This equipment carries out measurements on fine suspended solids in water and monitors the performance of water treatment equipment, such as filters and reverse osmosis systems.

It uses a unique method where sample water is filtered for a constant time to collect suspended solids, and a high-accuracy flowmeter is used to measure how clogged the filter is at the start and end of water passage.

**Features**

- SDI-method based automatic analyzer
- This uses a unique method where a high-accuracy flowmeter is used instead of a measuring cup to measure how clogged the filter is.
- The filter uses a round filter paper that is as hard to break as that for manual analysis.
- The filter paper cartridges can hold 80 pieces of paper, facilitating the feed of filter paper.

**Standard Specifications**

<table>
<thead>
<tr>
<th>Product name</th>
<th>SDI ANALYZER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>SDI-12(For Pure water), SDI-22(For Seawater)</td>
</tr>
<tr>
<td>Applications</td>
<td>Measurements on suspended solids in pure water, seawater, etc.</td>
</tr>
<tr>
<td>Measurement Method</td>
<td>The flow rate of water passing through filter paper is measured at the start and end of a constant period (5 min, 15 min) to carry out calculations.</td>
</tr>
<tr>
<td>Measurement range</td>
<td>0 to 6.66 SDI (15 min) or 0 to 20.0 SDI (5 min), determined by setting the time during which water passes through filter paper (5 min, 15 min)</td>
</tr>
<tr>
<td>Measurement cycle</td>
<td>Specifiable from 0 (continuous operation) to 24 h (0.5 h basis)</td>
</tr>
<tr>
<td>Measurement point</td>
<td>1 point, 2 to 4 points (optional)</td>
</tr>
<tr>
<td>Repeatability</td>
<td>Within ±2% FS</td>
</tr>
<tr>
<td>Installation location</td>
<td>Indoors or in a cubicle; with low vibration or impact, allowing for maintenance space; direct light must be avoided. Also, there must be no noise source (e.g., motor) nearby. In a corrosive atmosphere, ventilation fans, etc., must be installed in the building to ensure sufficient ventilation.</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>2 to 40°C, 85% RH or less</td>
</tr>
<tr>
<td>/ humidity</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>Indoor, floor-installation type</td>
</tr>
</tbody>
</table>

| Sample water specifications | Pressure: 0.4 to 0.7 MPa (A booster pump is required at 0.4 MPa or less.) Temperature: 0 to 40°C (Freezing must be avoided.) Flow: 2 L/min (max.) |
| Cleaning water (tap water) | Pressure: 0.4 to 0.7 MPa (A booster pump is required at 0.4 MPa or less.) Flow: Approx. 2 L/min (max.) |
| Drainage                 | Sample water and cleaning water are drained. As the drainage is a gravity system, the drain outlet must be open to the air. |
| Input signal             | Measurement channel input signal: (NO-voltage contact photocoupler isolation, 24VDC,5mA) |
| Output signal            | SDI value transmission output : Isolated type, 4 to 20 mA DC (Load resistance: 500Ω or less) Multi-purpose alert signal: Form A contact (max 250VAC,2A / 30VDC,2A) Air pressure failure alert, filter paper movement failure alert, filter paper pressing failure alert, filter paper feed signal, flowmeter failure alert, pump failure alert, drainage failure alert, individual measurement channel alert |
Perform the following mechanisms to automatically measure SDI values.

1. Move the head down and perform blow operation using sample water.
2. Move one filter paper cartridge from the cartridge holder (feeder) to the filter mounting. Then, move the head down and set the filter paper in place.
3. Let sample water pass through the filter paper from the upper side, to start filtration.
4. At this time, measure the flow rate ($V_1$) by using the flowmeter and record the result.
5. Immediately after 5 min (or 15 min) of filtration, measure the flow rate ($V_2$) in the same way and record the result again. Drain the filtered sample water continuously.
6. Move the head up, and then put the filter paper cartridge into the disposal box.
7. Calculate the SDI value from the measured flow rates by using the formula below, and then display and print out the results.

\[
SDI = \left(1 - \frac{V_2}{V_1}\right) \times 100 + K_2
\]

- $K_1$, $K_2$: Compensation coefficients
- $T$: Measurement time (5 or 15 min)
- $V_1$: Flow rate at the start of measurement
- $V_2$: Flow rate at the end of measurement
- $V_3$: Bias flow rate produced by the bias pump (constant)

--- indicates variations in the flow rate of the actually flowing liquid.

**Measurement Principle**

- SDI value: SDI setting value exceed signal; Form A contact (max 250VAC,2A / 30VDC,2A)
- Power: 100/110/120/200/220 VAC ± 10%, 50/60 Hz
- Power consumption: Approx.300VA
- Piping end: Sample water inlet Rc 1/2
- Connection: Clearing water inlet Rc 1/2
- Drain outlet Rc 1
- Air inlet Rc 1/4

**Operation of the measurement unit**

- Air supply: Pressure: 0.4 to 0.7 MPa
- Flow: 0.5 L/min
- Property: Instrument air
- External dimensions: 500 (W)x 450 (D)x 1500 (H)mm
- Mass: Approx.110kg
- Surface painting: Main unit: Munsell 5PB8/1 equivalent
- Finish: Display surrounding: Black metallic

**Measurement time**

- Flow rate variation
  - $V_1 = V_1 - V_3$
  - $V_2 = V_2 - V_3$

--- indicates variations in the flow rate of the actually flowing liquid.
**Flow sheet**

- **V3 (Constant)**
- **Bias pump**
- **Head**
- **Flowmeter**
- **Sample water**
- **Filter paper cartridge**
- **Disposal box**
- **Flow rate**
- **Flow rate variation**
  - Indicates variations in the flow rate of the actually flowing liquid.

