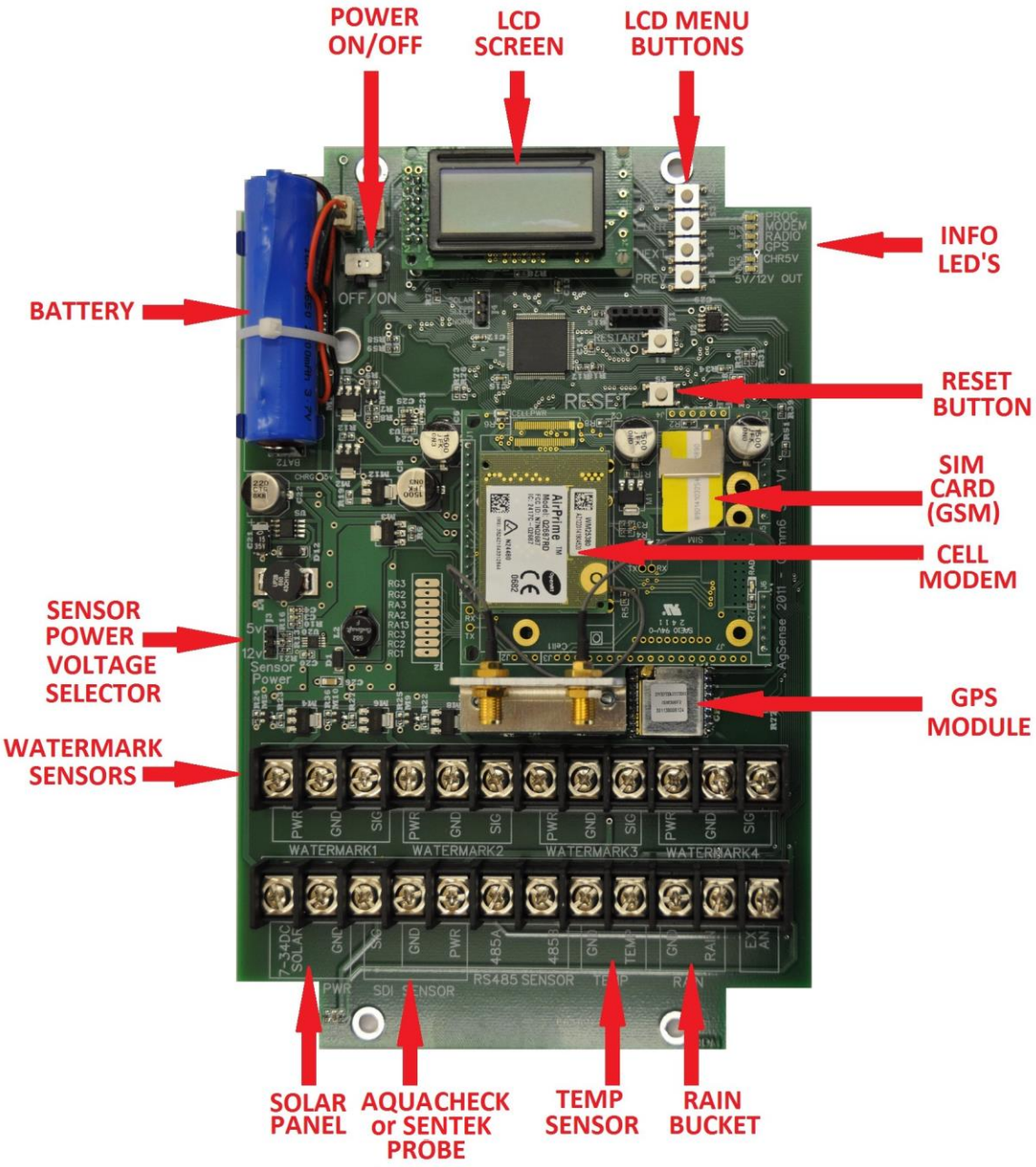
2015-18 Aqua Trac Pro Wiring Manual

Revised January 1, 2018

Items Covered In This Manual:

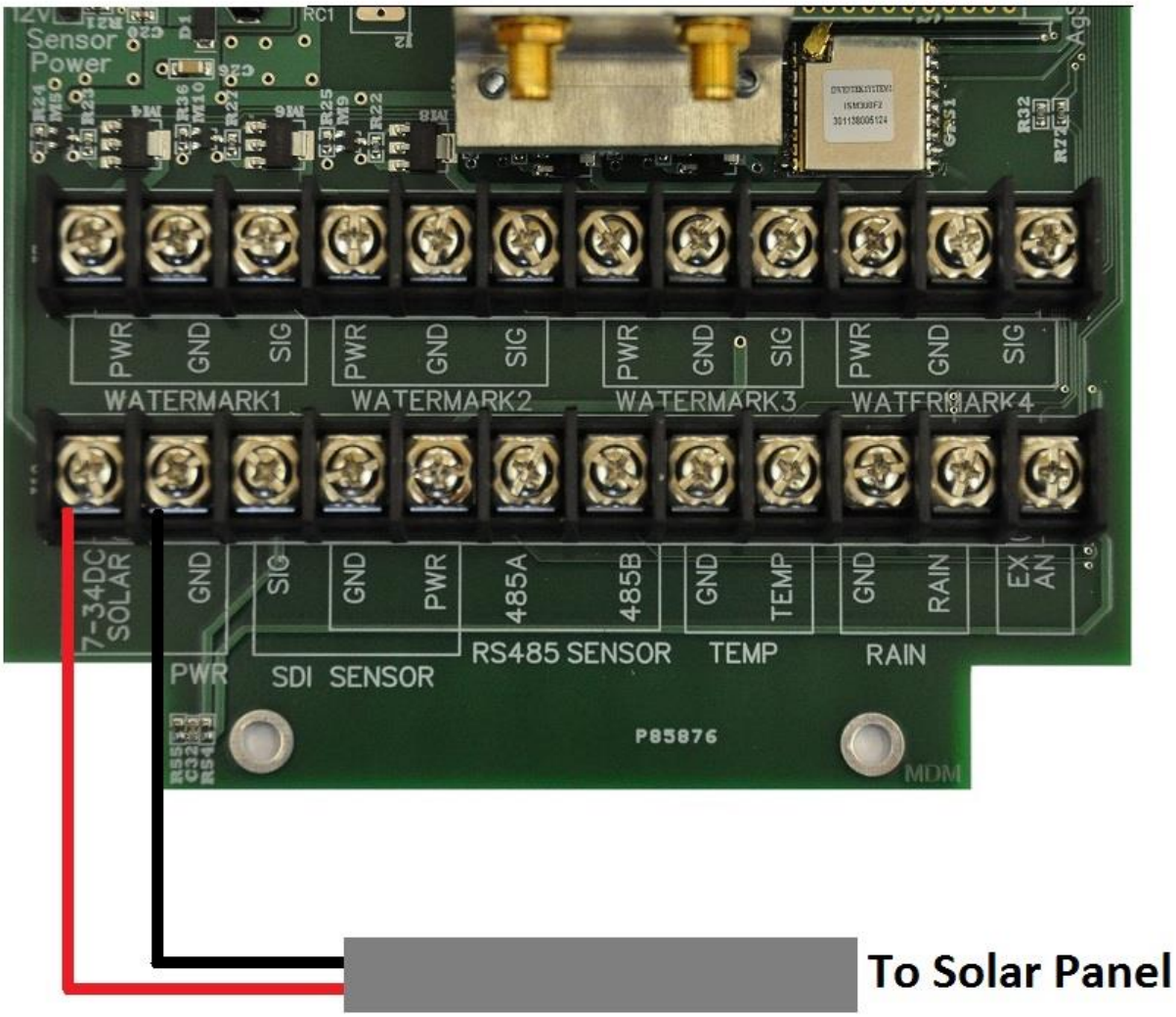
General Overview of the Aqua Trac V1, and V2



Note 1: Once all sensors are connected and unit is ready to run, you must turn the ON/OFF switch to the "ON" position, and contact your AgSense Dealer to finish setup and configuration of this unit to read the sensors that you have installed.

Note 2: The pins marked SENSOR POWER as shown above should have a jumper connecting the middle and 5v pins. This selects the power output to the sensors to be 5v. Do not move this jumper for any reason unless these instructions inform you to do so.

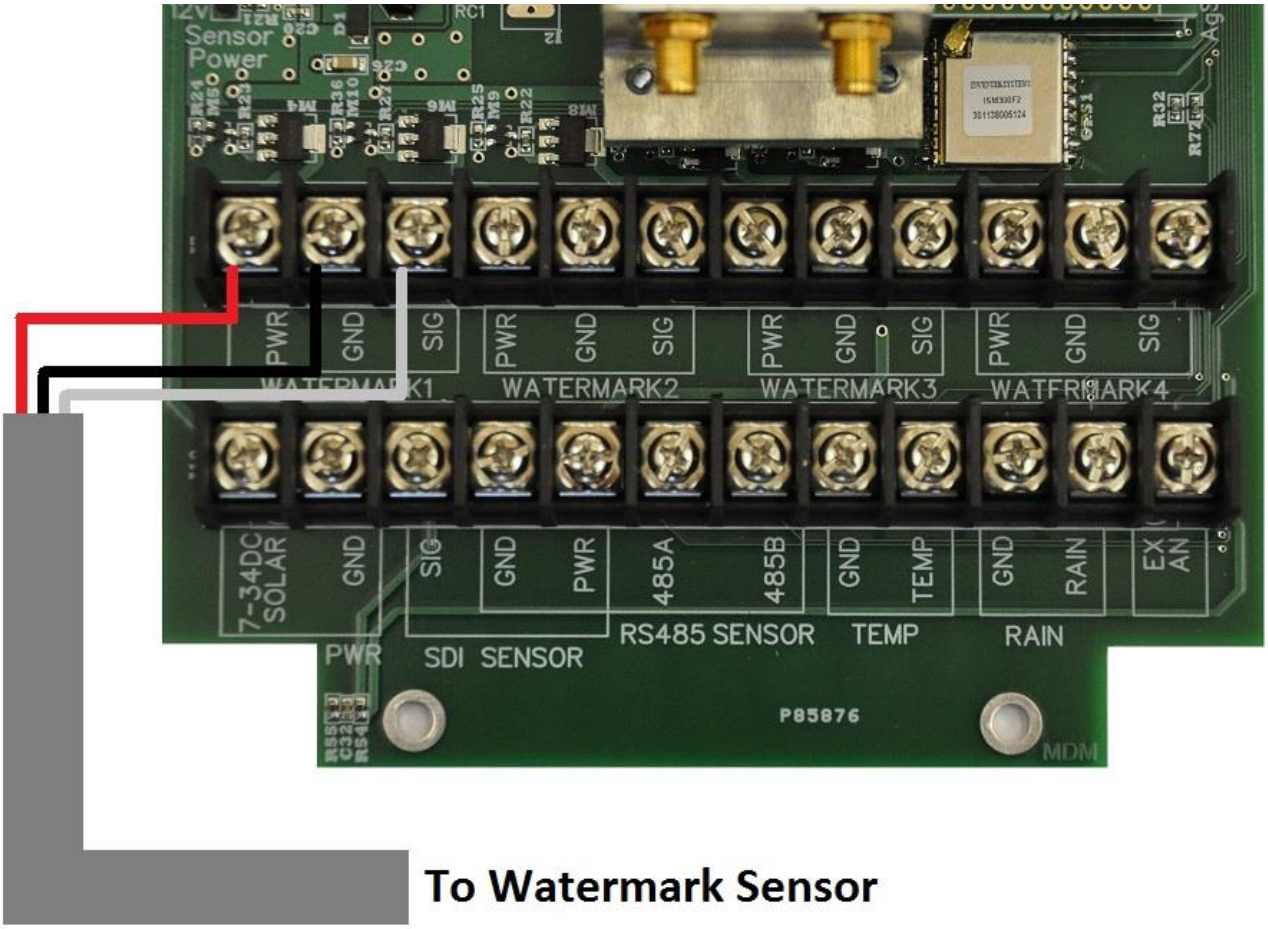
Wiring the Solar Panel to the Aqua Trac Unit



Wiring the solar panel: Find the group of terminals (2) with the group label PWR

1. Connect the Black Wire (-) from the solar panel to the terminal marked GND as shown above.
2. Connect the White or Red Wire (+) from the solar panel to the terminal marked SOLAR as shown above.

