

# FLO-DETECTOR™

Model 302 SVS

## OPERATOR'S MANUAL





Orientation-independent electromagnetic surface velocity measurement

**AM-302-UM-001 • Revision A – Initial Commercial Release**

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*We simplify professional flow measurement. • Measure with Confidence.*



## Welcome

Thank you for choosing the Aqua-Magnetics® FLO-DETECTOR™ Model 302 SVS. The FLO-DETECTOR is a professional surface velocity measurement system designed for engineers, municipalities, utilities, environmental professionals, and contractors. Powered by VectorSense™ orientation-independent sensing technology, it measures two orthogonal velocity components simultaneously and calculates the resultant surface velocity.

This Operator's Manual explains installation, operation, maintenance, calibration, and recommended field measurement techniques for the FLO-DETECTOR.

**DOCUMENT IDENTIFICATION** FLO-DETECTOR™ Model 302 SVS • AM-302-UM-001 • Revision A – Initial Commercial Release



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## Section 1 – Introduction

### 1.1 Product Overview

The FLO-DETECTOR™ Model 302 SVS is a portable orientation-independent surface velocity measurement system. Unlike conventional single-axis electromagnetic sensors, the VectorSense™ Sensor Head measures two horizontal velocity components and computes the resultant velocity in real time.

### 1.2 Typical Applications

Stormwater runoff investigations

Open-channel flow studies

Streams and rivers

Irrigation canals

Wastewater channels

Culvert evaluations

Flood investigations

Hydraulic engineering studies

### 1.3 System Components

| Component                      | Purpose                                      |
|--------------------------------|----------------------------------------------|
| Electronics Control Unit (ECU) | Signal processing, Wi-Fi, and system control |
| VectorSense™ Sensor Head       | Electromagnetic velocity measurement         |
| Telescoping Rod                | Sensor positioning                           |
| Forearm Support                | Operator stability                           |
| Battery System                 | Portable power                               |
| FLO-View™                      | Browser-based interface                      |
| PrecisionTow™                  | Individual factory calibration               |

#### ENGINEERING INSIGHT

The primary innovation of the FLO-DETECTOR is orientation-independent measurement. VectorSense™ calculates the resultant velocity from X and Y components, reducing the need for precise rotational alignment and improving repeatability between operators.

## Section 2 – Safety

### 2.1 Introduction

The FLO-DETECTOR™ Model 302 SVS is intended for professional use in streams, stormwater systems, wastewater channels, irrigation canals, and other open-channel environments. While the instrument is simple to operate, field conditions can present significant hazards. The operator is responsible for evaluating site conditions and following all applicable safety procedures.

### 2.2 Safety Signal Words

| Signal Word | Meaning                                                |
|-------------|--------------------------------------------------------|
| DANGER      | Will result in death or serious injury if not avoided. |
| WARNING     | Could result in death or serious injury.               |
| CAUTION     | May result in minor injury or equipment damage.        |
| NOTICE      | Important operating information.                       |

### 2.3 General Safety

Read this manual before use. Inspect the instrument before each deployment. Never operate damaged equipment.

### 2.4 Water Hazards

Evaluate water depth, current, footing, weather, and escape routes before approaching the measurement location. Never enter flood waters or rapidly rising streams.

### 2.5 Traffic Hazards

Use high-visibility PPE and appropriate traffic control whenever working adjacent to roadways.

### 2.6 Confined Spaces

Do not enter permit-required confined spaces unless all applicable procedures, permits, monitoring, and rescue requirements have been satisfied.

### 2.7 Battery Safety

Use only approved batteries and chargers. Do not short battery terminals or expose batteries to excessive heat.

### 2.8 Instrument Handling

Do not lift the instrument by the sensor cable. Avoid striking the sensor head or electrodes against rocks or concrete.

### 2.9 PPE

Appropriate PPE may include safety glasses, gloves, safety footwear, a high-visibility vest, hard hat, and a personal flotation device when required.

### 2.10 Safe Operating Practices

Inspect the instrument, verify battery charge, connect to FLO-View™, assess the site, keep the ECU above the waterline, and maintain awareness of changing conditions.



