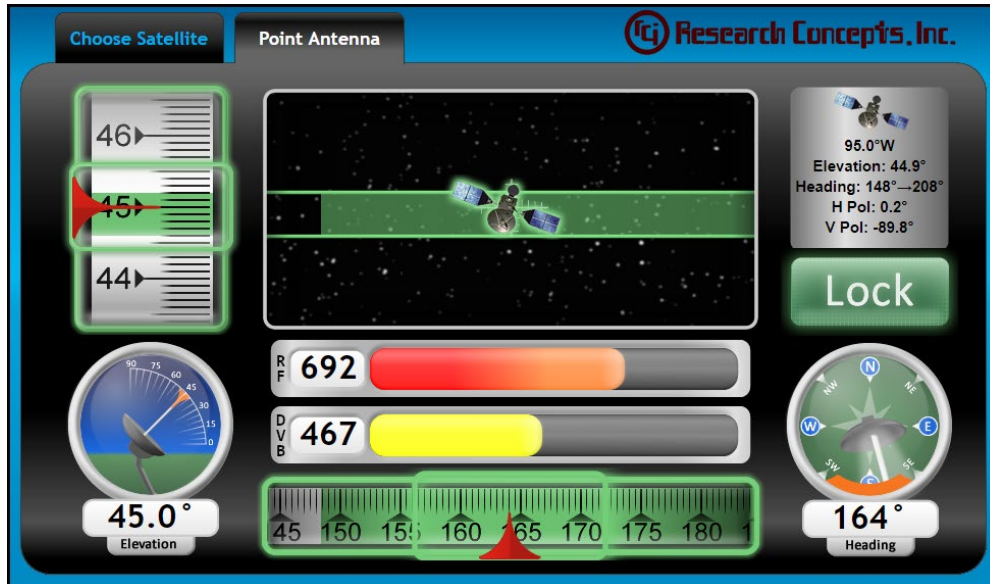


RC300

The Flyaway Companion



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REVISION HISTORY

Date	By	Description
7/20/10	RC	Creation of Manual
4/2/14	KJ	Removed old address
9/25/14	JDK	Add information for DVB-S2.
11/10/16	BK	Updated Warranty
7/6/17	RC	Updated Configuration Items
10/19/18	KJ	Small changes to the new WiFi section and updated the TOC
10/26/18	TB	Add information for SBS2 update.
11/14/18	TB	Add section for security settings page. Add gateway to TCP/IP settings.
12/7/23	EG	Add software format table. Updated configuration/security page sections.

System Requirements

Supported Operating Systems: Windows 10+

Supported Browsers: Chrome 117, Edge 117, Safari 16.6, Firefox 117

Specifications

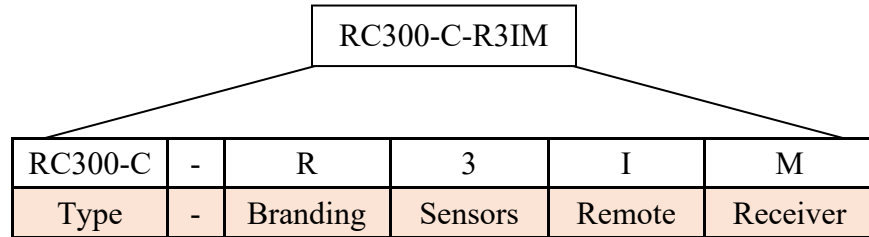
Physical			
Size	10.1 inches x 6.3 inches x 3.6 inches		
Weight	2.4 lbs		
Temperature	-40C to +50C		
Power			
AC Adaptor Input	100 to 240VAC, 50 to 60Hz		
DC Input	24VDC, 4W		
Connectors			
	Box Connectors	Mating Connectors	
GPS (TNC)	Amphenol Connex 122192	Amphenol Connex 122116	
RF (F-type)	Electronix 34-113	Allied Electronics 647-0082	
DC Power	Switchcraft L712AS	Switchcraft 761KS12	
Ethernet	Molex 84700-0001	Molex 84700-0002	
GPS			
Antenna Gain	10 to 30 dB		
Antenna Supply Voltage	2.5 to 5.5VDC		
Antenna Current Consumption	12mA ± 2mA (typical) @ 5.5V, 6mA ± 1mA (typical) @ 2.5V		
DVB			
	DVB-S1	DVB-S2	
RF Frequency Range	940 to 2160 MHz		
Symbol Rate	1 to 45 MS/s		
Demodulation	QPSK	QPSK	8PSK
FEC Code Rate	1/2, 2/3, 3/4, 5/6, 6/7, 7/8	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
RF Signal Range Min	-82 dBm @ 27.5 MS/s c/r 7/8		
RF Signal Range Max	-8 dBm @ 27.5 MS/s c/r 7/8		
Protection Margin to Adjacent Channel Interference	25 dB min		
External (optional)			
Input Voltage Range	0 – 10 VDC		
External LOCK input	5VDC		
Sensors			
Elevation Accuracy	± 0.2°		
Heading Accuracy	± 1.5°, undisturbed field		

Chapter 1 Introduction

The RC300 Flyaway Companion is designed for both the technical and the non-technical operator of a flyaway antenna system to assist in the process of locating and locking on to a particular satellite.