Wiring the Watermark 200SS-V sensor to the Aqua Trac Unit

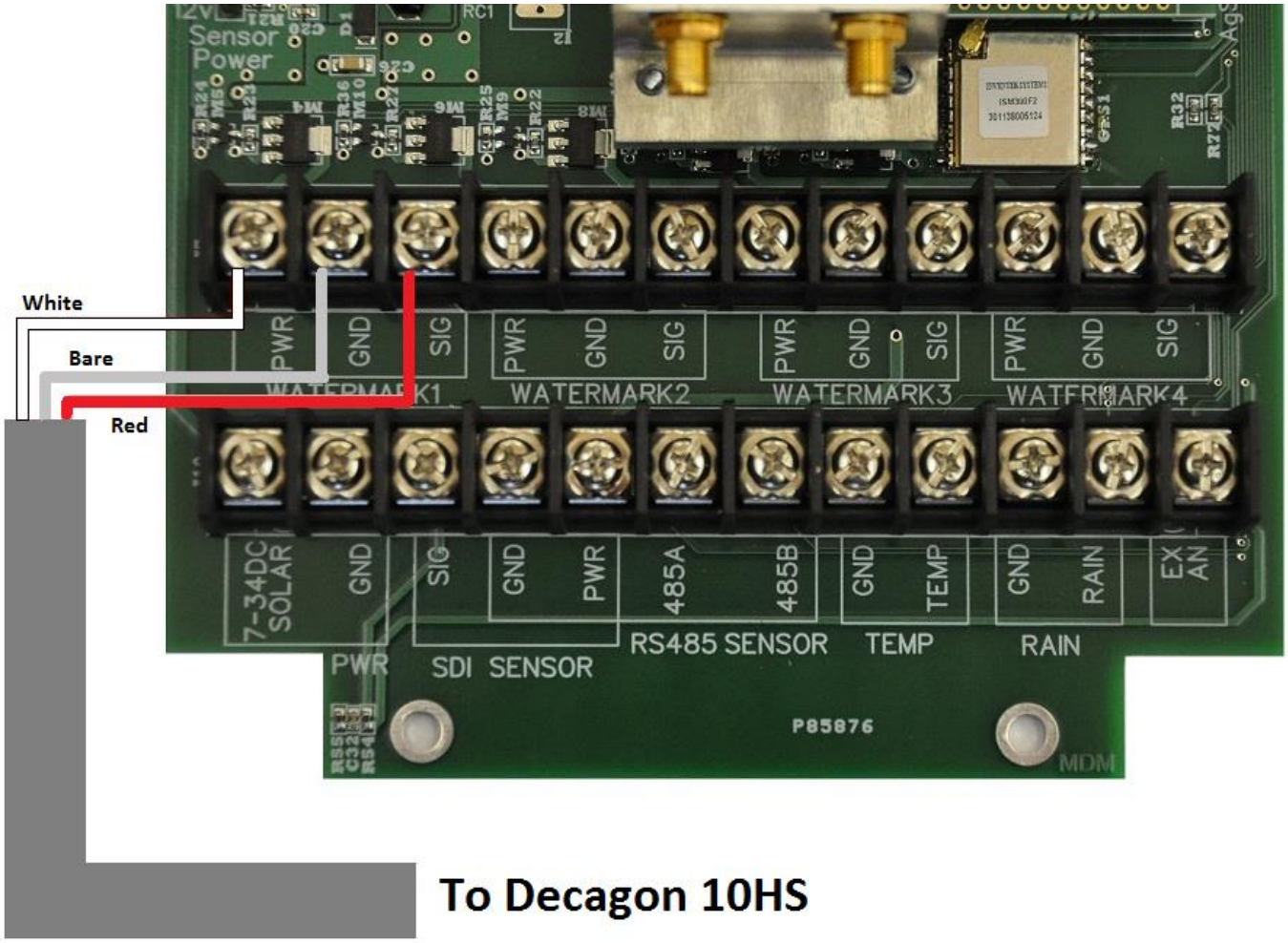


Wiring the Watermark 200SS-V sensor: You can have up to 4 Watermark sensors wired into this unit. Starting with sensor 1, find the group of terminals (3) with the group label WM 1

1. Connect the Red wire from the Watermark sensor to the terminal marked PWR as shown above.
2. Connect the Black wire from the Watermark sensor to the terminal marked GND as shown above.
3. Connect the White wire from the Watermark sensor to the terminal marked SIG as shown above.

Note: Repeat steps 1-3 for any additional Watermark sensors (WM 2, 3, 4)

Wiring the Decagon 10HS or GS1 sensor to the Aqua Trac Unit

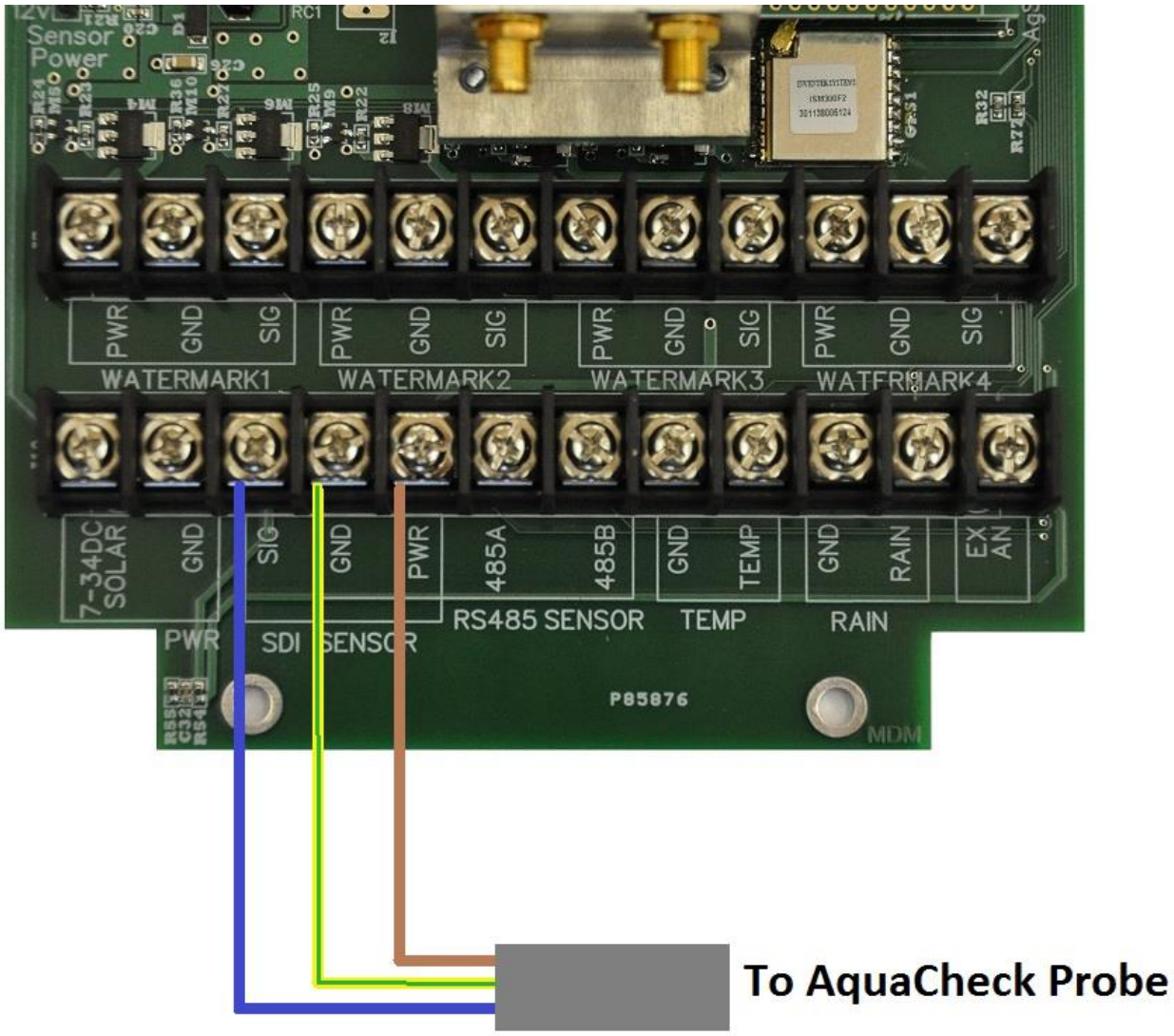


Wiring the Decagon 10HS or GS1 sensor: You can have up to 4 Decagon 10HS/GS1 sensors wired into this unit. Starting with sensor 1, find the first group of terminals (3) as shown above.

1. Connect the White wire from the Decagon 10HS/GS1 sensor to the terminal marked PWR as shown above.
2. Connect the Bare wire from the Decagon 10HS/GS1 sensor to the terminal marked GND as shown above.
3. Connect the Red wire from the Decagon 10HS/GS1 sensor to the terminal marked SIG as shown above.

Note: Repeat steps 1-3 for any additional Decagon 10HS/GS1 sensors (WM 2, 3, 4)
Please follow the jumper settings on page 14 - set to Decagon 10HS for both the 10HS and GS1 sensors.

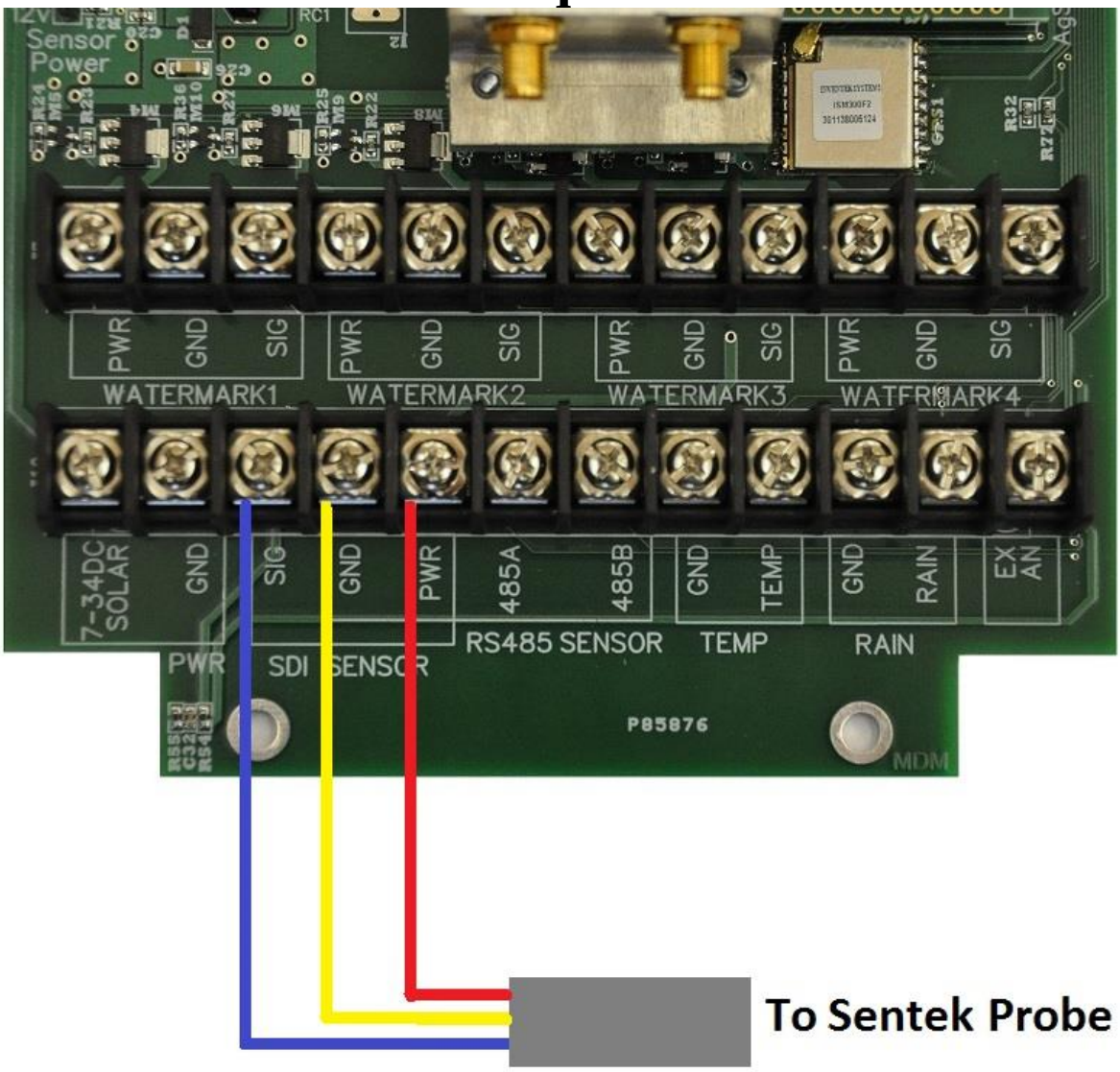
Wiring the AquaCheck, Hydrascout, or Wiseone probe to the Aqua Trac Unit



Wiring the AquaCheck or Hydrascout probe: Find the group of terminals (3) with the group label SDI

1. Connect the Blue wire from the AquaCheck probe to the terminal marked SIG as shown.
2. Connect the Yellow/Green stripe wire from the AquaCheck probe to the terminal marked GND as shown above.
3. Connect the Brown wire from the AquaCheck probe to the terminal marked PWR as shown above.

