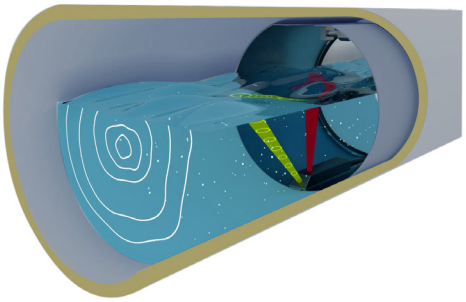
# ALSONIC

Doppler Open Channel Flow Meter

**ALSONIC-DAVM Series**

## GENERAL

The ALSONIC-DAVM velocity area flow meter is designed for applications in full or partially full pipes 150 - 6000 mm (6-240 inches) in diameter, or open channels with flow width 200-10000mm (8-400 inches) and depths 20 - 10000 mm (¾ - 400 inches). It uses advanced Doppler profiling technology to directly measure velocity profiles making it the best choice for sites with nonuniform, rapidly changing, backwatered, near zero, negative or reverse flow conditions. This eliminates the need for onsite calibration, thereby significantly reducing the cost of installation. Combined with an integral upward looking ultrasonic or a secondary external pressure sensor (optional) for determining the depth, the meter uses a numerical model for averaging velocity across the entire cross section and the continuity equation to calculate flow. Information on the level, velocity, flow, temperature, conductivity and position offset can be taken from the transmitter/flow computer or directly from the sensor. This meter will log data up to 16GB of data. In addition, the flow meter can control a sampler in a flow-proportional sampling mode by means of a pulse output.



## SPECIFICATION

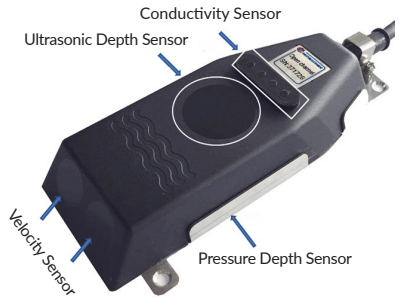

### Flow computer

| Transmitter: | Wall mount | Portable |
|---|---|---|
| Power Supply: | AC: 85 - 265$V_{AC}$, 45 - 63Hz<br>DC: 12 - 28$V_{DC}$, $I_{max}$=23mA | Battery: 11.1$V_{DC}$, 6600mAh<br>AC charger: 220$V_{AC}$, 1 - 2A |
| Protection: | IP66 | IP67 |
| Fluid Temperature: | -5°F - +140°F (-20°C - +60°C) | -5°F - +140°F (-20°C - +60°C) |
| Enclosure Material: | GFRP | ABS |
| Display: | 4.5" digit LCD | 4.5" LCD |
| Input: | RS485 | RS485, One Wire |
| Output: | Velocity, depth, temperature, conductivity, tilt | Velocity, depth, temperature, conductivity, tilt |
| Communication: | Std - pulse, 2*4 - 20mA<br>Opt - RS485/Modbus, datalogger, GPRS | Std - display<br>Opt - pulse, 2*4 - 20mA, RS485/Modbus, datalogger, GPRS |
| Dimensions: | L×W×H: 244×196×114 (mm) | L×W×H: 270×215×175 (mm) |
| Weight: | 5..25 lbs (2.4 kg) | 6.5 lbs (3 kg) |
| Data Logger: | 16GB | 16GB |
| Applications: | partially full pipe: 6~240" (150 - 6000mm)<br>Open Channel: 8"~400" (200 - 10000mm) | partially full pipe: 6~240" (150 - 6000mm)<br>Open Channel: 8"~400" (200 - 10000mm) |