#### **BEST PRACTICE**

Whenever practical, perform measurements from the bank using the telescoping rod instead of entering flowing water.

#### **ENGINEERING INSIGHT**

VectorSense™ minimizes the need for precise rotational alignment, allowing operators to spend more attention on selecting representative measurement locations and maintaining safe working practices.

## Section 3 – Product Overview

### 3.1 System Overview

The FLO-DETECTOR™ Model 302 SVS is a complete surface velocity measurement system consisting of the Electronics Control Unit (ECU), the VectorSense™ Sensor Head, a telescoping measurement rod, ergonomic forearm support, rechargeable battery system, and FLO-View™ browser-based software.



Figure 3-1. FLO-DETECTOR™ assembled instrument.

## 3.2 Major Components

| Item | Component                      | Function                                              |
|------|--------------------------------|-------------------------------------------------------|
| 1    | Electronics Control Unit (ECU) | Processes signals, computes velocity, hosts FLO-View™ |
| 2    | VectorSense™ Sensor Head       | Measures X and Y velocity components                  |
| 3    | Telescoping Rod                | Positions the sensor safely                           |
| 4    | Forearm Support                | Improves stability and reduces fatigue                |
| 5    | Bubble Level                   | Provides level reference                              |
| 6    | Battery Pack                   | Portable 12 V power                                   |
| 7    | Battery Charger                | Recharges battery pack                                |

## 3.3 Electronics Control Unit

The ECU contains the excitation electronics, signal conditioning, Cortex M0 processor, Wi-Fi module, power management circuitry, and the embedded FLO-View™ web server. It continuously computes resultant velocity from the measured X and Y components.

## 3.4 VectorSense™ Sensor Head

The sensor head contains the electromagnetic excitation coil, four stainless steel electrodes, internal electronics, integrated bubble level, and polyurethane encapsulation. The assembly contains no moving measuring components.

## 3.5 Orientation-Independent Measurement

The primary purpose of the four-electrode design is to enable two-axis measurement. By simultaneously measuring orthogonal velocity components and calculating the resultant vector, VectorSense™ minimizes the need for precise rotational alignment during field measurements.

## 3.6 Telescoping Rod and Forearm Support

The lightweight rod and adjustable forearm support provide comfortable operation while allowing measurements from the bank whenever practical.

## 3.7 Battery System

The FLO-DETECTOR uses a rechargeable DeWalt® compatible lithium-ion battery. Batteries are easily exchanged in the field to maximize operating time.

## 3.8 FLO-View™

FLO-View™ is hosted directly on the ECU and accessed through a standard web browser using Wi-Fi Direct. No application download or internet connection is required.

### ENGINEERING INSIGHT

The FLO-DETECTOR should be viewed as a complete measurement system rather than a sensor. VectorSense™, FLO-View™, and PrecisionTow™ work together to simplify professional flow measurement while improving repeatability.

## Section 4 – Theory of Operation

### 4.1 Introduction

The FLO-DETECTOR™ Model 302 SVS measures surface water velocity using Aqua-Magnetics' proprietary VectorSense™ orientation-independent electromagnetic sensing technology. The system contains no moving measuring components and determines velocity electronically.

### 4.2 Electromagnetic Measurement Principle

When conductive water moves through the controlled magnetic field generated within the VectorSense™ Sensor Head, a voltage proportional to velocity is induced at the sensing electrodes. These low-level signals are amplified, filtered, digitized, and processed by the Electronics Control Unit.



*Figure 4-1. VectorSense™ sensor head and four-electrode geometry.*

### 4.3 The Limitation of Single-Axis Sensors

Conventional electromagnetic sensors measure velocity along a single sensing axis. Accurate measurements require careful rotational alignment with the direction of flow. Misalignment reduces the measured velocity and introduces operator-dependent variability.

*Figure 4-2 Traditional sensor aligned with flow versus rotated sensor showing reduced measured component.*

### 4.4 VectorSense™ Two-Axis Measurement

VectorSense™ uses four stainless steel electrodes arranged to independently measure two orthogonal horizontal velocity components (X and Y). The primary purpose of the four-electrode configuration is to enable orientation-independent measurement by minimizing the need for precise rotational alignment.