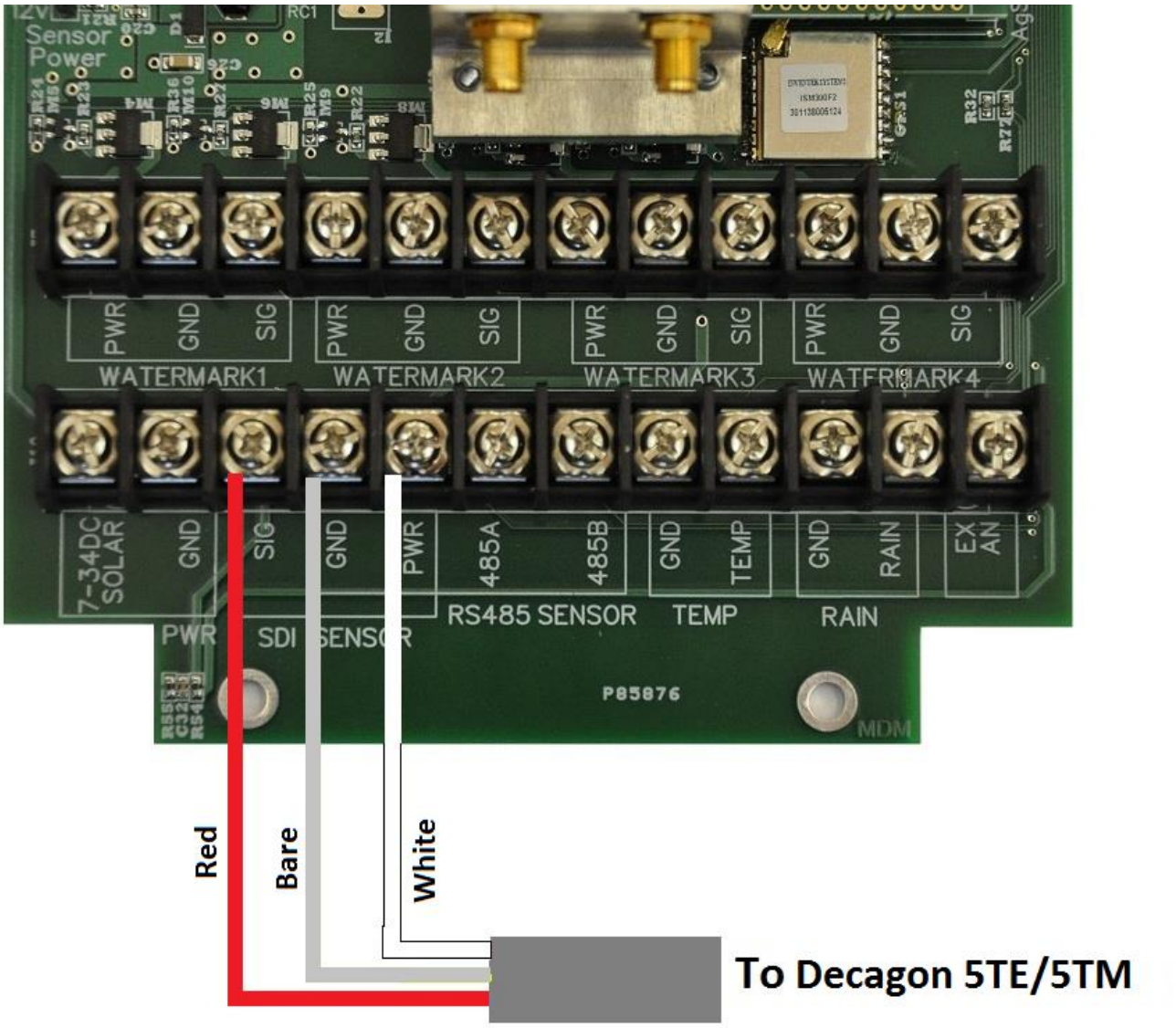
Wiring the Sentek soil moisture probe to the Aqua Trac Unit



Wiring the Sentek probe: Find the group of terminals (3) with the group label SDI.

1. Connect the Blue wire from the Sentek probe to the terminal marked SIG as shown above.
2. Connect the Yellow wire from the Sentek probe to the terminal marked GND as shown above.
3. Connect the Red wire from the Sentek probe to the terminal marked PWR as shown above.
4. The new Drill & Drop probe uses different wire colors: PWR = Red, GND = Green, and SIG=White.

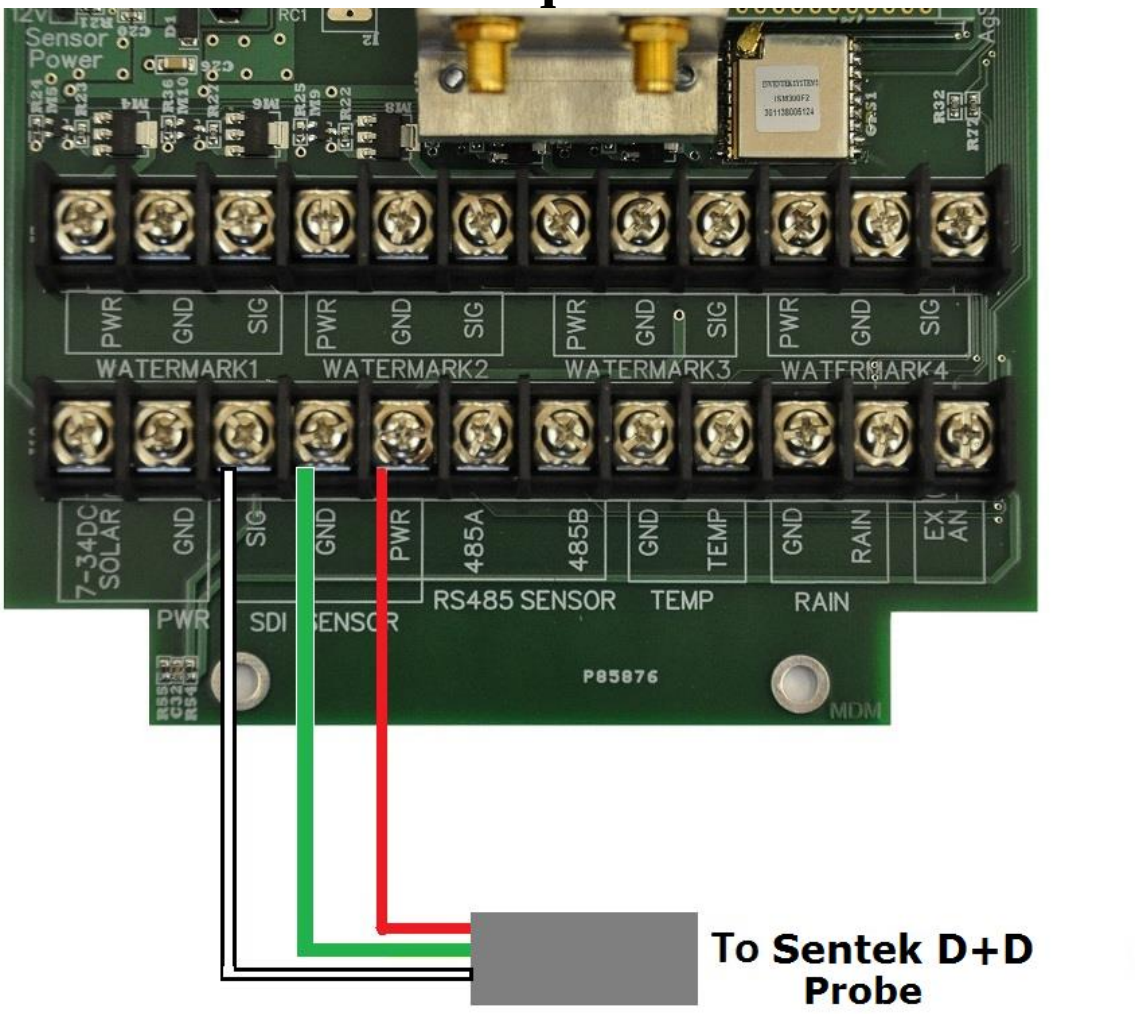
Wiring the Decagon 5TM, 5TE, MPS-2 or GS3 Sensors to the Aqua Trac Unit



Wiring the Decagon 5TM, 5TE, MPS-2 or GS3 sensor:
Find the group of terminals (3) with the group label SDI.

1. Connect the Red wire from the Decagon Sensor to the terminal marked SIG as shown above.
2. Connect the Bare wire from the Decagon Sensor to the terminal marked GND as shown above.
3. Connect the White wire from the Decagon Sensor to the terminal marked PWR as shown above.

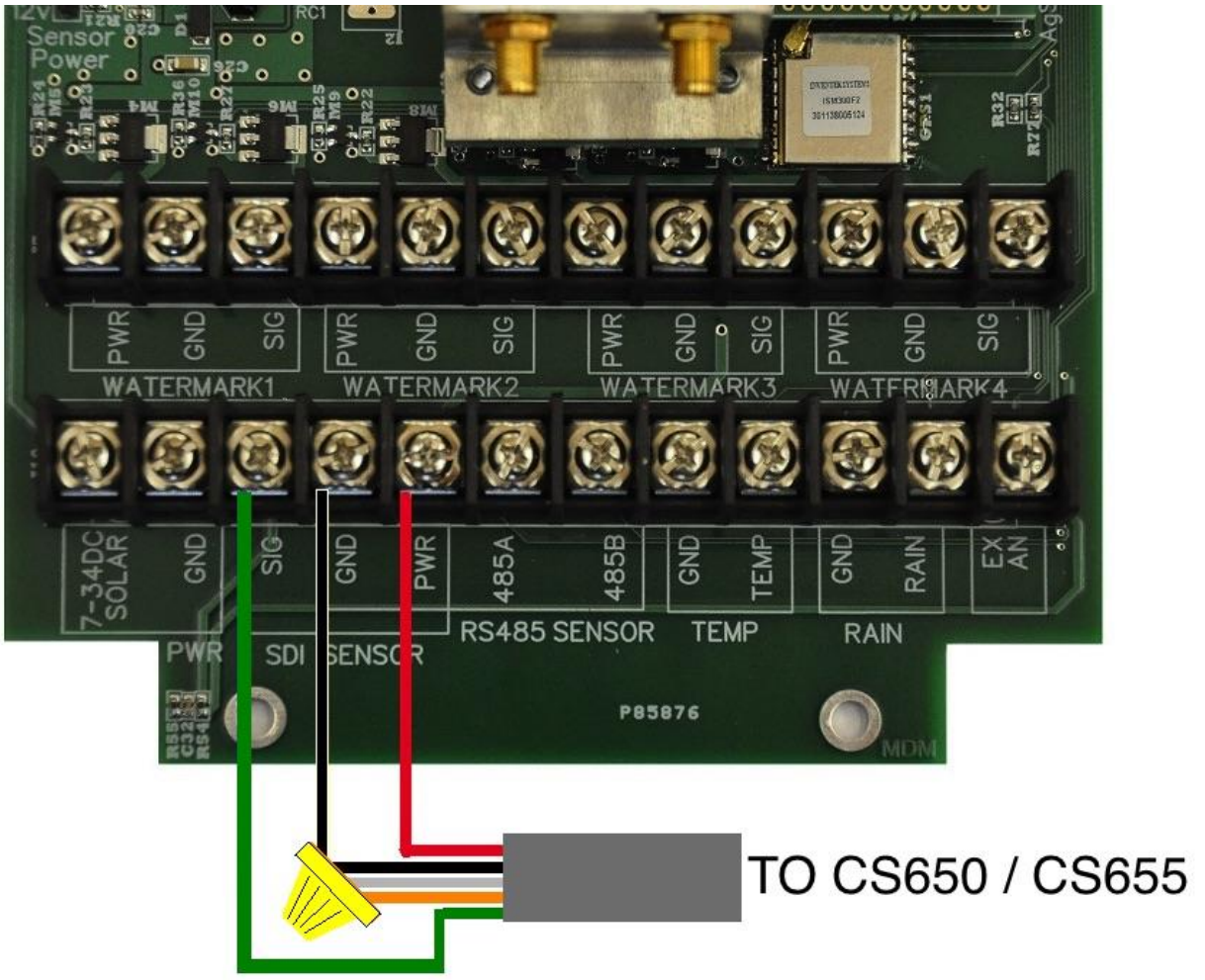
Wiring the Sentek Drill & Drop Probe to the Aqua Trac Unit



Wiring the Sentek probe: Find the group of terminals (3) with the group label SDI.

1. Connect the White wire from the Sentek probe to the terminal marked SIG as shown above.
2. Connect the Green wire from the Sentek probe to the terminal marked GND as shown above.
3. Connect the Red wire from the Sentek probe to the terminal marked PWR as shown above.

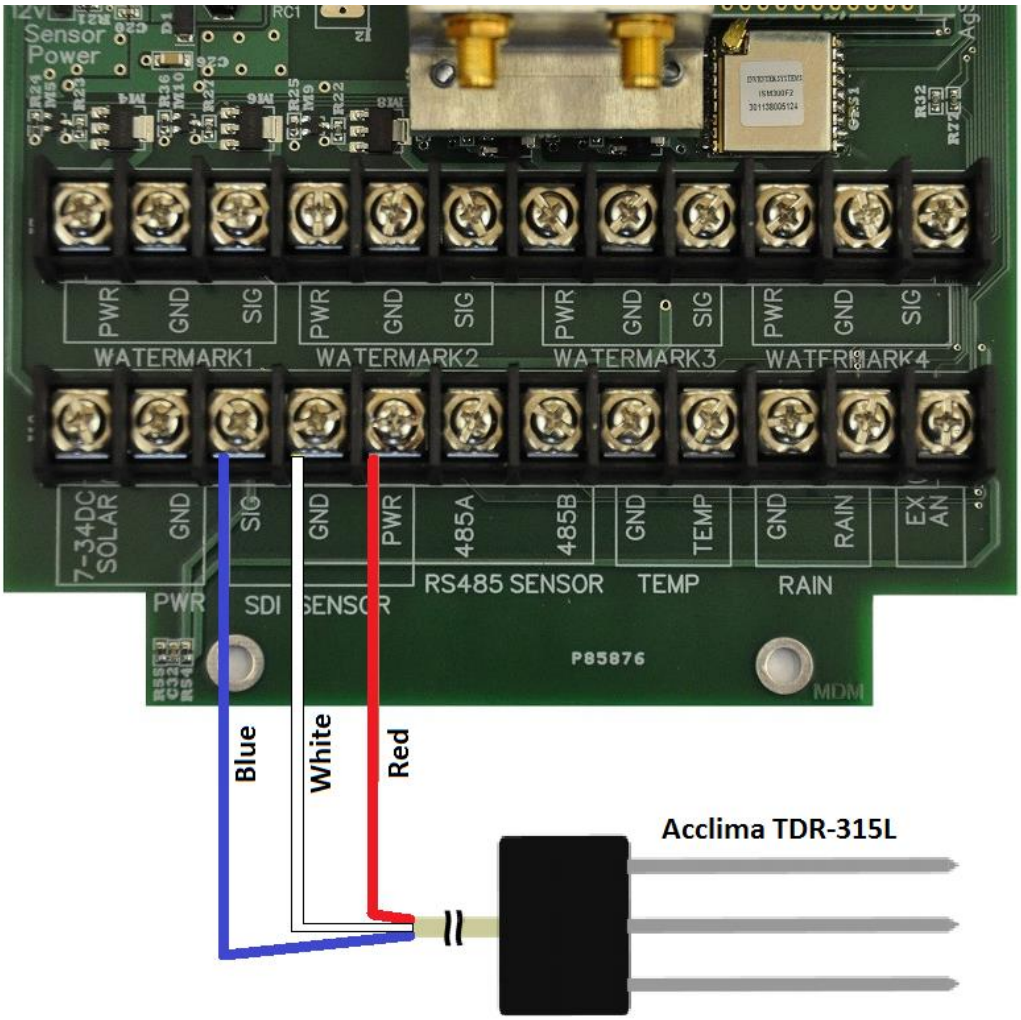
Wiring the Campbell Scientific CS650 / CS655 Sensors to the Aqua Trac Unit



Wiring the CS650 / CS655 sensors:
Find the group of terminals (3) with the group label SDI.

