



Vantage PRO 2

Long Range Repeater Installation Manual

For AC-Powered and Solar-Powered Repeaters
Models 7653 and 7654

DAVIS 
Davis Instruments

FCC Part 15 Class B Registration Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modification not expressly approved in writing by Davis Instruments may void the warranty and void the user's authority to operate this equipment.

FCC ID: IRDWW765Y

IC: 3788A-765Y

EC EMC Compliance

This product complies with the essential protection requirements of the EC EMC Directive 89/336/EC, as tested to the following directives:

- ETSI EN 300 220
- ETSI EN 301 489

This device has been designed to operate with an antenna having a maximum gain of 11 dBi. Antennas having a higher gain are strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms. To reduce potential radio interference to other users, the antenna type and its gain should be chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

Vantage Pro2™ Long Range Wireless Repeater Manual

Rev. A, June 9, 2005

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For Vantage Pro2 Long Range Wireless Repeaters: 7653, 7654

Compatible with Vantage Pro Antennas: 7656, 7660

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Welcome!

The Vantage Pro2™ Long Range Repeater can be used with any Vantage Pro2 wireless transmitter station and re-transmits the information to a Vantage Pro2 compatible receiver (Vantage Pro2 console or Envoy®). The Long Range Repeater works in much the same way as the Vantage Pro2 wireless repeaters, but extends the range and distance between a repeater and a receiver by up to 10 times that of the Vantage Pro2 wireless repeater.

Long Repeater Manual Overview

This manual provides additional information specific to the installation and use of the Long Range Repeaters and is intended to be used in conjunction with the Wireless Repeater Installation Manual.

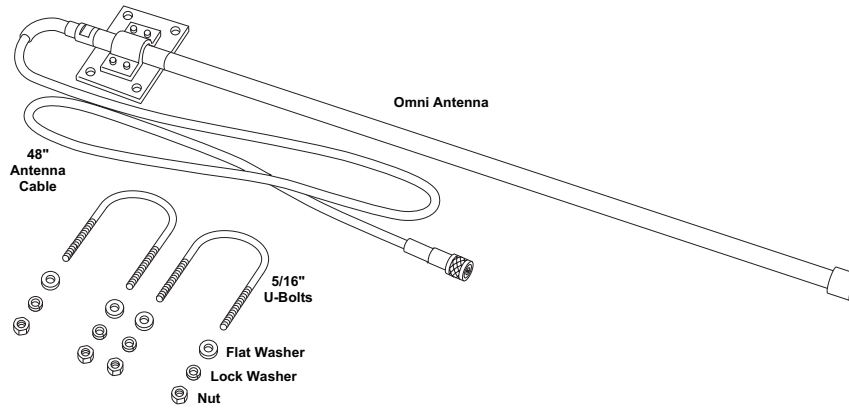
The table below shows the location of the information required to install and maintain your Long Range Repeaters:

Section/Procedure	In This Manual	In the Wireless Repeater Manual
Components and Hardware		X
Additional Antenna Components and Hardware	X	
Repeater Board Contents	X	X
Tools for Setup		X
Wireless Repeater Introduction		X
Repeater Configurations/Architecture		X
Applying Power		X
Single Repeater Installation		X
Advanced Repeater Installation		X
Mounting the Long Range Wireless Repeater and Antennas	X	
Connecting External Antennas to the Repeater	X	
Console and WeatherLink Configuration		X
Long Range Repeater Troubleshooting	X	
Long Range Repeater Specification	X	

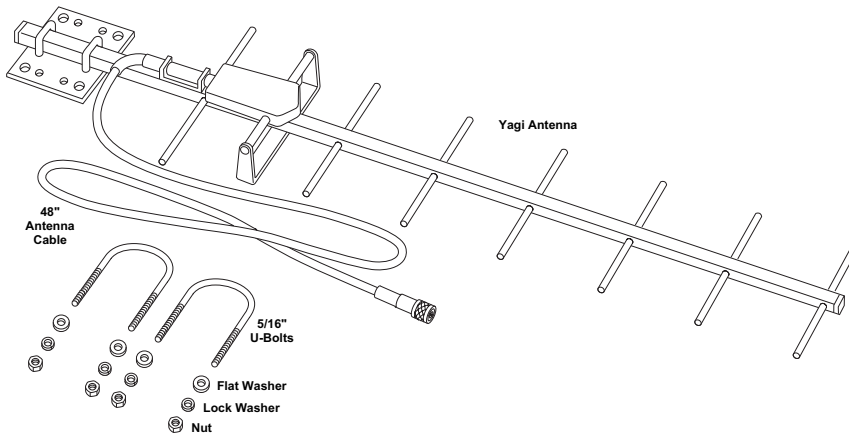
Long Range Repeater Components and Hardware

In addition to the wireless repeater enclosure and hardware, the long range repeater comes equipped with custom-selected external antennas that can be used separately or in combination of one another.