Figure 4-3. Four-electrode VectorSense™ sensor geometry.

## 4.5 Resultant Velocity

The Electronics Control Unit continuously computes the resultant surface velocity from the measured X and Y components.

$$\text{Resultant Velocity} = \sqrt{X^2 + Y^2}$$

The resultant velocity is displayed in FLO-View™ together with the individual X and Y components and flow angle.

## 4.6 Signal Processing

The Electronics Control Unit performs excitation control, low-noise amplification, analog filtering, analog-to-digital conversion, digital filtering, vector calculations, battery monitoring, and wireless communication. Processing occurs continuously in real time.

Figure 4-4 Signal processing block diagram.

## 4.7 Why Orientation-Independent Measurement Matters

- Reduces operator alignment error
- Improves repeatability between operators
- Reduces setup time
- Simplifies training
- Allows operators to focus on representative measurement locations instead of sensor rotation

### ENGINEERING INSIGHT

The value of VectorSense™ is not simply that it measures two axes—it is that the two-axis measurement is used to reduce one of the largest practical sources of field variability: rotational alignment. Proper leveling, immersion depth, and representative site selection remain essential for high-quality measurements.

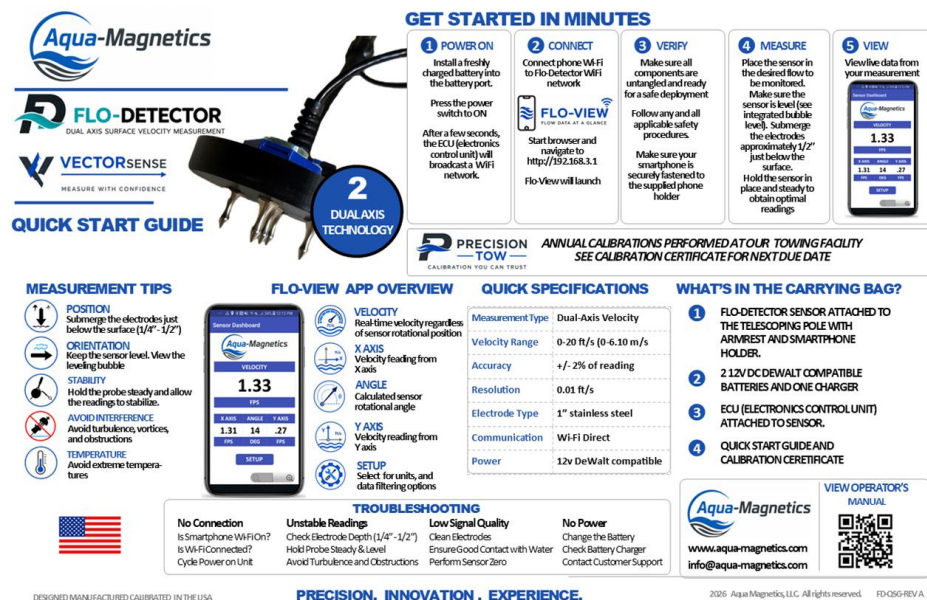
### CHAPTER SUMMARY

VectorSense™, FLO-View™, and PrecisionTow™ combine to form a complete measurement system. The two-axis electromagnetic architecture simplifies professional flow measurement while supporting repeatable, engineering-grade surface velocity measurements.

## Section 5 – Package Contents

### 5.1 Introduction

Carefully inspect the shipping container upon receipt. If shipping damage is observed, notify the carrier immediately. Verify that all standard components are present before placing the instrument into service.



**QUICK START GUIDE**

- POWER ON**  
Install a freshly charged battery into the battery port.  
Press the power switch to ON.  
After a few seconds, the ECU (electronics control unit) will broadcast a WiFi network.
- CONNECT**  
Connect phone WiFi to Flo-Detector WiFi network.  
Start browser and navigate to <http://192.168.3.1>. Flo-View will launch.
- VERIFY**  
Make sure all components are untangled and ready for a safe deployment.  
Follow any and all applicable safety procedures.  
Make sure your smartphone is securely fastened to the supplied phone holder.
- MEASURE**  
Place the sensor in the desired flow to be monitored.  
Make sure the sensor is level (see Integrated bubble level). Submerge the electrodes approximately 1/2" just below the surface.  
Hold the sensor in place and steady to obtain optimal readings.
- VIEW**  
View live data from your measurement.

