



Datasheet

Turbidity Sensor

SUP-ADU3500

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The Pressure-Compensated Turbidity Sensor is designed for online monitoring of drinking water quality. It features an ultra-low turbidity detection limit, high-precision measurement, fast response speed, and long-term maintenance-free equipment. It can be widely used in online turbidity monitoring of tap water, secondary water supply, pipe network terminal water, direct drinking water, membrane filtered water, swimming pools, surface water, etc.

Features	
■ Pressure-resistant flow channel design helps prevent bubble accumulation. ■ Sealed structure supports efficient recovery of water samples. ■ Compact size allows easy system integration. ■ Self-cleaning optical window extends maintenance intervals.	
	Turbidity Sensor
Principle	
The turbidity sensor operates based on the 90° laser light scattering method. A laser beam is emitted from the air into the water at a perpendicular angle to the water surface. Suspended particles in the water scatter the laser light, and a sensor positioned at a 90° angle to the incident beam detects the intensity of the scattered light. This intensity is then converted into a turbidity value using a pre-calibrated reference table.	

Parameters	
Measured variables	Turbidity
Measurement method	Laser 90° scattering method (laser light source)
light source	660nm laser
Measuring range	(0~ 1) NTU / (0~20)NTU/ (0~100)NTU/ (0~2000)NTU
Detection limit	0.005NTU
Accuracy	(0~ 1) NTU /(0~20)NTU/(0~100)NTU: 2% or ±0.02NTU (whichever is greater) (0~2000)NTU: 10% or ±0.5NTU (whichever is greater) (Based on formazine primary standard solution at 25°C)
Repeatability	1% (based on formazine primary standard solution at 25°C)
Indication stability	≤1.5%
Zero offset	≤1.5%
Response time	$T_{90} \leq 120$ seconds
Transmitter output	(4 ~ 20) mA can be set to the corresponding parameter measurement range
Communication output	RS485 output, Modbus-RTU
Power supply	(9~28)VDC
Power consumption	≤ 5 W
Inlet flow	(100~1000) mL /min (500 mL/min recommended)
Pressure resistance	≤ 0.6 MPa
Operating temperature	(-5~45) °C (no freezing)

Wiring

(4 ~ 20) mA is 6-core wire, and the version without (4 ~ 20) mA is 4-core wire. The definition of sensor cable is shown in the figure below:

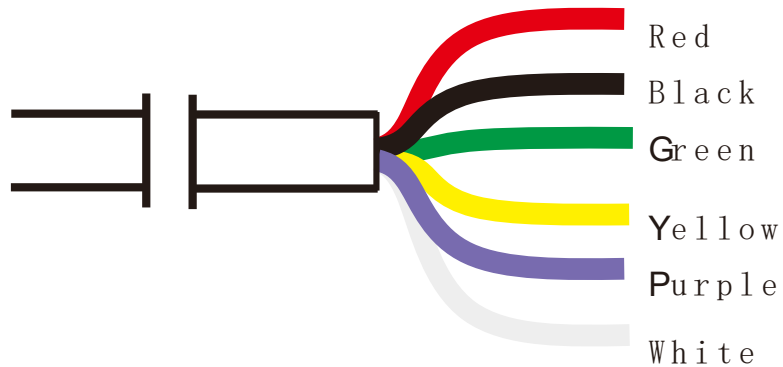


Fig 1 Cable diagram

Table 1 Cable Definition

No.	Color	Definition
1	red	24VDC power supply
2	black	GND
3	green	RS485 Output A
4	yellow	RS485 Output B
5	Purple [only for optional (4~20) mA output function]	(4~20) mA output +
6	White [only for optional (4~20)mA output function]	(4~20) mA output -

Dimensions

The low-range version of the pressure-compensated turbidity sensor (0~ 1 NTU /0~20 NTU/0~100 NTU) has a water inlet and outlet of 6mm; the high-range version (0~2000) NTU has a water inlet and outlet of 10mm.

① Low range

When both the inlet and outlet adopt 6 mm push-to-connect fittings, the product dimensions are as shown below:

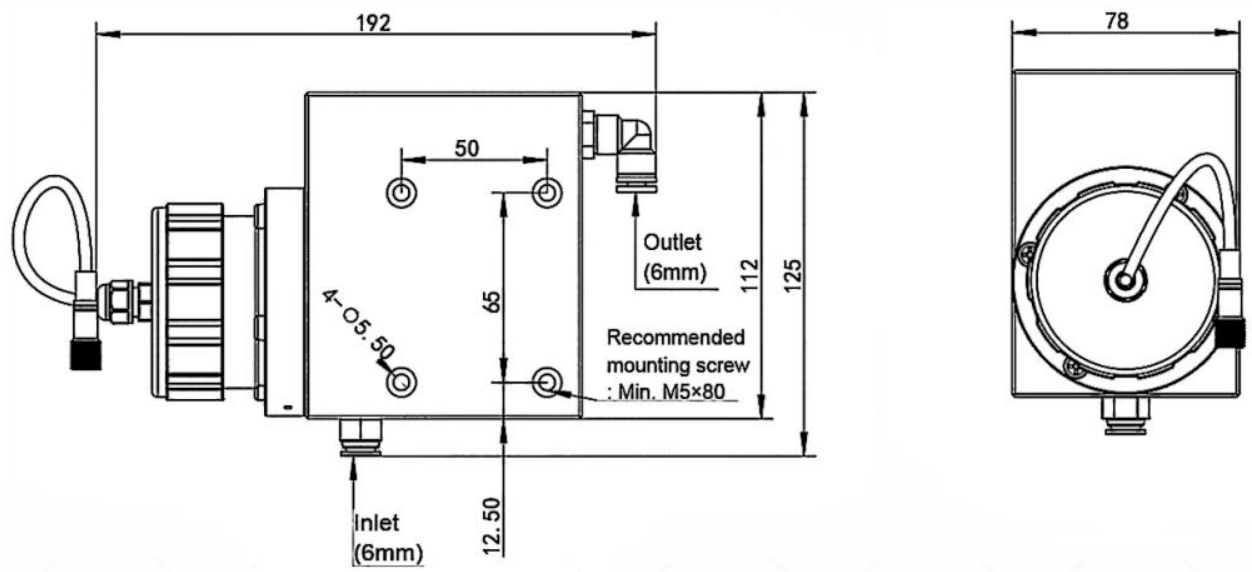


Fig. 1 Low range quick-connect fitting dimensions (unit: mm)

The product dimensions of the backplane installation are as shown below:

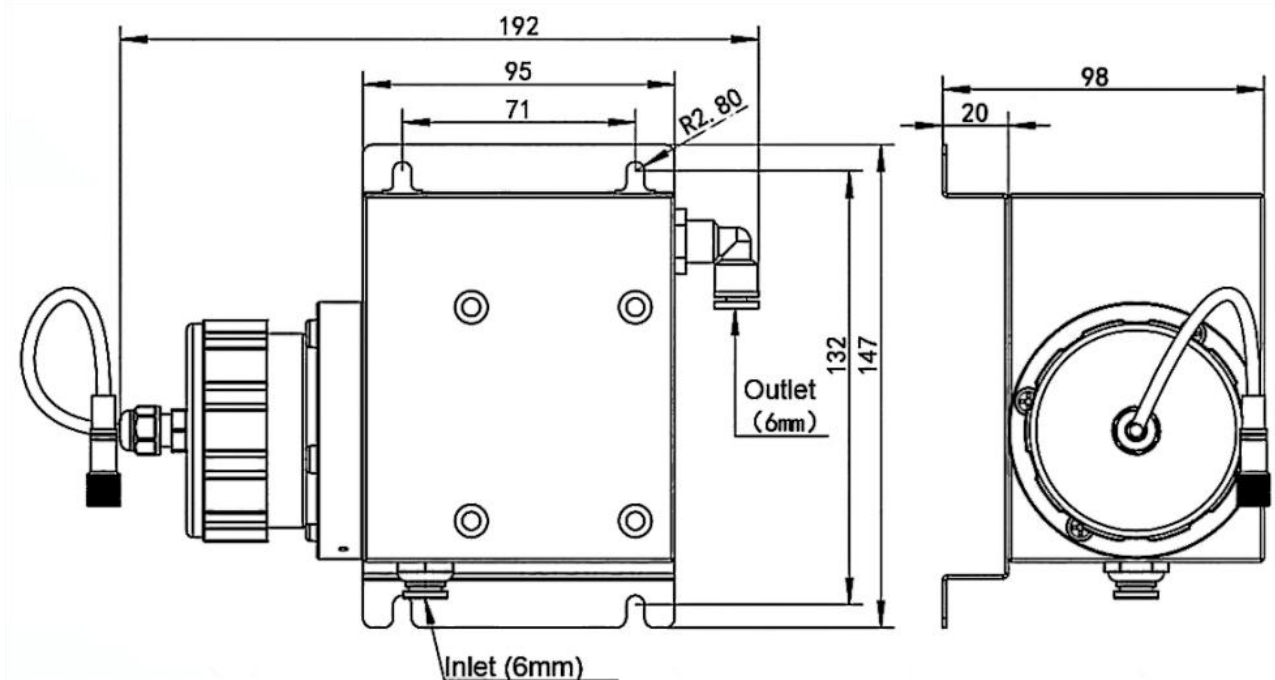


Fig. 2 Dimensions of low range sensor with back plate (unit: mm)

② High range version

When both the inlet and outlet adopt 10mm push-to-connect fittings, the product dimensions are as shown below:

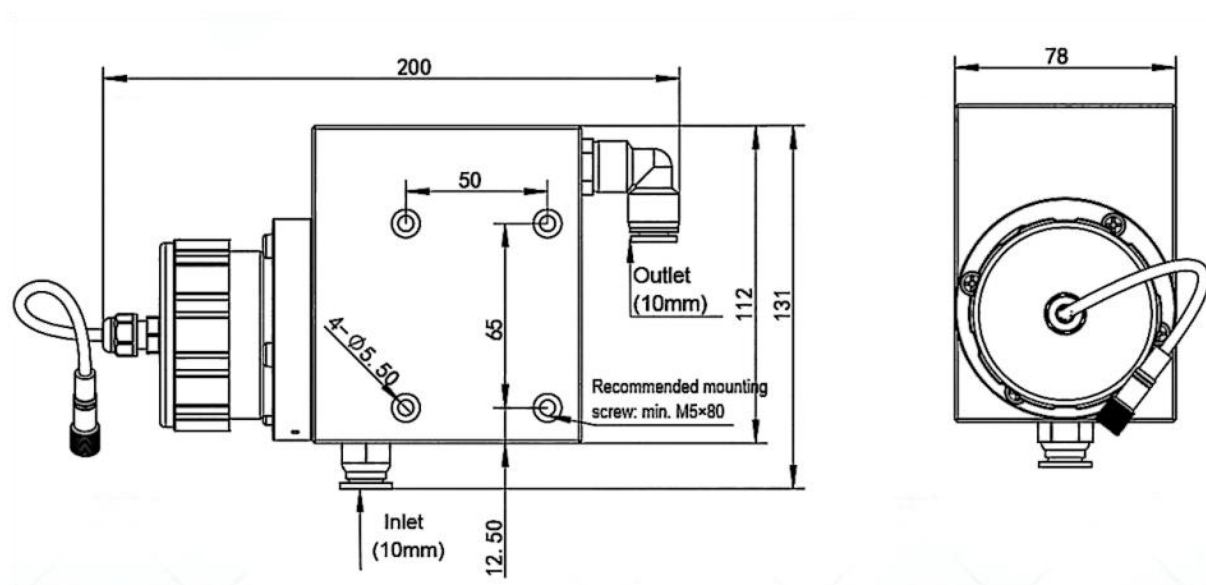


Fig. 3 High range quick-connect fitting dimensions (unit: mm)

The product dimensions of the backplane installation are as shown below:

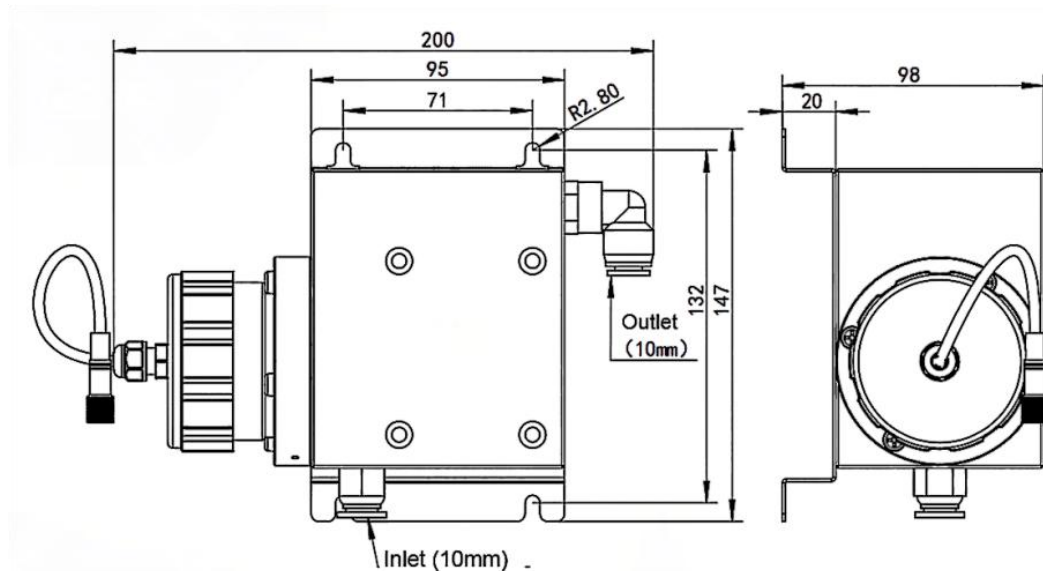


Fig. 4 Dimensions of high range sensor with back plate (unit: mm)

Ordering code

SUP-ADU3500						Description	
Measuring range	ZA						0-1NTU
	ZC						0-20NTU
	ZD						0-100NTU
	ZJ						0-2000NTU
Output		B					4-20mA+RS485
Power supply			B				12VDC
Cable length				02			2m
				05			5m
				10			10m
				XX			Others
Connectors					ZY		Direct Lead
Shell material						MW	Plastic ABS/POM