



# AGMAC AUTOMATION WATER STOPPER MANUAL



## How to set time

### Set Clock:

Clock should already be set.  
Press clock button and hold.  
Press day button to desired day.  
Press hour button then minute button to desired time.

### Set Timer:

Press timer button once and hold.  
Press day button until desired day.  
Press hour button to desired hour.  
Press minute button to desired minute.  
When finished 1 on setting.  
Press day button until desired day.  
Press hour button to desired hour.  
Press minute button to desired minute.  
When finished settings, press manual button until timer starts.

The timer is now set and started.  
Note when the timer is operating.  
To override the timer just press manual button to stop timer and turn off to close.

**Note:** It is important to press manual button to stop timer use because the bay outlet will not close if left on auto.

# Contents

1	Water Stopper Overview .....	4
2	Information Menu.....	5
2.1	Accessing and Navigating the Info Menu .....	5
2.2	Encoder.....	5
2.3	Software Version .....	5
2.4	Timed Close in .....	5
2.5	Signal Strength.....	5
2.6	Channel ID .....	5
2.7	Farm ID .....	6
2.8	Gate Network ID.....	6
2.9	Solar Current.....	6
2.10	Radio Voltage.....	6
2.11	Solar Voltage.....	6
2.12	Lowest Battery Record .....	6
2.13	Battery Voltage.....	7
2.14	Motor Current .....	7
3	Setup Menu.....	8
3.1	Accessing and Navigating the Setup Menu .....	8
3.2	Timer.....	8
3.3	Channel ID .....	8
3.4	Actuator Type .....	8
3.5	Farm ID .....	9
3.6	Gate Network ID.....	9
3.7	Radio Repeater .....	9
3.8	Clear Errors? .....	9
3.9	Actuator Reclose time .....	9
3.10	Closing Limit.....	9
3.11	Opening Limit .....	10
3.12	Motor Current .....	10
3.13	Minimum Run Time .....	10
4	Fault Analysis .....	11
4.1	Battery ERROR .....	11
4.2	Timer ERROR.....	11
4.3	Charge ERROR.....	11

4.4 Over Current ERROR..... 11

4.5 Gate ERROR ..... 12

4.6 Over Temp ERROR ..... 12

# 1 Water Stopper Overview

The AGMAC Water Stopper is a radio automation module designed to open and close irrigation valves based on pre-set timers in the AGMAC software. When triggered, the unit will operate the output, be it a relay to a pump, or motor control for an actuator or DC motor and invert the output after the timer's duration ends.

Each unit can also be used as a stand-alone module for irrigation, using the attached timer module to set when to open and close outlets.

## 2 Using the timer module

### 2.1 Manual open/close

The timer module is used to manually open and close the outlet outside of any scheduled operation.

- To open the outlet, press the manual button until the indicator is above the 'on' label.
- To close the outlet, press the manual button until the indicator is above the 'off' label.

Be sure the timer is set to off after each manual operation to avoid any accidental openings if there are schedules programmed into the timer.

### 2.2 Setting the clock

To set the clock on the timer:

While holding down the clock button, press the day/hour/min buttons until the correct day and time is displayed. Then release the clock button.

### 2.3 Setting the timers

The timer module can store up to 16 separate on/off schedules. To set these timers:

Press the timer button until the desired schedule is displayed. Eg: 1 ON will set the open time for the first schedule, 1 OFF will be the closing time for the first schedule.

Using the day/hour/minute buttons, input the desired time. Then press the manual button until the indicator is above the 'AUTO' label.

The unit will now operate at the scheduled times.

Set the indicator to off to cancel the timer

To clear the timers, press the reset button.

## 3 Information Menu

From the information menu, you can see the current data for the Water Stopper module. This includes voltages and current draw, ID configuration and signal strength.

### 3.1 Accessing and Navigating the Info Menu

To enter the information menu, press the 'Menu' (left) button once.

To change a menu option, press the 'Menu' button while the desired option is displayed, and use the 'Up' and 'Down' buttons to change the parameters. Press the 'Menu' button again to save any changes.

### 3.2 Encoder

The Encoder menu shows the amount of rotations counted by the sensor when using a hall sensor.

