Industrial Turbidity Lineup

HU-200TB-W
TURBIDITY ANALYSER

With cleaner option

Standard detector

- Microprocessor controller with self-diagnostic capabilities
- 90-degree transmission-scattering with near-infrared light source at 860nm
- Compliant to JIS K0101, JIS K0801 and EN ISO 7027
- Reliable self-cleaning reciprocating piston wiper option
- Compatible with optional Span Calibration Bottle for easy checking & calibration.
- Wide measurement range up to 2,000 NTU

HORIBA's Complete Turbidity & Suspended Solids Lineups

Model	Turbidity Concentration (NTU, mg/L)									
	0.0001	0.001	0.01	0.1	1	10	100	1000	10000	100000
HU-200TB				Standard Range						
HU-200TB-W			Wide Range							
HU-200TB-H		High Sensitivity								
HU-200TB-EH	Ultra High Sensitivity									
HU-200TB-IM			Wide Range throw in Type							
HU-200SS					MLSS					

Complete system option

Controller Specifications

Product name	Industrial turbidity meter		
Converter type	HU-200TB-W industrial-use turbidity converter		
Detector type	SS-120-W turbidity detector		
Measurable range	Kaolin		0 to 1000 degrees (Display range: 0 to 1100 degrees) or 0 to 1000 mg/L
	Formazin		0 to 2000 degrees/NTU (Display range: 0 to 2200 degrees/NTU)
	PSL		0 to 100 degrees (Display range: 0 to 110 degrees)
Transmission output setting range	Kaolin		Arbitrary setting within the range from 0 to 10.00 or 100.0 or 2200
	Formazin		Arbitrary setting within the range from 0 to 10.00 or 100.0 or 2200
	PSL		Arbitrary setting within the range from 0 to 10.00 or 100.0 or 2200
Display resolution	0.01 (0 to 10) 0.1 (10 to 100) 1 (100 to 1000) Decimal point, fixed or automatic change		
Performance	Repeatability		Within ±2% or ±0.2 degrees of reading, whichever is larger (Checked by span calibration tool)
	Linearity		The deviation at the mid-range point of span calibration values is within a calibration value ±2% or ±0.2 degrees, whichever is larger.
	Accuracy		Within ±5% of reading
Transmission output	Number of output		2
	Output type		DC 4 to 20 mA, input/output isolated
	Load resistance		900 Ω maximum
	Linearity		Within ±0.08 mA (for output only)
	Repeatability		Within ±0.02 mA (for output only)
	Error output		Burnout to 3.8 mA or 21 mA
	Hold capability		Either the last value hold or the preset value hold is selectable.
Contact output	Number of output		6
	Output type		No-voltage contact output
	R1,R2	Contact type	Relay contact, SPST (1a)
		Contact capacity	250 V AC, 3 A, 30 VDC, 3 A (resistance load)
		Contact capability	Selectable from upper limit alarm, lower limit alarm, transmission output Hold, cleaning output and calibration output. (Closed at the alarm situation, opened in normal state, opened at power-off)
		Description of alarm	Setting range: Turbidity, within the measuring range Delay time: 0 s to 600 s
	R3	Contact type	Relay contact, SPST (1a)
		Contact capacity	30 VDC, 3 A (resistance load)
		Contact capability	Selectable from upper limit alarm, lower limit alarm, transmission output Hold, cleaning output and calibration output. (Closed at the alarm situation, opened in normal state, opened at power-off)
		Description of alarm	Setting range: Turbidity, within measuring range Delay time: 0 s to 600 s