1.1 Software Configurations

Different software configurations can be installed on the RC300. The software part number identifies what options are included as shown below:



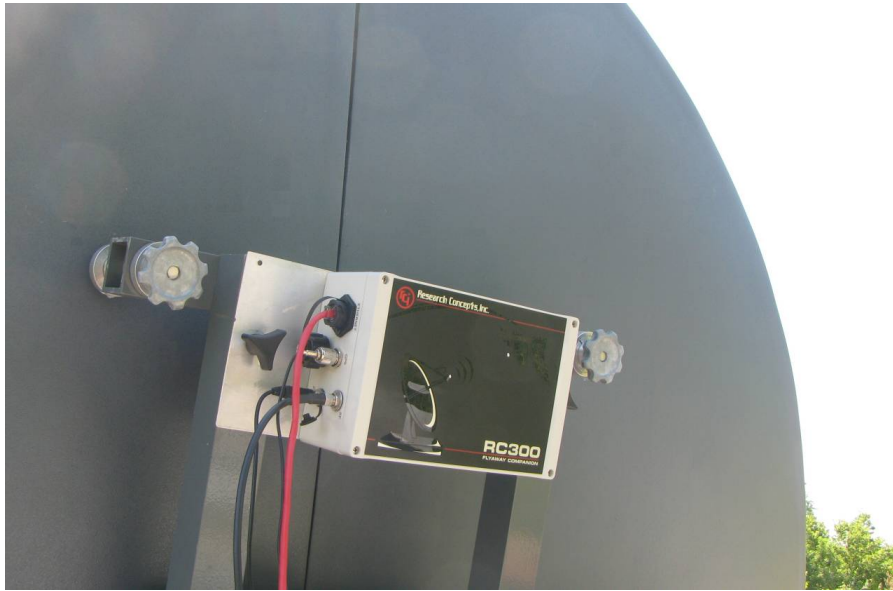
Type	
300RCM2	Specifies software for Rabbit 6760 modules.
RC300-C	Specifies software for Chinchilla modules
Branding (RC300-C Only)	
R	Research Concepts
...	...
Sensors	
0	Fluid-Filled Inclinometer, GPS
1	Three-Axis Compass Inclinometer, PMTK GPS
2	Three-Axis Compass, GPS
3	Fluid-Filled or Three-Axis Compass Inclinometer, GPS
Remote	
I	Ethernet Only
W	Wireless
S	Ethernet, SNMP
Receiver	
H	DVB-S2
L	SBS2 Beacon
M	DVB-S2, SBS2 Beacon, OpenAMIP Modem
P	DVB-S2, SBS2 Beacon
V	DVB-S2, SBS2 Beacon, ViaSat Modem

Chapter 2 Installation

2.1 Mounting the RC300

Mount the unit rigidly to the back structure of your antenna such that the back of the unit is pointed in the same direction as the antenna.

See Appendix B for a detailed drawing of the RC300.



2.2 Mounting the GPS Antenna

Mount the GPS antenna in a position where it has an unobstructed view of the horizon and sky.



2.3 Connecting the Cables

- Connect the GPS antenna to the unit.
- Connect an Ethernet cable between the unit and your computer.
- Connect a coaxial cable between the unit RF connector and the inline power injector.

The RC300 does not provide power to the LNB. An external power source is required.

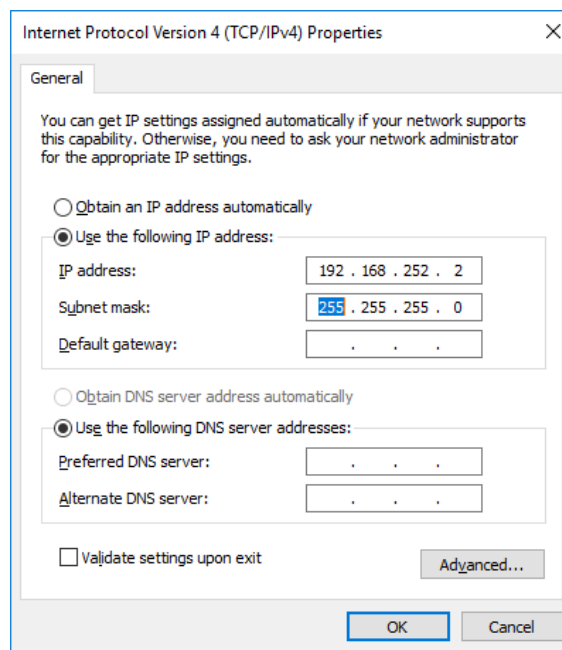
- Connect the power cable to the unit.



