CDL-10B
Submersible Liquid Level Transmitter Sensor
Manual

Catalogue

Technical Data

CDL-10B Submersible Liquid Level Transmitter Sensor

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- **Product Brief**

CDL-10B Submersible Liquid Level Transmitter is with stainless steel isolation diaphragm diffusion silicon pressure core body, the pressure core body adopts the process of laser trimming resistor for a wide temperature range of zero and sensitivity temperature compensation. Special cable for air-venting conduit and waterproof technology ensures water tightness, and ventilation between inside and outside , so as to acquire accurate and stable measuring data.

- **Application**
  - · Meteorological Monitoring
  - · Micro Environmental Monitoring
  - · Grid Environment Monitoring
  - · Agricultural Meteorological Monitoring
  - · Meteorological Traffic Monitoring
  - · Photovoltaic Environment Monitoring
  - · Meteorological Environment Monitoring for Smart Cities

- **Features**
  - · Small in size
  - · Integrated design
  - · High integration
  - · Low starting threshold
  - · Easy to install
  - · One year warranty
  - · Free testing software MODBUS - poll V1.0 (ask your salesperson for it)

Technical Data

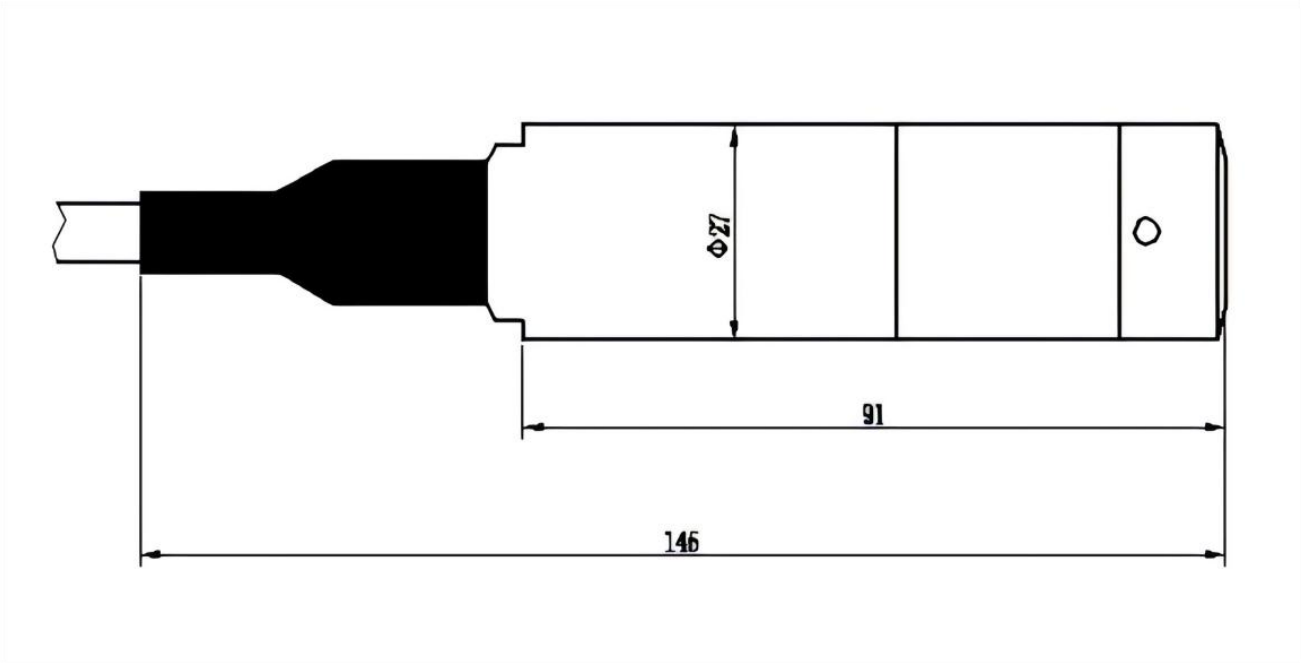
CDL-10B Submersible Liquid Level Transmitter Sensor

