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## Madison M5000

# Instruction Manual

Madison M5000 Liquid Level Sensor

## PRODUCT OVERVIEW

The Madison M5000 is a miniature float switch designed for reliable liquid level detection. Constructed from 316 stainless steel, it is suitable for a wide range of applications, including those requiring superior corrosion resistance, high temperatures, or use in medical, petrochemical, and food processing environments. This sensor detects high or low liquid levels within a container.





**Figure 1:** Madison M5000 Liquid Level Sensor. This image shows the stainless steel float switch with its threaded stem and electrical lead wires extending from the top. The main body is cylindrical, designed to float or sink with liquid levels.

## SAFETY INFORMATION

Before installation and operation, read and understand all instructions. Failure to do so may result in product damage, property damage, or personal injury. Ensure all electrical connections comply with local and national electrical codes. Disconnect power before installing or servicing the sensor.

- Do not exceed the maximum pressure and temperature ratings of 300 PSI and 392°F (200°C).
- Ensure the sensor is rated for the specific liquid and environment it will be used in.
- Switches are rated for resistive loads. Refer to UL guidelines for current (Amperes resistive) at different voltages.

## SETUP AND INSTALLATION

The M5000 sensor is designed for vertical mounting using its 1/8" NPT thread. It can be installed to detect either high or low liquid levels depending on its orientation.

### Mounting Orientation:

- **Normally Open (NO) Operation:** For high-level detection, mount the sensor so the float is at the bottom and rises

with the liquid. The switch will close when the liquid reaches the float.

- **Normally Closed (NC) Operation:** For low-level detection, mount the sensor so the float is at the top and falls with the liquid. The switch will open when the liquid drops below the float.

Installation Steps:

1. Identify the desired mounting location in the container, ensuring it is clean and free of debris.
2. Thread the 1/8" NPT stem into the appropriate port. Use a suitable sealant (e.g., PTFE tape) on the threads to ensure a leak-proof seal. Do not overtighten.
3. Connect the 24", 22 AWG Teflon insulated lead wires to your control circuit. Refer to the electrical specifications for appropriate voltage and current ratings.
4. Verify the float moves freely without obstruction within the container.

OPERATING PRINCIPLES

The Madison M5000 operates on a simple magnetic principle. Inside the stainless steel stem, there is a hermetically sealed reed switch. The float, which contains a magnet, moves along the stem as the liquid level changes. When the magnet in the float comes into proximity with the reed switch, it causes the switch contacts to open or close, signaling the liquid level status to the connected control system.

The float has a specific gravity (SG) of 0.70, meaning it will float in liquids with an SG greater than 0.70. For liquids with an SG less than 0.70, the float will sink, and the sensor's operation will be inverted.

MAINTENANCE

The Madison M5000 liquid level sensor is designed for minimal maintenance due to its robust stainless steel construction. However, periodic inspection is recommended to ensure optimal performance.

- **Cleaning:** If the sensor is used in applications with viscous or particulate-laden liquids, the float and stem may accumulate residue. Periodically clean the float and stem to ensure free movement. Use cleaning agents compatible with 316 stainless steel.
- **Inspection:** Check the lead wires for any signs of damage or wear. Ensure the NPT connection remains secure and leak-free.
- **Functionality Test:** If possible, periodically test the sensor's operation by manually raising or lowering the liquid level (or simulating it) to confirm the switch activates correctly.

TROUBLESHOOTING

Problem	Possible Cause	Solution
Sensor not activating	Incorrect wiring	Verify wiring against electrical diagram.
	Float obstructed or stuck	Inspect and clean float/stem for obstructions.
	Liquid specific gravity too low	Ensure liquid SG is > 0.70 for standard operation.
	Damaged reed switch	Test switch continuity; replace if faulty.
Intermittent readings	Loose electrical connections	Check and secure all wiring connections.
	Vibration	Ensure stable mounting; consider anti-vibration measures.
	Float sticking	Clean float and stem.

Problem	Possible Cause	Solution
Leakage at mounting point	Improper thread sealant Insufficient tightening Damaged threads	Reapply appropriate thread sealant. Tighten connection to recommended torque (without overtightening). Inspect threads for damage; replace sensor or fitting if necessary.

