HENAN HANWEI ELECTRONICS CO., LTD

WD6200

Fixed gas detector

Operation manual

Ver：HWWM161229CG

Read this manual carefully before using the device

SAFETY INFORMATION

Before using this product, please read the following safety instruction carefully and comply with related operation regulation strictly.

- Please don't use defective detector. Before using, please check if there is crack or spare part missing. If yes, please contact to the seller.
- WD6200 detector had been calibrated in manufacturer's factory, however, it is still suggested to calibrate it at your working spot before using it.
- In order to assure the user's safety and assure the detector work normally, the users are suggested to do impact test on the detector with high concentration level-known gas (put the detector into the target gas whose concentration is higher than the high alarm level) If the displayed value is exceeding the correct range, please calibrate the detector.
- Please don't expose the device to the gas whose concentration is exceeding the range. Otherwise, it will influence the accuracy and shorten the sensor life.
- Please cut off power supply before open the detector. Please don't open the detector or replace the sensor in the places where danger gas possibly exists.
- Installation must abide by the national and local regulations.
- The detector must be earthed, so as to avoid RF interference.
- Please don't paint the detector.
- Please use the specified spare parts during maintenance and repairing.
- Please don't put the gas sensor into organic solvent or flammable solution.
- Please don't expose the detector to high concentration gas which is exceeding the detection range. Otherwise, it will shorten the sensor life.
- Please don't expose the device to electric shock, strong magnetic field or serious continuous mechanic shocking.

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1. Brief introduction

WD6200 adopt high quality gas sensor and MCU technology, has good repeatability and stability. It is widely used in the fields of oil processing plants, chemical factories, metallurgy, power plants etc. With 4-20mA signal output, it can be connected with the control panel of KB2160.

Main features:

- High sensitivity, stable performance, long life span;
- 4-20mA signal output;
- Relay output of low alarm, high alarm and fault alert;
- High quality LCD screen can work in -40℃ environment.
- Setting through remote controller, easy for operation;
- Specific installation rack, easy for the installation;
- Sensor module design, easy for maintenance and replacement;
- Indication functions of re-calibration remind and sensor overdue.

2. Technical specification

Sensor type: Catalytic or electrochemical or infrared
Gas sampling: Natural diffusion
Working voltage: DC 24V±6V Consumption: ≤5W
Accuracy: ≤±5%F.S
Status indication: Yellow LED: Fault Red LED: gas leak alarm
Response time (t_{90}): ≤30s (LEL)/ ≤60s (Toxic gas / O2)
Temperature: -40℃～70℃ (LEL) / -20℃～50℃ (toxic gas / O2)
Humidity: ≤95%RH
Explosion-proof: Exd Ⅱ CT6Gb
Ingress protection: IP65
Environment pressure: 86kPa～106kPa
Signal output: 4-20mA output Relay output

Screw thread: G3/4

Cable requirement: 3-line, ≥1.5 mm^2,

Cable outer diameter between 6mm and 12mm

Distance to the panel: ≤1000m

Sensor life:

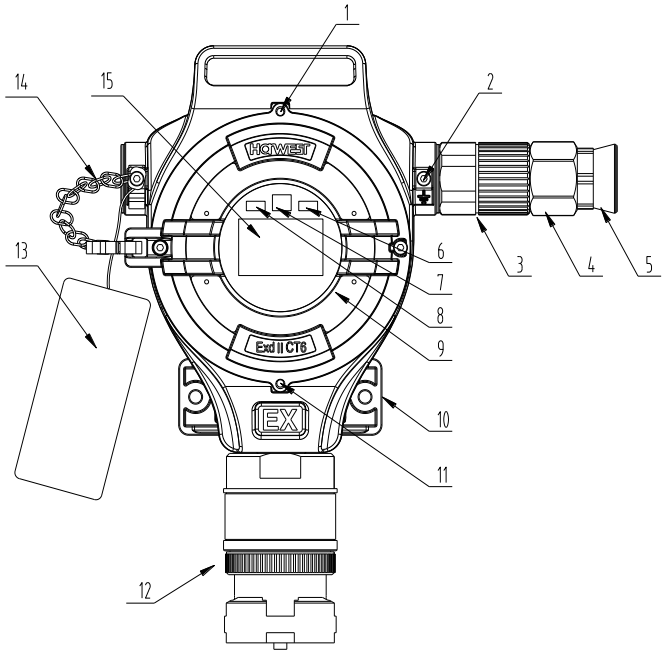
Catalytic 3 years; Electrochemical: 2 years; Infrared: ≥ 5 years