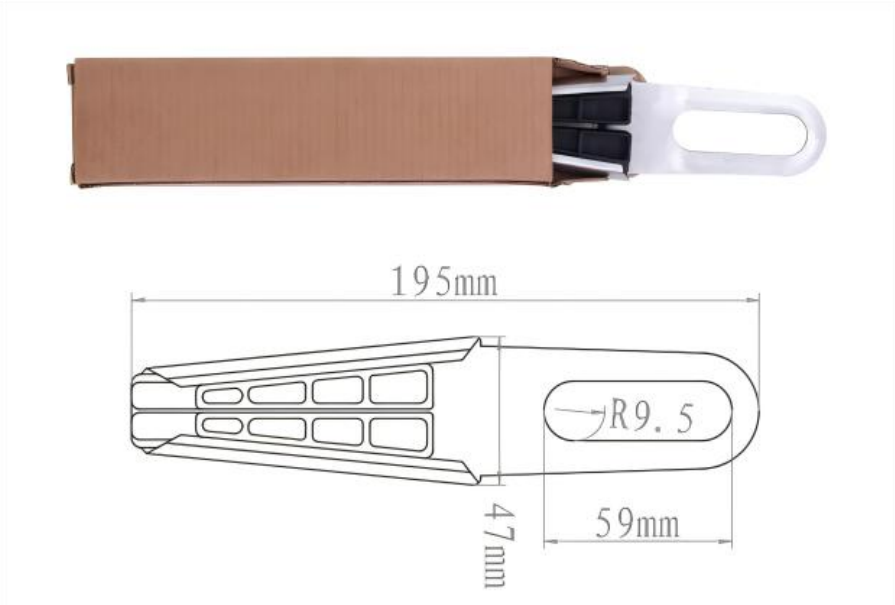
Technical Parameters

Parameters	Measuring Range	Accuracy	Resolution
Liquid Level	0-3m/0-5m 0-10m/0-15m 0-30m/0-50m	0.1%FS, 0.3%FS(0.25%FS), 0.5%FS	0.001m
Operating Temperature	0℃—70℃		
Output	Standard product with RS485 interface, MODBUS RTU; 4-20mA / 0-5V / 0-10V		
Power Supply	DC12-24V / DC5V		
Protection Level	IP68		
Temperature Drifting	0.03%FS/℃		
Overload pressure	200% Range		
Size	Diameter 27mm * 146mm		
Load Capacity	Current output:≤(U-7)/0.02Ω, Voltage output:≥100kΩ		
Power Consumption	Current output:(U*0.02)W, Voltage output:(U*0.008)W, Digital output:(U*0.015)W		
Main material	316 stainless steel		
Cable	Outer material：PUR,Atmospheric pressure compensation cable, Polymer waterproof plug at cable end		

⭐ Specifications may be updated without prior notice.