**GET STARTED IN MINUTES**

**MEASUREMENT TIPS**

- POSITION**  
Submerge the electrodes just below the surface (1/4" - 1/2").
- ORIENTATION**  
Keep the sensor level. View the leveling bubble.
- STABILITY**  
Hold the probe steady and allow the readings to stabilize.
- AVOID INTERFERENCE**  
Avoid turbulence, vortices, and obstructions.
- TEMPERATURE**  
Avoid extreme temperatures.

**FLO-VIEW APP OVERVIEW**

- VELOCITY**  
Real time velocity regardless of sensor rotational position.
- X AXIS**  
Velocity reading from X axis.
- ANGLE**  
Calculated sensor rotational angle.
- Y AXIS**  
Velocity reading from Y axis.
- SETUP**  
Select for units, and data filtering options.

**QUICK SPECIFICATIONS**

|                  |                        |
|------------------|------------------------|
| Measurement Type | Dual-Axis Velocity     |
| Velocity Range   | 0-20 ft/s (0-6.10 m/s) |
| Accuracy         | +/- 2% of reading      |
| Resolution       | 0.01 ft/s              |
| Electrode Type   | 1" stainless steel     |
| Communication    | Wi-Fi Direct           |
| Power            | 12v DeWalt compatible  |

**WHAT'S IN THE CARRYING BAG?**

- FLO-DETECTOR SENSOR ATTACHED TO THE TELESCOPING POLE WITH ARMREST AND SMARTPHONE HOLDER.
- 2 12V DeWALT COMPATIBLE BATTERIES AND ONE CHARGER.
- ECU (ELECTRONICS CONTROL UNIT) ATTACHED TO SENSOR.
- QUICK START GUIDE AND CALIBRATION CERTIFICATE.

**TROUBLESHOOTING**

|                                                                                              |                                                                                                                                    |                                                                                                         |                                                                                             |
|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>No Connection</b><br>Is Smartphone WiFi On?<br>Is WiFi Connected?<br>Cycle Power on Unit. | <b>Unstable Readings</b><br>Check Electrode Depth (1/4" - 1/2")<br>Hold Probe Steady & Level<br>Avoid Turbulence and Obstructions. | <b>Low Signal Quality</b><br>Clean Electrodes<br>Ensure Good Contact with Water<br>Perform Sensor Zero. | <b>No Power</b><br>Change the Battery<br>Check Battery Charger<br>Contact Customer Support. |
|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|

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Figure 5-1. FLO-DETECTOR™ system reference.

### 5.2 Standard Package Contents

| Item | Description                     | Qty | Verify                   |
|------|---------------------------------|-----|--------------------------|
| 1    | Electronics Control Unit (ECU)  | 1   | <input type="checkbox"/> |
| 2    | VectorSense™ Sensor Head        | 1   | <input type="checkbox"/> |
| 3    | Telescoping Measurement Rod     | 1   | <input type="checkbox"/> |
| 4    | Forearm Support Assembly        | 1   | <input type="checkbox"/> |
| 5    | 10 ft Sensor Cable              | 1   | <input type="checkbox"/> |
| 6    | 12 V DeWalt® Compatible Battery | 2   | <input type="checkbox"/> |
| 7    | Battery Charger                 | 1   | <input type="checkbox"/> |
| 8    | Operator's Manual               | 1   | <input type="checkbox"/> |
| 9    | Calibration Certificate         | 1   | <input type="checkbox"/> |
| 10   | Carrying Case                   | 1   | <input type="checkbox"/> |

### 5.3 Initial Inspection

Inspect the sensor head for shipping damage.



Verify that the electrodes are clean and undamaged.

Inspect the sensor cable and connectors.

Verify the bubble level is intact.

Confirm battery packs and charger are included.

Review the calibration certificate.

## 5.4 Missing or Damaged Items

If any components are missing or damaged, retain all packing materials and contact Aqua-Magnetics before placing the instrument into service.

