Merlin WTM

WATER TEMPERATURE MONITOR

INSTALLATION & OPERATION INSTRUCTIONS

Please read these instructions carefully and retain for future use.

These instructions can be downloaded in electronic form on the product website.

americangassafety.com

Content

Important Warning Statements

⚠ Where this symbol is used, the manual must be consulted to understand the nature of any potential hazards and how to avoid them.

⚠ **Before any installation, use or maintenance read this manual carefully.**
⚠ **The information within this manual should be referenced for typical installation and operation only.**
⚠ **For site specific requirements that may deviate from the information in this guide – contact your supplier.**
⚠ **If the equipment is used in a manner not specified by the manufacturer, the safety and protection provided by the equipment may be impaired.**
⚠ **Installation must be in accordance with recognised standards in the country concerned, for North America, NEC / CEC regulations should be followed.**
⚠ **This product is designed for indoor operation only.**
⚠ **Cables must be protected against mechanical damage.**
⚠ **The internal fuse should be replaced only with the same type. Anti-surge fuse 2.5A MAX 250VAC.**
⚠ **This device requires a continual supply of electrical power – it will not work without power.**
⚠ **A switch or circuit breaker must be fitted, it must be accessible and marked as the disconnecting device!**
⚠ **This device may not safeguard individuals with specific medical conditions. If in doubt, consult a doctor/physician.**
⚠ **Your product should reach you in perfect condition, if you suspect it is damaged, contact your supplier.**

Manufacturer's Warranty

Warranty coverage: The manufacturer warrants to the original consumer purchaser, that this product will be free of defects in material and workmanship for a period of twelve months (1 year) from date of purchase.

The manufacturer's liability hereunder is limited to replacement of the product with repaired product at the discretion of the manufacturer. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material or workmanship. This warranty extends to the original consumer purchaser of the product only.

Warranty disclaimers: Any implied warranties arising out of this sale, including but not limited to the implied warranties of description, merchantability and intended operational purpose, are limited in duration to the above warranty period. In no event shall the manufacturer be liable for loss of use of this product or for any indirect, special, incidental, or consequential damages, or costs, or expenses incurred by the consumer or any other user of this product, whether due to a breach of contract, negligence, strict liability in tort or otherwise. The manufacturer shall have no liability for any personal injury, property damage or any special, incidental, contingent, or consequential damage of any kind resulting from gas leakage, fire, or explosion. This warranty does not affect your statutory rights.

Warranty Performance: During the above warranty period, your product will be replaced with a comparable product if the defective product is returned together with proof of purchase date. The replacement product will be in warranty for the remainder of the original warranty period or for six months – whichever is the greatest.

Waste disposal for consumers of electrical & electronic equipment.

When this product reaches the end of its life it must be treated as Waste Electrical & Electronics Equipment (WEEE). WEEE marked products must not be mixed with general household waste, but kept separate for the treatment, recovery and recycling of the materials used.

Please contact your supplier or local authority for details of recycling schemes in your area.

Installation

Typical Application & Location

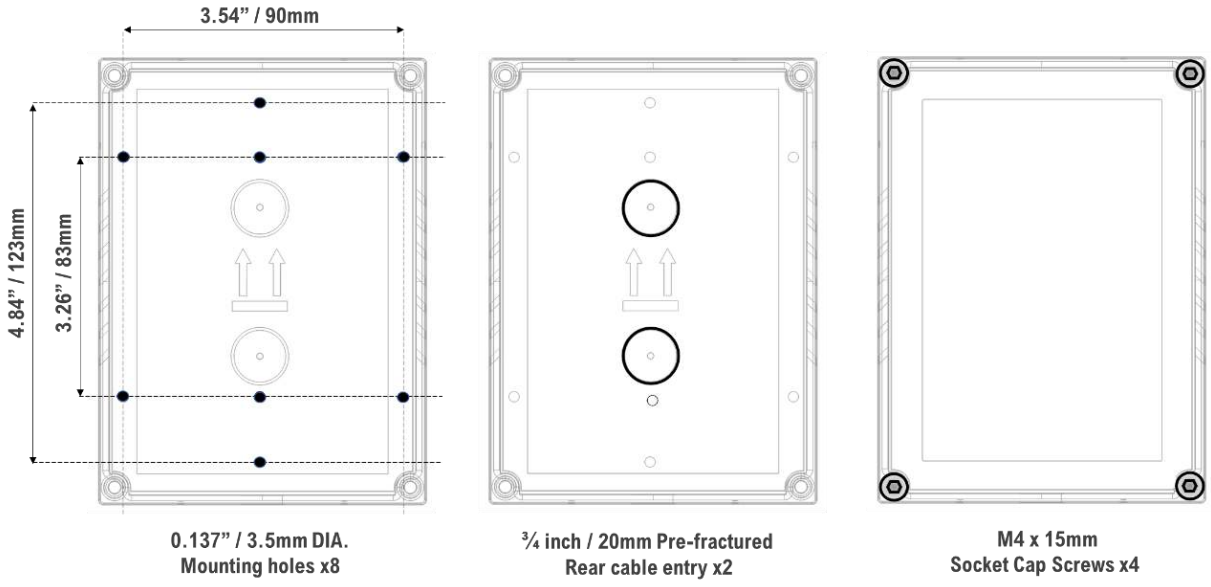
The AGS Water Temperature Monitor (WTM) is carefully designed for health care facilities to monitor and control the water supply system. The controller incorporates a simple user interface to reset and/or silence alarm condition. Minimum and Maximum permitted water temperatures are configurable via the internal switch and fascia controls upon installation.