Chapter 3 Configuring Your Computer

3.1 Ethernet Configuration

- Open the Internet Protocol (TCP/IP) Properties window.
- Write down your current IP Settings before making any changes.
- Select the “Use the following IP address:” option.
- Change the “IP address” to 192.168.252.2.
- Change the “Subnet mask” to 255.255.255.0.



3.2 Wireless Configuration

- Open the Internet Protocol (TCP/IP) Properties window.
- Write down your current IP Settings before making any changes.
- Select the “Obtain an IP address automatically” option.

The default SSID for the wireless router will be RC300 s/n:xxx (where xxx is the serial number of the unit). For RC300 serial numbers below 288 the default wireless password is 12345678. For RC300 serial numbers 288 and above, the default wireless password is 1234567890.

The wireless router will assign your computer an address between 192.168.252.100 and 192.168.252.250. The RC300 will still be at the static IP address of 192.168.252.1.

Chapter 4 Basic Operation

4.1 Choosing a Satellite

- Enter “192.168.252.1” into the address bar of your web browser.

Choose Satellite Point Antenna Research Concepts, Inc.

Satellite Data

Data Entry: Use Preset List

Name: 95W H

Source: DVB-S (11779 MHz)

LO: 10750 MHz

Antenna Position

Antenna Location: Use GPS

GPS Status: Searching...

Pointing Angle

Calculate Pointing Angles

- Select the name of the target satellite by clicking on the “Name” drop down box.

Choose Satellite Point Antenna Research Concepts, Inc.

Satellite Data

Data Entry: Use Preset List

Name: 95W H

Source: 75W V (79 MHz)

LO: 79W V

Antenna Position

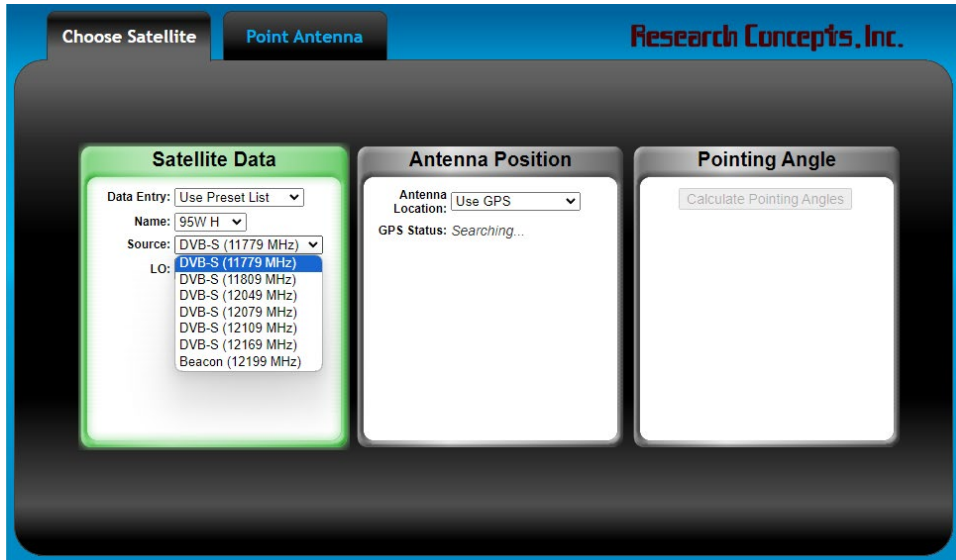
Antenna Location: Use GPS

GPS Status: Searching...