### NOTICE

Do not discard the shipping container until the instrument has been inspected and all components have been accounted for.

### ENGINEERING INSIGHT

Every FLO-DETECTOR is individually calibrated using the PrecisionTow™ process before shipment. The calibration certificate supplied with the instrument documents the calibration of that specific serial number.

## Section 6 – Specifications

### 6.1 General

The following specifications apply to the FLO-DETECTOR™ Model 302 SVS under normal operating conditions.

#### Velocity Transducer

| Parameter          | Specification                 |
|--------------------|-------------------------------|
| Measurement Method | Electromagnetic               |
| Velocity Range     | 0–20 ft/s (0–6.09 m/s)        |
| Accuracy           | ±2% of reading                |
| Zero Stability     | ±0.05 ft/s (±0.015 m/s)       |
| Resolution         | 0.01                          |
| Body Material      | Black polyurethane, Shore 70D |
| Ingress Protection | IP68 (Sensor Head)            |
| Electrodes         | Stainless steel               |
| Cable              | 10 ft (3.0 m)                 |

#### Electronics

| Parameter      | Specification                     |
|----------------|-----------------------------------|
| Main Processor | ARM Cortex M0 (SAMD21)            |
| Wireless       | 802.11 b/g/n Wi-Fi                |
| User Interface | FLO-View™ browser-based interface |
| Communications | Wi-Fi Direct                      |

#### Power

| Parameter       | Specification                  |
|-----------------|--------------------------------|
| Battery         | 12 V DeWalt® compatible Li-ion |
| Charging        | External battery charger       |
| Field Operation | Hot-swappable battery packs    |

#### Mechanical

| Parameter         | Specification                |
|-------------------|------------------------------|
| Sensor Dimensions | 6 in diameter × 1.38 in high |
| Forearm Support   | Adjustable                   |
| Measurement Rod   | Telescoping                  |



## 6.2 Recommended Operating Conditions

Keep the Electronics Control Unit above the waterline.

Immerse the sensor head approximately 1/2 in (13 mm) below the water surface.

Maintain the sensor level using the integrated bubble level.

Allow readings to stabilize before recording measurements.

### ENGINEERING INSIGHT

Published specifications describe instrument performance. Measurement quality also depends on representative site selection, proper immersion depth, and good field technique.

## Section 7 – Assembly & Getting Started

### 7.1 Introduction

This section describes assembly of the FLO-DETECTOR™ Model 302 SVS and preparation for field operation.

### 7.2 Unpack the Instrument

Remove all components from the carrying case and verify that the package contents match Section 5. Inspect for visible damage before assembly.

Figure 7-1 Placeholder: Open carrying case.

### 7.3 Install the Battery

Slide a fully charged DeWalt® compatible battery into the rear battery mount until the latch engages. Verify the battery is secure.

Figure 7-2 Placeholder: Battery installation.

### 7.4 Connect the Sensor

Connect the VectorSense™ Sensor Head cable to the ECU. Tighten the connector until fully seated. Do not overtighten.

Figure 7-3 Placeholder: Sensor cable connection.

### 7.5 Attach the Telescoping Rod

Secure the telescoping rod to the sensor assembly and verify all locking mechanisms are fully engaged.

Figure 7-4 Placeholder: Rod attachment.

### 7.6 Adjust the Forearm Support

Adjust the forearm support for a comfortable fit. Proper adjustment improves stability and reduces fatigue during extended measurements.

Figure 7-5 Placeholder: Forearm support adjustment.

### 7.7 Power On

Press the power switch. Allow the ECU to complete startup before attempting to connect.

### 7.8 Connect to FLO-View™

Using a phone or tablet, connect to the FLO-DETECTOR Wi-Fi network. Open a web browser and navigate to the FLO-View™ interface. No application installation or internet connection is required.

Figure 7-6 Placeholder: FLO-View home screen.

### 7.9 Pre-Measurement Check

Verify battery status, sensor communication, live velocity display, and bubble level before entering the field.

#### FIELD CHECKLIST

Battery fully charged

Sensor cable connected



Bubble level visible

FLO-View connected

Calibration certificate current

Sensor clean and free of debris

#### **BEST PRACTICE**

Complete assembly and verify communication before approaching the measurement location. This reduces setup time and distractions near flowing water.

