

Harvest Electronics

ITU G2 System Installation

During or immediately after installation contact Harvest Support on **+64 6 370 1991**
Harvest installation support is available Monday to Friday 8:00am to 5:30pm (UTC +12)

Please email photos of this installation looking in several directions to support@harvest.com
This can help us if you need future technical support.

Installation

Ensure there is adequate network coverage at the site before installation. Harvest uses Vodafone/Spark (NZ), Telstra (Australia), AT&T (USA) other wise please contact us to check which provider is used.

If this unit is going to have weather sensors attached either now or in the future, please refer to the "Weather Station Placement" sheet, as placement can drastically affect your weather readings.

The solar panel **must face North** in the Southern Hemisphere (South in the Northern Hemisphere) to ensure the solar panel receives maximum sunlight and for calibration of anemometer direction.

The system is designed to be mounted onto a 2" galv pipe (60mm or 2.36in OD) using the two included U-bolts. It is recommended that the system is mounted on a 2-3m (6-9ft) pole. Another acceptable option is to mount the system on a small pole attached to a wooden post.

The cellular and optional wireless antennas attach to the system using the screw mounts on the top of the stainless steel casing.

Note that every Harvest system has a replaceable in-line fuse and is shipped with a spare, taped to the battery in a clear plastic bag.



Attaching Sensor Brackets

The anemometer bracket is to be attached to the three screws mounted on the side of the case using the washers and nuts provided.

The rain gauge bracket is to be attached to the four screws mounted on the side of the case using the washers and nuts provided.



It is important to note that for accurate rain measurements the system needs to be mounted level. The spirit level inside the rain gauge can be utilised to level the system.

The temperature sensor shown here as mounted behind the solar panel is one of three mounting options. Refer to the Temperature/Humidity/Pressure page for further information.

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Other Sensors

Other sensors may have been included. If not already installed then please refer to attached sensor specific installation sheet.

If third party sensors are required or are already installed and need monitoring then please contact Harvest or your local reseller for help.

Checking System Operation

Once installation is complete please call Harvest during business hours on +64 6 370 1991 or free phone in NZ on 0800 HARVEST (0800 427 8378). From there we will confirm whether system and sensors are functional. At this time we will also confirm access and contact details.

Your system will by default send data through every 30 minutes and at 10 minute intervals. Custom reporting options can be setup to trigger from pump status inputs or similar.

If required your system can be configured as a frost alarm. It will send through new logs every minute when the temperature drops below 3°C (37.4°F).

Once the set up has been confirmed by Harvest you can view your data on the internet by going to www.harvestalarms.com. Once you have navigated to your personal page you can view all current and historical data. If you click on the "Options" tab you can log in, from there you can make changes to your system.

If data is required to be sent through to regional council for consent requirement please contact Harvest to have this setup. Generally your consent number and well/bore number will be required.

Storage

If you plan to store your system for an extended period without use, please ensure you de-power the system. This will ensure the battery is not flat when you come to use it again. To do this, pull out the plug marked "Power In" (where the battery and solar panel are connected). No tools are required to complete this removal.

You should also notify Harvest support

When you wish to re-install the unit you will just need to reconnect the plug. On "powering-up" you should see the green and red indicator LED's next to the LCD flash briefly, then text will appear on the LCD.

After Hours Support

After hours assistance is available by calling +64 6 370 1991. However, non-urgent after-hours support calls will cost \$75p/h (minimum charge 1 hour).

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Weather Station Placement

Correct placement of your weather station is crucial to ensure best possible readings from the weather sensors. Use the following guidelines when choosing a location:

- A typical weather station with a wind sensor should be mounted about 2m above the ground.
- The weather station should not be mounted on the roof of a building.
- It is important that the weather station is located in an open space, to minimise interference from nearby objects. The minimum distance between the weather station and any nearby objects should be 8x the height of that object e.g. if there is a tree nearby that is **20m high**, the weather station should be located at least **160m away** from the tree. The formula for this calculation is written below.