Omni-direction Antenna

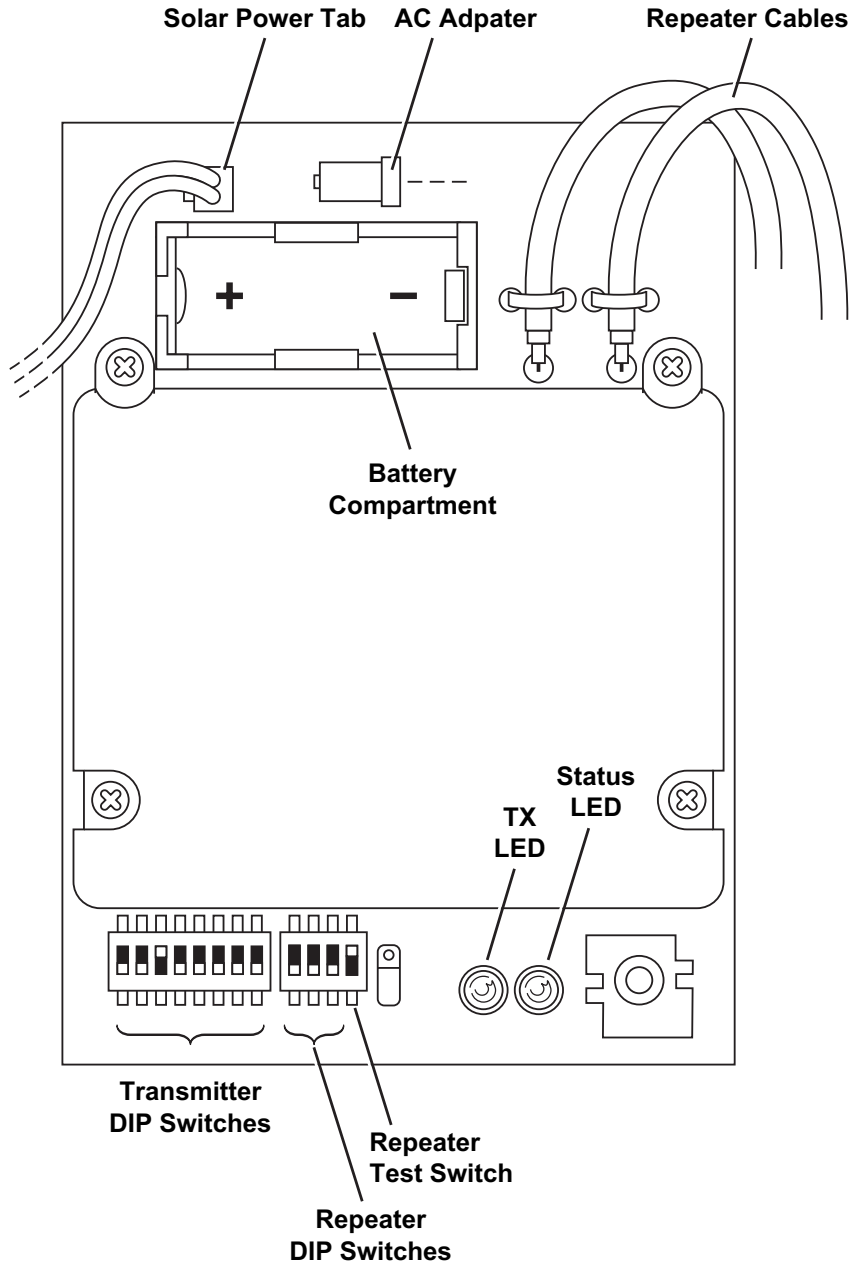


Yagi Antenna



Repeater Board Contents

The board contained within the repeater enclosure has the following contents:



The component unique to the Long Range Repeater board is:

- **Antenna Cables** — Connects the repeater board to the external antennas.

