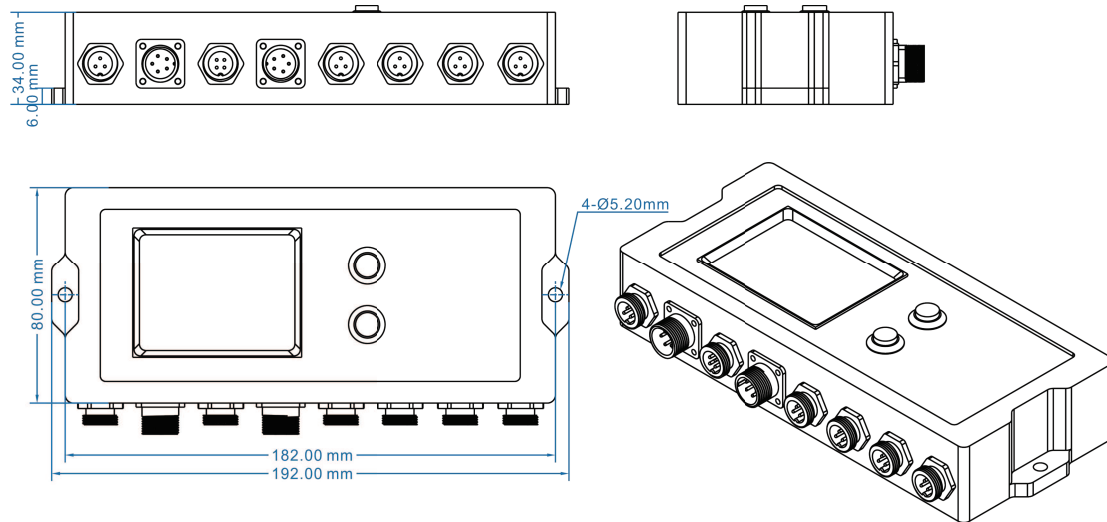
1. The SMI826P display controller is installed in the driver's cab with the GP206 product, connected with the GP206 cable;
2. The HDA436T dynamic inclination sensor is installed on the excavator boom and connected to the SMI826P display controller with the HDA436T Tilt sensor cable;

3. The black strong Magnetic base of two external antennas attach to the rear of the excavator body (installed side by side), and connected to the corresponding interface of the GP206 product using the connecting wires of the main and secondary antennas; (Special note - Antenna installation environment: As the device requires GPS and BD satellite signals to function properly, it is particularly important to note that the external receiving (transmitting) antenna of the device should not only be installed in an open, unobstructed, and non magnetic environment, as this will directly cause damage to the antenna equipment or even the host. As the antenna of the equipment belongs outdoors, it needs to be elevated and kept clear of direct obstruction. Therefore, special attention should be paid to the need for salt mist prevention and waterproofing measures to protect it. The connector needs to be sealed with waterproof tape, and the surface of the shell needs to be cleaned regularly.

4. Finally, connect the power cable to the SMI826P display controller, supply 12V or 24V power to the power cable, and press the ON button to work.

