



ALSONIC-DSPPL

Ultrasonic Flowmeter

Model ALSONIC-DSP Series

GENERAL

The SMC Alsonic DSPPL series is a portable transit-time ultrasonic flowmeter with clamp-on transducers for non-invasive liquid measurement. This device uses patented "fine time measurement technology", making use of ultrasonic beams that can measure at pico-seconds time intervals. This rapid array of measurements enables accurate, drift-free flow rate measurement in liquids that contain a second phase of entrained solids or gas bubbles. The use of DSP technology enables "Cross Correlation" of ideal signals to cancel extraneous noise signals, and create a three-dimensional cross section of the velocity distribution profile of the medium flowing through the pipe. DSP technology also enables the use of "FFT (Fast Fourier Transforms)" in order to generate the two signals at the same frequency; thereby increasing the signal-to-noise ratio for accurate, drift-free flow measurement in liquids.

FEATURES

- Color Graphic LCD display 128x64 for flow rate, total flow & signal shape
- 4.0 Mbytes data logger with up to 200,000 data fields
- Velocities from 0.03 ~ 40 feet/sec (0.01 ~ ± 12 m/s)
- Measures flow rates for any liquid containing ≤ 30% suspended solids, including waste water
- NIST traceable calibration certificate
- High accuracy; ±1.0% of reading with single path
±0.5% of reading with dual path
- Oscilloscope function for diagnostics
- Durable carrying case allows for portable use of the instrument
- Fine Time Measurement Technology (Patented)
- Data logger function; includes date, totalizer, diagnostics
- Response time less than 1 second.



SPECIFICATIONS

| | | | |
|------------------------|--|-------------------------|---|
| • Measuring Principle: | Transit time differential | • Keypad: | 16-key touch pad |
| • Pipe Size: | B Type : ¾" ~ 4" (20 mm ~ 100 mm) C Type : 2" ~ 12" (50 mm ~ 300 mm) D Type : 12" ~ 40" (200 mm ~ 1000 mm) E Type : 20" ~ 240" (500 mm ~ 6000 mm) | • Response Time: | Less than 1 second |
| • Pipe Material: | Cast Iron, Stainless Steel, Ductile Iron Copper, PVC, PVDF, Aluminum, Asbestos Fiberglass | • Flow Velocity: | 0.03 ~ 40 feet/sec (0.01 ~ ± 12 m/s) |
| • Liner Material: | Tar Epoxy, Rubber, Mortar, Polypropylene Polystyral, Polystyrene, Polyester, Ebonite Polyethylene, Teflon | • Resolution: | 0.003 feet/sec (0.001 m/s) |
| • Display: | Color Graphic LCD 128x64 | • Ambient Temperature: | -4 ~ 140 °F (-20 ~ 60 °C) |
| Flowrate: | 4 ½ digit | • Fluid Temperature: | -40 ~ 250° F (-40 ~ 120° C) |
| Totalizer: | 10-digit, Positive, Negative & Net values | • Max. Cable Length: | 650' (200 M) |
| Engineering Units: | m³, Liter, US Gallon, Imperial Gallon, Million Gallon, Cubic Feet, US Barrels, Imperial Barrels, Oil Barrel. | • Power Consumption: | Less than 20W |
| Time Units: | Second, Minute, Hour, Day | • Power Supply: | Battery operated; 90 ~ 260V _{AC} 50/60 Hz recharger included |
| Other: | Oscilloscope function for diagnostics | • Data Storage: | Operation parameters and totalization Data stored via EEPROM for more than 10 years |
| • Accuracy: | ± 1% of reading with single path ± 0.5% of reading with dual path | • Output: | Two analog 4-20 mA |
| • Repeatability: | ± 0.2% of reading | • Data Logger: | 4.0 Mbytes, up to 200,000 bits of data |
| | | • Alarm: | Two alarm outputs configurable for total, hi/low flow rate |
| | | • Communication: | RS-232 |
| | | • Dimensions: | See page 2 |
| | | • Weight: | 7.25 lbs. (3.3 Kg) |
| | | • Protection Converter: | NEMA 4 (IP65) |
| | | • Sensor: | IP68 (Submersible) |