Dimensions and weight: 293 mm×263mm×108mm

Weight: about 2.7kg

Target gas	Detection range	Resolution	Standard gas flow
CH_4	0～100%LEL 0～5%VOL 0～100%VOL	1%LEL 0.1%VOL	500ml/min
C_3H_8	0～100%LEL	1%LEL	500ml/min
H_2	0～100%LEL	1%LEL	500ml/min
C_4H_{10}	0～100%LEL	1%LEL	500ml/min
CO	0～1000ppm	1ppm	200±50ml/min
H_2S	0～100ppm	1ppm	200±50ml/min
O_2	0～30%VOL	0.1%VOL	300±50ml/min
NH_3	0～100ppm	1ppm	400±50ml/min
SO_2	0～500ppm	1ppm	600ml/min
NO_2	0～20ppm	1ppm	1000±50ml/min

3. Structure



WD6200 Structure schematic drawing

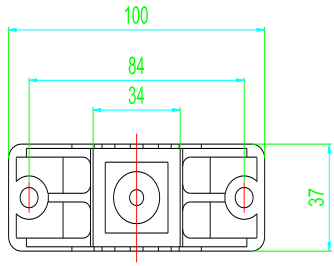
NO.	Name	NO.	Name
1	Top thread	9	Front cover
2	Earth nut	10	Installation rack
3	Thread connector	11	Top thread
4	adaptor	12	Sensor assembly
5	Cable protector	13	Name plate
6	ALARM indicator	14	chains
7	Remote control receiver	15	LCD screen
8	FAULT indicator		

4. Installation

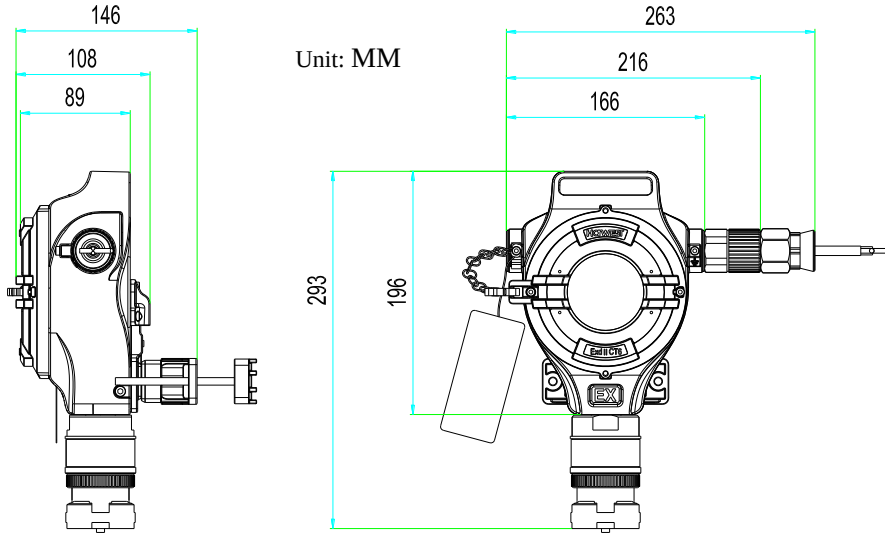
4.1 Installation position

1) For petrol gas, oil gas and alcohol gas etc. which is heavier than the air, the position is 0.3m-0.6m higher than the ground.
2) For natural gas, CH4 etc which is lighter than the air, the position is 0.5m-2m higher than the gas source.
   Note: Gas density more than 0.97kg/CBM, then it's heavier.
3) Gas density less than 0.97kg/CBM, then it's lighter.
4) Choosing suitable position should first consider the air flow speed and direction, relative position to the potential leakage source and air ventilation. The installation be convenient for maintenance and calibration.
5) The position should be far away from shocking, shattering, strong electromagnetic interference. Around the position, there should be at least 0.5m empty place.
6) There should not be fast air blow. Otherwise, it will influence the testing result.