1. Connect the Green wire from the CS Sensor to the terminal marked SIG as shown above.
2. Connect the Clear, Black, and Orange wires from the CS Sensor to the terminal marked GND as shown above. (above shown using a wire nut to connect all 3 wires together)
3. Connect the Red wire from the CS Sensor to the terminal marked PWR as shown above.

Wiring the Acclima TDR315L Sensor to the Aqua Trac Unit



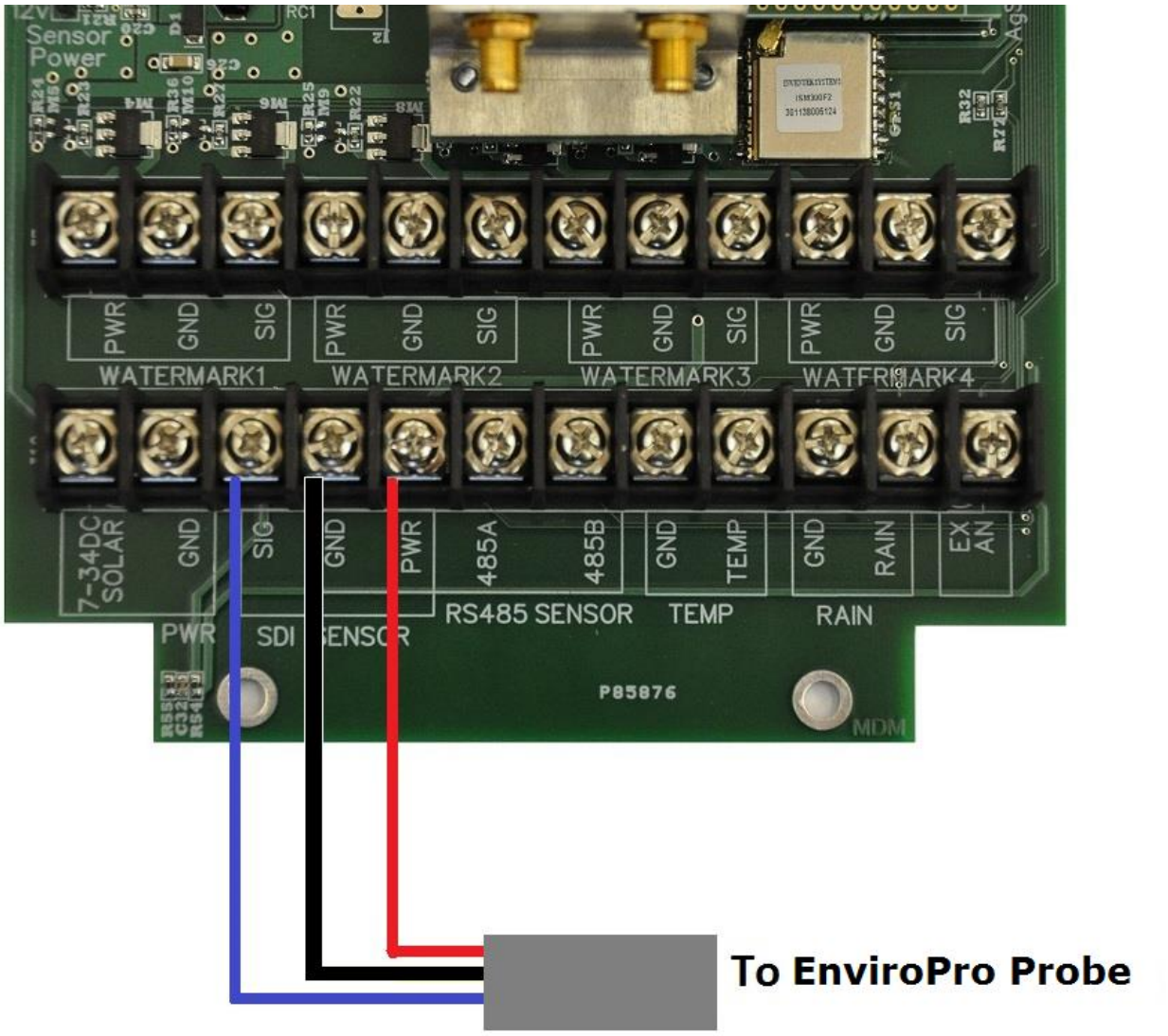
Sensor Power Jumper Must be set to 12v

If multiple sensors are used, they must be pre-addressed starting at 0, 1, 2, 3. (max 4 sensors)

Find the group of terminals (3) with the group label SDI.

1. Connect the Blue wire from the Sensor to the terminal marked SIG as shown above.
2. Connect the White wire from the Sensor to the terminal marked GND as shown above.
3. Connect the Red wire from the Sensor to the terminal marked PWR as shown above.

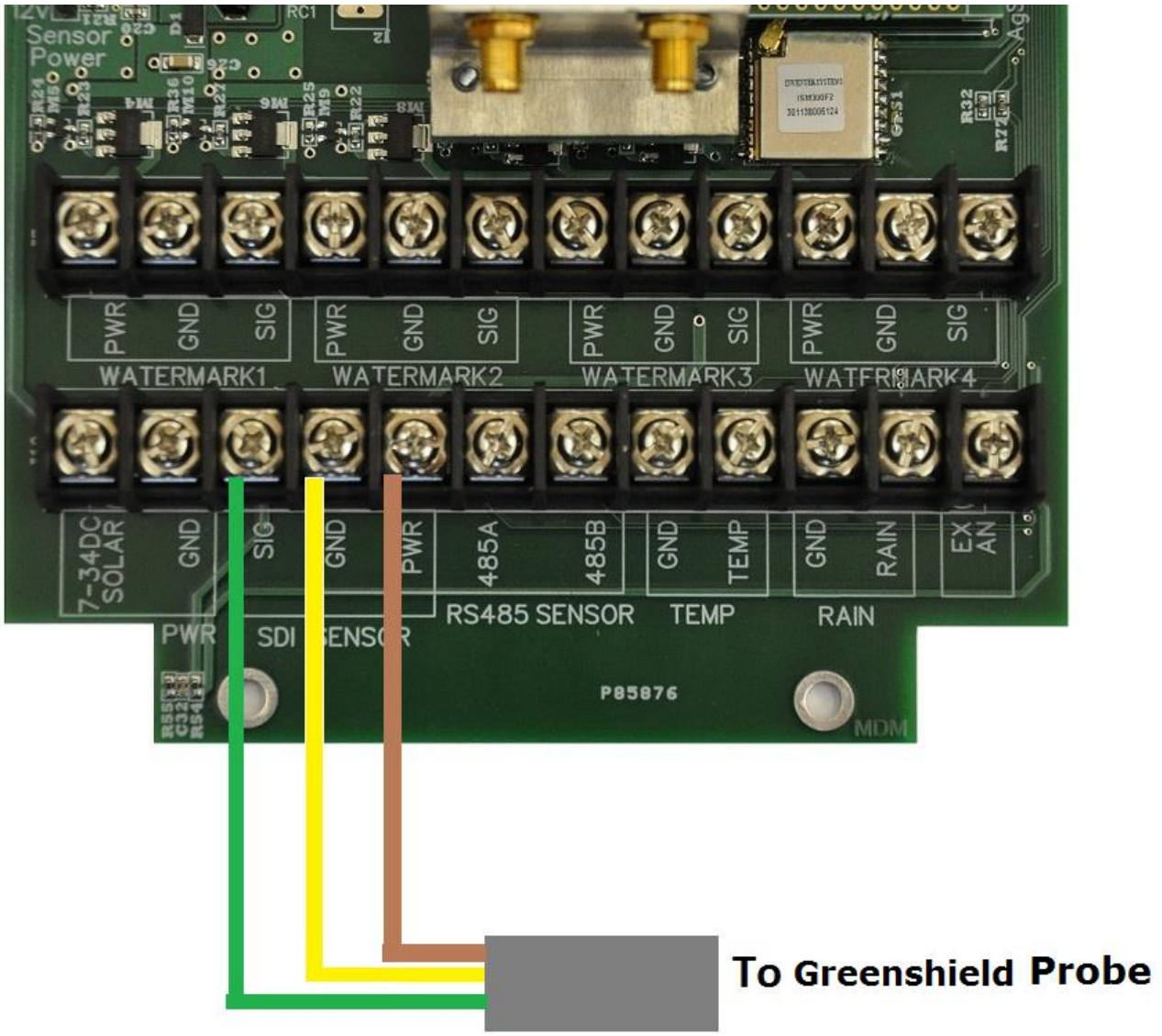
Wiring the EnviroPro Soil Moisture Probe to the Aqua Trac Unit



Find the group of terminals (3) with the group label SDI.

1. Connect the Blue wire from the Sensor to the terminal marked SIG as shown above.
2. Connect the Black wire from the Sensor to the terminal marked GND as shown above.
3. Connect the Red wire from the Sensor to the terminal marked PWR as shown above.

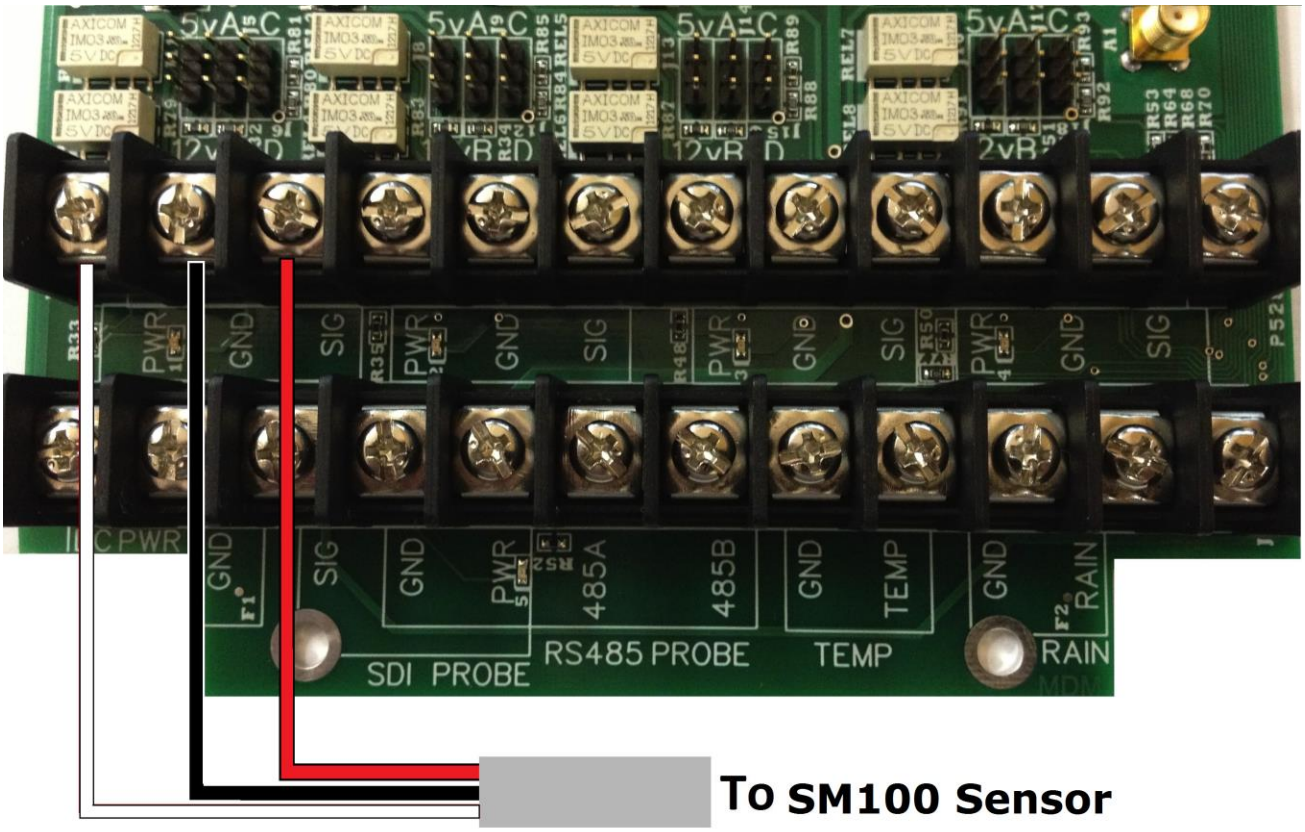
Wiring the Greenshield Soil Moisture Probe to the Aqua Trac Unit



Find the group of terminals (3) with the group label SDI.