► PRODUCT SIZE

SMI826P size

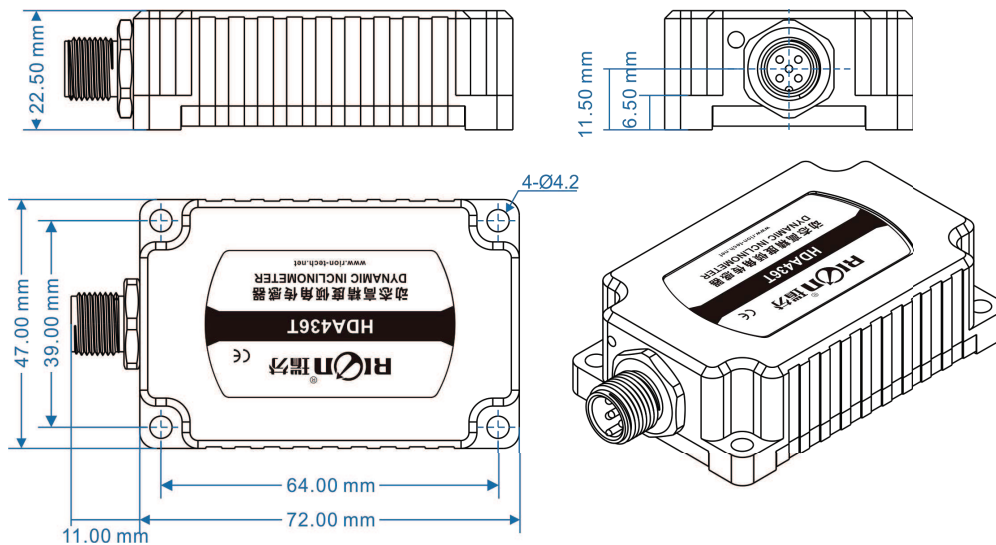


Shell size: L192×W80×H34mm

Installation size: L182×H6mm

Mounting screws: 2 M5 screws

HDA436T size



Shell size: 72x47x22.5mm

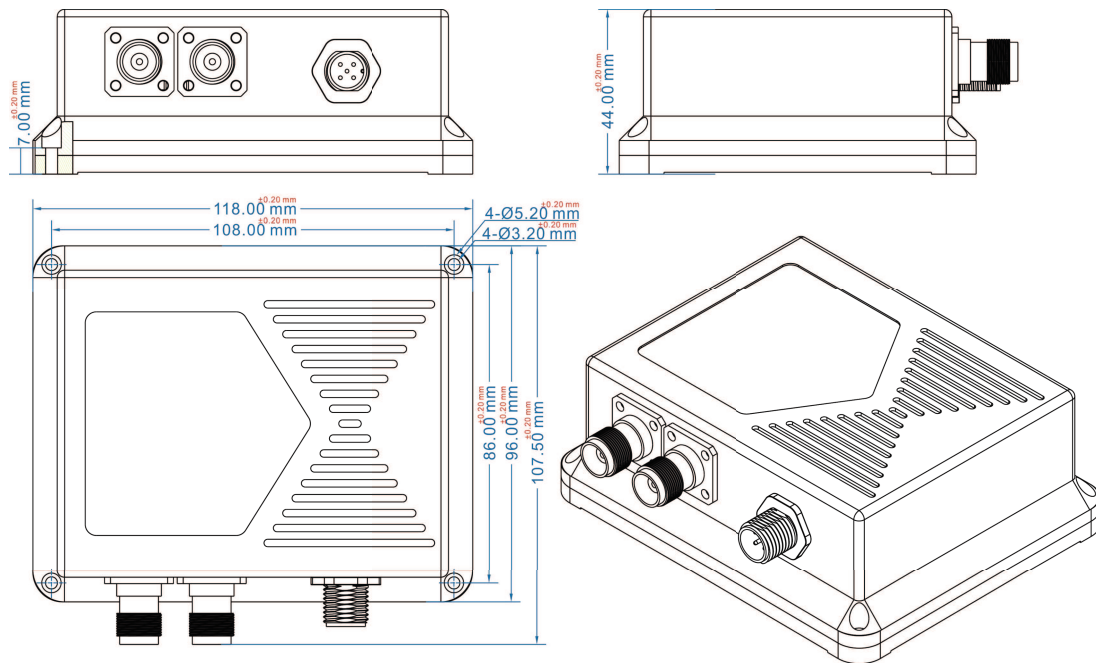
Installation size: 64x39x6.5mm

Mounting screws: 4 M4 screws

Case material: Aluminum alloy

SMI826P DISPLAY-CONTROLLER

GP206 size

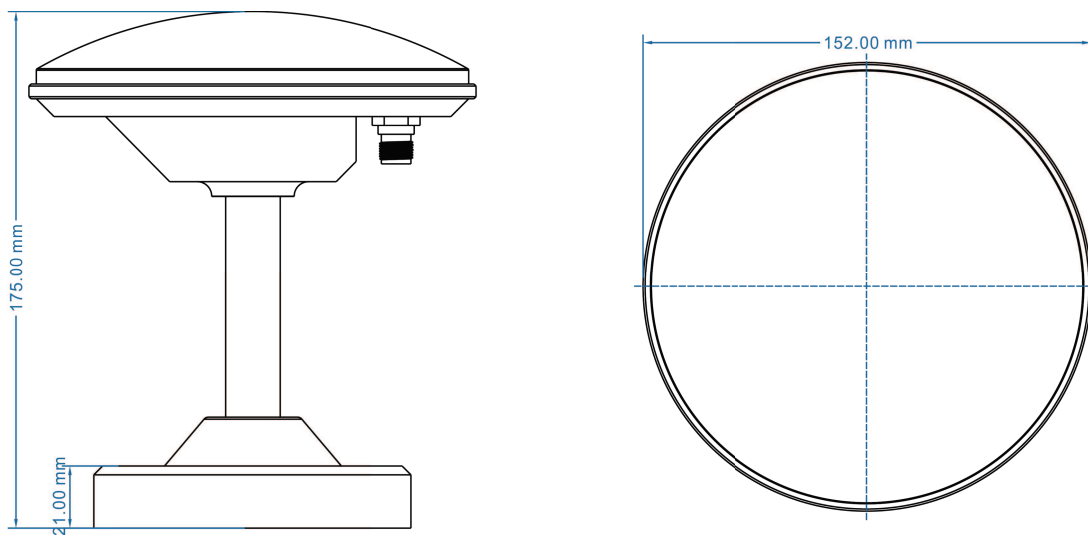


Shell size: L118×W96×H44mm

Installation size: L108×W86×H7mm

Mounting screws: 4 M3 screws

Satellite antenna size



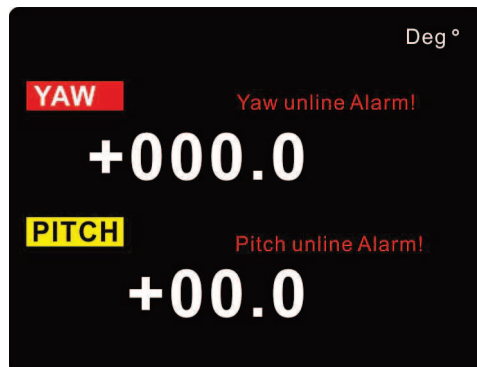
Shell size: Ø152×H175mm

► BUTTON OPERATION INSTRUCTIONS



1. Press the ON/OFF button, the product powered on, and when pressed again, the product powered off ;
2. Press the key for a long time to enter the screen calibration page, and the calibration instructions are as follows:
 - 2.1 Click OK to enter the next step and click EXIT to exit the touch screen calibration.