4.2 Installation dimension



Installation rack



WD6200 Dimension

4.3 Installation method

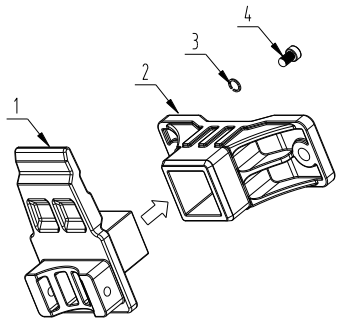
When installing the detector, the sensor head should be downwards, so as to avoid dust or rain falls onto the sensor and assure the target gas can be better detected

According to the working place situation, the user can choose a suitable method of the following 3 methods.

- Wall mounted type installation

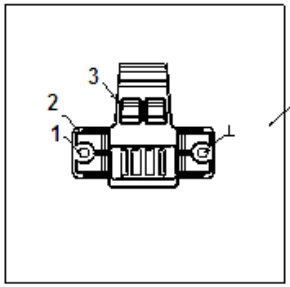
1). Drill suitable screw holes on the wall according to the installation rack.

2). As shown in the below picture, assemble the installation rack and tighten them by the M5 screws. Please remember to add the light spring washer onto the screws.



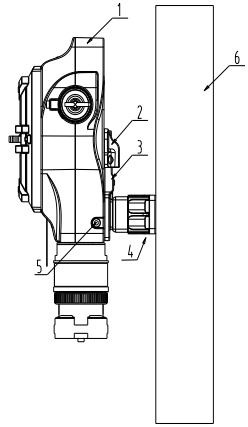
1 fixed mount
2 Installation rack
3 light washer
4 screws

3) Fix the installation rack assembly tightly on the wall through M6 expansion bolts.



1. Expansion bolt
2. Installation rack
3. Fixed mount
4. Wall

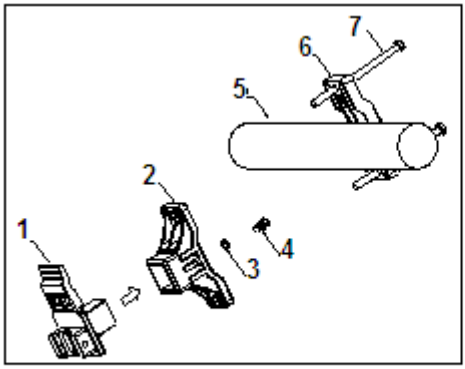
4) Hang the detector onto the rack. Please make sure the hanging is firm and steady. Then fix both the detector and the rack by using 2pcs of M5 screws.



1 WD6200 detector
2 hanging accessories
3 fixing mount
4 installation rack
5 M5 screws（2pcs）
6 wall

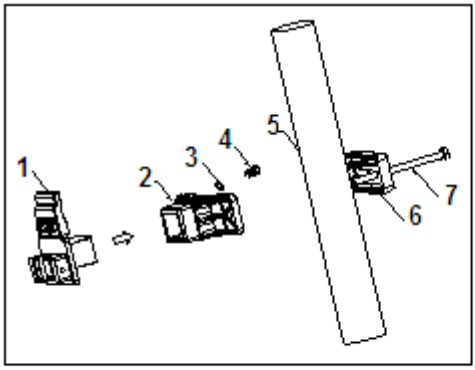
- **Horizontal / vertical pipe installation:**

On the installation spot, if there is horizontal or vertical pipe whose diameter is not more than 75mm, the user can first assemble the installation rack set, then fix rack set on the pipe. Details as shown on the following picture:



1. Fixing mount
2. Installation rack
3. Light spring washer
4. Screws
5. Horizontal pipe
6. Installation rack
7. Bolt (2pcs)

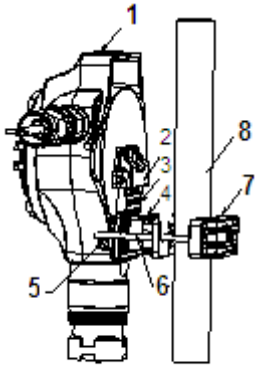
Installing on the horizontal pipe



1. Fixing mount
2. Installation rack
3. Light spring washer
4. Screws
5. Vertical pipe
6. Installation rack
7. Bolt (2pcs)

Installing on the vertical pipe

Hang the detector onto the rack. Please make sure the hanging is firm and steady. Then fix both the detector and the rack by using 2pcs of M5 screws



1. Detector
2. Hanging part of detector
3. Installation rack
4. Fixing mount
5. M5 screws
6. Bolt (2pcs)
7. Installation rack
8. Pipe

Hang the detector

5. Wire connection

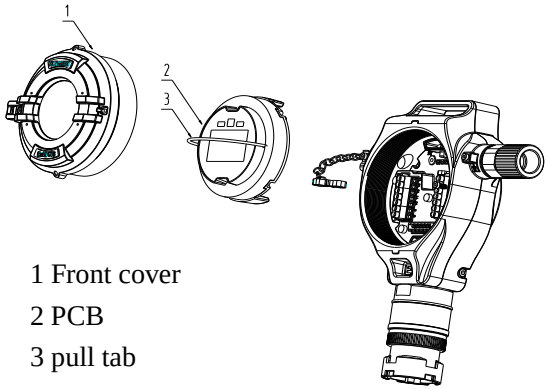
Warning:

Before connecting the wires, please cut off the power supply.

Please make sure the detector is earthed.

Steps of wire connection:

1. Screw off the front cover and take out the PCB by pulling the pull-tab.

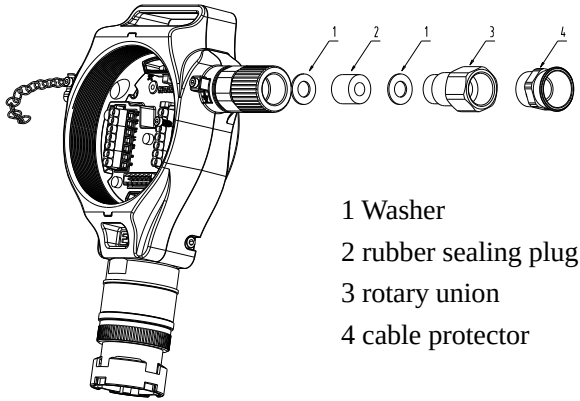


1 Front cover

2 PCB

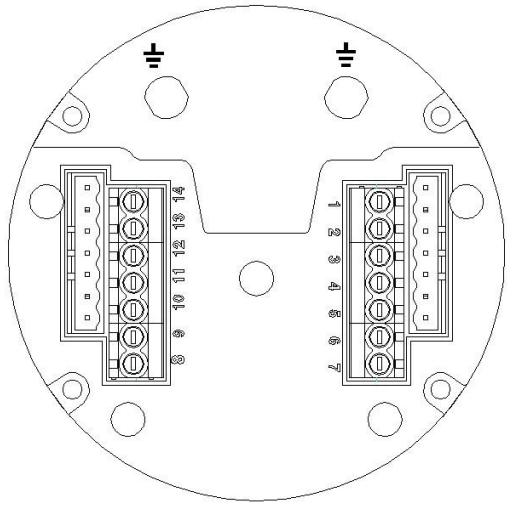
3 pull tab

2. Take out the rotary union, washer and rubber sealing plug, and then pass the wire through the rotary union, washer and rubber sealing plug as shown on the below picture.