## SPECIFICATIONS

Parameter	Value
Model Number	M5000
Stem Material	316 Stainless Steel
Float Material	316 Stainless Steel
Float Specific Gravity (SG)	0.70
Mounting Thread	1/8" NPT
Max Pressure	300 PSI
Max Temperature	392°F (200°C)
Switch Rating	30 Watt, SPST (Single Pole, Single Throw)
Electrical Ratings	240 VAC, 0.14A 120 VAC, 0.28A 120 VDC, 0.07A 24 VDC, 0.28A
Lead Wires	24", 22 AWG, Teflon Insulated
Approvals	CE, UL, NSF
Product Dimensions	9.06 x 6.3 x 7.09 inches; 1.6 ounces

*Note: Switches are rated for resistive loads. Refer to UL guidelines for current (Amperes resistive) at different voltages.*

## WARRANTY INFORMATION



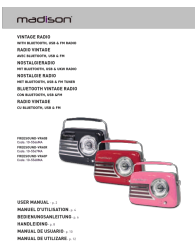

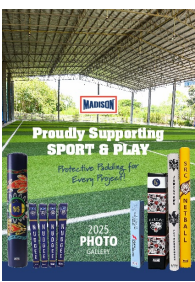
Specific warranty details for the Madison M5000 Liquid Level Sensor are typically provided at the point of purchase or can be obtained directly from Madison Company. Please retain your proof of purchase for warranty claims.

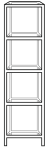
## SUPPORT AND CONTACT

For technical assistance, troubleshooting beyond this manual, or inquiries regarding parts and service, please contact Madison Company directly. Contact information can typically be found on the manufacturer's official website or product packaging.

Manufacturer: Madison Company

## Related Documents - M5000

	<p><a href="#">Madison Custom Printed Information Guide: Logo Artwork, Post Measurement, and Colour Matching</a></p> <p>Learn how to supply logo artwork, measure posts for custom printing, and match colours with Madison's comprehensive guide. Essential information for custom printed sports equipment and apparel.</p>
	<p><a href="#">Madison MAD-MUSICA50 Bluetooth Party Speaker User Manual</a></p> <p>Discover the features and operation of the Madison MAD-MUSICA50 Bluetooth Party Speaker with this comprehensive user manual. It provides detailed instructions, control explanations, and technical specifications in multiple languages for optimal use.</p>
	<p><a href="#">Madison FREESOUND-VR40 Vintage Bluetooth FM Radio User Manual</a></p> <p>Comprehensive user manual for the Madison FREESOUND-VR40 vintage radio, detailing features like Bluetooth, USB playback, FM radio, safety instructions, operation, and specifications.</p>
	<p><a href="#">Madison FREESOUND-VR40 Rechargeable Vintage Radio with Bluetooth, USB &amp; FM Radio 30W Instruction Manual</a></p> <p>User manual for the Madison FREESOUND-VR40 rechargeable vintage radio. This device features Bluetooth connectivity, USB playback, FM radio tuning, and an AUX input. The manual provides detailed safety instructions, operating procedures for pairing, wired connection, USB playback, mode selection, and FM radio usage, along with technical specifications and disposal guidelines.</p>
	<p><a href="#">Madison Protective Padding: Custom Solutions for Sport &amp; Play</a></p> <p>Madison Sport, an Australian manufacturer since 1985, provides custom protective padding for sporting clubs, schools, and businesses. Offering nationwide shipping, 12-month guarantee, and bespoke designs for safety and play.</p>

<div data-bbox="124 98 303 324"><div>Freestanding Linen Cabinet</div><div>INSTALLATION INSTRUCTIONS</div></div>	<div data-bbox="341 203 1042 232"><a href="#">Swiss Madison Freestanding Linen Cabinet Installation Guide</a></div> <div data-bbox="341 241 1457 353">Comprehensive installation instructions for the Swiss Madison Freestanding Linen Cabinet (Model SM-BC51C), covering parts, assembly steps, and warranty information. Ensure proper installation by following these guidelines.</div>
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