Anti Overflow Antistatic Controller (General Purpose)

Anti Overflow Antistatic Controller (Lower Mounting Type)

Instruction manual

System Information

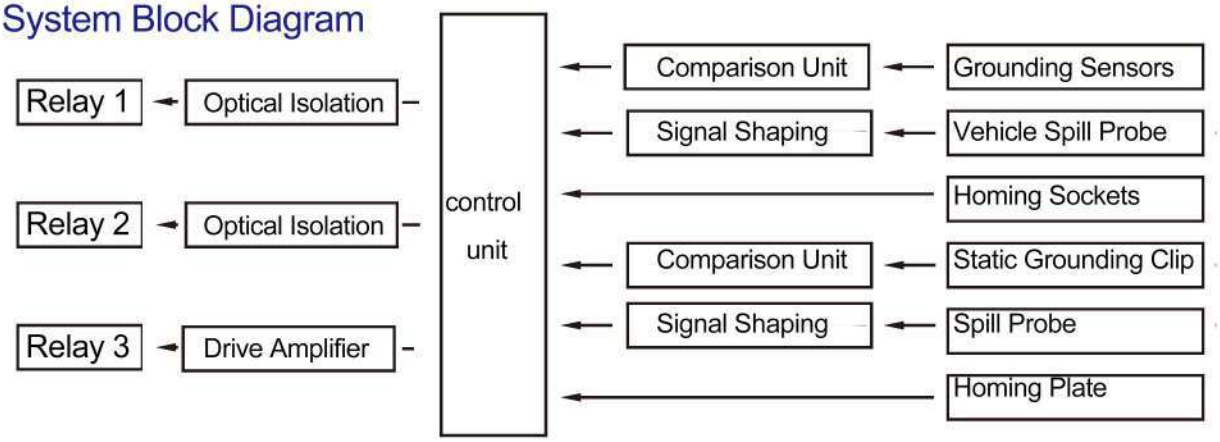
System Introduction

Anti-overflow and anti-static controller is designed for tanker truck oil payment system, effectively prevent liquid overflow and ensure that the electrostatic grounding resistance meets the safety standards of the instrumentation, composed of petrochemical products in the process of petrochemical storage and transportation of anti-overflow and anti-static system.
Anti-overflow anti-static controller by the Petroleum and Chemical Industry Explosion-proof Electrical Products Quality Supervision and Inspection Center test, in line with the following standards: GB/T3836.1-2021 explosive environment Part 1: General Requirements for Equipment GB/T3836.2-2021 Explosive environment Part 2: by the explosion-proof enclosure “d” GB/T3836.4-2021 explosive environment Part 4: Intrinsically safe “;” protection of equipment products explosion-proof mark for ExdiaIIBT6 Gb.

How the system works

Anti-overflow and anti-static controller is an automatic control system designed for bottom and top oil payment system to prevent overflow and detect static grounding. The system detects the liquid level signal and electrostatic grounding signal through sensors; when the liquid level exceeds the alarm position or the grounding circuit resistance exceeds the specified resistance value, the system outputs acoustic and visual alarm signals for the on-site staff to understand the system status in time, and at the same time outputs relay switch signals for the control of the oil payment system.