 - 2.2 Click on the small red dot with a small pen until the small red dot moves 4 points and automatically exits the calibration.

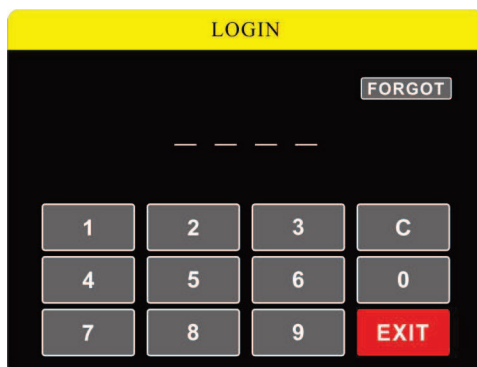
► PANEL MENU OPERATION INSTRUCTIONS



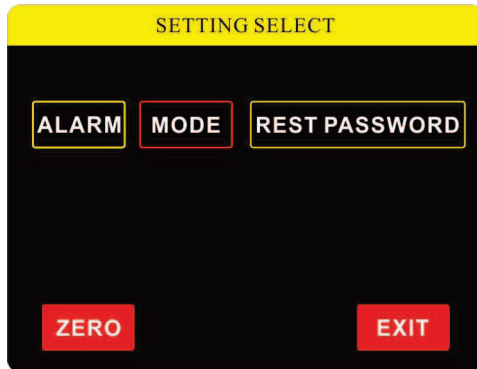
1. The left side of the page displays all the information on the product panel. The upper right corner is the angle unit, and the red font is the alarm information;
2. When the sensor exceeds the threshold or is offline, the page prompts a warning message in red font, and the alarm sounds;

► LOGIN INSTRUCTIONS

Short press the MENU key to enter the login page. The login page is as follows. The initial password is 0000. The user can change the password later. If the user forgets the password, he can click the "FORGOT" button to reset the password. The reset password is obtained by contacting H. E. Services. Enter the correct password to enter the setting interface.