Controller Specifications Cont'd

	FAIL	Contact type	Relay contact, SPDT (1c)
		Contact capacity	250 V AC, 3 A, 30 VDC, 3 A (resistance load)
		Contact capability	Error alarm(Closed in the normal state, opened in the failure state or while the power is down with a normal open contact)
	RNG1, RNG2	Contact type	Relay contact, SPST (1a)
		Contact capacity	30 VDC, 3 A (resistance load)
		Contact capability	Range signal by 2 bits binary output
Contact input	Number of input		4
	Contact type		No-voltage a contact for open collector
	Condition		ON resistance: 100 Ω maximum Open-circuit voltage: 24 V DC Short-circuit current: 12 mA DC maximum
	Contact capability	EXT1	Can be selected from auto zero cal command or transmission hold
		EXT2	Can be selected from cleaning command or transmission hold
		EXT3 EXT4	A range selection from four by 2 bits input
Communication capability	Type		RS-485
	Signal type		Two-wire input/output insulation type (not insulated from transmission output)
Calibration	Calibration method		• Zero calibration: by filtered clean water • Automatic zero calibration: by filtered clean water(Option) • Span calibration: Turbidity adjustment method by coefficient input
	Compatible standard substances		Kaolin, Formazin, PSL
Automatic zero Calibration (option)	Zero calibration method		The electric ball valve for sample water is closed and the solenoid valve for zero water is opened and the signal is examined to be stable zero measurement then the zero calibration is carried out
	Setting	Calibration frequency	1 h to 999 h
		Stability time	1 s to 60 s
		Stability revel	0.01 degrees to 0.05 degrees
		Hold time	60 s to 600 s
Cleaning (option)	Cleaning method		Electric wiper type (Cleaning will start by communication with the converter)
	Setting	Cleaning frequency	0.1 h to 168.0 h
		Cleaning time	20 s to 600 s
		Hold time	60 s to 600 s
		Timer accuracy	Within 2 minutes in a month
Self-check	Converter error		CPU abnormality, ADC abnormality, memory abnormality
Operating temperature range	–20°C to 55°C (without freezing)		

Controller Specifications Cont'd

Operating humidity range	Relative humidity: 5% to 90% (without due condensation)			
Storage temperature	–25°C to 65°C			
Power source	Power supply voltage range	90 V to 264 V AC, 50/60 Hz		
	Power consumption	35 VA (max.) when an automatic cleaner is connected.		
	Others	With the built-in time lag fuse (250 V,1 A)		
		Built-in power switch for maintenance		
Applicable standards	CE marking	EMC Directives (2004/108/EC) EN61326-1:2006 Low Voltage Directives (2006/95/EC) EN61010 -1:2001		
	EMC Immunity Industrial location	Electrostatic discharge	IEC61000-4-2	
		Electromagnetic radiation radio frequency field	IEC61000-4-3	
		Electric fast transient/burst	IEC61000-4-4	
		Surge	IEC61000-4-5 (*1)	
		Conduction obstruction induced by radio frequency	IEC61000-4-6	
		Voltage dip, short time blackout, voltage variation	IEC61000-4-11	
	EMC Emission Class A	Radiation obstruction	CISPR 11 CLASS A	
		Noise terminal voltage	CISPR 11 CLASS A	
	low voltage	Pollution degree 2		
	FCC rules	Part15 CLASS A		
Structure	Installation	Outdoor installation type		
	Installation method	50 A pole-mounted or wall-mounted		
	Protection class	IP65		
	Material of case	Aluminum alloy (coated with epoxy modified melamine resin)		
	Material of mounting brackets	SUS304		
	Material of hood	SUS304 (epoxy glue degeneration melamine resin painting)		
	Material of display window	Polycarbonate		
	Display element	Reflective monochrome LCD		
External dimensions	180 (W) x 155 (H) x 115 (D) mm (excluding brackets)			
Mass	Mainframe: approx. 3.5 kg, hood, bracket: approx. 1 kg			

Detector Specifications

Product name	Industrial-use turbidity detector
Model	SS-120-W
Measuring principle	90-degree transmission-scattering method Compliant to JIS K0101, JIS K0801 and ISO 7027
Light source	Near-infrared source 860nm
Detector	Silicon photo diode
Detection window	Hard glass tube Inner diameter: 30 mm,
Data transfer	RS-485 (communication with converter)
Measured liquid temperature	0° C to 45° C (without freezing)
Measured liquid pressure	0 MPa to 0.3 MPa
Material of wetted part	PVC SUS316 FKM silicone rubber hard glass EPDM
Cable length	Standard attachment cable: 5 m
In/Out connection	Rc3/4
Power source	12 V DC supplied from HU-200TB-W converter
External dimensions	131 (W) mm × 450 (H) mm × 224 (D) mm
Mass	Mainframe: approx. 3.5 kg cleaner: 2.5 kg