1 Washer
2 rubber sealing plug
3 rotary union
4 cable protector

3. All the wires should be connected to the terminals inside the detector. Below is the terminal drawing and instruction.



NO.	mark	function	NO.	mark	function
1	NC	Fault relay NC	8	⏚	To earth
2	NO	Fault relay NO	9	Iout	4-20mA output
3	COM	Fault relay COM	10	24-	power
4	NC	High alarm relay NC	11	+24	power
5	NO	High alarm NO	12	COM	low alarm relay COM
6	COM	High alarm COM	13	NC	Low alarm relay NC
7			14	NO	Low alarm relay NO

If L-alarm relay output is configured to active voltage output, then there is changes on the terminals as follows:

NO.	Mark	Function
12	COM	Cathode of voltage output
13	NC	Voltage Anode NC output
14	NO	Voltage Anode NO output

4. After all the wire connection is ok, please pull out the useless wire and then screw on the rotary union, tighten the rubber sealing plug and the wire.

   Note: The outer diameter of the wire between the control panel and detector should not be less than 6mm.

5. Install PCB, screw on the front cover.

   Note: According to the spot situation, the user can first install the

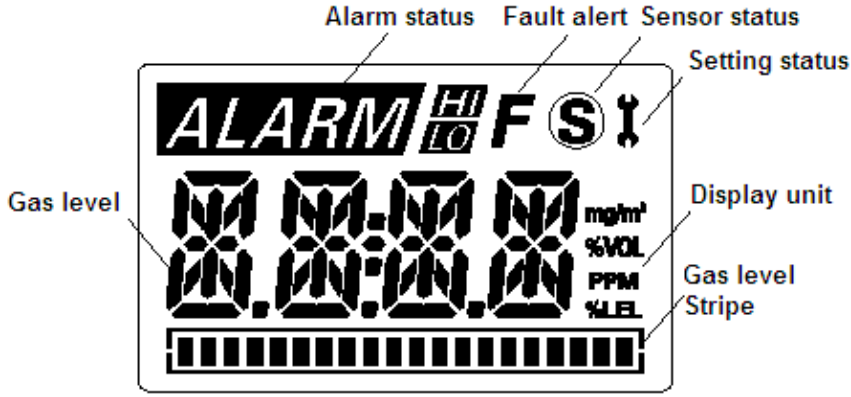
detector and then connect the wire; or first connect the wire and then install the detector.

6.Power on

Note：The working voltage of the detector is DC 24V±6V. Voltage over 30V may damage the detector irremediably.

Power on

1) Connect the detector with the power source.
   The screen displays all the icons. Then in turns it will display the software version number (such as V1.01) and the sensor module software version number ("Ⓢ" icon on the top right corner).
2) Detector starts warm up, wait until the warm up is completed. (the time depends on the sensor type).
3) After warm up, the screen displays the gas level and detector status and sends relative signals to the control panel. Detailed display is shown like the below picture.



4) Different working status as different display shown in below table.

Status	LED	LCD	Relay
Normal	Off	Gas level	—
L-alarm	Red alarm LED flickers twice per second	Gas level	L-alarm relay closed
H-alarm	Red alarm LED flickers 5 times per second	Gas level	H-alarm and L-alarm relays closed
Calibration data wrong	Yellow fault LED on	E-01	Fault relay closed
Sensor fault①	Yellow fault LED on	E-02	Fault relay closed
Communications fault	Yellow fault LED on	E-03	Fault relay closed
Sensor not calibrated	Yellow fault LED on	E-05	—
High concentration protection②	—	FULL	All the relays closed

Note: ①/②: These 2 functions only available for combustible type.

7.Menu operation

7.1 Remote controller

1) All the settings and calibration are operated through the remote controller IR03.
2) The remote controller must be operated within 1 meter near the detector

and the operation angel is ±15 °(based on the middle line of the screen.)

3) If not used for long time, please take out the batteries.

4) Below is the picture of the remote controller IR03

5) In power off situation, press for 1~2s to open the remote controller, and then again press for 1~2s will close the remote controller. If there is no any button been pressed down in 6 minutes, the remote controller will power off automatically.