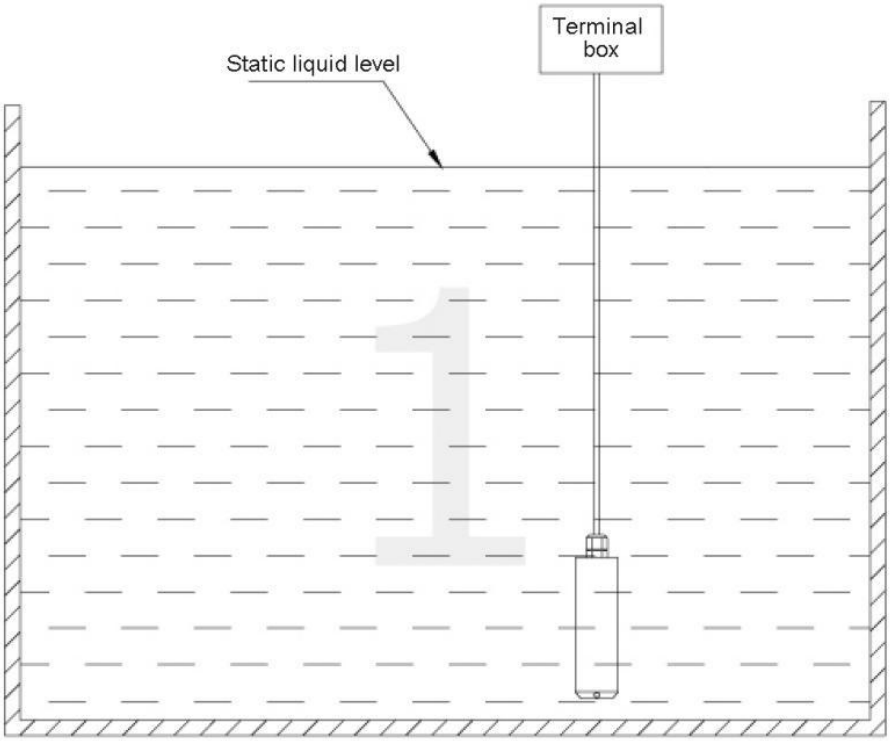
- **Product Size**

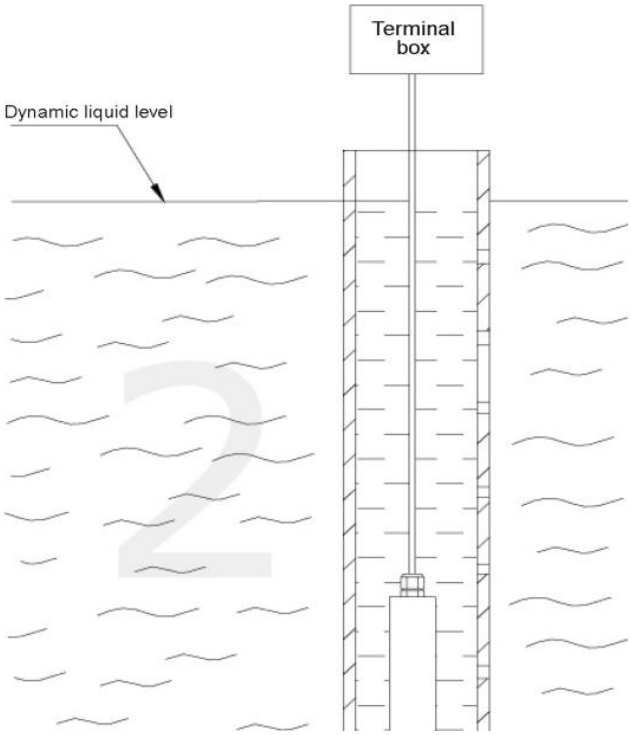




- **Accessories:**

Mounting Manner：





MODBUS RTU Communication Protocol

（Apply to CDL-10B product）

Baud Rate: 9600
Data Bits: 8
Stop Bit: 1
Check Bit: None

1.1 CRC Description:

Among all the following instructions, the two bytes of CRC16 in MODBUS RTU protocol are as follows: the low byte comes before and the high byte comes after.

In the following instructions, the assumed sensor address is 0x01 (the default sensor address is 01).

1.2 Return Error Code Rule:

When receive error instruction (including CRC16 validation error), no error codes will be returned. It is considered to be a failure, when there is no return data in 200ms after the instruction is issued. Upper computer may resend instruction.

1.3 Standard MODBUS register description

Special Notice:

The quantity or length of the register in MODBUS is two bytes with 16 bits as a unit (the high byte comes first, and the low bytes follows), instead of one byte with 8 bits as a unit.