System Block Diagram

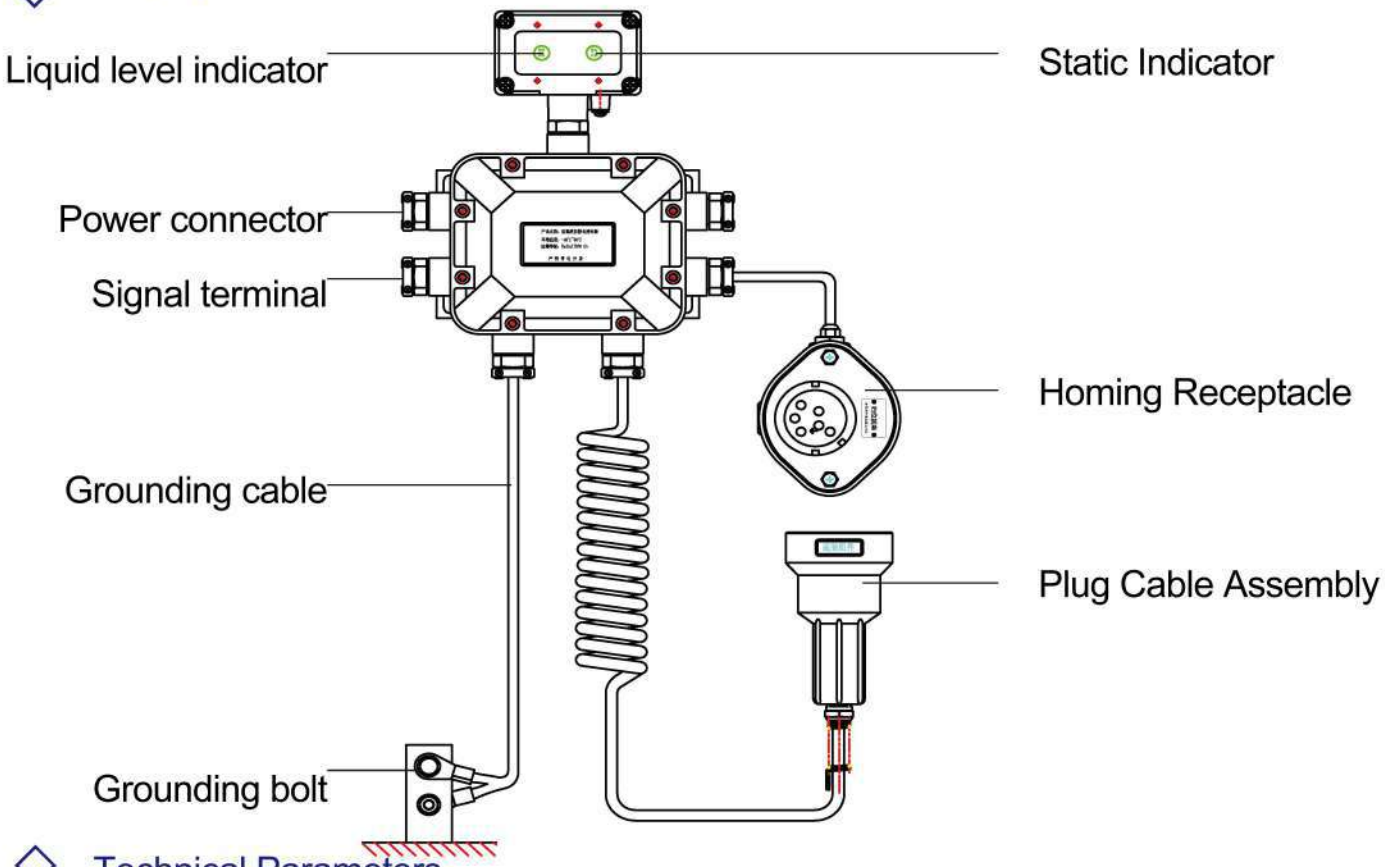


Product features

1. The system applies digital circuit design, stable performance, strong anti-interference ability.
2. Optical probe and tuning fork probe are intrinsically safe design, with fault self-test function, safe and reliable.
3. Stainless steel electrostatic grounding clamp, anti-corrosion and rust.
4. Ensure that the electrostatic grounding resistance from the vehicle body to the grounding stake is <552.
5. Provide sound and light alarm signals, timely understanding of the system status.
6. Optional homing plate switch signal output, more direct and effective understanding of the site situation.
7. Relay switch signal output, interface capacity 5A/30VDC or 5A/250VAC.