Cleaner Specifications (Option)

Product name	Automatic cleaner
Cleaning method	Electric wiper
Power source	12 V DC, 4 W supplied from HU-200TB-W converter
Cleaning operation	Reciprocative piston wiper operation during cleaning time. Stand by at the uppermost point after cleaning time.
Cleaning command	Operates by directives from the converter through communications.

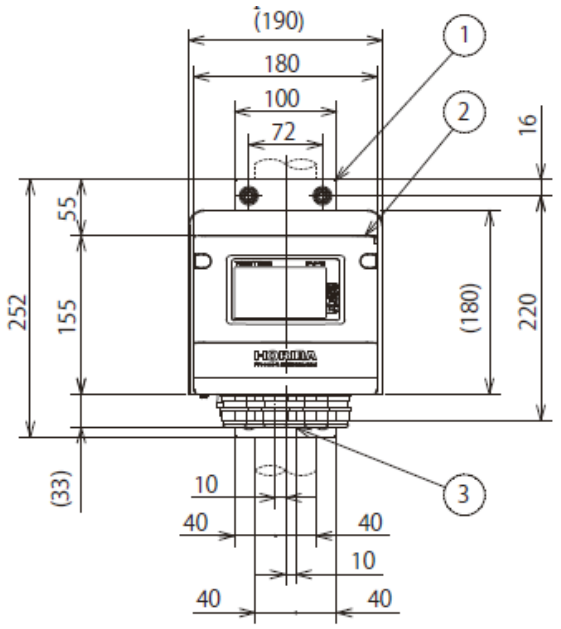
*3: The cleaning time required for one stroke changes depending on the pressure of the sample water.
The cleaning time is about 30 s under the conditions of ambient pressure.

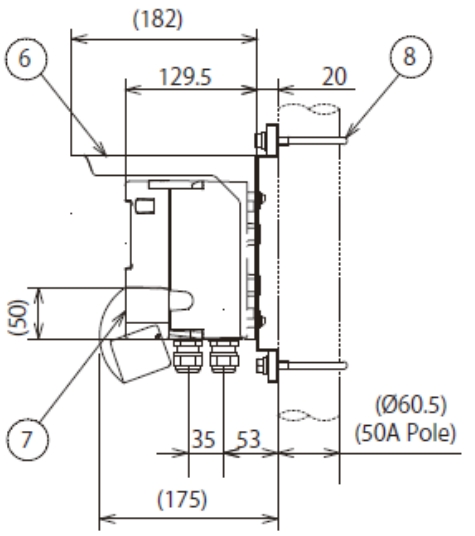
Stand (Option)

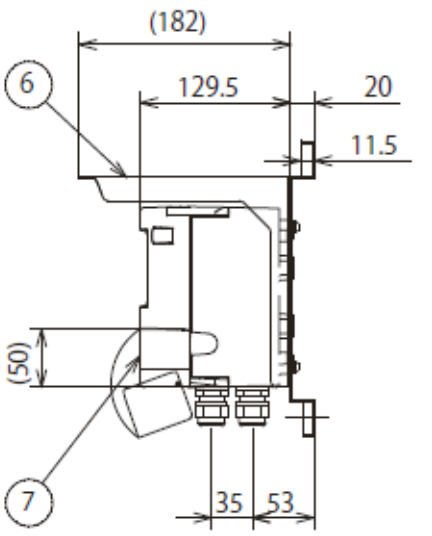
Product name	Stand with automatic zero calibration equipment		
Pressure	0 to 0.3MPa		
Overflow tank	built in	In sample line for removing bubble/atmospheric pressure	
	without	In line sampling	
Zero filter	built in	Filtration for zero water	
	without	Zero water to be regarded as zero relatively is required (turbidity <0.01)	
Automatic zero calibration	built in	Sample water	Motor ball valve
		Zero water	Solenoid valve
		Valve operation: Pre installed program in the converter	
		Power source: Output to drive valves is the same as the power source	
	without	Sample water	Manual ball valve
		Zero water	Manual ball valve

