

SPEC SHEET

Digital Indicating Turbidity/SS Meter

AER-101-TU

- 48 x 96 mm, panel mounting type
- Drip-proof/Dust-proof IP66 (for front panel only)
- Power supply 24 V AC/DC (user-specified)
- Various setting & calibration via software communication (RS-485) (optional)



Name	Digital Indicating Turbidity/SS Meter																																
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(*) Power supply voltage 100 to 240 V AC is standard. When ordering 24 V AC/DC, enter 1 in Power supply voltage, after `TU`.																																	
Measurement range	<table><tr><td>Input</td><td>Input Range</td><td>Resolution</td></tr><tr><td rowspan="3">Turbidity (*1)</td><td>0.0 to 100.0 (Formazin)</td><td>0.1 (Formazin)</td></tr><tr><td>0 to 500 (Formazin)</td><td rowspan="2">1 (Formazin)</td></tr><tr><td>0 to 3000 (Formazin)</td></tr><tr><td rowspan="2">SS</td><td>0 to 1000 mg/L (Kaolin)</td><td>1 mg/L</td></tr><tr><td>0 to 50000 mg/L (Kaolin)(*2)</td><td>10 mg/L</td></tr></table>					Input	Input Range	Resolution	Turbidity (*1)	0.0 to 100.0 (Formazin)	0.1 (Formazin)	0 to 500 (Formazin)	1 (Formazin)	0 to 3000 (Formazin)	SS	0 to 1000 mg/L (Kaolin)	1 mg/L	0 to 50000 mg/L (Kaolin)(*2)	10 mg/L														
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(*1) Changeable from Formazin to Kaolin in [Measurement unit]. (*2) The ones digit of the current Turbidity/SS input value is rounded off, and is divided by 10. This value is indicated as an input value.																																	
Repeatability	±0.2% of measurement span ± 1 digit (However, sensor accuracy excluded.)																																
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Input sampling period	500 ms																																
Time accuracy	Within ±1% of setting time																																
Turbidity/SS Inputs for moving average	1 to 120																																
Contact output	Relay contact: 1a Control capacity: 3 A 250 V AC (Resistive load), 1 A 250 V AC (Inductive load, cosφ=0.4) Electrical life: 100,000 cycles Output action: P control, ON/OFF control																																
Transmission output	Converting Turbidity/SS input value or MV to analog signal every input sampling period, and outputs the value in current. If Transmission output high limit and low limit are set to the same value, Transmission output will be fixed at 4 mA DC. Bar graph indication is possible in accordance with transmission output. Resolution: 12000 Output: 4 to 20 mA DC (Load resistance: Max. 550 Ω) Output accuracy: Within ±0.3% of Transmission output span																																
Self-diagnosis	The CPU is monitored by a watchdog timer, and if an abnormal status occurs, the instrument is switched to warm-up status.																																
Ambient temperature	0 to 50°C																																
Ambient humidity	35 to 85 %RH (Non-condensing)																																
Power supply (user-specified)	AER-101-TU: 100 to 240 V AC 50/60 Hz Allowable fluctuation range: 85 to 264 V AC AER-101-TU 1: 24 V AC/DC 50/60 Hz Allowable fluctuation range: 20 to 28 V AC/DC																																
Structure	Flush (Applicable panel thickness: 1 to 8 mm) Case: Flame-resistant resin, Color: Black Front panel: Membrane sheet Drip-proof/Dust-proof: IP66 (for front panel only)																																
Protection structure	Overvoltage category II, Pollution degree 2 (IEC61010-1)																																
Safety standards	RoHS directive compliant																																
Dimensions	W48 x H96 x D110 mm, Case depth: 98.5 mm (when mounted through a control panel)																																
Weight	Approx. 280 g																																