Anti-overflow and anti-static controller (under mounting type)

Display schematic



Technical Parameters

Working voltage:220VAC/24VDC
Explosion-proof grade: ExdiallBT6 Gb
Working current:<20mA
Response time:<1s
Operating temperature:-40℃ 60℃.
Detection resistance:<55Q
Protection:IP65
Alarm mode: sound and light alarm

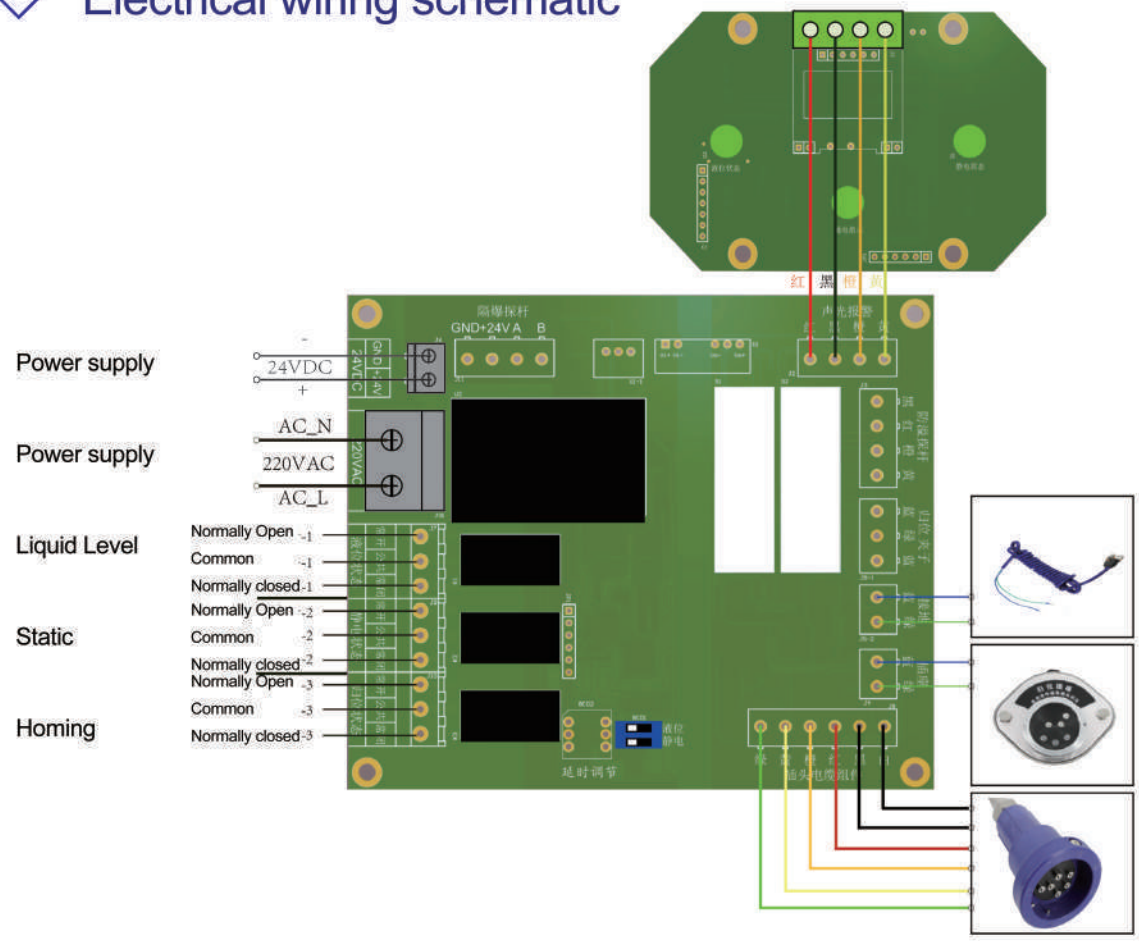
Output signal: relay output, normally open and normally closed optional, interface capacity of 5A/30VDC or 10A/250VAC.

A PI signal: compatible with domestic and foreign famous brands.

Accessory Details

Accessory name	Remarks
Main controller	Voltage 220VAC/24VDC, switching signal output
Sound and light alarm	Including circuit board, real voice light alarm
Plug and cable assembly	API plug + 10 meters PU spiral cable
Homing socket	Comply with API standard
Grounding cable	3 meters PU linear cable, M8*25 mounting bolts