Located and installed in positions determined by those who have knowledge of the process plant system and equipment involved, and in consultation with both safety and electrical engineering personnel.
The monitor should be installed in the correct orientation, as recommended by the manufacturer at a height to suit access and status observation and is designed for indoor operation only.

Mounting & Cabling

⚠ **If mounting direct to wall - ensure the wall surface is flat to prevent base distortion.**
⚠ **Where suitable cable glands/conduits are used for wire entry, use 20mm (3/4 inch) max.**
⚠ **Restrain the hazardous live wiring from accidental loosening to prevent wires from moving after installation and touching parts of opposite polarity or at low voltages.**
⚠ **A switch or circuit breaker must be fitted, it must be accessible and marked as the disconnecting device.**
⚠ **Isolate the equipment from all hazardous live power sources before opening the cover.**

1. Carefully remove the front cover from the unit by using an M3 socket wrench.
2. Using the rear base - mark mounting holes to the wall or align with an appropriate gang/pattress box.
3. Fixing straight to wall – drill 0.2” (5mm) hole, insert plugs and use the four screws (No.4 Pozi) provided. Alternatively – Fix direct to a vertical 2-gang/double electrical pattress box.
4. There are pre-fractured areas for cable entry on the rear of the base and pilot holes positioned on the top and bottom of the enclosure suitable for entry points up to ¾” (20mm). Drill out as necessary ensuring all swarf is removed from the box and holes have smooth edges.
5. Secure the front cover with all M4 bolts and insert security caps provided.