6) If you press both the button and , the remote controller will change between IR03 mode and IR05 mode, WD6200 detector require to be operated within IR03 mode.

There are totally 4 menu options which can be shown on WD6200 screen. The below table will give you a detailed explanation.

Menu	Function	Description
F--1	L-alarm setting	Set the low alarm level
F--2	H-alarm setting	Set the high alarm level
F--3	Zero translation	Translate zero point
F--4	Calibration	Calibration

7.2Low alarm setting

1) In normal status, press "1" once and it will display [F--1]. Then press "2", it will display the pre-set low alarm level.
2) You can change this figure by pressing "▲" or "▼".
3) After setting completed, press "2" to save the setting. If the screen display "OK", then the setting will be effective.
4) After above operation, press "1" to continue the other settings. Or, press "3" to return to the normal working status.

7.2 High alarm setting

1) In normal status, press "1" twice and it will display [F--2]. Then press "2", it will display the pre-set high alarm level.
2) You can change this figure by pressing "▲" or "▼".
3) After setting completed, press "2" to save the change. If the screen display "OK", then the setting will be effective.
4) After the above operation, press "1" to continue the other settings. Or, press "3" to return to the normal working status.

7.3 Zero translation

After the detector have been used for some time, if you reinstall it and put it in a new environment, it may not display "0" in clean air, this is called zero drift. Zero drift usually happens due to great change of temperature and humidity of the detecting environment, it can be corrected by zero translation.

1) Make sure the detector is put in clean air environment, after the detector works over 10 minutes, operate with remote controller and press the button 1 for three times, the detector will display [F--3], then press the button 2, the screen will show indication "OK？", then press

2 to execute zero translation.

2) During zero translation, the screen will show the current A/D value. How long does it take depend on the sensor type and how much the sensor drifted. For small drift, zero translation can be done immediately.
3) After zero translation is done, the detector will go back to show [F--3], you can press 1 to continue other setup or press 3 to go back to normal working situation.

Note: Zero translation cannot correct the sensitivity deviation which caused due to long time use, it is normally used when zero calibration is inconvenient to proceed. Even though you have done zero translation, it is highly suggested to do calibration once every 180 days.

8.Calibration

WD6200 has calibration remind function, if less than 30 days left for next calibration, the detector will display flashing“S” in normal working status, press 5 can check how many days left for next calibration, if it shows “D020”, it means 20 days left for next calibration. Please calibrate the detector within 20 days.

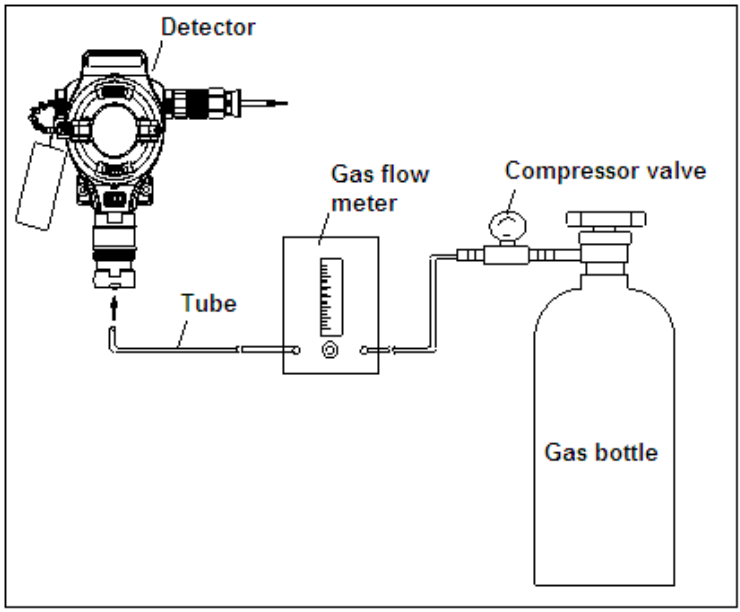
Calibration steps:

1) After the detector works over 10 minutes, press the button 1 for four times, the screen will show [F--4], then press the button 2.
2) On the screen it shows default calibration concentration, press the button ▲ or ▼ to change the figure to be same with the concentration of your calibration gas, then press the button 2.
3) Input the calibration gas, keep the input gas flow steady and continuously, and it should last for 2～3 minutes.
4) The screen shows the current A/D value, and the figure is changing, after the figure is steady, press 2 to confirm the value, the detector will remember the current A/D value and calibration will be effective

immediately.