Mounting the Wireless Repeater

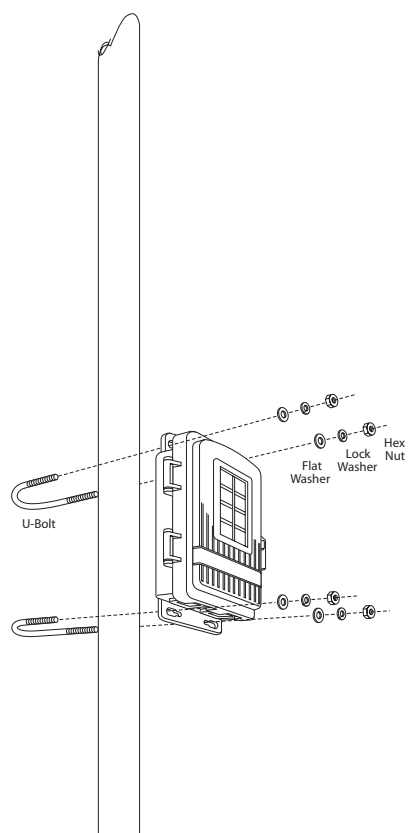
The antenna configuration and wireless repeater can be mounted on a pole at designated location. Use the provided U-bolts for the wireless repeater and the U-bolts provided for each antenna type to install them all to a pole. .

Installing a Repeater\Antenna(s) on a Pole

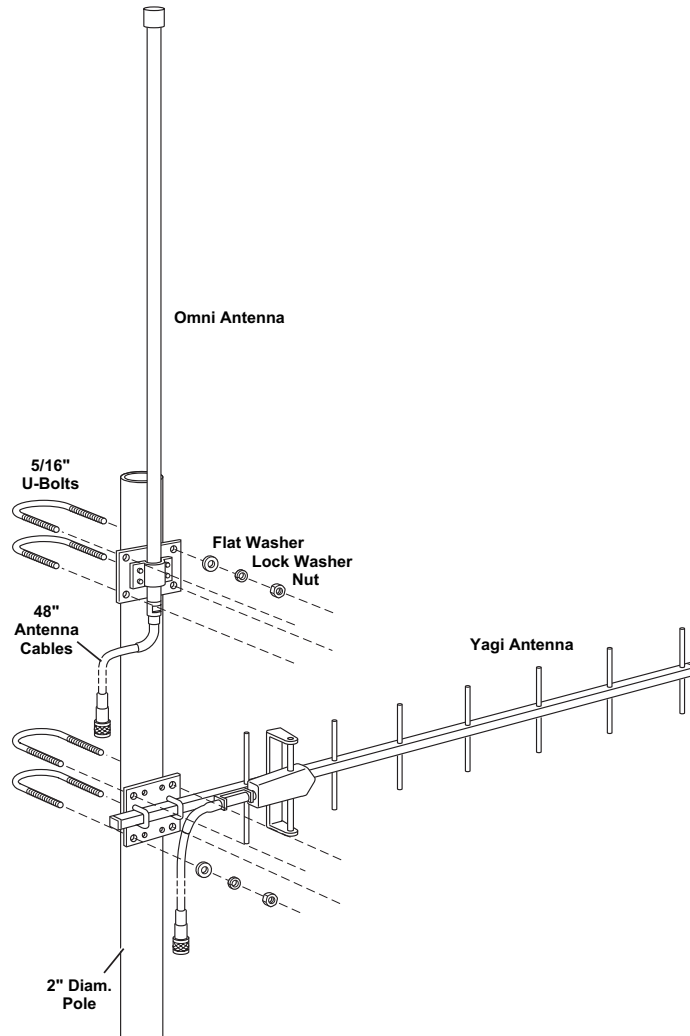
Refer to the following illustrations to install the repeater and antennas on a pole:

1. Place the repeater enclosure at a low place on the pole to provide enough room on the top of the pole to mount the necessary antennas.
2. While holding the shelter against the pole close to the bottom, place a U-bolt around the pole and through the two holes on at the top of the shelter.
3. Place a flat washer, a lock washer and a hex nut on each of the bolt ends.
4. Using an adjustable wrench or 7/16" wrench, tighten the nuts.
5. Place the second U-bolt around the pole and through the two holes at the bottom of the shelter.
6. Put a flat washer, a lock washer, and a hex nut on each bolt end, and tighten the hex nuts.