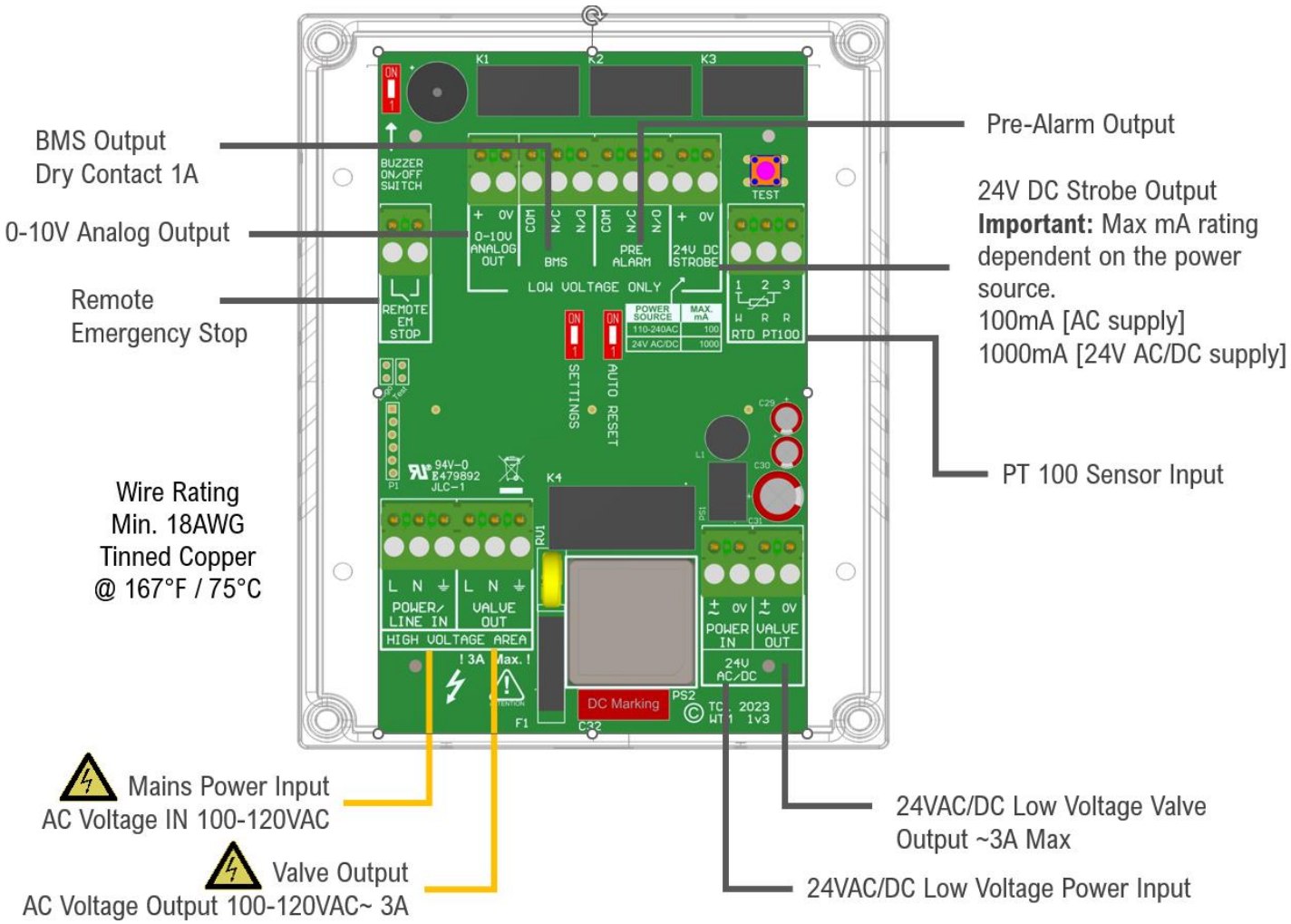
Circuit Board Terminals

⚠ **Damage to PCBs when creating cable entry points may void any warranty!**
⚠ **Any damage attempting to remove the circuit board may void any warranty!**
⚠ **All Class 2 wiring is to be installed within flexible tubing to maintain segregation between circuits!**
⚠ **Wiring of different circuits shall be separated by means of routing, clamping or barrier!**
⚠ **A switch or circuit breaker must be fitted, it must be accessible and marked as the disconnecting device!**
⚠ **A disconnector is required for the 24V supply, and an adequate overcurrent device is fitted!**
⚠ **Connecting both mains 120V~ and 24Vac/dc power is considered misuse – use only one power input!**
⚠ **Terminals are pluggable for ease of wiring and therefore subject to misplacement resulting in a hazardous condition!**

Power Inputs

The controller requires an AC power supply of 110/240VAC wired to the [POWER/LINE IN] connector using a 3A switched fused spur.

Alternatively, the unit can be powered via the 24VAC [POWER IN] terminal.



Valve Outputs

⚠ **Use grounding terminals for gas valves not considered class II apparatus!**

⚠ **Connecting two valves to both mains 120V~ and 24V~ simultaneously is considered misuse – use only one valve output!**

A water solenoid valve should be powered using one of the terminals marked [VALVE OUT].
Terminals offer control via 100-120V~ or 24V~. When wired to a normally closed water solenoid valve, the WTM controller can be used to isolate the water supply when water temperature is outside of allowable Max and Min temperature settings.

BMS Relay Output

Connections are available on the board for Building Management Systems. [NO - Normally Open] [COM - Common] [NC - Normally Closed]. This is a relay that activates on alarm and water off condition.

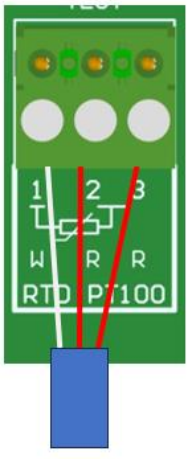
0-10V Analog Output

A single 0-10V output is scaled to the PT100 temperature sensor as follows.

32°F	50°F	68°F	86°F	104°F	122°F	140°F	158°F	176°F	194°F	212°F
0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V

PT100 Temperature Sensor Input

The connecting sensor must be a PT100 [3 wire type] and wired as shown.