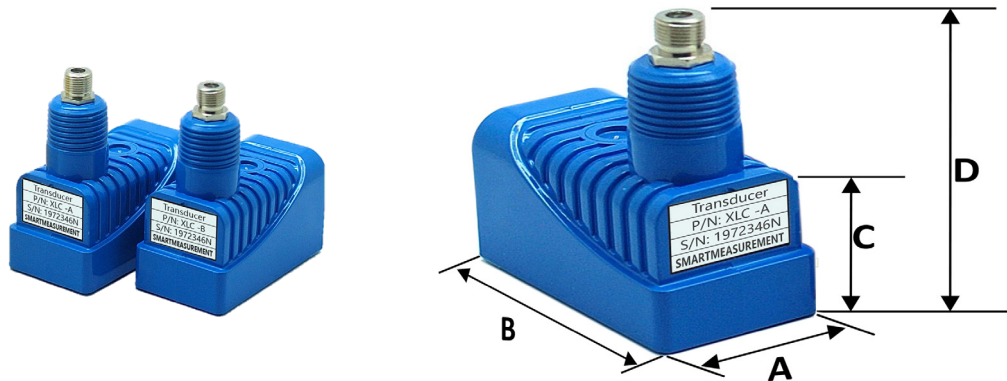


TRANSDUCER SPECIFICATIONS

■ Standard transducers

Fluid Temperature : -4 ~ 250 ° F (-20 ~ 120 ° C)

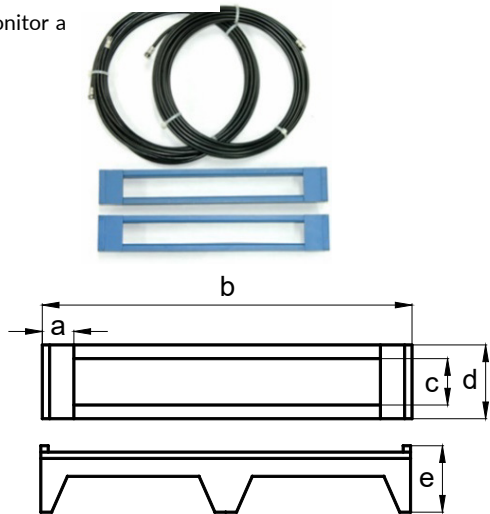
| Model | A | B | C | D | Pipe Size (Nominal) |
|-------|---------------|----------------|---------------|----------------|----------------------------|
| XLB | 0.90" (23 mm) | 1.65" (42 mm) | 1.45" (37 mm) | 2.48" (63 mm) | 3/4" ~ 4" (DN 20 ~ 100 mm) |
| XLC | 1.38" (35 mm) | 2.36" (60 mm) | 1.77" (45 mm) | 2.83" (72 mm) | 2" ~ 12" (DN 50 ~ 300 mm) |
| XLD | 1.38" (35 mm) | 3.66" (93 mm) | 1.97" (50 mm) | 3.38" (86 mm) | 8" ~ 40" (DN200~1000mm) |
| XLE | 2.00" (51 mm) | 5.70" (145 mm) | 3.00" (76 mm) | 4.37" (111 mm) | 20" ~ 240" (DN500~6000mm) |



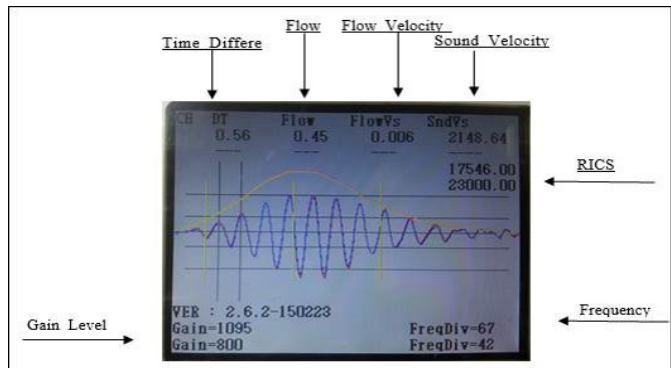
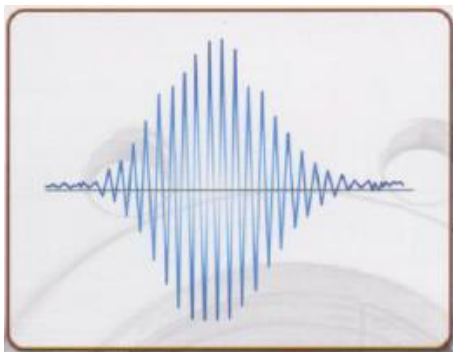
Dual path or dual channel - Users may measure two pipe simultaneously or use both paths to monitor a single pipe for improved accuracy and improved performance in high-particle count applications.