#### **ENGINEERING INSIGHT**

The FLO-DETECTOR was engineered to minimize setup steps. VectorSense™ reduces alignment requirements while FLO-View™ eliminates app installation, allowing operators to begin collecting measurements quickly.

## Section 8 – FLO-View™ Software

### 8.1 Overview

FLO-View™ is the browser-based user interface for the FLO-DETECTOR™. The application is hosted directly on the Electronics Control Unit (ECU) and accessed over Wi-Fi Direct using a standard web browser. No application download, software installation, or internet connection is required.

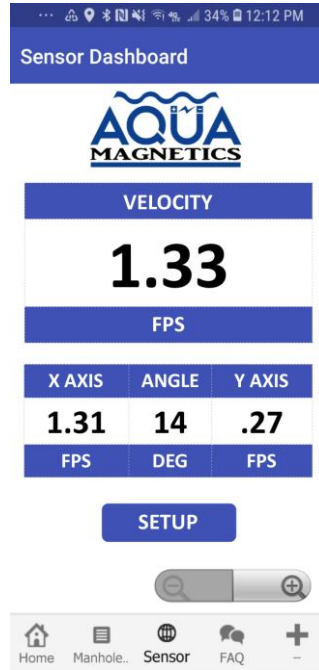


Figure 8-1. FLO-View™ main screen.

### 8.2 Connecting to FLO-View™

Install a charged battery and power on the ECU.

On the mobile device, open Wi-Fi settings.

Connect to the FLO-DETECTOR Wi-Fi network.

Open a supported web browser.

Navigate to the FLO-View™ interface.

Confirm that live velocity data is displayed.

### 8.3 Main Screen

| Display Item       | Description                        |
|--------------------|------------------------------------|
| Resultant Velocity | Primary displayed surface velocity |
| X Velocity         | Horizontal X-axis component        |
| Y Velocity         | Horizontal Y-axis component        |

|                   |                            |
|-------------------|----------------------------|
| Flow Angle        | Calculated flow direction  |
| Battery Status    | Remaining battery capacity |
| Units             | Selected engineering units |
| Connection Status | Communication with ECU     |

## 8.4 Measurement Units

FLO-View™ supports selectable engineering units. Changing display units does not affect the underlying measurement.

## 8.5 Live Measurements

Velocity values are updated continuously. Allow readings to stabilize before recording results. Natural fluctuations caused by turbulence are normal and should not be interpreted as instrument error.

## 8.6 Settings

Velocity units  
Display preferences  
System information  
Firmware version  
Battery information

## 8.7 Disconnecting

Close the browser when finished. Power off the ECU after completing field measurements to conserve battery power.

### TROUBLESHOOTING

| Problem                    | Corrective Action                                        |
|----------------------------|----------------------------------------------------------|
| Cannot connect to Wi-Fi    | Verify ECU is powered on and battery is charged.         |
| No live velocity displayed | Check sensor cable connection.                           |
| Browser page unavailable   | Reconnect to FLO-DETECTOR Wi-Fi and refresh the browser. |

### ENGINEERING INSIGHT

Hosting FLO-View™ on the ECU eliminates application installation, simplifies device compatibility, and allows virtually any modern phone, tablet, or computer with a web browser to operate the FLO-DETECTOR.

## Section 9 – Field Measurement Techniques

### 9.1 Objective

The objective of every measurement is to obtain a representative surface velocity. The quality of the final measurement depends on site selection, sensor placement, and operator technique as much as instrument performance.

### 9.2 Selecting a Measurement Location

Whenever practical, select a straight reach of channel with uniform flow and stable water surface conditions.

Uniform flow with minimal turbulence

Straight channel section

Good operator access

Stable footing

Minimal floating debris

Avoid measurements immediately downstream of culvert outlets, bridge piers, hydraulic jumps, sharp bends, or large obstructions unless these conditions are the subject of the investigation.

*Figure 9-1 Good versus poor measurement locations.*

### 9.3 Sensor Position

Lower the VectorSense™ Sensor Head until the electrodes are immersed approximately 1/2 inch (13 mm) below the water surface. Use the integrated bubble level to keep the sensor level throughout the measurement.