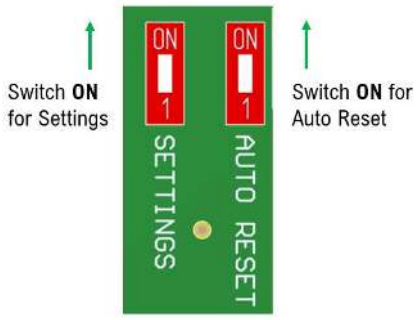
3 wire
White, Red, Red

Settings

Water Temperature Alarm Settings

To program the temperature alarm settings, turn ON the dipswitch [SETTINGS] located on the circuit board.

If [AUTO RESET] is selected the alarm will automatically reset once the reset temperature has been reached.



Temperature "T" Settings	Description
T. Alarm High	High temperature alarm setting for valve out relay. This must be set at least 5° above [T. Alarm Low] The maximum setting is 212°F/100°C.
T. Pre Alarm Hi	Pre-alarm relay
T. Alarm Low	Low temperature alarm for valve out relay
T. Autores. High	With [Auto Reset] dip switch selected. Device automatically resets following alarm high when the temperature drops to this setting.
T. Autores. Low	With [Auto Reset] dip switch selected. Device automatically resets following alarm low when the temperature rises to this setting.

Use the up/down arrows on the facia to cycle through the setting parameters, press OK to select the setting displayed in red, use the up/down arrows to adjust the value and press OK to set it.

Use the up/down arrows to navigate to the unit settings on the next page - or turn OFF the settings dip switch to return to normal operation.

Unit Settings

With the [SETTINGS] dip switch ON - use the up/down arrows to navigate to page 2 and 3 to adjust the unit settings.

Use the up/down arrows on the facia to cycle through the setting parameters, press OK to select the setting displayed in red, then use the up/down arrows to make an adjustment and press OK will set and save it.

Once all the settings have been correctly configured turn OFF the [SETTINGS] dip switch to return to normal operation.

Settings page 2

Temp. Unit	°F
0-10V OUT	0-10
T. Strobe ON	100
Buzzer	Const.
Temp. Offset	0.0

Settings page 3

Strobe mode	T.set

Factory reset	

Settings	Description
Temp. Unit	Changed from °F to °C.
0-10V OUT	Change 0-10V to 2-10V scaling
T.Strobe ON	Change the temperature the 24VDC strobe will activate
Buzzer	Change the constant buzzer to 30sec duration
Temp.Offset	A temperature Offset can be applied in the range from -5.0 to +5.0
Strobe mode	For [T.set] the strobe will activate according with the T.Strobe ON setting. For [BMS] the strobe will activate when the BMS relay output is on indicating the water is off
Factory reset	Select YES to reset the factory default settings

Factory Set Condition

T. Alarm High	122
T. PreAlarm Hi	115
T. Alarm Low	33
T. Autores. High	100
T. Autores. Low	40

Temp. Unit	°F
0-10V OUT	0-10
T. Strobe ON	100
Buzzer	Const.
Temp. Offset	0.0

Strobe mode	T.set

Factory reset	

Operation

Start Up

When the WTM controller is powered on, the display will illuminate and enters a warmup phase during this period the software version is displayed.