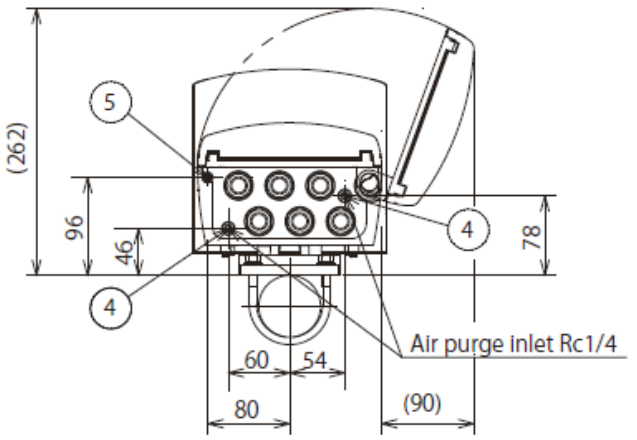
Dimensional Drawing

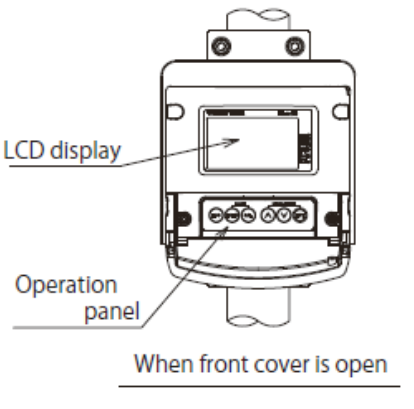
Controller







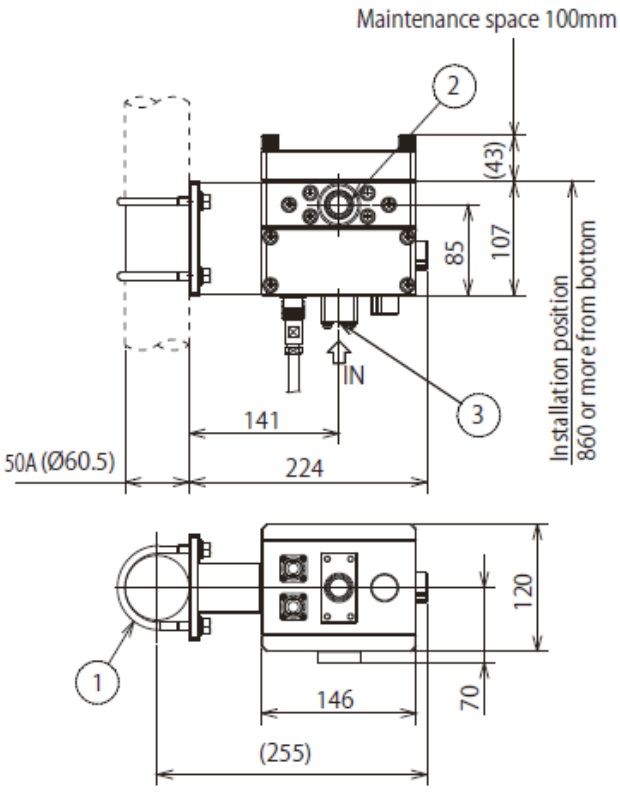


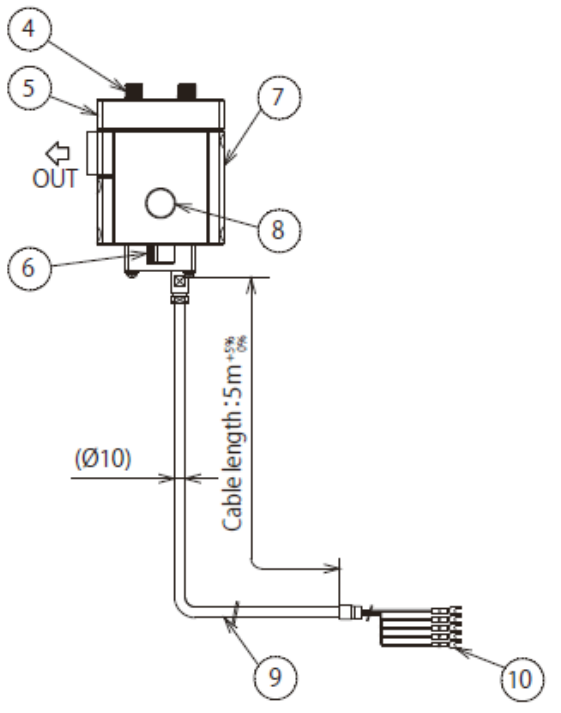


	PARTS	NOTES
(1)	Mounting plate	SUS304
(2)	Case	ADC12
(3)	Wiring hole	O.DΦ7 to Φ12cable
(4)	Plug	SUS304
(5)	Earth	SUS304 M4
(6)	Cover	SUS304
(7)	Front cover	ADC12