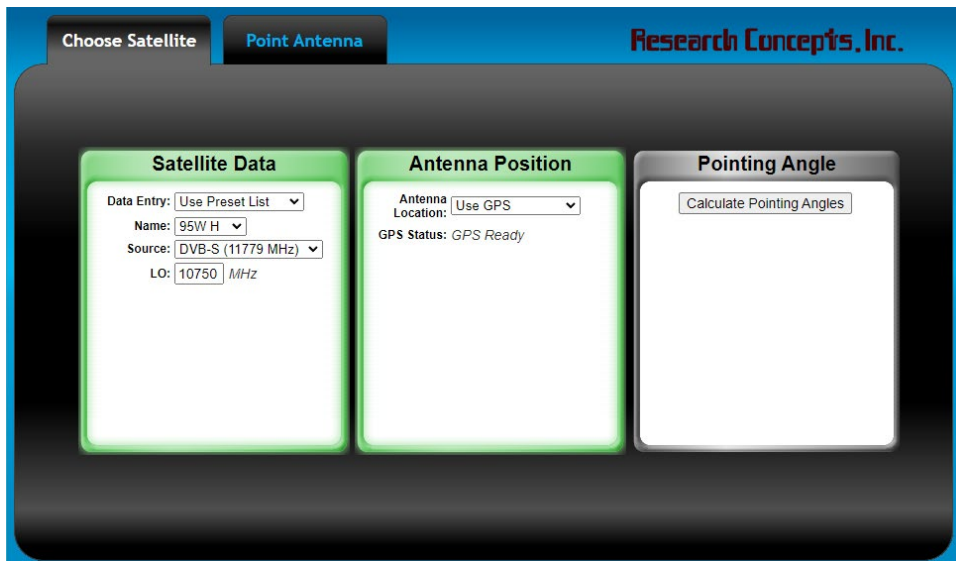
Pointing Angle

Calculate Pointing Angles

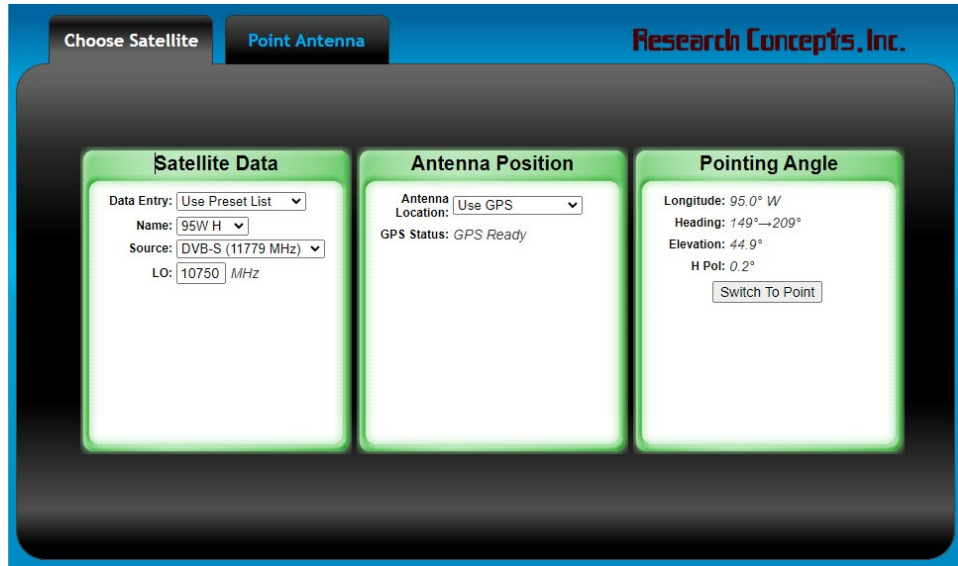
- Select the signal source and frequency by clicking on the “Source” drop down box.



- Wait for the GPS receiver to achieve a valid lock. The GPS Status will change from “Searching...” to “GPS Ready” when the GPS receiver achieves a valid lock.