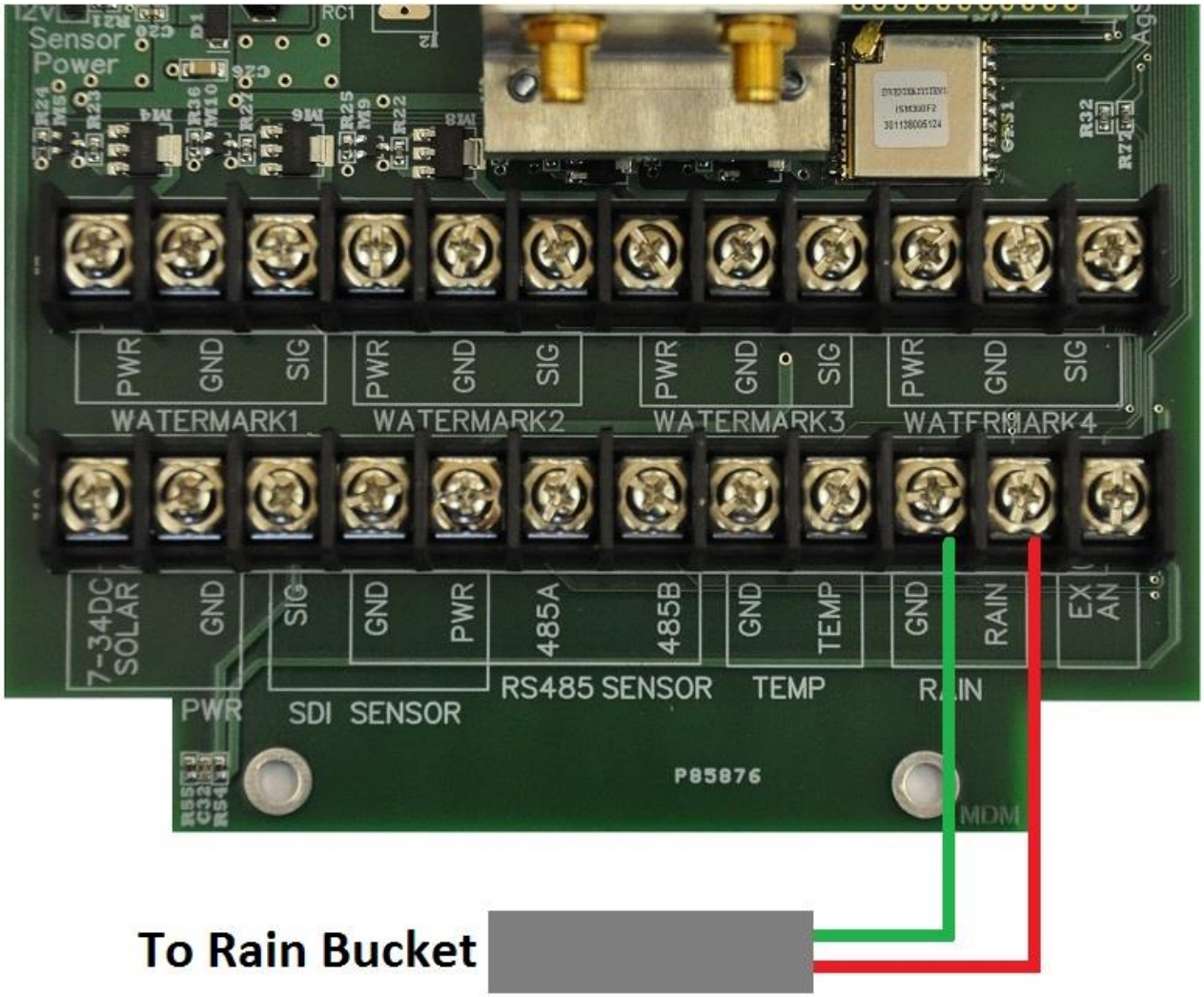
1. Connect the Green wire from the Sensor to the terminal marked SIG as shown above.
2. Connect the Yellow wire from the Sensor to the terminal marked GND as shown above.
3. Connect the Brown wire from the Sensor to the terminal marked PWR as shown above.

Wiring the SM100 Soil Moisture Sensor to the Aqua Trac Unit



1. Connect the Red wire from the Sensor to the terminal marked SIG as shown above.
2. Connect the Black wire from the Sensor to the terminal marked GND as shown above.
3. Connect the White wire from the Sensor to the terminal marked PWR as shown above.
4. Use the same jumper settings as the Decagon 10HS on page 18.

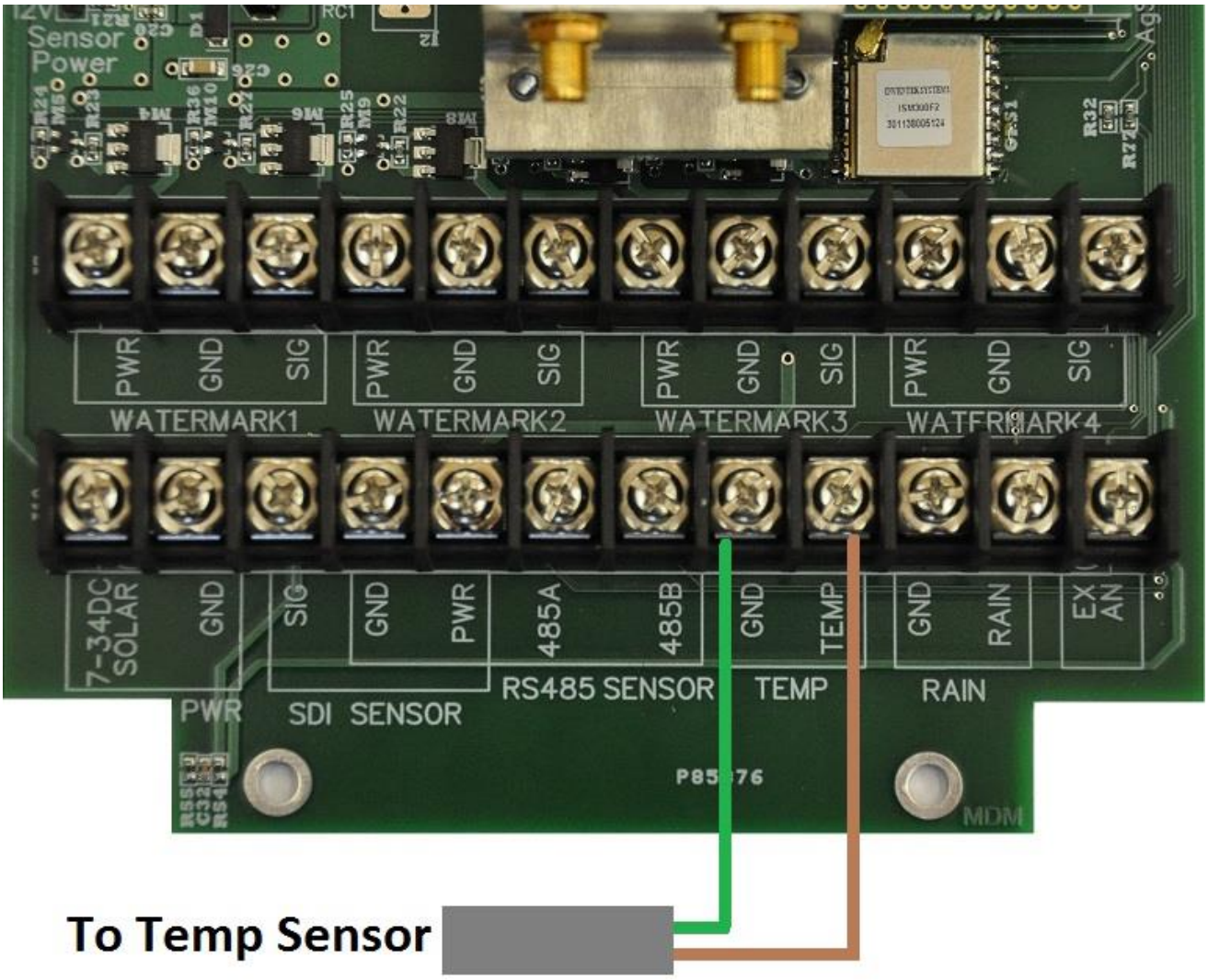
Wiring the AgSense Rain Bucket to the Aqua Trac Unit



Wiring the AgSense Rain Bucket: Find the group of terminals (2) with the group label RAIN

1. Connect the Green wire from the AgSense Rain Bucket to the terminal marked GND as shown above.
2. Connect the Red wire from the AgSense Rain Bucket to the terminal marked RAIN as shown above.

Wiring the AgSense Temperature Sensor to the Aqua Trac Unit



Wiring the AgSense Temp Sensor: Find the group of terminals (2) with the group label TEMP

1. Connect the Green wire from the AgSense Temp sensor to the terminal marked GND as shown above.
2. Connect the Brown wire from the AgSense Temp sensor to the terminal marked TEMP as show above.

How To Configure an Aqua Trac

1. Go to the AgSense users page, click on the unit that you want to set up, then click the main configuration button.
2. Select the type of probe from the drop down menu. Choose AquaCheck or Sentek. (Acclima should not be chosen at this time).
3. Add the probe ID if known otherwise leave blank.
4. Add the sensor depths for the AquaCheck or Sentek probe in the spaces provided. If the depths are unknown they may be left blank. The graph will automatically drop in valves of 4", 8", 16" 24" 32" and 40".
5. If using a Watermark sensors, choose Watermark 200SS-V in the sensor drop downs. Choose the Sensor number that corresponds with the location in the Aqua Trac that was used to wire in the sensor. When you choose Watermark a space will be provided to the right for the sensor depth if known.
6. If using a Temperature sensor, choose thermistor in the Sensor 5 drop down menu.
7. If using a Rain Bucket, choose Tipping Bucket in the Tipping Bucket 1 drop down menu.
8. Save configuration

Main Page Display

Once configured, Watermark sensor information will have a WM displayed by it. The AquaCheck and Sentek probes both display the sensors in a column with the soil moisture value just to the right. Some Sentek sensors will also have an additional column displaying salinity. Below the sensor readings is a display of the soil type in the general area where the probe is located. It is based on GPS location and is there for information value only.
The latitude and longitude of the Aqua Trac can be found under the readings button on the main page for each unit.

General information

1. The board runs on 7-34v DC. It is solar only and cannot run on AC voltage.
2. The board communicates only by cellular modems at this time. There is no radio to radio communication at this time.
3. As with all AgSense solar units, the unit stays "awake" only long enough to take a reading and then goes back to sleep. Most Aqua Tracs are set to take a reading every half hour.
4. The 5V/12V Jumper must be across the 5V only. If the jumper is missing the unit will output 40vDC which will damage the sensors.
5. A temperature sensor or rain bucket can be added to the board but **not** a pressure transducer, anemometer or humidity sensor.
6. The 5V/12V out light (located by the GPS and modem light) will come on before a reading and shut off when the reading is complete. Also, the lights by each sensor PWR terminal will come on when a reading is being taken. Only those sensors chosen on the Main Configuration page will be given power for a reading to be taken.

Updates and Additions

New Features/Capabilities:

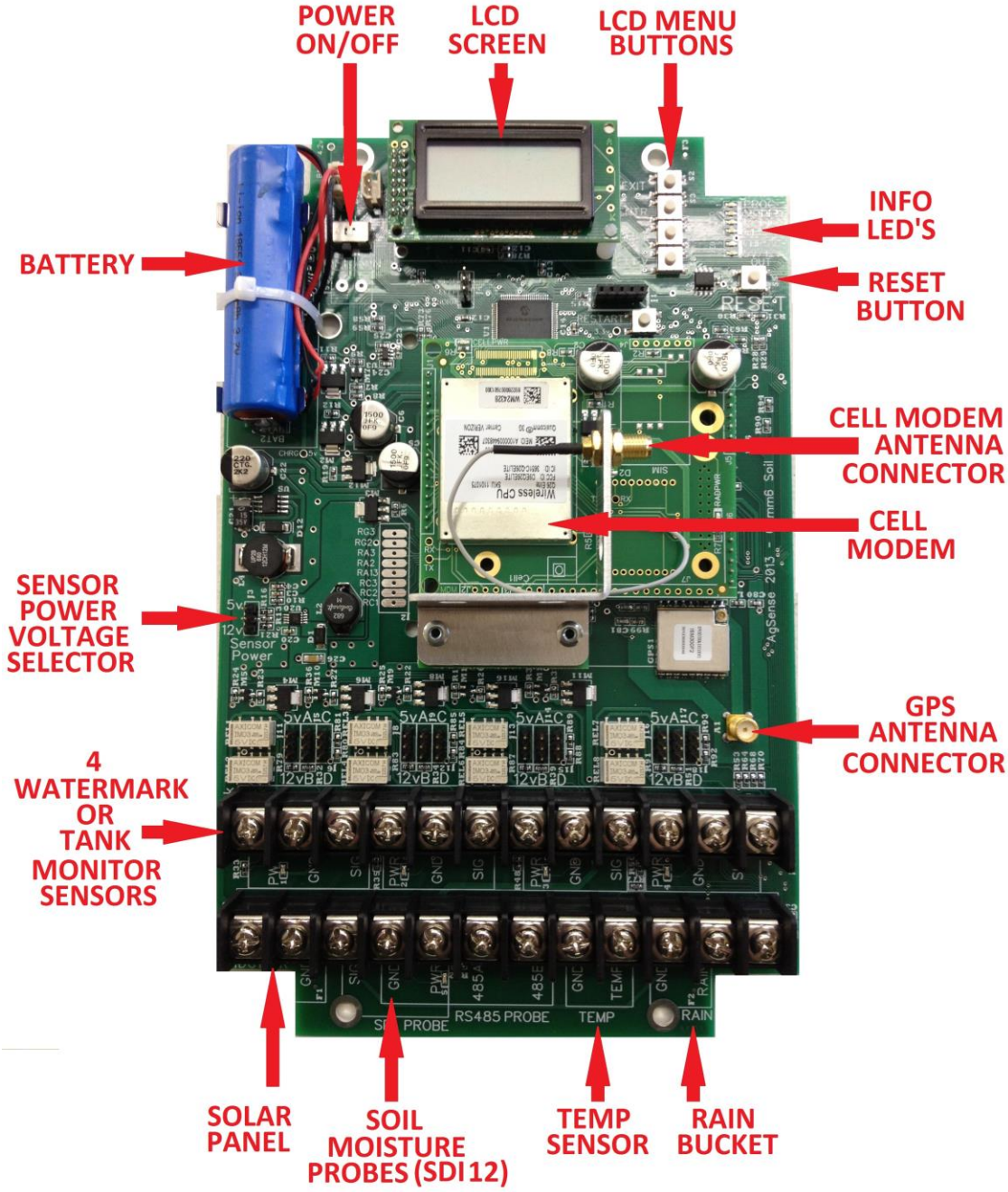
2013 Aqua Trac Board V3.1

The 2013 Aqua Trac units with circuit boards marked V3.1 can read/use all the sensors on pages 2-7 of this manual, plus 3 new sensors that you will see on the following pages:

Also included in this section is a new overview picture of the unit, (Page 10) showing slight changes to the location of some items.