► SETTING INSTRUCTIONS

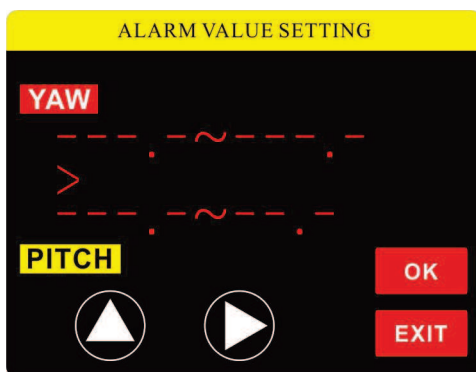


- A. ALARM : Alarm angle setting;
- B. MODE: Mode setting;
- C. RESET PASSWORD: Reset password;
- D. ZERO/ABS absolute relative

Zero : Click to set the current angle as the zero point position.

ABS : Click to switch to absolute zero point position.

► ALARM INSTRUCTIONS



1. Click Pitch or Yaw to select the corresponding angle setting.

3. Click upward: Change the data value of the corresponding digit;

4. Click rightward: Change the operation data object;
Eg : When the Pitch threshold is set to -5 ~ +5, if the alarm threshold is exceeded, the device interface prompts Pitch alarm! At the same time, an alarm sounds.

If the pitch angle of the device is less than -5°, the device relay P- outputs a signal. If the pitch angle of the device is

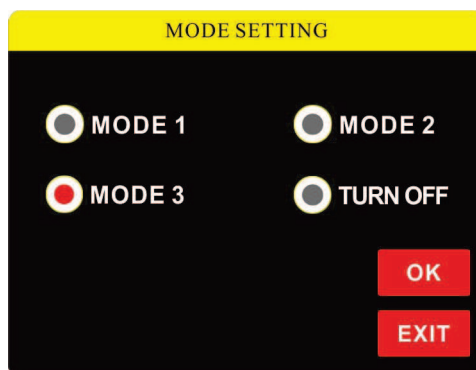
greater than +5°, the relay P+ outputs a signal.

When the Yaw threshold is set to 30 ~ 60deg, if the alarm threshold is exceeded, the device interface prompts Yaw alarm! At the same time, an alarm sounds. If the device is less than 30°, the device relay Y- output signal, if the device is more than 60°, the device relay Y+ outputs the signal.

5. Click OK to save the setting angle, so that set the angle to take effect.;

6. EXIT: Exit Settings are not saved.

► MODE INSTRUCTIONS



Select the operating mode of the product, including MODE 1, MODE 2, MODE 3 and TURN OFF.

MODE 1: measure pitch / height and output relay signal ; MODE 2: measure yaw / slew and output relay signal; MODE 3: Measure the pitch / height and yaw / slew simultaneously and output the relay signal;

TURN OFF: Close all output relay signals;

OK : Save the settings;

EXIT : Exit Settings are not saved.

► RESET PASSWORD INSTRUCTIONS

SETTING PASSWORD

FORGOT

— — — —

1	2	3	C
4	5	6	0
7	8	9	EXIT

SETTING PASSWORD

OK

0 0 0 0

1	2	3	C
4	5	6	0
7	8	9	EXIT

SETTING PASSWORD

Please confirm again.

OK

— — — —

1	2	3	C
4	5	6	0
7	8	9	EXIT

Password changed successfully.
Password is 0 0 0 0

EXIT

Set the device login password.

You need to verify the previous password before setting the password. If the setting is successful, the new password is used as the login password.



H. E. Services (Plant Hire) Ltd
Whitewall Road
Medway City Estate
Stroo
Kent
ME2 4DZ

Tel: 0208 804 2000
E-mail: NHC@heservices.co.uk
Web: www.heservices.co.uk