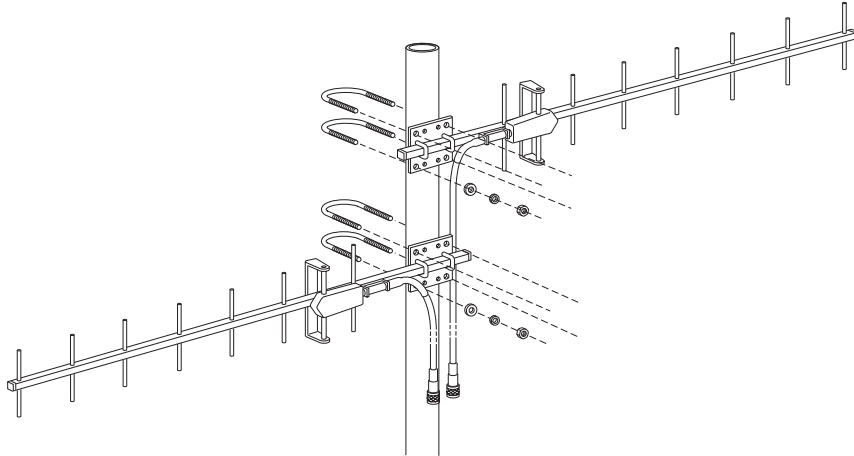
Depending on the types of antennas selected, use the illustrations on the following pages to assemble and mount your selected antennas:



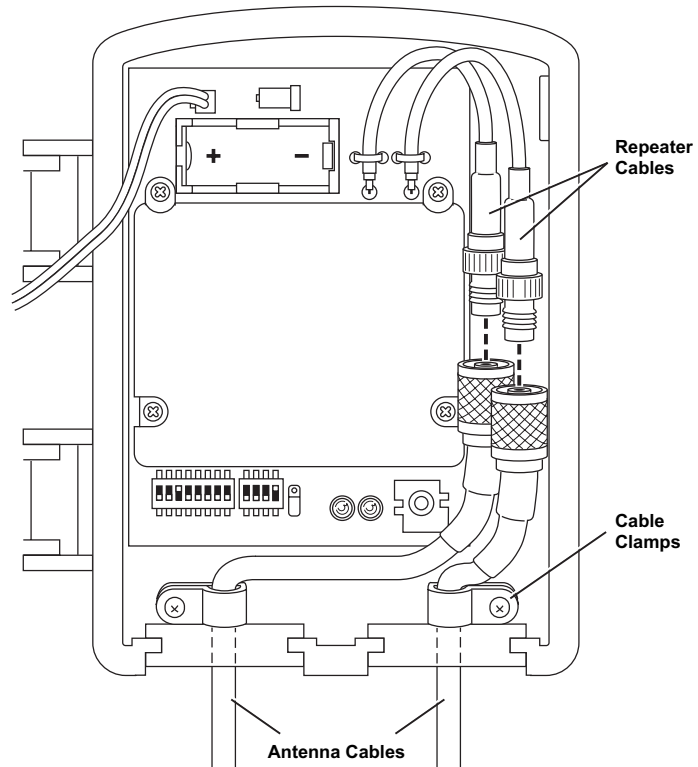
Omni and Yagi Antenna Combination Assembly



Two Yagi Antenna Combination Assembly



Connecting External Antennas to the Repeater



Specifications

Complete specifications for all of the Vantage Pro2 weather products as well as the wireless repeater are available in the Weather Support section of our website:
<http://www.davisnet.com/support/weather/>

General

Operating Temperature -40 to 150° Fahrenheit (-40 to 65° Celsius)
 Non-Operating Temperature -40 to 150° Fahrenheit (-40 to 65° Celsius)
 Current Draw 1.5 mA at 4-6 VDC
 Batteries CR 123A 3-volt lithium battery
 Battery Life Estimates (with no solar or AC power input):

# of IDs*	Estimated Life Expectancy (Months)
1	4
4	1.5
8	<1

**Both received directly by the repeater and those IDs repeated from the previous repeater in a chain*

Solar Panel 0.5 Watts
 Alternate Power AC power adapter
 Housing Material UV-resistant PVC plastic
 Dimensions 6.25" x 2.25" x 7.88" (159 mm x 57 mm x 200 mm)
 Weight 1.188 lb. (.539 kg)

Wireless Communication (US models)

Transmit/Receive Frequency 902-928 MHz FHSS.
 ID Codes Available 8
 Output Power 902-928 MHz FHSS: FCC-certified low power, less than 8 mW, no license required.

Type	Gain
Omnidirectional Antenna (#7655)	5 dBi
Yagi Antenna (#7660)	11 dBi

Range
 Line of Sight up to 2 miles (3 km)

Wireless Communication (OV, EU, UK models)

Transmit/Receive Frequency 868.0 - 868.6 MHz FHSS (Frequency Hopping Spread Spectrum)
 ID Codes Available 8
 Output Power 868.0 - 868.6 MHz FHSS. CE-certified, less than 8 mW, no license required. Antenna gain can not exceed 8 dBi maximum and no more than four transmitter IDs to comply with the EN 300 220 regulation.

Range
 Line of Sight up to 2 miles feet (3 km)

Transmit Interval

Repeater Transmit Interval 2.5625 - 3.0000 seconds depending on ID.