## Transducer

| | | |
|---|---|---|
| Velocity: | Measure Range | 0.2-1.6m/s (Opt: 0.2 - 12m/s bi-direction) |
| | Accuracy | ±1% of reading |
| | Resolution | 1mm/s |
| Depth(ultrasonic): | Measure Range | 20mm to 5000mm (5m) |
| | Accuracy | ±1% FS |
| | Frequency | 1M Hz |
| | Resolution | 1mm |
| Depth(pressure): | Measuring Range | 20mm to 10000mm (10m) |
| | Accuracy | ±1% FS |
| | Resolution | 1mm |
| Temperature: | Measuring Range | 32°F ~140°F (0 ~ 60°C) |
| | Accuracy | ±0.5°C |
| | Resolution | 0.1°C |
| Conductivity: | Measuring Range | 0 to 200,000 µS/cm |
| | Accuracy | ± 1% of reading |
| | Resolution | ±1 µS/cm |
| Tilt: | Measuring Range | ±70°@ vertical and horizontal |
| | Accuracy | ±1°@ angle < 45° |
| Output: | SDI - 12 | Velocity, depth, temperature, conductivity, tilt |
| | Modbus | Velocity, depth, temperature, conductivity, tilt |
| | One wire | pressure |
| Other: | Power Supply | 10-24 $V_{DC}$, 50uA standby, 150mA active for 1 second @12V |
| | Operating temperature | 32°F~140°F (0°- +60°C) |
| | Storage | -20°C - +60°C, 0–100% RH to 140 °F (60°C) |
| | Particle concertration | >50 ppm |
| | Frequency | 2M Hz |
| | Protection | IP68 |
| | Shock resistance | up to 2g, conforms to IEC60068-2-6 |
| | Interference-resistant | Conforms to EN61326/A1 |
| | Cable | Std 15m |
| | | up to 60m for SDI-12 |
| | | up to 500m for RS485 |
| | Materials | Sensor enclosure - Epoxy, Installation bracket - 304SS |
| | Dimensions | L×W×H: 5¼" x 2" x ¾" (135×50×20 mm) |
| | Weight | 1kg (incl. 200g sensor and 15m cable) |

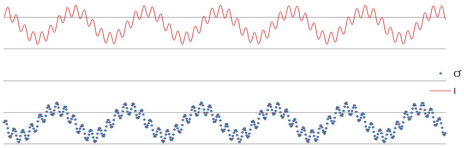
# TECHNICAL INFORMATION




## INDEPENDENT OUTPUT SENSOR

Independent output from the sensor to the control system or PC directly (with our software). RS485-Modbus communication for velocity, flow, level, temperature, conductivity, and position offset. SDI-12 for velocity and flow. One wire barometric for pressure. The power supply is 12VDC. The sensor is standard IP68, and the cable is up to 500m.

## SOFTWARE

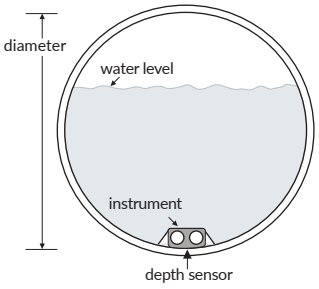


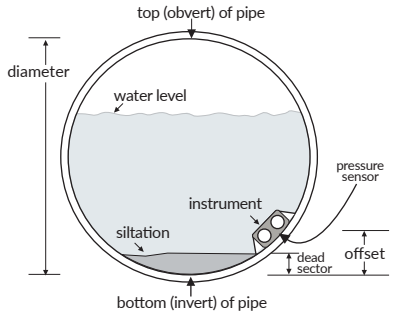
The program software allows users to easily communicate with the sensor directly, and view current and download logged data. Drop-down menus allow even unexperienced users to quickly learn the program. The program communicates via a RS485 connection.