### 3.3 Software Version

Displays the current software version for this unit.

### 3.4 Timed Close in

Displays an instantaneous readout of the programmed 'time till close'.

### 3.5 Signal Strength

Displays the current signal strength to the base station. The unit will display 0, or -130 after power up. Only after a signal has been received from the base station will the display show a relevant number. The higher the value, the better the signal. We consider signal strength above -100db to be adequate.

### 3.6 Channel ID

Displays the set channel ID. The Channel ID is used to create lists of gates in the AGMAC software and is there to help organize your farm automation. Generally, we assign each water supply point to a different channel ID.

### 3.7 Farm ID

Displays the set farm ID. Radios with different farm IDs will not interfere with each other. This is to prevent radio cross-chatter between neighboring properties. Nearby farms should be set with different farm ID.

### 3.8 Gate Network ID

Displays the set gate network ID. Generally, we set the first outlet from a water supply point to 'Gate 1', the second to 'Gate 2' and so on. However, these can be customized to suit individual preferences. Each unit on a Channel ID should have a different Gate ID. Units with identical Channel and Gate IDs will operate simultaneously.

### 3.9 Solar Current

Displays the instantaneous solar input current from the solar panel. If this value is zero, or low, the battery is likely fully charged. If you believe the battery may be low, and the solar current is also low, there may be a problem with your unit.

### 3.10 Radio Voltage

Displays the instantaneous radio voltage output to the radio. A low radio voltage can be indicative of a faulty RF module.

(Nominal 3.6-3.8)

### 3.11 Solar Voltage

Displays the instantaneous solar input voltage from the solar panel. Good weather solar voltage will be 18-24V. Overcast solar voltage should be 14-18V. Solar voltage under 14V will not charge the battery.

### 3.12 Lowest Battery Record

Displays the lowest recorded battery voltage from the last power up.

### 3.13 Battery Voltage

Displays instantaneous battery voltage. The idle battery voltage during the day should be around 13.2-13.4V. It can be a bit less during overcast days. If battery voltage drops below 12V while opening or closing with no load, the battery should be replaced.

### 3.14 Motor Current

Displays the instantaneous current drawn by the motor/actuator.

## 4 Setup Menu

### 4.1 Accessing and Navigating the Setup Menu

To enter the setup menu, from the idle screen, hold the 'Menu' (Right) button.

Use the 'Up' (Right) and 'Down' (Center) buttons to navigate through the various menu options.

To change a menu option, press the 'Menu' button while the desired option is displayed, and use the 'Up' and 'Down' buttons to change the parameters. Press the 'Menu' button again to save any changes.

### 4.2 Timer

Sets whether the timer is enabled or disabled.

Timer Enabled: Unit can be used as a stand-alone timer via the onboard timer module.

Timer Disabled: Unit can only be used via base station and automation software.

### 4.3 Channel ID

Sets the Channel ID for the unit.

The Channel ID is used to create lists of gates in the AGMAC software and is there to help organize your farm automation. Generally, we assign each water supply point to a different channel ID.

Each outlet on the same irrigation channel should share a channel ID. This is used for grouping outlets when using the automation software.

Range: 1 – 99

### 4.4 Actuator Type

Sets the function of the module for the automation software. The software organizes units assigned a channel ID into Bays, Pumps and Checks.

Bay: Sets the unit to operate as a bay outlet automation module.

Pump: Sets the unit to operate a pump automation module.

Check: Sets the unit to operate as a check automation module.

## 4.5 Farm ID

Sets the farm ID. Radios with different farm IDs will not interfere with each other. This is to prevent radio cross-chatter between neighboring properties. Nearby farms using AGMAC products should be set up with different farm IDs.

Range: 0 - 255

## 4.6 Gate Network ID

Sets the Gate Network ID

Used to identify individual outlets on a channel ID when using the automation software. Generally, we set the first outlet from a water supply point to 'Gate 1', the second to 'Gate 2' and so on. However, these can be customized to suit individual preferences. Each unit on a Channel ID should have a different Gate ID. Units with identical Channel and Gate IDs will operate simultaneously.