If h = 20m, then:
minimum distance = 20 x 8
minimum distance = 160m

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Temperature/Humidity/Pressure

The Harvest Air Temperature, Humidity and Pressure sensors come in following forms:

- Air Temperature
- Air Temperature and Humidity
- Air Temperature, Humidity and Barometric Pressure

All 3 designs are housed in the same solar radiation shields. These shields are designed to clip into one another in the same way a jam jar lid is attached to the jar.

Installation

Depending on the application, there are a range of mounting options for these sensors:

- Bracket - attached underneath the solar panel of the Harvest stainless steel enclosure
- Arm - can attach to any vertical surface e.g. post/side of a structure
- Hanger - the clips on the top of the solar radiation shields are designed to attach onto a wire.

The screw terminal for the sensor is now located inside the solar radiation shields. If you need to disconnect or re-connect the wire, then:

- Remove the bottom solar radiation shield by twisting it clockwise (if the sensor is upright).
- Gently pull the bottom solar radiation shield away from the rest of the solar radiation shields. The circuit board is housed in the center of the top section of solar radiation shields.
- Pull the circuit board gently out of the center of the top section of solar radiation shields.
- The screw terminals are attached directly onto the circuit board.
- Unscrew the wire from the terminal blocks.
- Remove the cable from the gland that is attached onto the bottom solar radiation shield.
- Place the new wire up through the gland.
- Attach the wire to the terminal Block.
- Insert the circuit board back into the center of the 'top' solar radiation shields.
- Attach the bottom solar radiation shield by twisting it anti-clockwise (if the sensor is upright).

Electrical Connection

Wire	ITU G2	SRR	LRR	XLR
Red	Temperature - A/B	Temp	1-Wire Temp	Temp - Data
Black	Temperature - Gnd	Gnd	Gnd	Temp - Gnd



Bracket Mount



Arm Mount



Hanger Mount

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Davis Rain Gauge

The Davis Rain Collector II is designed to meet the guidelines of the World Meteorological Organization and is comparable in operation and catchment to rain gauges used by MET service and the majority of other meteorological institutions worldwide.

Additionally, The Davis rain collector is National Institute of Standards & Technology (NIST) certified to an accuracy level of $\pm 4\%$.

Installation

The Davis Rain Gauge comes on a mount that can be attached to the side on the stainless steel enclosure via the 4 captive bolts and flange nuts provided. This mount can also be attached to a pipe via an additional bracket.

To wire the rain gauge into the device, please see the electrical connections below.

To test the rain gauge either manually tip the bucket or pour water into the cone.



Maintenance

The rain gauge should be cleaned at least once every six months.

- Disconnect the rain gauge cable from the Digital Input.
- Separate the cone from the base.
- Use soapy water and a soft cloth to clean pollen, dirt, and other debris from the cone, funnel and bucket.
- Reattach the cone and reconnect to the Digital Input

If you need to maintain a high level of accuracy from your rain gauge it is recommended that you carry out calibration tests either annually or biannually.

Electrical Connection

Wires	ITU G2	SRR	LRR	XLR
Red & Black Pair	Digital	Digital	Digital	Digital
Yellow & Green Pair	Gnd	Gnd	Gnd	Gnd

Note: Typically rain gauges are set up to use Digital input 1 however, if you are unsure please contact Harvest Support to confirm wiring.

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Davis Anemometer

The Davis Anemometer includes both wind speed and wind direction sensors. Rugged components stand up to hurricane-force winds, yet are sensitive to a light breeze. Includes sealed stainless steel bearings for long life.

The Davis Anemometer will need to be screwed onto its base so that the arm is pointing in the direction indicated by the sticker on the sensor.

Be careful not to damage the anemometer cups during installation.

Davis Anemometer mounting guidelines

- Make sure you install the anemometer in a location where wind flow is unobstructed by trees and nearby buildings.
- For the most accurate readings, the anemometer should be mounted at least 1.2m (4ft) above the roof line.

Maintenance

Visual inspection every 6 months for anything that may be hindering operation (e.g. cobwebs). Check for smooth operation - you should be able to move the vane and cups by blowing on them. Wind sensors should be replaced after 3 years if optimum performance is required.