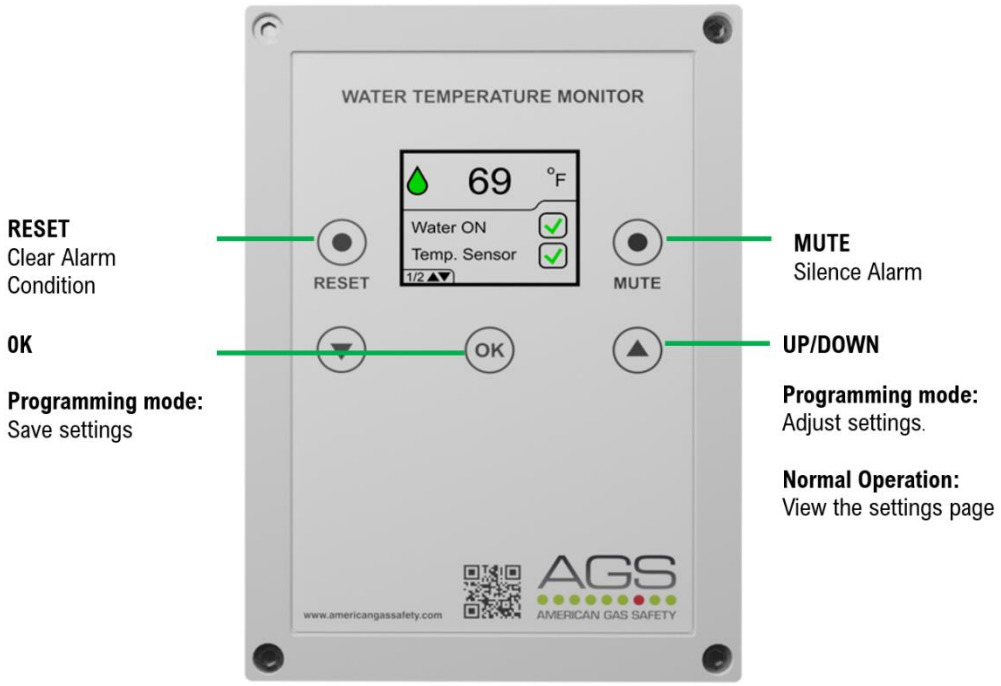
Controls

MUTE: When the temperature falls outside the maximum or minimum temperature setting, the water supply will be turned off and an audible alarm will sound which can be turned off by pressing the MUTE button.

RESET: Press this button to clear an alarm condition and continue normal operation.

UP/DOWN ARROWS: With the [SETTINGS] dip switch ON - Navigate the settings page and adjust settings. During normal operation use the arrows to navigate the front display and settings screen

OK: With the [SETTINGS] dip switch ON - set and save adjusted settings.



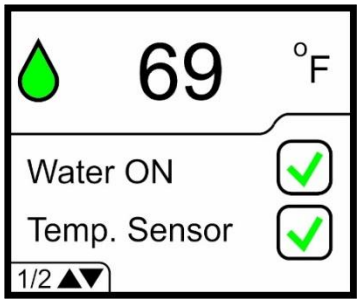
Display

Front Display: will show water supply status ON/OFF, current water temperature, and confirm the sensor is installed correctly.

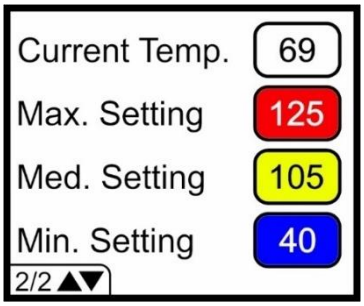
Settings Display: will show the water temperature alarm values for Max/ Med [Pre-Alarm Hi} and Min.

Use the arrow buttons to navigate between the two displays.

Front Display

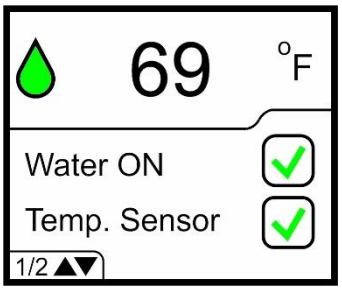


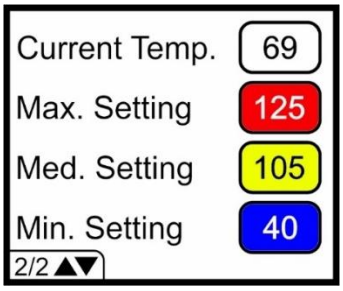
Settings Display



Normal Working Conditions

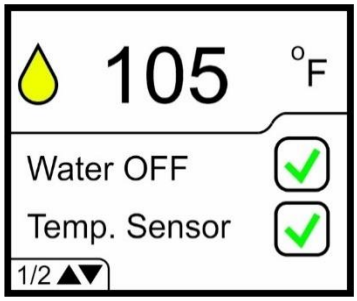
For normal conditions the water is ON and the temperature is within the settings range.

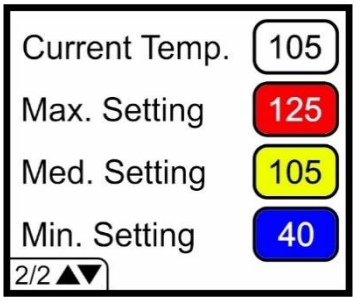




Water Temperature High Pre-Alarm

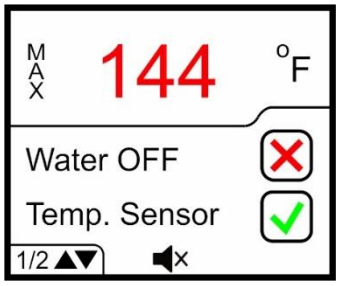
The monitor has a pre-alarm output relay, once the water temperature exceeds setting [T. Pre-Alarm Hi] the alarm relay will activate - see installation section for connections.