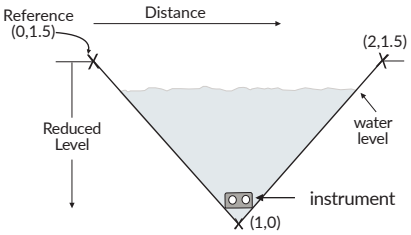
## MOUNTING SYSTEM

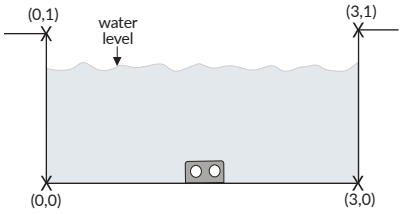
Mounting Plate, Spring Ring and Scissors Rings

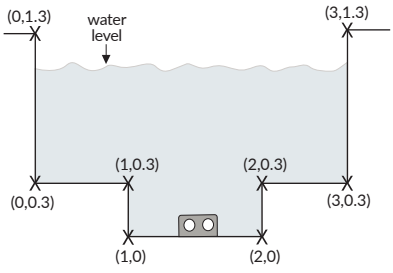
All sensors can be attached to a mounting plate, spring and scissors rings assembly to install the sensors in minutes and reduce time in the manhole. The sensor is first attached to a carrier and can than slide onto any of the compatible mounting systems. This maintains a height, suitable for measuring flow rates and velocities at very low water levels. To install the sensors in rectangular, trapezoidal or earthen channels, we recommend the sensor mounting plate. Stainless steel spring rings simplify sensor installation in cylindrical pipes. Standard diameters from 150 mm (6 inches) to 600 mm (24 inches) are available. You can install the sensor and fasten the cable to the downstream edge of the ring in place before you enter the manhole. The self-expanding device is tightness by expanding the band for a friction fit inside the pipe. The adjustable scissors ring is installed in large diameter pipes from 500 mm (20 inches) to 1800 mm (72 inches) in diameter. It consists of a base section, one or more pairs of extensions to fit the size of the pipe, and a scissors mechanism.

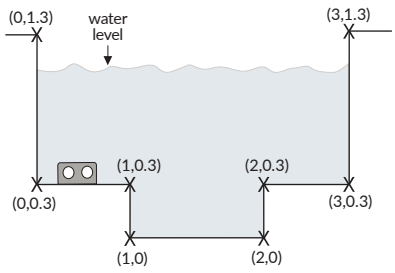


** Please contact your local SmartMeasurement application engineer
You also need to provide the following information:

| | |
|---|---|
| TYPE OF FLUID | Please provide the name of your fluid, including operating density and viscosity. |
| CHANNEL GEOMETRY | Please specify the type of channel (rectangular, circular, trapezoidal) |
| PROCESS TEMPERATURE | We will calibrate your flowmeter as close to your operating conditions as possible. |
| TYPE OF ELECTRONICS | Please specify output and installation type (wall mount, panel mount, etc.) |
| LEVEL INSTRUMENT | Please provide a make & model for the level transmitter that will be used. |

**ALSONIC DAVM**

| ALSONIC DAVM | ** | ** | ** | ** | ** | ** | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| Portable | P | | | | | | Transmitter |
| Wall Mount | W | | | | | | |
| No Transmitter | N | | | | | | |
| 10 - 24$V_{DC}$ | | DC | | | | | Power supply |
| 85 - 265$V_{AC}$, 45 - 63Hz | | AC | | | | | |
| Standard - display | | | S | | | | Output |
| No output | | | N | | | | |
| Pulse | | | P | | | | |
| 4-20mA | | | I | | | | |
| RS485 | | | C | | | | |
| Data logger - 16GB | | | D | | | | |
| GPRS | | | G | | | | |
| SDI-12 | | | E | | | | |
| None | | | | N | | | Transducer |
| Standard sensor - 0.2-1.6m/s bi-direction | | | | S | | | |
| Extend sensor - 0.2-12m/s bi-direction | | | | L | | | |
| Standard 15m | | | | | N | | Signal Cable |
| To be advised **m | | | | | ** | | |
| Program to read sensor by SDI-12/RS485 | | | | | | SF | Options |
| Installation part | | | | | | IS | |