◇ Electrical wiring schematic



◇ Operating status indication

Liquid level

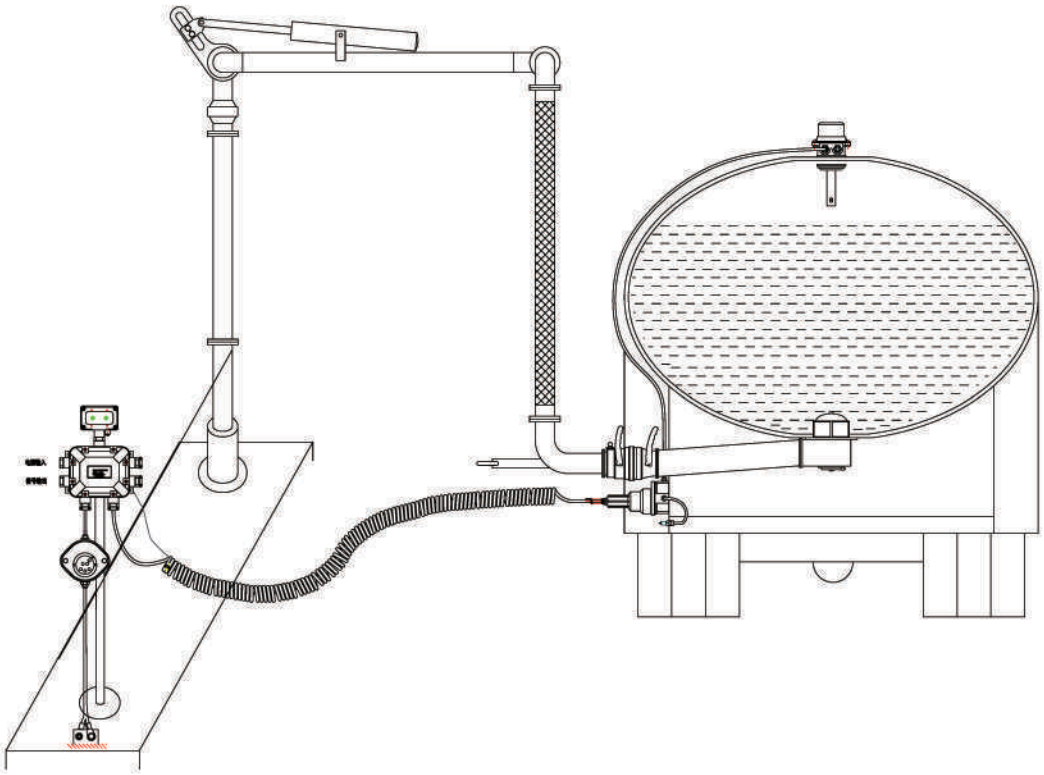
Indicator light	beeper		Signal Output	Remarks
Red light	Ringing		Disconnect	Detecting liquid level reaches the position of overflow prevention probe
Green light	Not ringing		Closed	Detecting liquid level does not reach the position of the anti-spill probe.
Yellow light	No, it doesn't.		Disconnect	The main controller enters the dormant state
Flashing	It's ringing.		Disconnect/Close	Sound and light alarm and the main controller communication failure

Static electricity

Indicator light	beeper	Operating status	Signal Output	Remarks
Red light	Ringing	Alarm	Disconnect	Poor electrostatic grounding or ground loop resistance >552
Green light	Not ringing	Normal	Closed	Good electrostatic grounding or ground loop resistance <552
Yellow light	No, it doesn't.	Sleep	Disconnect	The main controller enters the dormant state
Flashing	It's ringing.	Failure	Disconnect/Close	Communication failure between audible and visual alarm and main controller

Installation and use

Lower mount controller installation schematic



Lowering operation steps

Step 1:Take off the plug cable assembly from the homing socket, static grounding alarm, overfill probe failure alarm (no overfill probe connected)

Step 2: Connect the plug cable assembly to the socket of the tanker truck.

Step 3:If the on-board anti-spill probe is normal and no liquid level is detected, and the electrostatic grounding is normal, then the system is normal and tank loading operation can be carried out.

Step 4: When the detected liquid level reaches the alarm height of the on-board anti-spill probe, the system enters the liquid level alarm state and outputs the liquid level alarm signal.