*Figure 9-2. Typical field measurement positioning.*

### 9.4 Stabilizing the Reading

Hold the instrument steady.

Allow the displayed velocity to stabilize.

Observe natural fluctuations caused by turbulence.

Record the representative value.

## 9.5 Typical Applications

| Application         | Recommended Practice                                                 |
|---------------------|----------------------------------------------------------------------|
| Streams and Rivers  | Select a straight reach with uniform depth and avoid eddies.         |
| Stormwater Channels | Avoid splash zones and hydraulic jumps immediately below structures. |
| Culverts            | Measure upstream or downstream where the flow becomes uniform.       |
| Wastewater Channels | Keep the sensor free of floating debris and grease.                  |
| Irrigation Canals   | Measure away from gates and control structures.                      |

## 9.6 Wind, Waves, and Debris

Strong winds and floating debris can influence the water surface. Observe site conditions before taking measurements and relocate if debris repeatedly contacts the sensor.

## 9.7 Common Operator Errors

| Error                        | Result                      |
|------------------------------|-----------------------------|
| Measuring in turbulent water | Non-representative velocity |
| Holding the rod too rigidly  | Operator-induced movement   |
| Incorrect immersion depth    | Reduced repeatability       |
| Ignoring site conditions     | Poor quality data           |

### BEST PRACTICE

Observe the flow for 15–30 seconds before taking a measurement. Understanding the hydraulic conditions often improves measurement quality more than moving the instrument.

### ENGINEERING INSIGHT

VectorSense™ reduces the need for precise rotational alignment, but it does not replace good field practice. Representative site selection, proper immersion depth, and careful observation remain essential for high-quality measurements.

### CHAPTER SUMMARY

Professional flow measurements begin with professional field technique. By combining good hydraulic judgment with the orientation-independent capabilities of the FLO-DETECTOR™, operators can obtain fast, repeatable, and dependable surface velocity measurements.

## Section 10 – Maintenance

### 10.1 Routine Maintenance

The FLO-DETECTOR requires minimal routine maintenance. Clean the sensor after each use and inspect the instrument before deployment.

### 10.2 After Each Use

Rinse sensor with clean water.

Remove debris from electrodes.

Dry ECU and cable.

Recharge battery.

### 10.3 Periodic Inspection

Inspect cable and connectors.

Verify bubble level.

Check battery contacts.

Review calibration due date.

### 10.4 Storage

Store the instrument clean and dry inside its carrying case. Remove the battery for long-term storage.

## Section 11 – Troubleshooting

### 11.1 Overview

Most operational issues can be resolved through inspection of power, cable connections, and FLO-View™ communications.

#### COMMON PROBLEMS

No power – Verify battery installation and charge.

No sensor data – Inspect cable and connector.

Cannot connect to FLO-View™ – Reconnect to Wi-Fi and restart ECU.

Unstable readings – Verify representative flow conditions, immersion depth, and clean electrodes.

#### SERVICE

If problems persist, contact Aqua-Magnetics technical support.

## Section 12 – Calibration

### 12.1 PrecisionTow™

Every FLO-DETECTOR is individually calibrated using the PrecisionTow™ process before shipment.

### 12.2 Recalibration

Annual factory recalibration is recommended or as required by your quality program.

### 12.3 Field Verification

Inspect electrodes.

Verify FLO-View™ operation.

Review calibration certificate.



## Section 13 – Service

### 13.1 Factory Service

Contact Aqua-Magnetics before returning an instrument for evaluation or repair.

### 13.2 Before Shipment

Clean instrument.

Remove accessories not required.

Package securely.

Include problem description and serial number.



## Section 14 – Warranty

### 14.1 Limited Warranty

Aqua-Magnetics warrants the FLO-DETECTOR against defects in materials and workmanship for the published warranty period.

### 14.2 Exclusions

Accidental damage

Unauthorized modification

Improper use

Normal wear items

### 14.3 Warranty Service

Contact Aqua-Magnetics for warranty evaluation before returning equipment.



## FLO-DETECTOR™ Model 302 SVS

Professional electromagnetic surface velocity measurement

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