Serial communication [C5 option]	The following operations can be carried out from an external computer. (1) Reading and setting of various data (2) Reading Turbidity/SS input value and status (3) Function change, adjustment (4) Reading and setting of user save area <table><tr><td>Cable length</td><td>1.2 km (Max), Cable resistance: Within 50 Ω (Terminators are not necessary, but if used, use 120 Ω minimum on both sides.)</td></tr><tr><td>Communication line</td><td>EIA RS-485</td></tr><tr><td>Communication method</td><td>Half-duplex communication</td></tr><tr><td>Communication speed</td><td>9600, 19200, 38400 bps (Selectable by keypad)</td></tr><tr><td>Synchronization method</td><td>Start-stop synchronization</td></tr><tr><td>Code form</td><td>ASCII, Binary</td></tr><tr><td>Communication protocol</td><td>Shinko protocol, MODBUS ASCII, MODBUS RTU (Selectable by keypad)</td></tr><tr><td>Data bit/Parity</td><td>8-bits/No parity, 7-bits/No parity, 8-bits/Even, 7-bits/Even, 8-bits/Odd, 7-bits/Odd (Selectable by keypad)</td></tr><tr><td>Stop bit</td><td>1, 2 (Selectable by keypad)</td></tr><tr><td>Error correction</td><td>Command request repeat system</td></tr><tr><td>Error detection</td><td>Parity check, Checksum (Shinko protocol), LRC (MODBUS protocol ASCII), CRC-16 (MODBUS protocol RTU)</td></tr><tr><td>Data Format</td><td><table><tr><th>Communication Protocol</th><th>Shinko Protocol</th><th>MODBUS ASCII</th><th>MODBUS RTU</th></tr><tr><td>Start bit</td><td>1</td><td>1</td><td>1</td></tr><tr><td>Data bit</td><td>7</td><td>7 (8) Selectable</td><td>8</td></tr><tr><td>Parity</td><td>Even</td><td>Even (No parity, Odd) Selectable</td><td>No parity (Even, Odd) Selectable</td></tr><tr><td>Stop bit</td><td>1</td><td>1 (2) Selectable</td><td>1 (2) Selectable</td></tr></table></td></tr></table>	Cable length	1.2 km (Max), Cable resistance: Within 50 Ω (Terminators are not necessary, but if used, use 120 Ω minimum on both sides.)	Communication line	EIA RS-485	Communication method	Half-duplex communication	Communication speed	9600, 19200, 38400 bps (Selectable by keypad)	Synchronization method	Start-stop synchronization	Code form	ASCII, Binary	Communication protocol	Shinko protocol, MODBUS ASCII, MODBUS RTU (Selectable by keypad)	Data bit/Parity	8-bits/No parity, 7-bits/No parity, 8-bits/Even, 7-bits/Even, 8-bits/Odd, 7-bits/Odd (Selectable by keypad)	Stop bit	1, 2 (Selectable by keypad)	Error correction	Command request repeat system	Error detection	Parity check, Checksum (Shinko protocol), LRC (MODBUS protocol ASCII), CRC-16 (MODBUS protocol RTU)	Data Format	<table><tr><th>Communication Protocol</th><th>Shinko Protocol</th><th>MODBUS ASCII</th><th>MODBUS RTU</th></tr><tr><td>Start bit</td><td>1</td><td>1</td><td>1</td></tr><tr><td>Data bit</td><td>7</td><td>7 (8) Selectable</td><td>8</td></tr><tr><td>Parity</td><td>Even</td><td>Even (No parity, Odd) Selectable</td><td>No parity (Even, Odd) Selectable</td></tr><tr><td>Stop bit</td><td>1</td><td>1 (2) Selectable</td><td>1 (2) Selectable</td></tr></table>	Communication Protocol	Shinko Protocol	MODBUS ASCII	MODBUS RTU	Start bit	1	1	1	Data bit	7	7 (8) Selectable	8	Parity	Even	Even (No parity, Odd) Selectable	No parity (Even, Odd) Selectable	Stop bit	1	1 (2) Selectable	1 (2) Selectable
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Dimensions (Scale: mm)	Technical drawings of the device showing front, side, and panel cutout views with dimensions in mm. Front view dimensions: 48 (width), 96 (height). Side view dimensions: 11.5 (depth), 98.5 (depth), 104.5 (When terminal cover is used), 91 (height), 106.2 (height). Panel cutout dimensions: 130 (width), 92^{+0.8}₀ (height), 45^{+0.5}₀ (width), 92^{+0.8}₀ (height). Horizontal close mounting n: Number of mounted units																																												
Terminal arrangement	Terminal arrangement diagram showing connections for power, sensor, and communication. POWER SUPPLY: 24V AC/DC (1 is entered after 'PH'). For 24 V DC, do not reverse polarity. POWER FOR SENSOR: 100 to 240V AC. TRANSMIT OUTPUT: Transmission output EVT: EVT output (Contact output) SELF-CHECK OUTPUT: Self-check output (Contact output) SENSOR: Turbidity sensor, SS sensor GRN: Self-check input terminal (Green) BRW: Power (+) terminal (Brown) BLU: Power (-) terminal (Blue) WHT: Analog signal (+) input terminal (White) BLK: Analog signal (-) input terminal (Black) RED: Calibration signal output terminal (Red) POWER FOR SENSOR +: External power (+) terminal -: External power (-) terminal RS-485: Serial communication RS-485 (C5 option)																																												