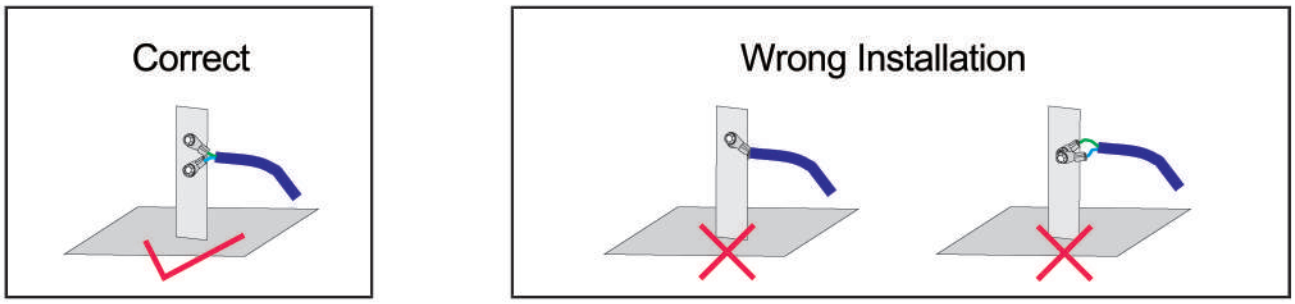
Step 5: When the can loading operation is finished, the plug and cable assembly will be recovered and returned to the return socket, and the system will enter the standby state for next time use.

Troubleshooting

1. When the system fails, please refer to the “working status indication” to check and determine the cause of the failure.
2. The main reasons for the faulty alarm of the anti-spill probe are: poor contact of the whole line, short circuit, disconnection or failure of the on-board sensors.
The first step:Check the plug cable assembly electric shock, spiral cable connections, whether there is a short circuit, short circuit.
The second step:Check whether the tanker configuration is normal.
3. The main reason for electrostatic ground fault alarm: line failure, circuit resistance is too large or on-board sensor failure.
The first step:Check the plug cable assembly electrocution, spiral cable connection, whether there is a short circuit, short circuit.
Step 2:Check whether the grounding wire is in good contact with the grounding stake.
Step 3:When homing is not normal, check whether the homing socket or plug contact is good.