Note: pay very close attention to the jumper settings on Page 11!! This new version of the Aqua Trac requires several jumper settings for each watermark/tank monitor sensor, and if those jumpers are set incorrectly, damage to the circuit board and sensors will result!

General Overview of Aqua Trac V3.1

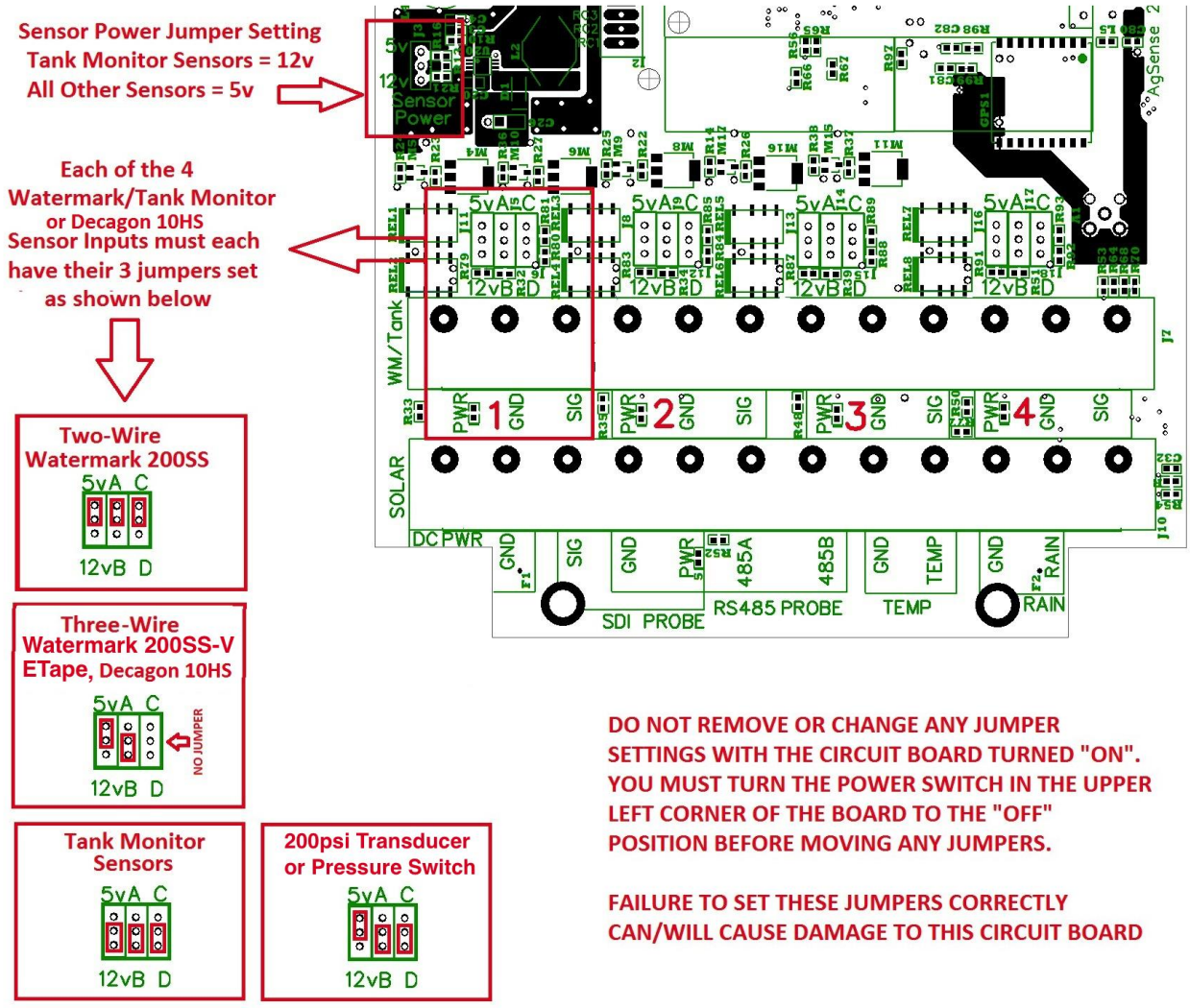


Note 1: Once all sensors are connected and unit is ready to run, you must turn the ON/OFF switch to the "ON" position, and contact your AgSense Dealer to finish setup and configuration of this unit to read the sensors that you have installed.

Note 2: The pins marked SENSOR POWER as shown above should have a jumper connecting the middle and 5v pins. This selects the power output to the sensors to be 5v. Do not move this jumper for any reason unless these instructions inform you to do so.

Jumper Settings

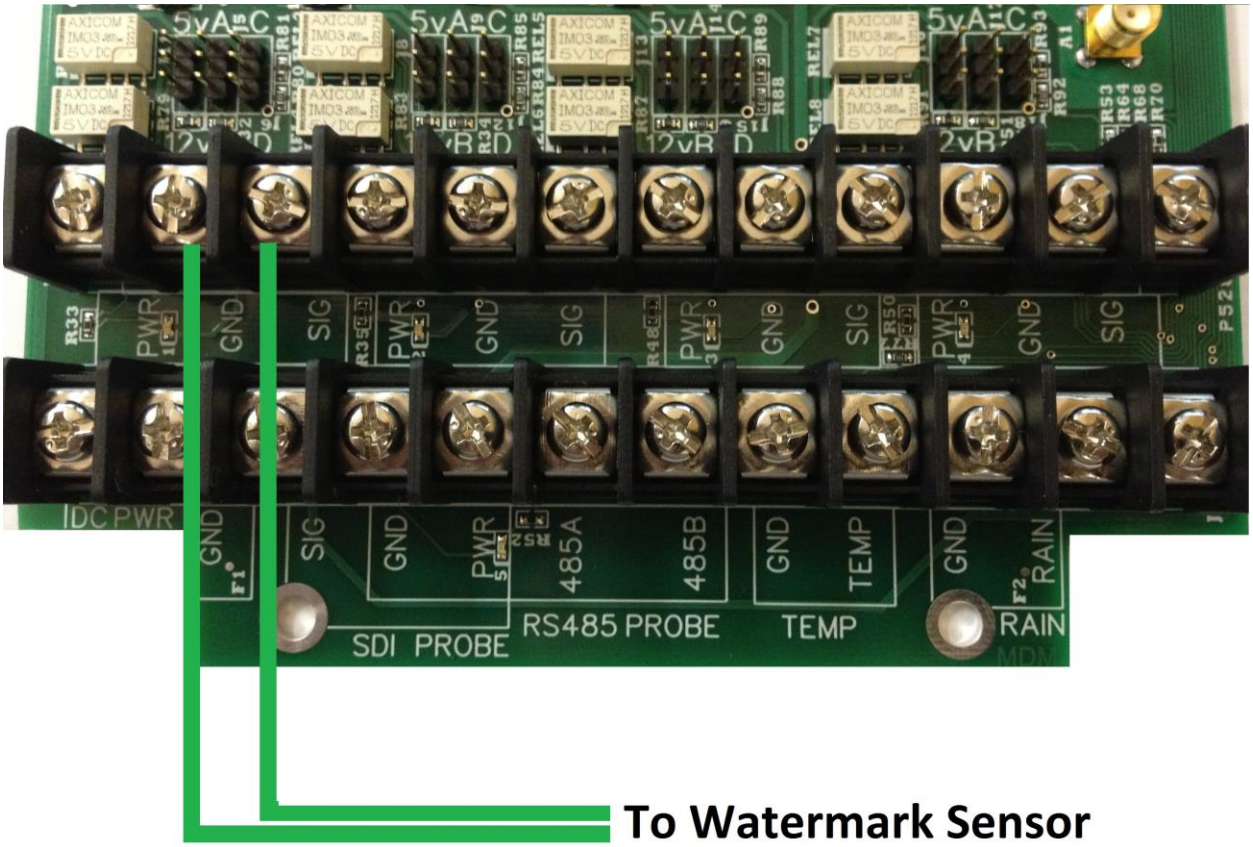
Note: you cannot mix ETape, Watermark/Decagon 10HS/GS1 (5v) sensors and 12v Tank Monitor / Acclima TDR Sensors, only 1 type may be used at a time.



DO NOT REMOVE OR CHANGE ANY JUMPER SETTINGS WITH THE CIRCUIT BOARD TURNED "ON". YOU MUST TURN THE POWER SWITCH IN THE UPPER LEFT CORNER OF THE BOARD TO THE "OFF" POSITION BEFORE MOVING ANY JUMPERS.

FAILURE TO SET THESE JUMPERS CORRECTLY CAN/WILL CAUSE DAMAGE TO THIS CIRCUIT BOARD

Wiring the Watermark 200SS 2-wire soil moisture sensor to the Aqua Trac V3.1



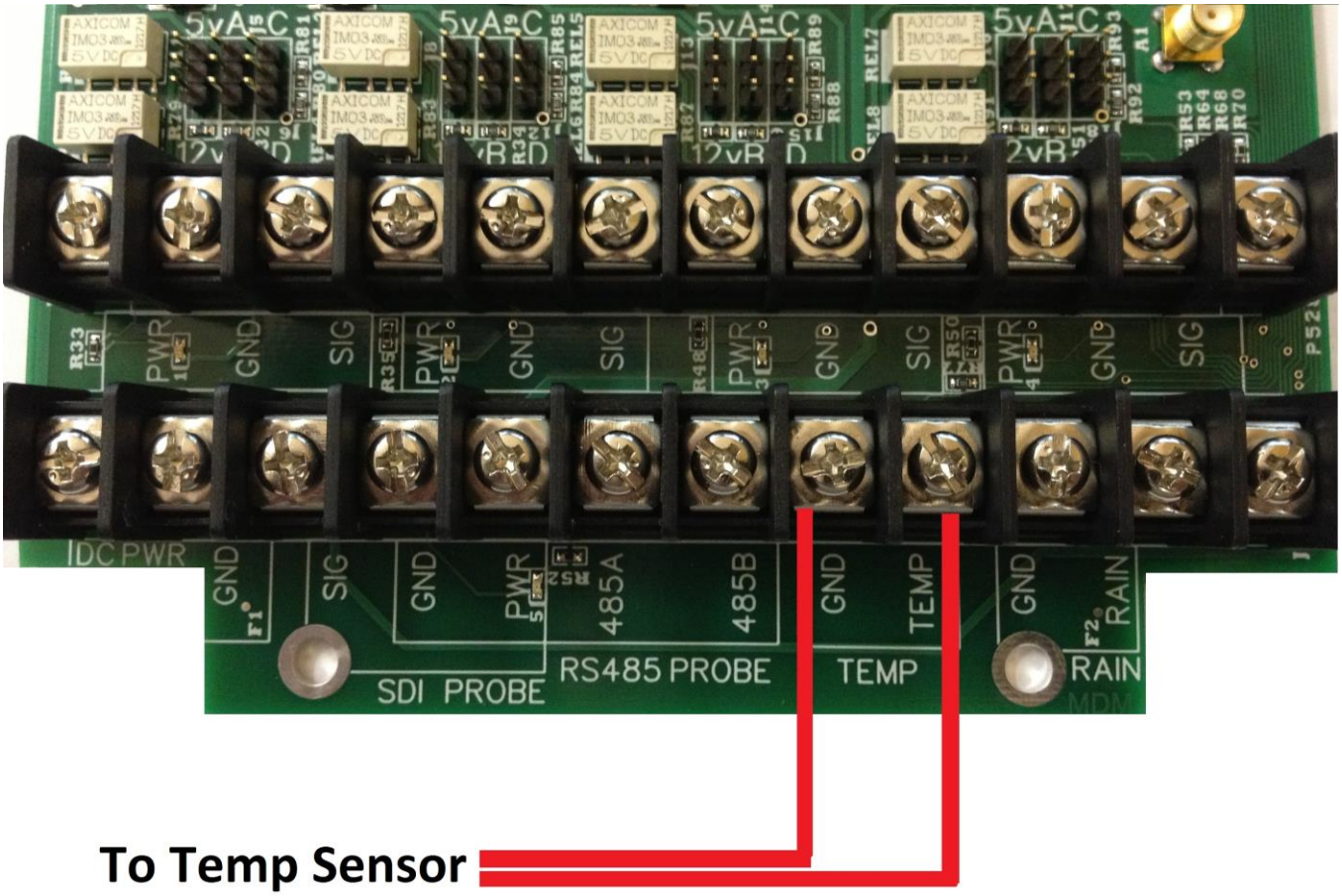
Wiring the Watermark 200SS sensor: You can have up to 4 Watermark sensors wired into this unit. Starting with sensor 1, find the group of 3 terminals with the group label 1.