■ Mounting Track Size

| Model | a | b | c | d |
|-------|---------------|-----------------|---------------|---------------|
| M-XLB | 1.18" (30 mm) | 11.00" (280 mm) | 0.90" (23 mm) | 0.90" (23 mm) |
| M-XLC | 1.57" (40 mm) | 14.96" (380 mm) | 1.38" (35 mm) | 1.69" (43 mm) |
| M-XLD | 1.57" (40 mm) | 27.55" (700 mm) | 1.38" (35 mm) | 1.69" (43 mm) |
| M-XLE | 1.57" (40 mm) | 14.96" (380 mm) | 2.00" (51 mm) | 2.75" (70 mm) |



■ Oscilloscope Function (Diagnostic)



INSTALLATION

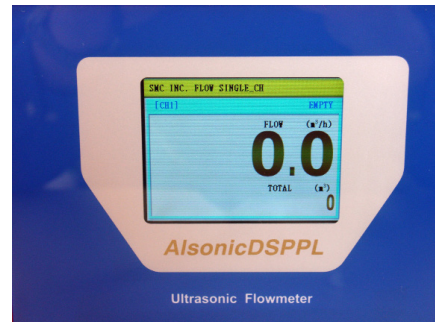
■ Display Module



Transducers



Mounting Kit



Please contact your **SmartMeasurement** application engineer
 You also need to provide the following information:

| | |
|----------------------------------|--|
| TYPE OF FLUID | Please provide the name of your fluid, including operating density and viscosity |
| LINE SIZE | Please indicate nominal pipe diameter and sensor connection type (insertion, clamp, etc..) |
| PROCESS PRESSURE AND TEMPERATURE | We will calibrate your flowmeter as close to your operating conditions as possible |
| TYPE OF ELECTRONICS | Please specify output and installation type (compact, wall mount, panel mount, etc..) |
| PIPE NAME AND MATERIAL | Please provide pipe material, wall thickness, lining type, lining thickness |
| PIPE CONDITION | Straight pipe condition (10D upstream, 5D downstream of sensor location required) |

| ALSONIC-DSPPL | | ** | ** | ** | DESCRIPTION |
|--|-----|----|-----|-----|--------------|
| Portable type, up to 2 path/channel, IP66, AC power, Two 4-20mA, Two Relays, One RS-232C/485 | PL | | | | Transmitter |
| Clamp-On, ½"~1¼" (DN6~30), up to 248°F (120°C), Intrinsically Safe, 0.02 to 12 m/s | XLA | | | | Transducers |
| Clamp-On, ¾"~3" (DN20~80), up to 248°F (120°C), Intrinsically Safe, 0.02 to 12 m/s | XLB | | | | |
| Clamp-On, 2"~12" (DN50~300), up to 248°F (120°C), Intrinsically Safe, 0.02 to 12 m/s | XLC | | | | |
| Clamp-On, 12"~36" (DN300~900), up to 248°F (120°C), Intrinsically Safe, 0.03 ~ 40 feet/sec (0.02 to 12 m/s) | XLD | | | | |
| Clamp-On, 20"~120" (DN500~3000), up to 248°F (120°C), Intrinsically Safe, 0.03 ~ 40 feet/sec (0.02 to 12 m/s) | XLE | | | | |
| Clamp-On, 80"~236" (DN2000~6000), up to 248°F (120°C), Intrinsically Safe, 0.03 ~ 40 feet/sec (0.02 to 12 m/s) | XLF | | | | |
| No cable | | | NC | | Signal Cable |
| 10m cable (standard). | | | C10 | | |
| cable length is **(<=200m) | | | C** | | |
| No option | | | | NN | Options |
| Mounting track for transducer XLA | | | | MTA | |
| Mounting track for transducer XLB | | | | MTB | |
| Mounting track for transducer XLC | | | | MTC | |
| Mounting track for transducer XLD | | | | MTD | |
| Mounting track for transducer XLE/XLF | | | | MTE | |
| Portable easy mounting track for XLC, XLD | | | | ETP | |
| Portable magnetic mounting track for XLC, XLD, XLE | | | | MTP | |
| IR Remote control | | | | RC | |

