Datasheet

Online Turbidity Analyzer

AI-MC-TU

Arka Instruments LLP

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The Online Turbidity Analyzer is a product specifically developed for continuous monitoring of drinking water quality. It features an ultra-low turbidity detection limit, high measurement accuracy, long maintenance-free operation, minimal water consumption, and digital output. The analyzer supports cloud-based and mobile remote data monitoring, as well as RS485 communication via Modbus protocol.

Applications

- Secondary water supply
- Water treatment plant effluent
- Distribution network endpoints
- Drinking water
- Membrane-filtered water
- Swimming pools
- Surface water

Online Turbidity Analyzer

Features

- Compact, integrated design with a unified water inlet and outlet. Wall-mounted installation protects against water damage and ground moisture, save installation space, and makes installation and maintenance more convenient.
- Optically isolated (4~20)mA analog output, offering strong resistance to electromagnetic interference.
- RS485 communication with optical isolation.
- Configurable high/low alarms and hysteresis settings.
- Buzzer and LCD backlight can be turned on or off as needed.

Principle

The analyzer operates based on the 90° laser scattering method. A laser beam is directed perpendicularly from air into the water surface. Suspended particles in the water scatter the laser light, and a sensor detects the intensity of the scattered light at a 90-degree angle relative to the incident beam. The turbidity value is then calculated based on a calibration curve correlating light intensity to turbidity.

Parameters	
Measured variables	Turbidity
Measurement principle	Laser 90° scattering method (laser light source)
Light source	660nm laser
Operating way	flow-through continuous monitoring
Measuring range	(0~ 20) NTU /(0 ~100)NTU/(0~2000)NTU
Detection limit	0.005NTU
Accuracy	(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% or 0.006NTU (whichever is greater) ; (Based on formazine primary standard solution at 25°C)
Indication stability	≤1.5%
Zero offset	≤1.5%
Resolution	0.0001NTU (<1NTU) , 0.001NTU (≥1NTU)
Response time	T90 ≤ 120s
Transmitter output	Isolated, (4-20) mA signal; the corresponding measurement range is configurable. Load capacity: 500Ω; output accuracy ±0.2%FS
Communication output	Isolated output, RS485 output, Modbus-RTU communication protocol
Alarm output	2-way SPDT, NC, NO, capacity 250V AC, 3A
Power supply	220VAC / 24VDC
Power consumption	≤6 W
Inlet flow	(0.3 ~ 2) L/min
Pressure resistance	≤0.6 MPa
Operating temperature	(0 ~60) ℃
Dimensions	350mm * 350mm *200mm (W*H*L)
Weight	8.5kg

Electrical Connections

Terminal Blocks

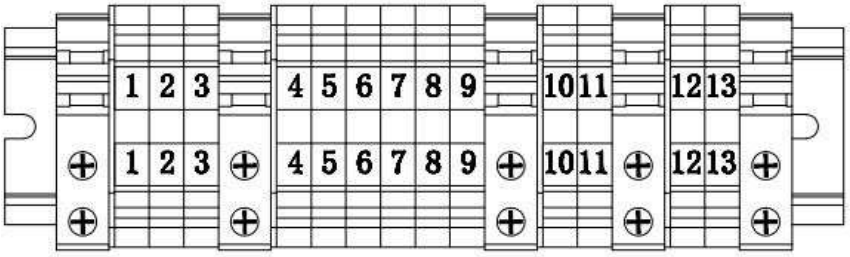

Fig.1 Internal terminal blocks

Terminal Description

Table 1 220VAC power supply terminal description

No.	Meaning
1	L: 220V AC power port L
2	PE : Ground terminal
3	N: 220V AC power port N
4	HO : High alarm normally open relay
5	HC: High alarm normally closed relay
6	COM: Common terminal for alarm relay
7	LO: Low alarm normally open relay
8	LC: Low alarm normally closed relay
9	COM: Common terminal for alarm relay
10	485A: RS485- A
11	485B: RS485 - B
12	I+: (4-20) mA positive output
13	I-: (4-20) mA negative output

Table 2 24VDC power supply terminal description

No.	Meaning
1	24V+: 24V+ power port
2	PE : Ground terminal
3	24V-: 24V- power port
4	HO : High alarm normally open relay
5	HC: High alarm normally closed relay
6	COM: Alarm relay common terminal
7	LO: Low alarm normally open relay
8	LC: Low alarm normally closed relay
9	COM: Common terminal for alarm relay
10	485A: RS485- A
11	485B: RS485- B
12	I+: (4-20) mA output positive terminal
13	I-: (4-20) mA output negative terminal