1. Connect one Green wire from the Watermark sensor to the terminal marked GND as shown above.
2. Connect the other Green wire from the Watermark sensor to the terminal marked SIG as shown above.

Note: Repeat steps 1-2 for any additional Watermark sensors (WM 2, 3, 4)

Note: You must make sure the jumpers are set correctly for each sensor installed before turning power on to this unit – see Page 14 for jumper setting information.

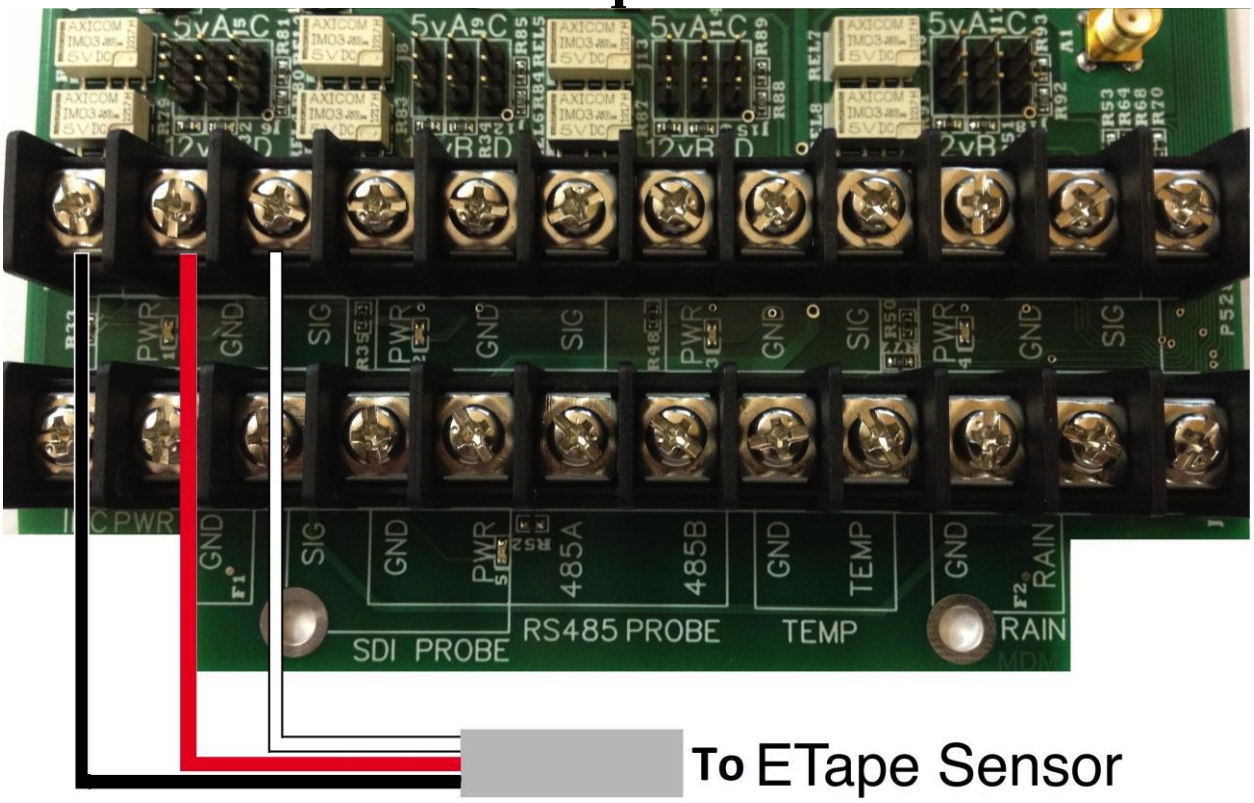
Wiring the Irrometer 200TS Temperature sensor to the Aqua Trac V3.1



Wiring the Watermark Temp Sensor 200TS: Find the group of terminals (2) with the group label TEMP

1. Connect one Red wire from the 200TS Temp sensor to the terminal marked GND as shown above.
2. Connect the second Red wire from the 200TS Temp sensor to the terminal marked TEMP as show above.

Wiring the ETape Water Level Sensor to the Aqua Trac V3.1

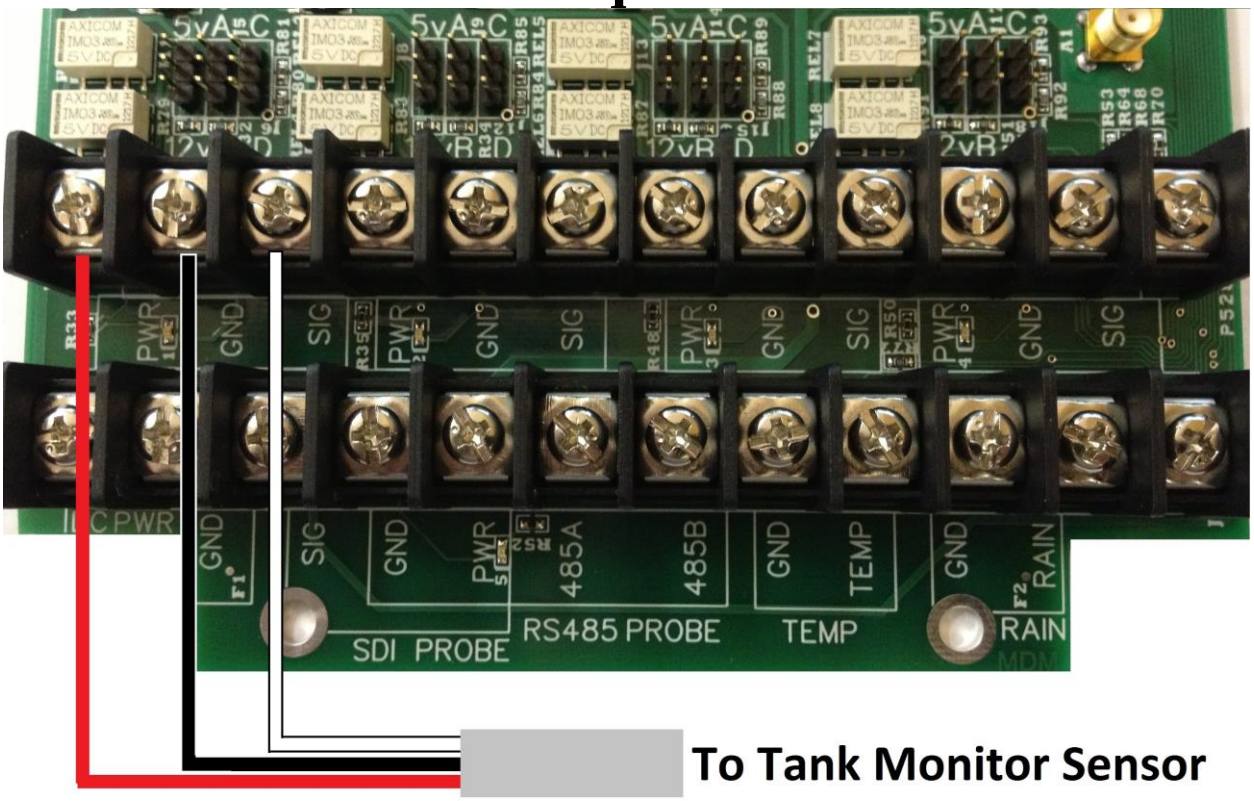


Wiring the ETape Water Level Sensor: (voltage divider type only)
You can have up to 4 ETape Sensors wired into this unit.

1. Connect the Black wire from the ETape Sensor to the terminal marked PWR as shown above.
2. Connect the Red wire from the ETape Sensor to the terminal marked GND as shown above.
3. Connect the White wire from the ETape Sensor to the terminal marked SIG as shown above.

Notes: Repeat steps 1-3 for second ETape sensor at group 2, and so on.
Note: You must make sure the jumpers are set correctly for each sensor installed before turning power on to this unit – see Page 14 for jumper setting information.

Wiring the G3 Tank Monitor sensor to the Aqua Trac V3.1



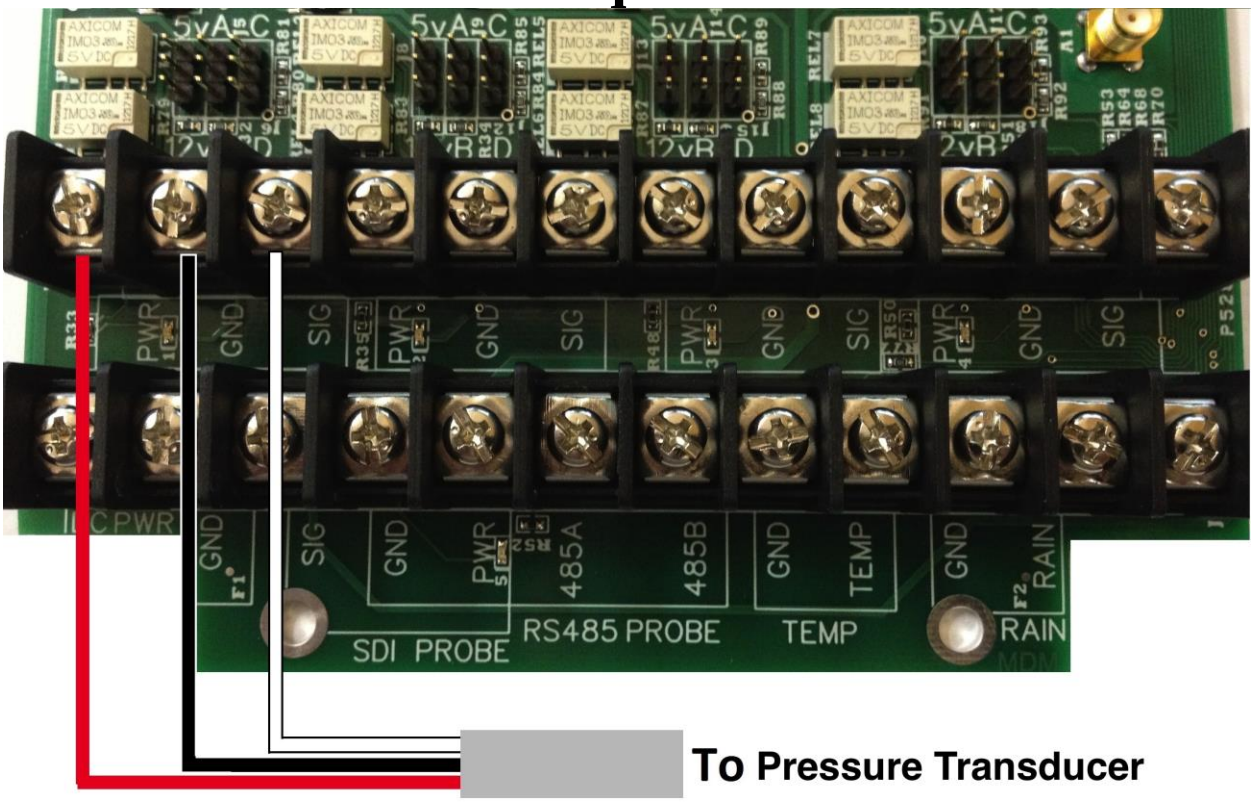
Wiring the AgSense G3 Tank Monitor sensor: You can have up to 2 Tank Monitor sensors wired into this unit. Starting with sensor 1, find the group of terminals (3) with the group label 1.

1. Connect the Red wire from the Tank Monitor sensor to the terminal marked PWR as shown above.
2. Connect the Black wire from the Tank Monitor sensor to the terminal marked GND as shown above.
3. Connect the White wire from the Tank Monitor sensor to the terminal marked SIG as shown above.

Notes: Green wire not used - Repeat steps 1-3 for second Tank Monitor sensor at group 2.

Note: You must make sure the jumpers are set correctly for each sensor installed before turning power on to this unit – see Page 14 for jumper setting information.