(8)	U bolt	SUS304 50A M8

Coated with epoxy modified melamine resin
(Munsell 10PB/7/1)
Approx. 4.1 kg
IP65(IEC60529、JIS C0920)

Detector

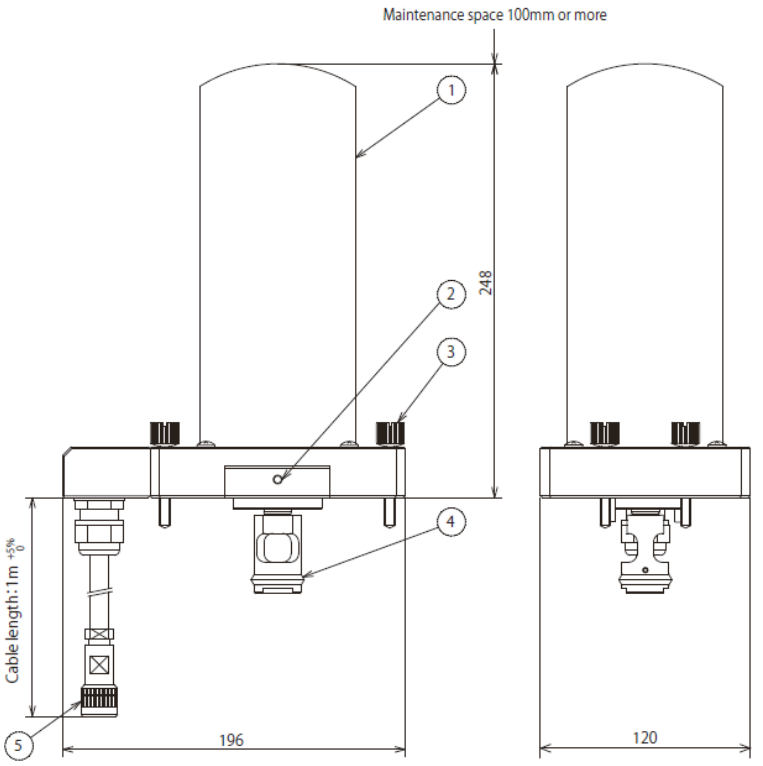




NO.	PARTS NAME	NOTES
1	U Bolt	SUS304 50A M8
2	Sample outlet	Rc3/4
3	Sample Inlet	Rc3/4
4	Knurled knob	SUS304 M6
5	Cover	PVC
6	Holder	Desiccant holder
7	Sensor	SS-120A
8	Cover	PVC
9	Cable	PVC
10	Y Terminal	M3用