Range: 1 - 250

## 4.7 Radio Repeater

Set to 'enable' to allow radio hopping through this unit.

Used for radio repeaters and when signal strength of some units is not optimal. We recommend consulting a technician before enabling this function as it may cause excessive radio noise and comms issues if too many repeaters are within range of each other.

## 4.8 Clear Errors?

Clears errors from the log. Some errors may cause the unit to not work properly. Clear the errors after they have been rectified.

## 4.9 Actuator Reclose time

Range: 30mins to 8 Hours, in 30-minute intervals.

## 4.10 Closing Limit

Sets the maximum current drawn by the actuator or motor when closing. If this current is exceeded, the actuator will stop. For pipe and riser systems, this can be adjusted to apply more pressure to a

leaking seal. Applying too much force to the actuator can cause damage to the internal gearing. Too much current draw can blow the on-board fuse.

Range: 0.1 – 15.0 A

#### 4.11 Opening Limit

Sets the maximum current drawn by the actuator or motor when opening. If this current is exceeded, the actuator will stop.

0.1 – 15.0 A

#### 4.12 Motor Current

Shows an instantaneous readout of the current drawn by the actuator/motor.

#### 4.13 Minimum Run Time

Set the minimum time the motor/actuator can run for. If the motor/actuator operates for less than this time, a gate error will occur.

Range: 0 – 5000 seconds

## 5 Fault Analysis

### 5.1 Battery ERROR

Occurs when the unit detects low voltage from the battery.

- Check battery voltage as described in 2.1 and 2.13. The voltage should be above 12V. Replace battery if reading is low.
- A faulty battery can have adequate voltage while on standby but fall below acceptable levels when the actuator is in operation. Check the battery voltage while the actuator is running. The voltage should be above 12V. Replace battery if reading is low.
- A faulty battery can have adequate voltage during the day while being charged by the solar panel but fall below acceptable levels when the sun goes down and charging stops. Check the battery levels with the solar disconnected for a while, or at night/early morning. The voltage should be above 12V. Replace battery if reading is low.
- If a fault persists, there may be a problem with the solar charging or battery voltage reading circuit. Call a technician for assistance.

### 5.2 Timer ERROR

Occurs when the timer pins on the unit are not connected.

- Check the timer is properly connected to the board.
- The timer may be faulty, install a new timer.
- Some units have a latching switch in place of a timer. Ensure the switch operates correctly and all connections are properly secure.
- If a fault persists, there may be a problem with the board. Call a technician for assistance.

### 5.3 Charge ERROR

- Check the connections between the solar panel and board are satisfactory. Check the plug is fully inserted and none of the pins are corroded or missing.
- Test with a known-working solar panel, if the error is restored, replace the solar panel.
- Test with a known-working board. If the error restores, replace the board. A faulty board may be able to be repaired, call a technician for assistance.

### 5.4 Over Current ERROR

Occurs when the actuator draws more current than the set limit. To avoid damage, the unit will stop the actuator if this limit is exceeded.

- Check that there is nothing caught in the outlet or frame. If there is something that would cause the unit to stop prematurely, for example, a tree branch, the actuator would draw excessive current.
- Some actuators draw more current than others. Check the current draw conditions of the actuator during normal as described in 2.14 and adjust accordingly as per 3.10 and 3.11.
- If the actuator is faulty, or there is a problem with the board, call a technician for assistance.

## 5.5 Gate ERROR

Occurs when the module has a problem operating the output

- Can occur if the actuator run time is less than the set minimum run time. If the display says the gate is open, and you try to open in, the gate error can appear (SAME FOR CLOSE)
- Check the connection between the actuator and the panel board are satisfactory. Make sure the plug is fully inserted and that none of the pins are corroded or missing. Check the cable to the actuator is not damaged.
- Sometimes the gate will only run in one direction, with an error occurring in the other direction. If this is the case, the board will likely need to be returned for repairs or replacement.

## 5.6 Over Temp ERROR

Occurs when the module CPU temp exceeds normal boundaries. We recommend calling a technician if you see this error.

- This generally occurs when there is a serious fault with the module, or if the radio module has failed. If the error doesn't show with the radio removed, the radio is likely faulty.