User shall ensure that the address and quantity of register in command are confined within the range specified by the system. Otherwise, the output of the sensor will be unpredictable. Users shall ensure that the MODBUS command complies with the requirements of this manual in the software design of the upper computer and the minimum query period supported is 1s/ time.

Input register: read with function code 03

Address	Operation	Contents	Note
0x0004	Read-only	Liquid Level, a hexadecimal number magnified by 1000 times. For example, 0x01B4 indicates 436/1000=0.436m	

1.4 Electrical Connections

Connector（cable）	RS485	Voltage	Current
Red	V+	V+	V+
Black	V-	V-	V-
Blue	RS485A	V-out	I -out
Yellow	RS485B		

1.5 Communication Example

The following is an example of how to use MODBUS RTU commands to access system registers:

1. Read multiple input registers (real time data) command

Send: 01 03 00 04 00 01 C5 CB

01	03	00 04	00 01	C5 CB
System Address	Function Code	Register Address	Number of Registers	CRC16 check digit automatically generated by software

Answer: 01 03 02 01 B4 B9 A3

01	03	02	01 B4	B9 A3
System Address	Function Code	The number of bytes in a data segment	Segment Data	CRC16 check bit

Analytical Data:

0x01B4= 0x01 * 256 + 0xB4= 436

Liquid Level = 436/1000=0.436m

2. Modify internal register (system address) command (change the address to 0x02)

Send: 01 06 00 00 00 02 08 0B

01	06	00 00	00 02	08 0B
System Address	Function Code	Register Address	New Address	CRC16 check digit automatically generated by software

Answer: 01 06 00 00 00 02 08 0B (indicates that the modification is successful)

3. Host Scan Order (Save the new address)

Send: 02 06 00 0F 00 00 B9 FA

02	06	00 0F	00 02	B9 FA
System Address	Function Code	Register Address	Save Setting	CRC16 check digit automatically generated by software

Answer: 02 06 00 0F 00 00 B9 FA (indicates that the modification is successful)

Warranty and After-sales Service:

Warranty: The product warranty period is 12 months from the delivery date (except for the product problems caused by not operating in accordance with corresponding technical requirements or other artificial behavior).

After-sales telephone: 86-0731-86117089 www.codasensor.com Molly@codasensor.com

Other Weather Sensors

Model number	Type	Output	Special features
CDF-10A	Wind speed	Pulses(PNP) RS485 4-20MA 0-5V	Three cup plastic wind speed
CDF-11A	Wind direction	RS485 4-20MA 0-5V	Plastic wind direction sensor
CDW-33A	Atmospheric Temperature,Humidity & Pressure	RS485	Shelter installation
CDQ-T6A	Miniature Ultrasonic Automatic Weather	RS485	Wind speed & direction temp & humidity &pressure
CDY-12A	Economical Tipping Bucket Rainfall	Pulses(@10kΩ&0.01uF),RS485	Diameter :φ200mm, height: 271mm
CDG-10B	Solar Radiation	0-5V,4-20mA,RS485	Spectral range:300～1100nm
CDG-12B	PAR sensor	0-5V 4-20mA RS485	Spectral range:400～700nm
CDG-13B	Ultraviolet(UV) Radiation	0-5V 0-10V 4-20mA RS485	Spectral range:280～400nm
CDL-10B	Submersible Liquid Level Transmitter	4-20mA,0-5V,0-10V,RS485	Range 0 ~ 0.5m…200mH2O or 0 ~ 5KPa…2MPa
CDL-12B	Radar Liquid Level Transmitter	4-20mA, RS485(MODBUS-RTU)	Range 10m,30m,50m,70m
CDL-13B	Ultrasonic Liquid Level Transmitter	4-20mA(2wires),4-20mA(4wires),RS485(4wires)	Range 5m,10m,15m,20m,30m
CDL-17B	Radar flowmeter	RS485(MODBUS-RTU)	Range 0.1 ~ 20 m/s & 0-45m