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)

<table>
<tr><td>Name</td><td>Digital Indicating Turbidity/SS Meter</td></tr>
<tr><td>Model</td><td>
<table>
<tr><th>AER - 1 0</th><th>1</th><th>-TU</th><th>□</th><th>, □□□</th><th></th></tr>
<tr><td>Input points</td><td>1</td><td></td><td></td><td></td><td>1 point</td></tr>
<tr><td colspan="2">Input</td><td>TU</td><td></td><td></td><td>Turbidity sensor (made by OPTEX),
SS (Suspended Solids) sensor (made by OPTEX)</td></tr>
<tr><td colspan="3" rowspan="2">Power supply voltage</td><td></td><td></td><td>100 to 240 V AC (standard)</td></tr>
<tr><td>1</td><td></td><td>24 V AC/DC (*)</td></tr>
<tr><td colspan="4">Option</td><td>C5</td><td>Serial communication RS-485</td></tr>
</table>
(*) Power supply voltage 100 to 240 V AC is standard.
When ordering 24 V AC/DC, enter 1 in Power supply voltage, after `TU`.
</td></tr>
<tr><td>Measurement range</td><td>
<table>
<tr><th>Input</th><th>Input Range</th><th>Resolution</th></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>
(*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.
</td></tr>
<tr><td>Repeatability</td><td>±0.2% of measurement span±1 digit (However, sensor accuracy excluded.)</td></tr>
<tr><td>Linearity</td><td>±0.2% of measurement span±1 digit (However, sensor accuracy excluded.)</td></tr>
<tr><td>Input sampling period</td><td>500 ms</td></tr>
<tr><td>Time accuracy</td><td>Within ±1% of setting time</td></tr>
<tr><td>Turbidity/SS Inputs for moving average</td><td>1 to 120</td></tr>
<tr><td>Contact output</td><td>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</td></tr>
<tr><td>Transmission output</td><td>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</td></tr>
<tr><td>Self-diagnosis</td><td>The CPU is monitored by a watchdog timer, and if an abnormal status occurs, the instrument is switched to warm-up status.</td></tr>
<tr><td>Ambient temperature</td><td>0 to 50℃</td></tr>
<tr><td>Ambient humidity</td><td>35 to 85 %RH (Non-condensing)</td></tr>
<tr><td>Power supply (user-specified)</td><td>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</td></tr>
<tr><td>Structure</td><td>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)</td></tr>
<tr><td>Protection structure</td><td>Overvoltage category Ⅱ, Pollution degree 2 (IEC61010-1)</td></tr>
<tr><td>Safety standards</td><td>RoHS directive compliant</td></tr>
<tr><td>Dimensions</td><td>W48 x H96 x D110 mm, Case depth: 98.5 mm (when mounted through a control panel)</td></tr>
<tr><td>Weight</td><td>Approx. 280 g</td></tr>
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Serial communication [C5 option]

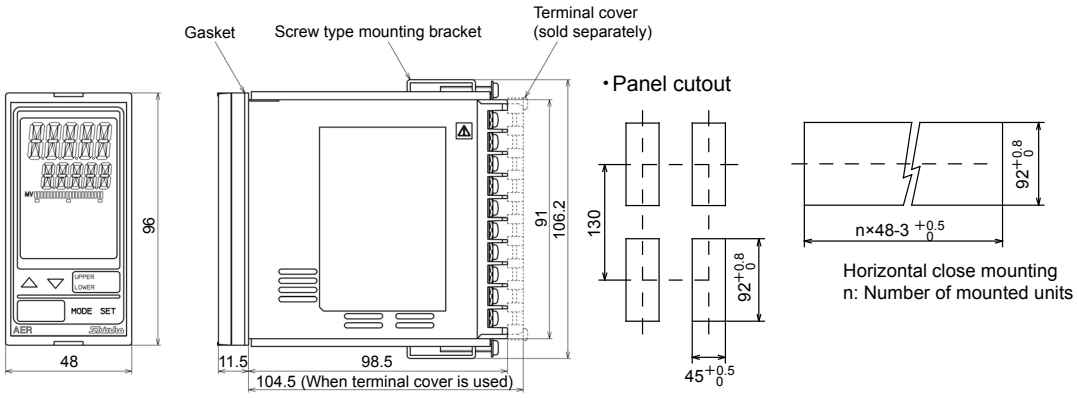
The following operations can be carried out from an external computer.
(1) Reading and setting of various data (2) Reading Turbidity/SS input value and status
(3) Function change, adjustment (4) Reading and setting of user save area

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)

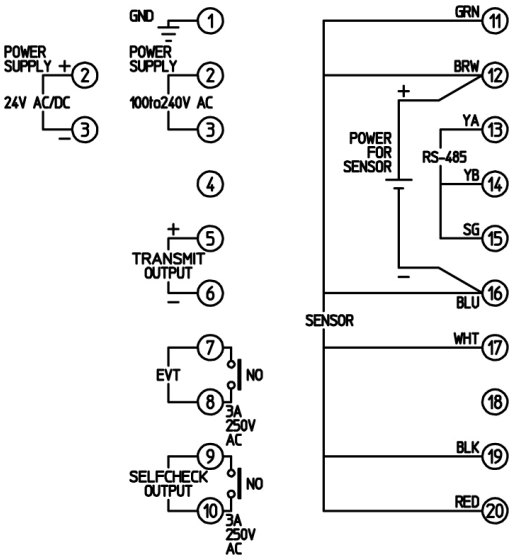
Data Format

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

Dimensions (Scale: mm)



Terminal arrangement



GND: Ground
POWER SUPPLY: 100 to 240 V AC or
24 V AC/DC (1 is entered after 'PH'.)
For 24 V DC, do not reverse polarity.
TRANSMIT OUTPUT: Transmission output
EVT: EVT output (Contact output)
SELFCHECK 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)