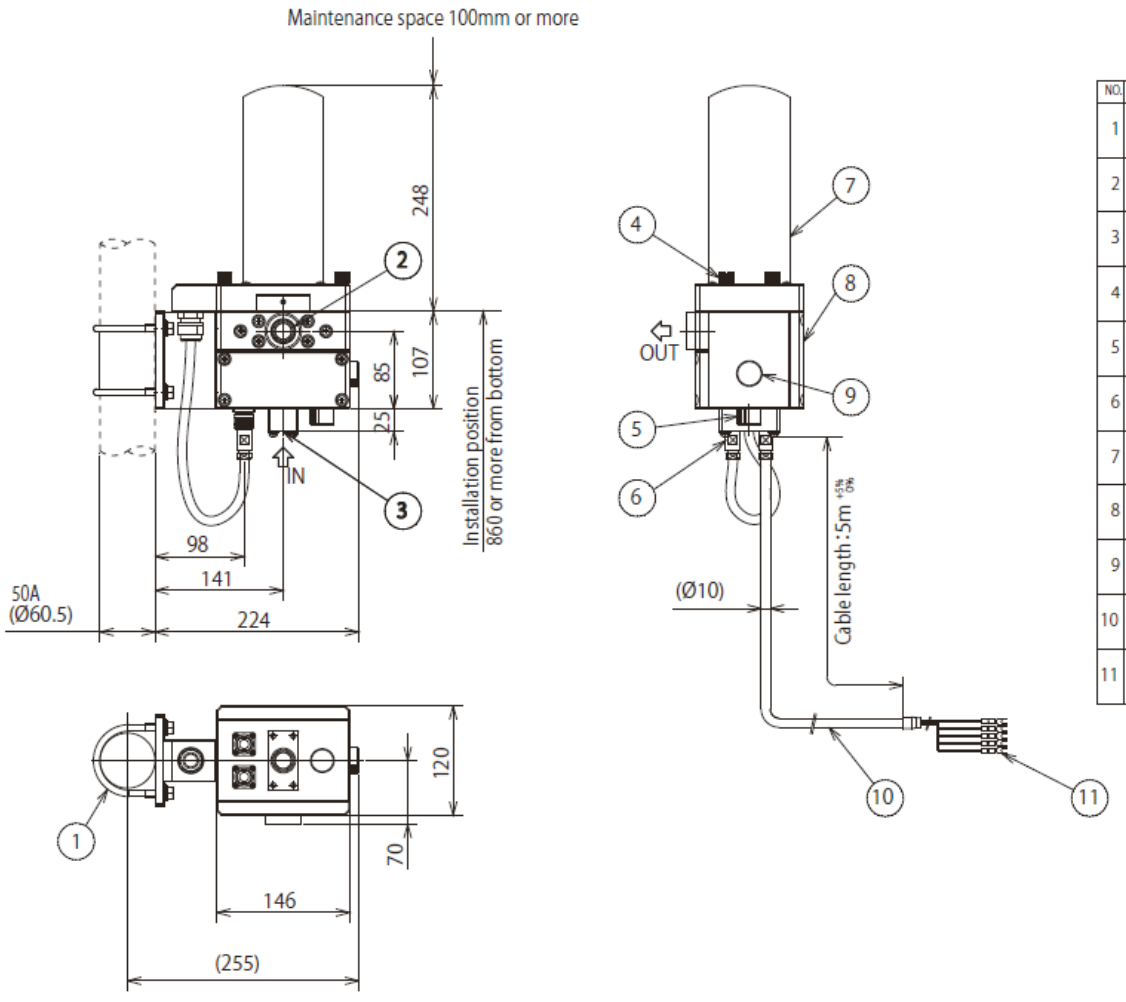
Dimensional Drawing

Cleaner



NO.	PARTS NAME	NOTES
1	Cover of the cleaning unit	SUS304
2	Pressure relief hole	
3	Knurled knob	SUS303 M6
4	Wiper blade	Q
5	Connector	Waterproof Connector

Detector with Cleaner



NO.	PARTS NAME	NOTES
1	U-bolt	SUS304 50A M8
2	Sample outlet	PVC Rc3/4
3	Sample inlet	SUS316 Rc3/4
4	Knurled knob	SUS303 M6
5	Desiccant holder	PVC
6	Connector	Waterproof Connector
7	Cleaning unit	SS-AW
8	Sensor	SS-120
9	Cover	PVC
10	Cable	PVC
11	Y Terminal	for M3