**Measurement unit**

- **Flowmeter**
- **Pump**
- **Float switch**
- **Relief valve**
- **Regulator**
- **Booster pump**
- **Air inlet**
- **(Clearing water inlet)**
- **Only for use with seawater**

- **CH1 sample inlet**
- **CH2 sample inlet**
- **CH3 sample inlet**
- **CH4 sample inlet**

- **Drain outlet**
- **Open pot**

* **Optional specifications**

**Dimensions**

- **Unit**: mm

- **Operation panel**
- **Power input**
- **Signal output**

- **CH1 sample inlet, Rc1/2**
- **Clearing water inlet (SDI-22)**
- **Drain outlet Rc1**

* **Optional specifications**

**Door opening details**

- **500**
- **500 or more**

**Dimensions**

- **Operation panel**
- **Power input**
- **Signal output**

- **Base bolt position**: 450
- **Base bolt position**: 500

**Dimensions**

- **Operation panel**
- **Power input**
- **Signal output**

- **Base bolt position**: 450
- **Base bolt position**: 500

* **Optional specifications**
### External connection terminals

**SDI analyzer**

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CH1 SDI setting value exceed signal Form A contact (max 250VAC,2A / 30VDC,2A)</td>
</tr>
<tr>
<td>2</td>
<td>CH2 SDI setting value exceed signal Form A contact (max 250VAC,2A / 30VDC,2A)</td>
</tr>
<tr>
<td>3</td>
<td>CH3 SDI setting value exceed signal Form A contact (max 250VAC,2A / 30VDC,2A)</td>
</tr>
<tr>
<td>4</td>
<td>CH4 SDI setting value exceed signal Form A contact (max 250VAC,2A / 30VDC,2A)</td>
</tr>
<tr>
<td>5</td>
<td>Multi-purpose alert signal</td>
</tr>
<tr>
<td>6</td>
<td>Form A contact (max 250VAC,2A / 30VDC,2A)</td>
</tr>
<tr>
<td>7</td>
<td>Form A contact (max 250VAC,2A / 30VDC,2A)</td>
</tr>
<tr>
<td>8</td>
<td>Form A contact (max 250VAC,2A / 30VDC,2A)</td>
</tr>
<tr>
<td>9</td>
<td>Form A contact (max 250VAC,2A / 30VDC,2A)</td>
</tr>
<tr>
<td>10</td>
<td>Form A contact (max 250VAC,2A / 30VDC,2A)</td>
</tr>
<tr>
<td>11</td>
<td>Form A contact (max 250VAC,2A / 30VDC,2A)</td>
</tr>
<tr>
<td>12</td>
<td>Form A contact (max 250VAC,2A / 30VDC,2A)</td>
</tr>
<tr>
<td>21</td>
<td>CH1 Measurement channel input signal (NO-voltage contact photocoupler isolation, 24VDC,5mA)</td>
</tr>
<tr>
<td>22</td>
<td>CH2 Measurement channel input signal (NO-voltage contact photocoupler isolation, 24VDC,5mA)</td>
</tr>
<tr>
<td>23</td>
<td>CH3 Measurement channel input signal (NO-voltage contact photocoupler isolation, 24VDC,5mA)</td>
</tr>
<tr>
<td>24</td>
<td>CH4 Measurement channel input signal (NO-voltage contact photocoupler isolation, 24VDC,5mA)</td>
</tr>
<tr>
<td>25</td>
<td>CH1 SDI value transmission output</td>
</tr>
<tr>
<td>26</td>
<td>CH2 SDI value transmission output</td>
</tr>
<tr>
<td>27</td>
<td>CH3 SDI value transmission output</td>
</tr>
<tr>
<td>28</td>
<td>CH4 SDI value transmission output</td>
</tr>
</tbody>
</table>

#### Power supply
- 100V AC 50/60Hz
- 110V AC 50/60Hz
- 120V AC 50/60Hz
- 200V AC 50/60Hz
- 220V AC 50/60Hz

#### Transmission output
- 4 to 20 mA DC

#### Measurement flow channel
- One point
- Two points
- Three points
- Four points

#### Booster pump
- Not provided
- Provided

#### Marking
- Japanese (standard)
- English
- Other

*Optional specifications

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**Product code**

SDI12-2- For Pure Water
SDI22-2- For Seawater

1 - ................................. 100V AC 50/60Hz
2 - ................................. 110V AC 50/60Hz
3 - ................................. 120V AC 50/60Hz
4 - ................................. 200V AC 50/60Hz
5 - ................................. 220V AC 50/60Hz
9 - ................................. Other

1 - ................................. 4 to 20 mA DC
9 - ................................. Other

A ................................. One point
B ................................. Two points
C ................................. Three points
D ................................. Four points

0 - ................................. Booster pump*
1 - ................................. Not provided
9 - ................................. Provided

0 - ................................. Marking
1 - ................................. Japanese (standard)
9 - ................................. English

* A booster pump is required if the sample water pressure is 0.4 MPa or less. It is also required if there are several measurement points and if the pressure at any of them is 0.4 MPa or less.

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Information and specifications are subject to change without notice.

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