Wiring the G2 200psi Pressure Transducer to the Aqua Trac V3.1



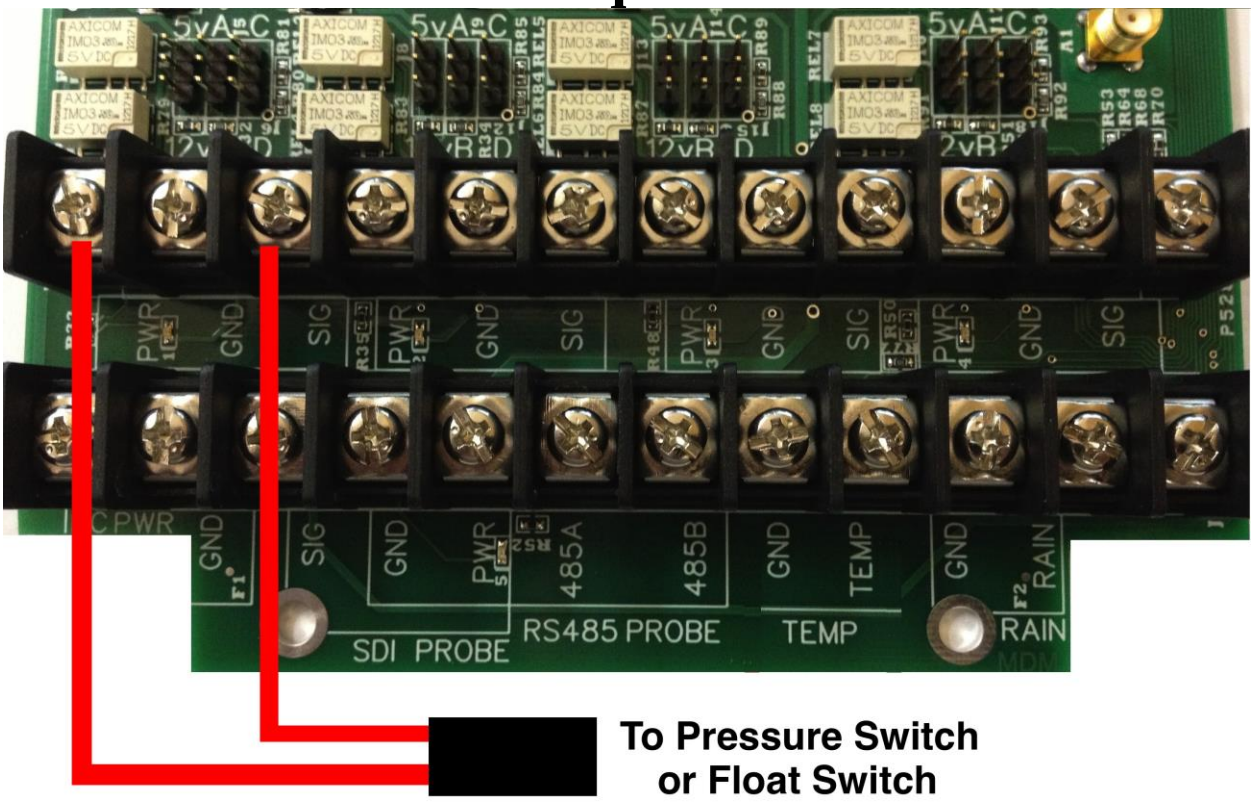
Wiring the AgSense G2 Pressure Transducer:
You can have up to 4 Pressure Transducers wired into this unit.

4. Connect the Red wire from the Pressure Transducer to the terminal marked PWR as shown above.
5. Connect the Black wire from the Pressure Transducer to the terminal marked GND as shown above.
6. Connect the White wire from the Pressure Transducer to the terminal marked SIG as shown above.

Notes: Repeat steps 1-3 for second Pressure Transducer sensor at group 2.

Note: You must make sure the jumpers are set correctly for each sensor installed before turning power on to this unit – see Page 14 for jumper setting information.

Wiring a Pressure Switch or Float Switch to the Aqua Trac V3.1



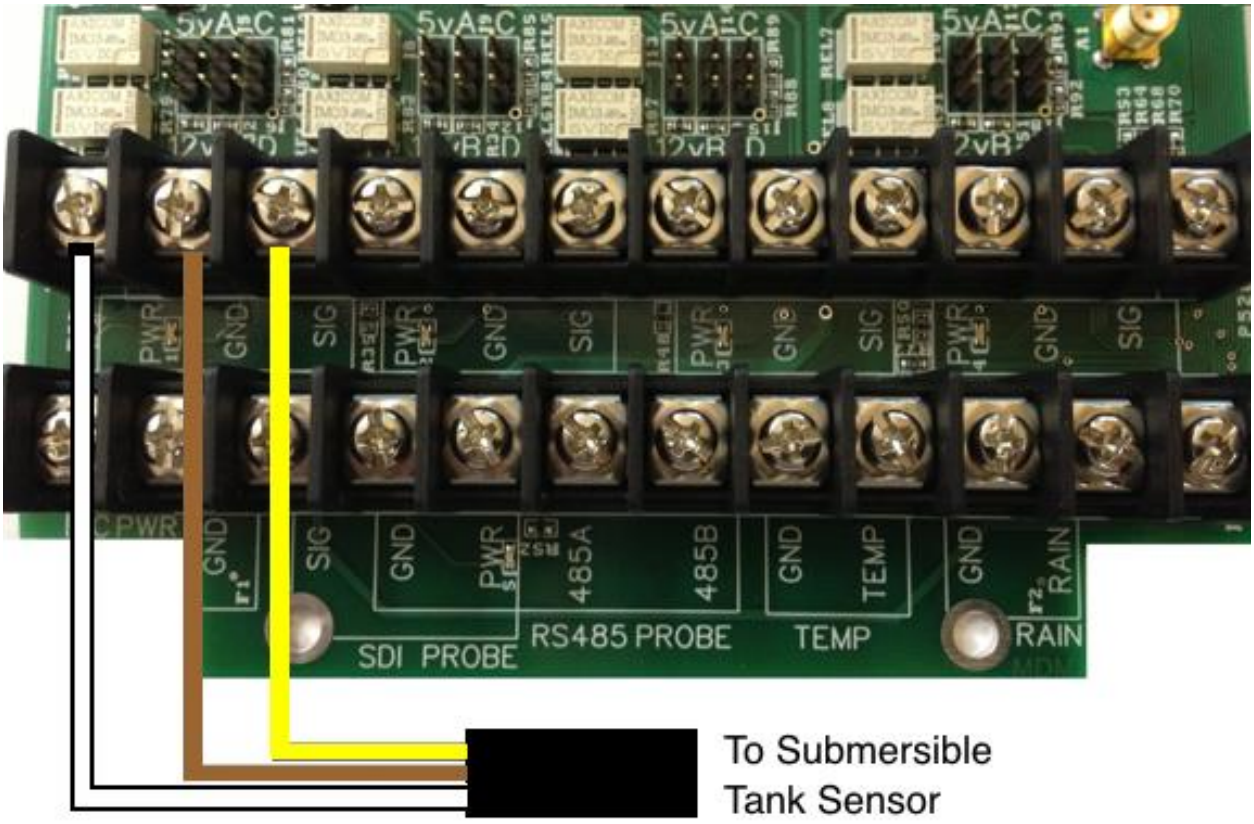
Wiring a Pressure Switch or Float Switch:
You can have up to 4 Pressure Switches or Float Switches wired into this unit
This wiring assumes using a Normally Open Pressure Swich or Float Switch.
OFF=Open Connection, and ON=Closed Connection

1. Connect one wire from the Pressure Switch or Float Switch to the terminal marked PWR as shown above.
2. Connect the second wire from the Pressure Switch or Float Switch to the terminal marked SIG as shown above.

Notes: Repeat steps 1-2 for second Pressure Switch or Float Switch at group 2.

Note: You must make sure the jumpers are set correctly for each sensor installed before turning power on to this unit – see Page 14 for jumper setting information.

Wiring the KM45 Series Submersible Tank Monitor sensor



Wiring the AgSense KM45 Tank Monitor sensor: You can have up to 2 Tank Monitor sensors wired into this unit. Starting with sensor 1, find the group of terminals (3) with the group label 1.

1. Connect the White wire from the Tank Monitor sensor to the terminal marked PWR as shown above.
2. Connect the Brown wire from the Tank Monitor sensor to the terminal marked GND as shown above.
3. Connect the Yellow wire from the Tank Monitor sensor to the terminal marked SIG as shown above.

Notes: Green wire not used - Repeat steps 1-3 for second Tank Monitor sensor at group 2.
DO NOT shorten or lengthen the submersible sensor cable!! This cable includes a vent tube and filter that are required for proper sensor operation, DO NOT MODIFY!

Note: You must make sure the jumpers are set correctly for each sensor installed before turning power on to this unit – see Page 14 for jumper setting information.

Tank Monitor Sensor Installation Tips:

1. Sensors have an accuracy of +/- 3"- 6".
2. Sensor should be installed on the outside of the tank, as close to the bottom of the tank as possible, and not below the bottom of the tank. (typical locations would be just after the output flange, or T'ed into the bottom of the sight tube)
3. You must install a ball valve in-line before the tank monitor sensor in case of any sensor leak or failure that would require the removal/replacement of the sensor.
4. Tank Monitor sensors should not be used in clumpy/sludge/sewage/manure liquids due to the possibility of clogging the sensor opening with course/foreign matter.
5. When using multiple tank monitor sensors, most installs will have a max of 2 sensors. The two sensors should be installed in adjacent tanks, with the Aqua Trac mounted between those two tanks, positioned for the best view of the sun for the most amount of hours. (One mounting style is a 55 gallon barrel (plastic or steel) filled with dirt/gravel, with a tee post installed into the dirt/gravel ,the aqua trac comes with an aluminum bracket that allows you to attach it directly to the tee post. – the other method of mounting would be any metal bracket built by the user that allows the cables to reach the aqua trac and gives the solar panel the most amount of sunlight possible)
6. It is up to the installer/user to determine if the liquid stored in the tank is compatible with the sensor due to the many variations of corrosiveness. The standard sensor is 316 Stainless steel wet components. If being used in extremely explosive liquids (fuels), an explosion proof sensor is available – contact your dealer to get information and pricing and availability of this sensor from AgSense.

How To Configure an Aqua Trac V3

1. Go to the AgSense users page, click on the unit that you want to set up, then click the main configuration button.
2. If using a soil moisture probe, select the type of probe from the drop down menu. Choose AquaCheck or Sentek. (Acclima should not be chosen at this time).
3. Add the probe ID if known otherwise leave blank.
4. Add the sensor depths for the AquaCheck or Sentek probe if known.
5. If using a Watermark sensor, choose the correct type of Watermark (2 wire or 3 wire) in the sensor drop downs. Choose the Sensor number that corresponds with the location in the Aqua Trac that was used to wire in the sensor. When you choose Watermark a space will be provided to the right for the sensor depth if known.
6. If using a Tank Monitor sensor, choose Tank Monitor in the Sensor drop downs. Choose the sensor number that corresponds with the location on the Aqua Trac that was used to wire in the sensor. Once you have chosen Tank Monitor, a few spaces will appear that need to be filled in: Tank Alias (name of the tank), Specific Gravity of the fluid in the tank, tank diameter, tank height, and distance from the bottom of the tank to the metal end of the sensor. All these items must be filled in or it will not read correctly. Also click on Set Location for each sensor and click the top of the tank where that sensor is located.
7. If using a Temperature sensor, choose thermistor in the Sensor 5 drop down menu.
8. If using a Rain Bucket, choose Tipping Bucket in the Tipping Bucket 1 drop down menu.
9. Click Save configuration

Power Requirements for the Aqua Trac unit:

SOLAR/DC Powered Unit 7-34V DC:
At 12v DC: 1.0A MAX
0.1A - 0.5A during normal operation
Recommended Solar panel – Must be a minimum of 10 watt @ 17v Solar panel.

Specs of solar panels that ship from AgSense:
10 watt
Operating Voltage 17v DC
Operating Current 0.59A
Open Circuit Voltage 21.2v DC
Short Circuit Current 0.69A

Warranty Information:

All warranty service provided by the AgSense service center, or an authorized technician.

Warranty repairs require a Return Merchandise Authorization Number (RMA); Have your dealer contact AgSense to obtain this RMA number.

For the Period of :	AgSense will:
60 Days	Money back Guarantee if not satisfied with product.
2 Years	Repair on any unit that fails due to defect in materials or workmanship. AgSense labor and parts would be provided free of charge during the warranty period. (This does not include dealer labor.)

What is not covered:

- Service trips to your home to teach you how to use the product.
- Improper installation, delivery or maintenance. If you have an installation problem contact your dealer or installer.
- Failure of product resulting from modification to product or due to unreasonable failure to provide reasonable and necessary maintenance.
- Labor necessary to move device from one location to another.
- Improper installation of battery.
- Failure due to corrosion or water damage.
    - Units installed in direct contact with sprinklers require a tower box or other watertight protection.
- Damage to the product caused by improper power supply voltage, accident, fire, floods or acts of God.
- Damage caused after delivery.

Exclusion of implied warranties – Your sole and exclusive remedy is product repair as provided in this Limited Warranty. Any implied warranties, including the implied warranties of merchantability or fitness for a particular purpose, are limited to two years or the shortest period allowed by law.

This warranty is extended to the original purchaser and any succeeding owner for the products purchased for use within the USA.
Some states do not allow the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights, and you may also have the other rights which vary from state to state. To know what your legal rights are, consult your local or state consumer affairs office or your state's Attorney General.

DISCLAIMER: The use of Field Commander/Crop Link/Aqua Trac shall not be utilized by customer as a substitute for the Customer's personal observation of the manner in which Customer's irrigation equipment is functioning. AgSense specifically advises Customer that this product is designed to enhance Customer's ability to control existing irrigation equipment and to provide the Customer with additional information about existing irrigation equipment. Field Commander/Crop Link/Aqua Trac relies upon GPS, Satellite and Internet technology which not always functions properly, accordingly, AgSense disclaims any and all responsibility for the reliability of this technology. Customer acknowledges that AgSense does not have the ability to control the reliability of GPS, Satellite and Internet Technology. AgSense specifically disclaims any and all liability for Customer's failure to personally determine whether or not the irrigation equipment that belongs to Customer is functioning properly. AgSense, its agents, members or officers will not be liable for Customer's loss of profits, business interruption, or any other type of consequential damages arising because of the failure to Customer's equipment, GPS, Satellite or Internet to function properly.

CUSTOMER'S RESPONSIBILITIES: Customer agrees to keep the irrigation equipment upon which Field Commander/Crop Link/Aqua Trac is installed in good repair and maintenance. Customer acknowledges the importance of and agrees to keep all safety devices which came with Customer's irrigation equipment in working order. Customer agrees to keep an end field stop and barricades in place to prevent damage to the irrigation equipment in the event that Field Commander/Crop Link/Aqua Trac malfunctions. Customer agrees that Field Commander/Crop Link/Aqua Trac cannot solely replace the personal monitoring of the operation of irrigation equipment.

REMEDY: Customer acknowledges that Field Commander/Crop Link/Aqua Trac's sole obligation and Customer's exclusive remedy in the event of any material and continuing nonconformity, defect, or error in the information service shall be to take reasonable corrective actions upon discovery of the problem.

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