



Datasheet
Turbidity Sensor
TPS-ADU1310



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Turbidity Sensor

TPS-ADU1310

The low-range turbidity electrode is an advanced sensor specifically designed for the precise measurement of low turbidity and high-transparency water. It operates on the principle of optical scattering (typically 90° scattered light method), combined with digital signal processing technology, to achieve high-accuracy and high-stability detection of fine suspended particles in water. It is particularly suitable for applications with stringent requirements for water purity.

Features

- Compact size, easy for system integration.
- Simple structure, convenient for cleaning and maintenance.
- Slanted optical window to minimize bubble adhesion.
- Sealed structure providing resistance to water ingress and high pressure.
- IP68 protection, suitable for submersible installation.



Principle

The turbidity measurement method is based on the laser 90° scattering technique. A laser beam is directed vertically from the air into the water. Suspended particles in the water scatter the laser, and a sensor positioned at a 90° angle to the incident light detects the scattered intensity. The signal is then converted into turbidity values according to calibration curves.

Parameters	
Measured variables	Turbidity
Measurement methods	Laser 90° scattering method (laser light source)
Light source	860 nm laser
Measurement range	(0~100) NTU
Accuracy	2% or ± 0.05 NTU (whichever is greater) (Based on Formazin primary standard solution at 25 °C)
Resolution	0.00 1 NTU
Repeatability	$\leq 1\%$
Indication stability	$\leq 1.5\%$
Zero offset	$\leq 1.5\%$
Response time	$T_{90} \leq 120$ seconds
Analog output	(4~20) mA, configurable to match the measurement range
Communication	RS-485 interface, Modbus-RTU
Power supply	(9~28) VDC
Power consumption	≤ 5 W
Sample flow rate	(100~1000) mL/min (500 mL/min recommended)
Pressure rating	≤ 1 MPa
Operating temperature	(-5~45) °C (non-freezing)
Calibration method	Factory-calibrated with the default calibration curve; Single-point calibration, Formazin two-point calibration, and 2 to 6 points are customized.
Protection level	IP68 (Cable: IP65)

Wiring

Note: Please carefully follow the instructions to finish the electrical connection; otherwise, the sensor may be damaged.

(1) Direct lead type

The sensor features 6-core cable, and the cable definition is shown below:

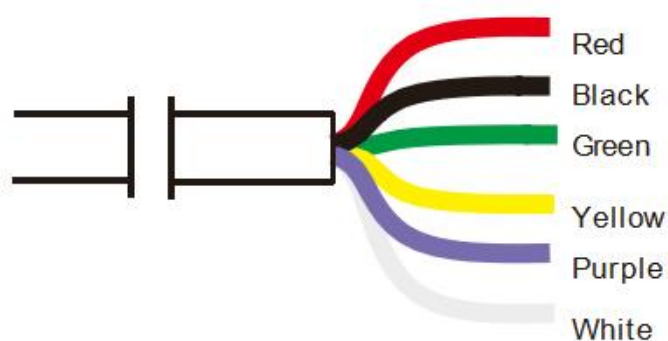


Figure 1 Cable Diagram

Table 1 Cable Definition

No.	Color	Definition
1	Red	(9~28)VDC+
2	Black	(9~28)VDC-
3	Green	RS485 output A
4	Yellow	RS485 output B
5	Purple	(4~20) mA output +
6	White	(4~20) mA output -

(2) Aviation Connector Type

It feature M12 6-core aviation connector:

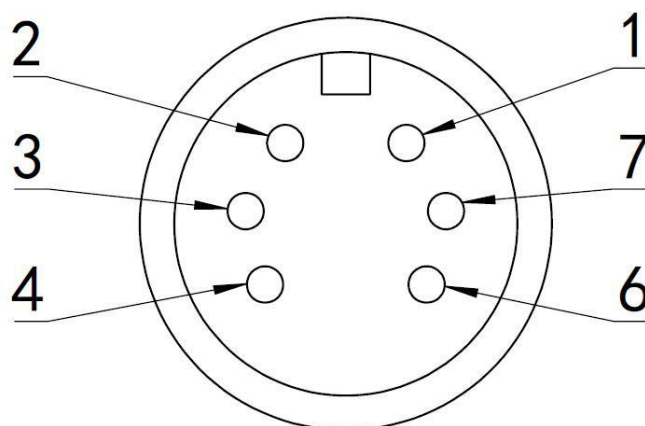


Figure 2 Cable Diagram

No.	Definition
1	(9~28)VDC+
2	RS485 output A
3	(9~28)VDC-
4	RS485 output B
5	(4~20) mA output +
6	(4~20) mA output -

Dimension

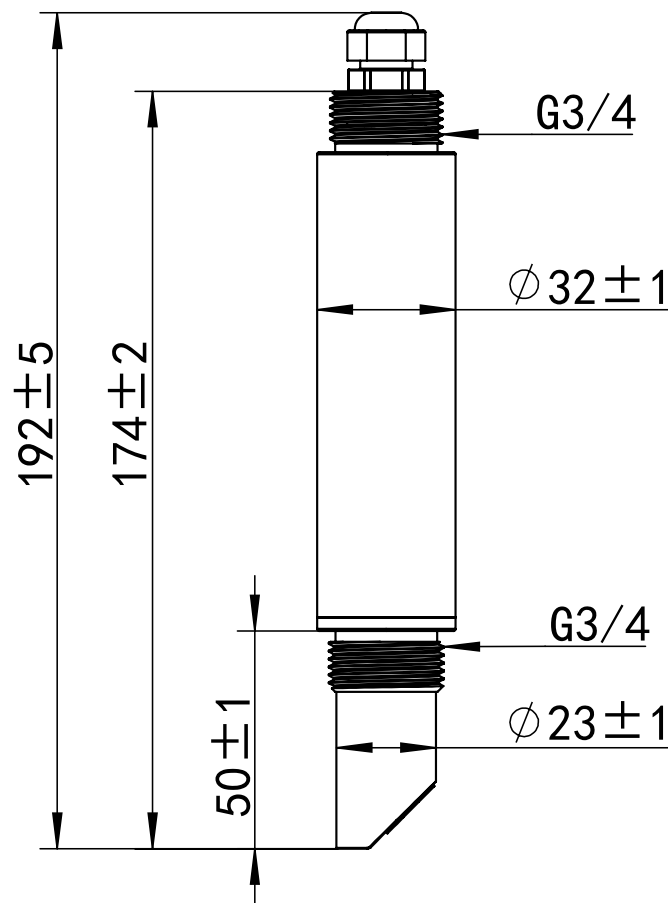


Figure 2 Dimensions (Unit: mm)

Housing material: 304 SS and 316LSS

Seal ring material: EPDM

Ordering code

SUP-ADU1310								Description	
SUP-ADU1310	-	-	-	-	-	-	-		
Electrode connector	ZY								direct lead
	HK								aviation plug
Measurement range		ZD							(0-100)NTU
Process connection			G4						G3/4 thread
Output				B					4-20mA+RS485
Power supply					B				12VDC
Cable length						02			2m
						10			10m
						15			15m
						XX			others
Sealing ring material							E		EPDM
Shell material and protection level								E	304SS, IP68
								C	316LSS, IP68
Accessories									P7 PEEK flow cell



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