Structure and Dimentions

Dimensions

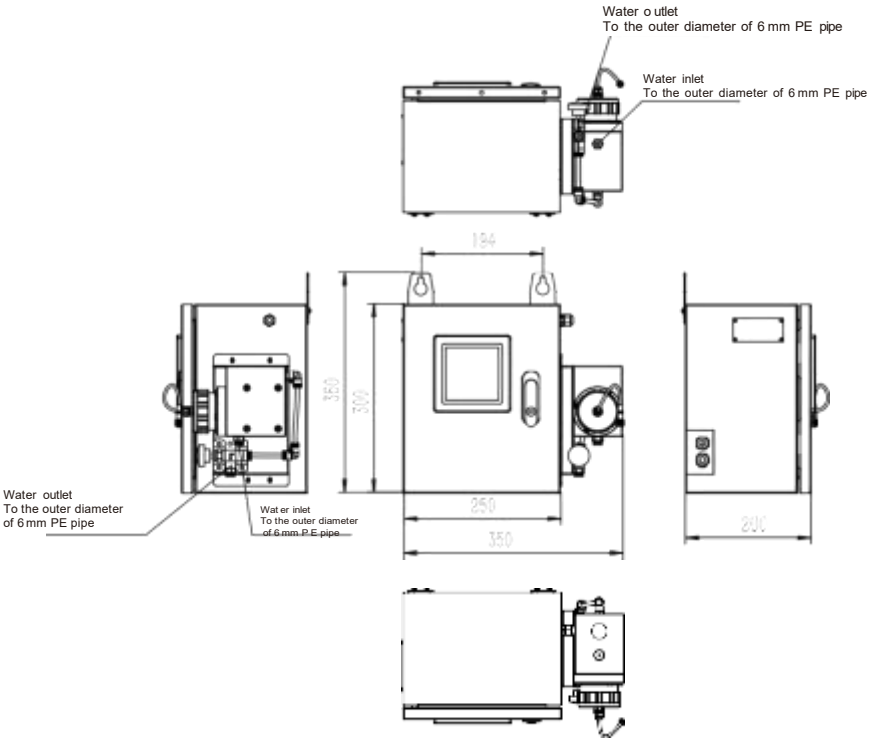

Fig.2 (0 ~ 20) NTU / (0~100) NTU product dimensions (unit: mm)

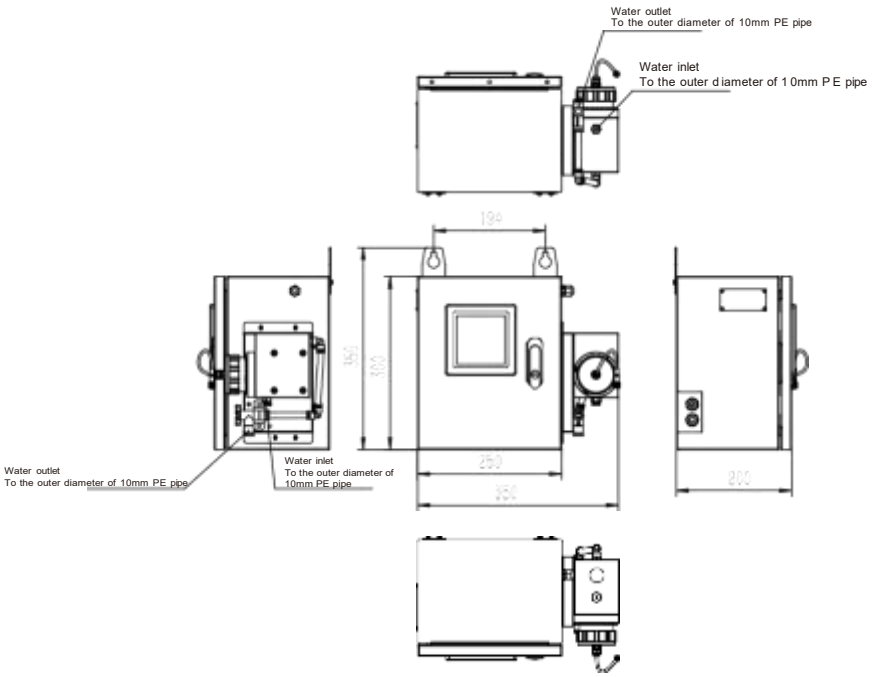

Fig.3 (0~2000) NTU product dimensions (unit: mm)

Structure

The internal structure of turbidity online analyzer is shown in the figure below.

Fig.4 Internal structure diagram

Ordering Code

AI-MC-TU -ZC-ZD-ZJ-B-4-4-4-E-C															Description
AI-MC-TU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Measuring range	ZC														0-20NTU
	ZD														0-100NTU
Output		ZJ													0-2000NTU
Alarm output			B												4-20mA+RS485
			4												2-channel SPDT
Electrical connection				4											PG9 Cable gland
Protection level					4										IP54
Power supply						E									220VAC
						C									24VDC

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