Electrical Connection

In most cases the Davis wind sensor will come with a RJ11 (phone plug) connector, this simply inserts into the appropriate socket on the Harvest unit. If however, you need to wire the sensor directly to the station, please follow the wiring table below:

Wire	ITU G2	LRR	XLR
Black	Wind - Speed	Digital 1	Wind - Speed
Red	Wind - Gnd	Gnd	Wind - Gnd
Green	Wind - Dir	Analog 1	Wind - Dir
Yellow	Wind - Exc	Excitation	Wind - Exc



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Short Range Remote (SRR)

The Short Range Remote (SRR) is designed to be connected to a Harvest temperature sensor or a digital input via a short length of two-core cable. The SRR is housed in a UV resistant and weatherproof black plastic case.

Placement

When choosing a location to mount the SRR, please ensure the antenna is at least 300mm from the nearest vertical metal obstruction as this can severely reduce the range of the SRR. The SRR has a maximum range of up to 300m for optimal coverage.

The antenna needs to have line of sight to the base station and be placed above any wires for maximum range and to avoid signal degradation.

Installation

The SRR has two mounting options:

- Pipe/Wall: Stainless steel mounting bracket which can be used with U-bolts to mount on 2" galv pipe or screwed to a flat surface.
- Tabs: Stainless steel tabs which can be used to screw the SRR to a post or flat surface.

To prevent water damage the casing must be mounted vertically with the cables exiting the bottom of the case.

Antenna options:

- Chassis: The antenna base is mounted directly to the pipe/wall mounting bracket. This option is not compatible with the mounting tabs.
- Magmount: The antenna is supplied with a magnetic base to mount on the supplied strip of metal. It is crucial that the antenna is mounted on this strip or a similar metal surface as this acts as part of the antenna.

To power up the SRR, plug in the battery (black connector), an LED should light up to indicate operation. Please contact Harvest as soon as possible to verify that the system is operational.

Electrical Connection

The circuit board of the SRR with the 4-way connection terminal is accessed by opening the door of the plastic case.

Sensor	Wiring 1	Wiring 2	Input
Temperature	Red	Brown	Temp
	Black	Blue	Gnd



Pipe/wall mount SRR with chassis mount antenna



SRR with mounting tabs and magmount antenna

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Long Range Remote (LRR)

The Long Range Remote (LRR) is a multi-Input remote which allows remote use of most sensors available to the ITU G2. In most cases, LRR's are field programmable so changes can be made to LRR input setup remotely. The LRR is housed in a UV resistant and weatherproof black plastic case with a solar panel mounted on the lid (mains powered options also available).

Placement

When choosing a location to mount the LRR, ensure the antenna is at least 300mm (12 inches) from the nearest vertical metal obstruction as this can severely reduce the operating range of the LRR.

The LRR has a recommended typical range of up to 2km (1.2 miles). The antenna should have line of sight to the base station and be placed above any wires or metal structures for maximum range and to avoid signal degradation.

It is also important that the solar panel faces as close to North (South in Northern Hemisphere) as possible.

Installation

The LRR has two mounting options:

- Pipe/Wall: Stainless steel mounting bracket which can be used with U-bolts to mount on 2" galv pipe or screwed to a flat surface.
- Tabs: Stainless steel tabs which can be used to screw the LRR to a post or flat surface.

To prevent water damage the casing must be mounted vertically with the cables exiting the bottom of the case.

Antenna options:

- Chassis: The antenna base is mounted directly to the pipe/wall mounting bracket. This option is not compatible with the mounting tabs.
- Magmount: The antenna is supplied with a magnetic base to mount on the supplied strip of metal. It is crucial that the antenna is mounted on this strip or a similar metal surface as this acts as part of the antenna.

To power up the LRR, first, plug in the battery (white connector), an LED should light up to indicate operation, finally connect the solar panel (black connector) and contact Harvest as soon as possible to verify that the system is operational.

Electrical Connection

For individual LRR setup please see inside door of LRR case.
For wiring of other sensors please see attached sheets.



Pipe/wall mount LRR with chassis mount antenna



LRR with mounting tabs and magmount antenna