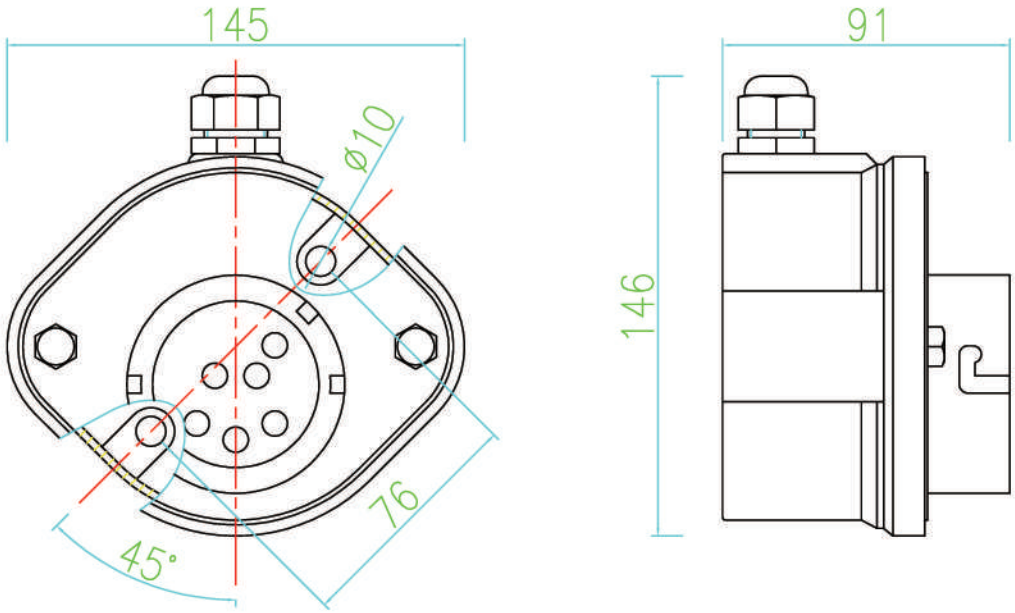
Installation Dimension Drawing

Ground Wire Installation Diagram

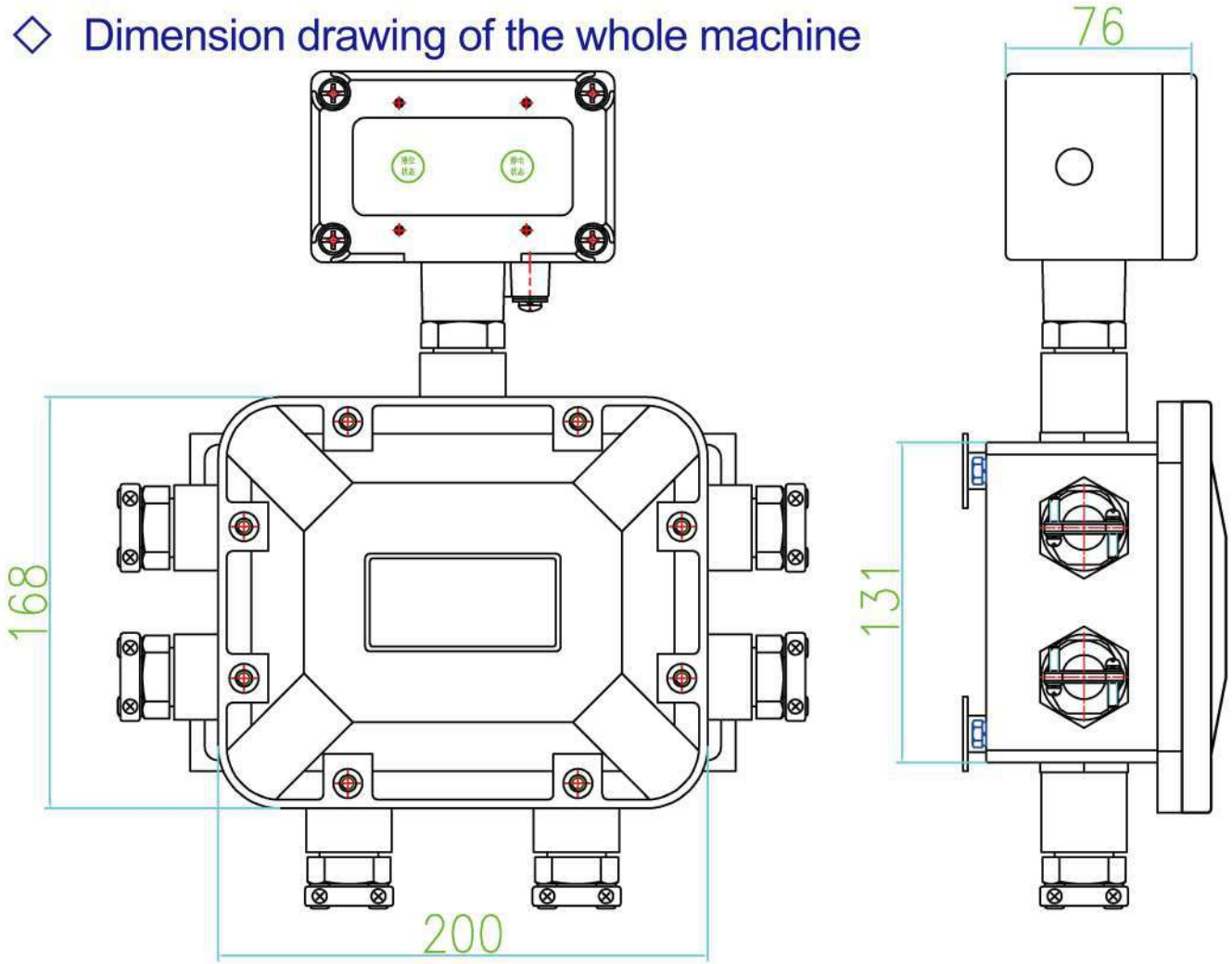


The ground wire is connected to the grounding stake with M8 bolts,
and the two copper noses are connected separately.

Dimensional drawing for installation of homing socket



◇ Dimension drawing of the whole machine



◇ Main unit mounting holes and inlet dimensions