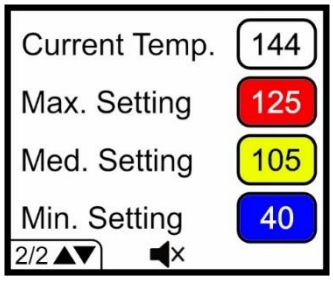




Water Temperature High Alarm

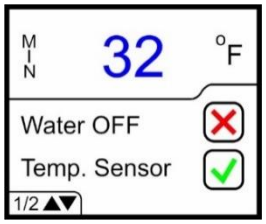
If the water temperature exceeds the [T.Alarm High] the water valve will be turned off and the alarm will be activated.

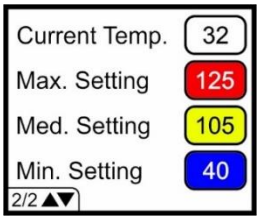




Water Temp Low Alarm

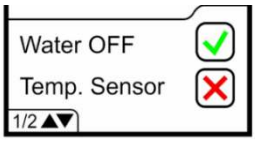
If the water temperature exceeds the [T.Alarm Low] the water valve will be turned off and the alarm will be activated.





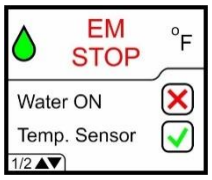
Faulty Sensor

If the temperature sensor is displaying “X” it is outside of acceptable parameters, check the sensor is wired correctly and not damaged.



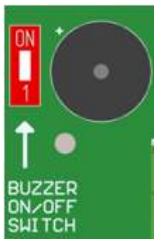
Remote Emergency Stop

If the remote emergency stop is activated the water will be turned off and the internal alarm buzzer will be turned on.



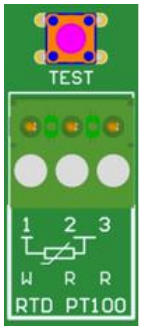
Turning Off the internal alarm buzzer

The internal alarm buzzer can be permanently turned off by switch the internal PCB Dip switch [BUZZER ON/OFF SWITCH]



Self-Test Function

The monitor can be put into a self-test function by pressing the Test button on the PCB for 3 seconds. The test button can be found above the terminals for the PT100 sensor. Once the self-test is started the output relays and water valve will be activated, during this test sequence a test screen will be displayed.



Maintenance

Keep the equipment in good working order - follow these basic principles.

- ✓ Remove any dust/debris from the outer enclosure regularly using a slightly damp cloth.
- ✓ Never use detergents or solvents to clean the equipment.
- ✓ Never paint the equipment.

Specification

General	
Model:	AGS WTM – Water Temperature Monitor
Size: (H x W x D)	5.95 x 4.37 x 1.97” (151 x 111 x 50mm)
Housing Material:	ABS PA765 (Flame Rating UL94 V-1)
Weight:	11.2 oz (0.32g)
Temperature Measuring Range	0~100 °C / 32~212°F +/- 1°
User Interface	
Display:	1.8” Color Display
Audible Buzzer:	>85dB @ 10cm. Quiet conditions.
Buttons:	Up, Down, OK, Reset, Mute
Power Supply	
Power Consumption:	1.95W Max [without Strobe connected]
Nominal Voltage IN #1:	110 V AC 50-60Hz
Nominal Voltage IN #2	24 V AC 50-60Hz
Internal Fuse:	Anti-Surge 2.5A @ 250Vac
Equipment	
Overvoltage Category:	II
Pollution Degree:	3 (Unit Only)
Relays	
BMS dry contact	1A @ low voltage
Environmental	
Ingress Protection:	Not formally evaluated. IP4X Determined by inspection.
Operating:	0 ~ 50°C / 32 ~ 122°F 20 ~ 95% RH (non-condensing)
Storage:	-10 ~ 50°C / 14~122°F up to 95% RH (non-condensing)
Altitude Rating:	2000m
Wiring	
Typical	Min. 18AWG / 75°C min / Tinned copper.
Compliance	
Electrical Safety	IEC BS EN 61010-1
Electromagnetic Compatibility	EN 61326-1: 2021 / FCC CFR 47 Parts 15, 107 & 109

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