**GENERAL**

**ALSONIC DSP** series is a fixed mounted, transit-time ultrasonic flowmeter, with clamp-on transducers for non-invasive liquid measurement. Our Alsonic-DSP uses patented "fine time measurement technology" ultrasonic beam that can measure at pico-seconds time resolution enabling accurate, drift-free flow measurement in liquids that contain a second phase of entrained solids or gas bubbles. The use of DSP technologies enables "Cross Correlation" of ideal signals to erase noise, and make a three-dimensional cross section of the velocity distribution flow profile of the medium flowing through the pipe. DSP technology also allows the use of "FFT (Fast Fourier Transform)" to make the two signals the same frequencies, greatly increases its signal-to-noise ratio for accurate, drift-free flow measurement in liquids.

**FEATURES**

- Color Graphic LCD display 128x64 for flow, total & signal shape
- 4.0 Mbytes datalogger up to 200,000 data fields
- Velocities from 0.01 ~ +/- 12 m/s.
- Any liquids contains solids less 30% including waste water
- Transducers for pipe size form 13 to 6000 mm.
- High accuracy of +/-1.0% of reading with single path
  +/0.5% of reading with dual path
- Oscilloscope function for diagnostic
- AR (Anti-Round) Mode (patent pending)
- Fine Time Measurement Technology (Patented)
- Data logger function, include date, totalizer, signal condition.. Etc.
- Response time less than 1 second.

**SPECIFICATION**

- Measuring Principle : Transit time difference
- Pipe Size
  - B Type : 15 mm ~ 100 mm (1/2" ~ 4")
  - C Type : 50 mm ~ 300 mm (2" ~ 12")
  - D Type : 200 mm ~ 1000 mm (12" ~ 40")
  - E Type : 500 mm ~ 6000 mm (20" ~ 240")
- Pipe Material : Cast Iron, Stainless Steel, Ductile Iron, Copper, PVC, Aluminum, Asbestos, Fiberglass… etc.
- Liner Material : Tar Epoxy, Rubber, Mortar, Polypropylene, Polystyral, Ploystryene, Polyester, Ebonite, Polyethylene, Teflon… etc.
- Display : Color Graphic LCD 128x64 with backlight
- Keypad : 16 Key with tactile action
- Response Time : Less than 1 second
- Flow Velocity : 0.01 ~ +/- 12 m/s
- Resolution : 0.001 m/s
- Ambient Temperature : -20 ~ +60 °C
- Mounting : wall mounting
- Max. Cable Length : 200 M
- Power Consumption : Less than 20W
- Power Supply : 90 ~ 260Vac 50/60 Hz
- Data Storage : Operation parameters and totalization date are stored by EEPROM for more than 10 years
- Output : two 4-20 mA
- Data Logger : 4.0 Mbytes,upto 200,000 bits of data
- Time Unit : Second, Minute, Hour, Day.
- Other : Oscilloscope fuction for diagnostic
- Accuracy
  - 1% of reading with single path
  - 0.5% of reading with dual path
- Repeatability : +/-0.2% of reading
- Alarm : two relay for total, hi/low
- Power Supply : 90 ~ 260Vac 50/60 Hz
- Weight : 3.3 Kg
- Protection -Converter : IP65
- Sensor : IP68(Submersible)
**TRANSDUCER SPECIFICATION**

- **Standard-Transducers**
  
  Fluid Temperature: -20 ~ +120 °C

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>Pipe Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>XLB</td>
<td>23 mm</td>
<td>42 mm</td>
<td>37 mm</td>
<td>63 mm</td>
<td>DN 15 ~ 100 mm</td>
</tr>
<tr>
<td>XLC</td>
<td>35 mm</td>
<td>60 mm</td>
<td>45 mm</td>
<td>72 mm</td>
<td>DN 50 ~ 300 mm</td>
</tr>
<tr>
<td>XLD</td>
<td>35 mm</td>
<td>93 mm</td>
<td>50 mm</td>
<td>86 mm</td>
<td>DN200~1000mm</td>
</tr>
<tr>
<td>XLE</td>
<td>51 mm</td>
<td>145 mm</td>
<td>76 mm</td>
<td>111 mm</td>
<td>DN500~6000mm</td>
</tr>
</tbody>
</table>

**Single path**

**Duel Path**

dual path or dual channel (can measure two pipe simultaneously)

(user can select dual path or dual channel in programming)

- **Mounting Track Size**

<table>
<thead>
<tr>
<th>Model</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-XLB</td>
<td>30 mm</td>
<td>280 mm</td>
<td>23 mm</td>
<td>23 mm</td>
</tr>
<tr>
<td>M-XLC</td>
<td>40 mm</td>
<td>380 mm</td>
<td>35 mm</td>
<td>43 mm</td>
</tr>
<tr>
<td>M-XLD</td>
<td>40 mm</td>
<td>700 mm</td>
<td>35 mm</td>
<td>43 mm</td>
</tr>
<tr>
<td>M-XLE</td>
<td>40 mm</td>
<td>380 mm</td>
<td>51 mm</td>
<td>70 mm</td>
</tr>
</tbody>
</table>

- **Oscilloscope Function (Diagnostic)**
**DIMENSIONS**

- Alsonic-DSP NEMA 4

![Dimensions Diagram]

**WALL MOUNTING WIRING**

![Wall Mounting Wiring Diagram]
**Model Selection Guide**

### Alsonic-DSP

<table>
<thead>
<tr>
<th>Example 1: Alsonic-DSP-100N-XLB-C10</th>
<th>Example 2: Alsonic-DSP-100DN-2(XLB)-2(C10)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alsonic-DSP-</strong></td>
<td>****</td>
</tr>
<tr>
<td>100N-single pass/channel</td>
<td>100N</td>
</tr>
<tr>
<td>100DN - dual path/channel</td>
<td>100DN</td>
</tr>
<tr>
<td>DN 15 – 100 mm and mounting track</td>
<td>XLB</td>
</tr>
<tr>
<td>DN 50 – 300mm and mounting track</td>
<td>XLC</td>
</tr>
<tr>
<td>DN 200-1000mm and mounting track</td>
<td>XLD</td>
</tr>
<tr>
<td>DN500~6000mm and mounting track</td>
<td>XLE</td>
</tr>
<tr>
<td>* cable length is 10 meter standard, and max. cable distance 200 M</td>
<td>Cxx</td>
</tr>
</tbody>
</table>

* Alsonic-DSP normal installation is reflect (V) method, not direct (Z) mode
* when use single path with reflect mode, accuracy is double than direct mode and same with dual path
* when use dual path with reflect mode, accuracy is same with four path