5) After calibration is done, the screen display [F--4], you can press 1 to continue other setup or press 3 to go back to normal working status.

Note: It is suggested to do Zero calibration first, and then do Span calibration. And you can calibrate more than one point.



9. Sensor replacement

In normal working status, if the mark of “Ⓢ” display on the screen(not flashing), it means the sensor is about to lose effect, please replace the sensor on time. Press button 5 for twice, you can see how many days left for sensor overdue. For example,“E020” means the sensor will lose effect after 20 days.

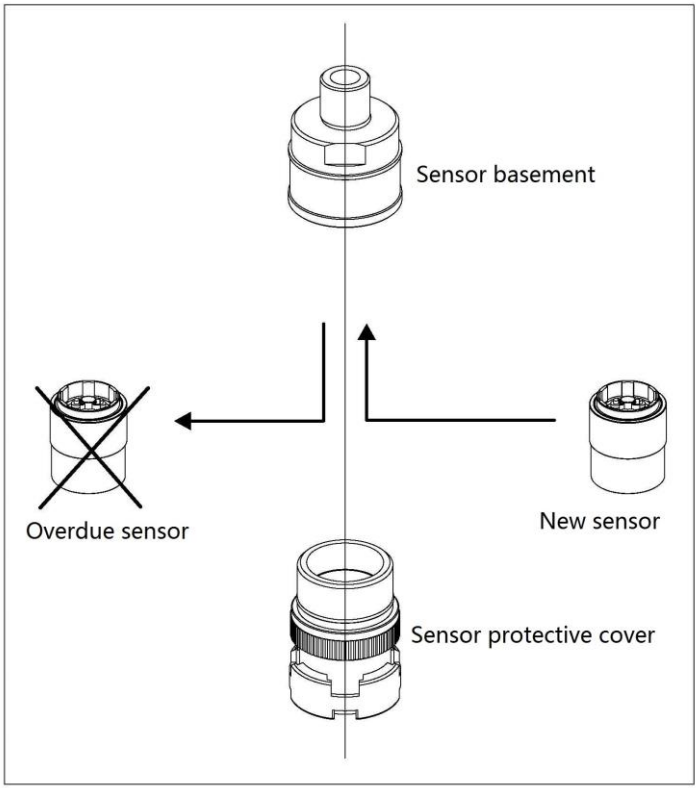
To replace the sensor, open the cover of the main body is not necessary, only

need to take off the downside parts of the detector.

How to replace the sensor：

1) Take off the sensor cover
2) Plug out the overdue sensor
3) Plug in the new sensor
4) Put on the sensor cover.

Power on the WD6200 detector, after 20 minutes, you can do zero translation if it is necessary.



Sensor replacement

10. Trouble shooting guidance

Failure	Possible reason	Solution
No Display	Incorrect wiring or power failure	Check the wiring, check the power sauce
No current output	Incorrect wiring or circuit failure	Check the wiring
E-01	calibrating data incorrect	Calibrate the sensor
E-02	Sensor fault	Replace the sensor
E-03	Communication failure	Reinstall the sensor or replace the sensor
E-05	Sensor not calibrated	Calibrate the sensor
Sensor version shows “V_._ _”	Sensor not installed correct	Reinstall the sensor
	Sensor module’s data didn’t get identified correctly by the detector	Check the sensor module
Reading inaccurate	Sensor drift	Do zero translation
	Sensor need recalibration	Calibrate the sensor
	Sensor life overdue	Replace to new sensor

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