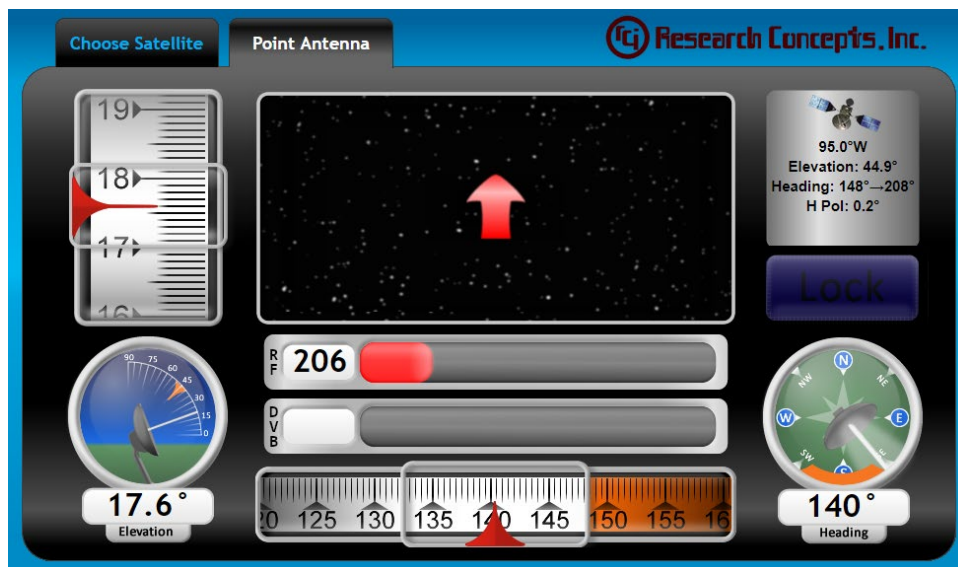


- Click the “Calculate Target Angles” button to calculate the target angles.

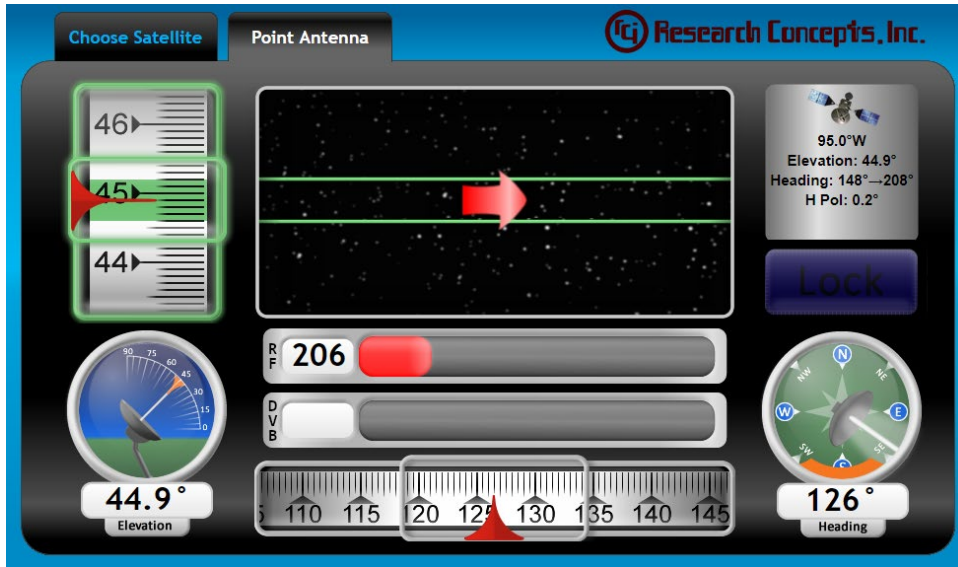


4.2 Finding a Satellite

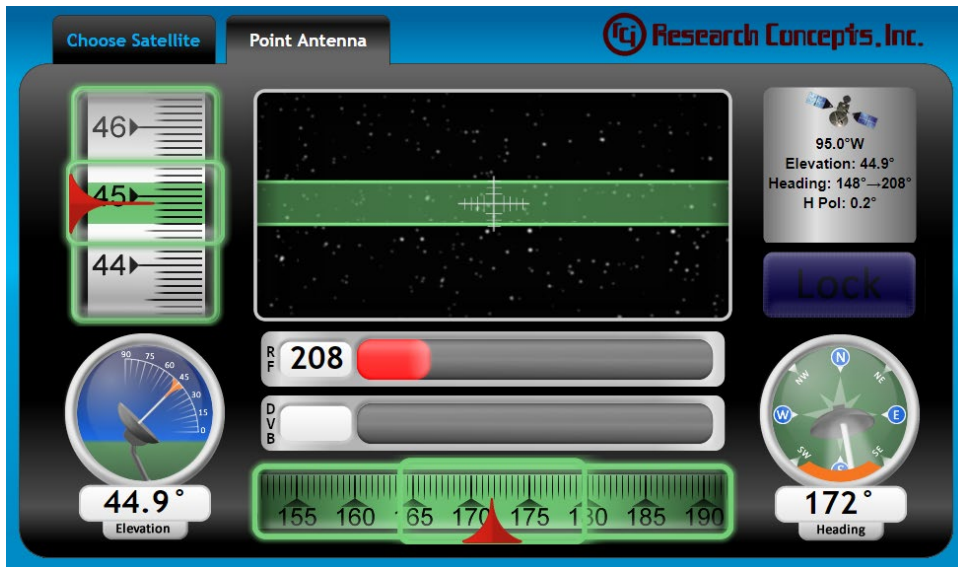
- Click the “Switch To Point” button to switch to the “Point Antenna” tab.



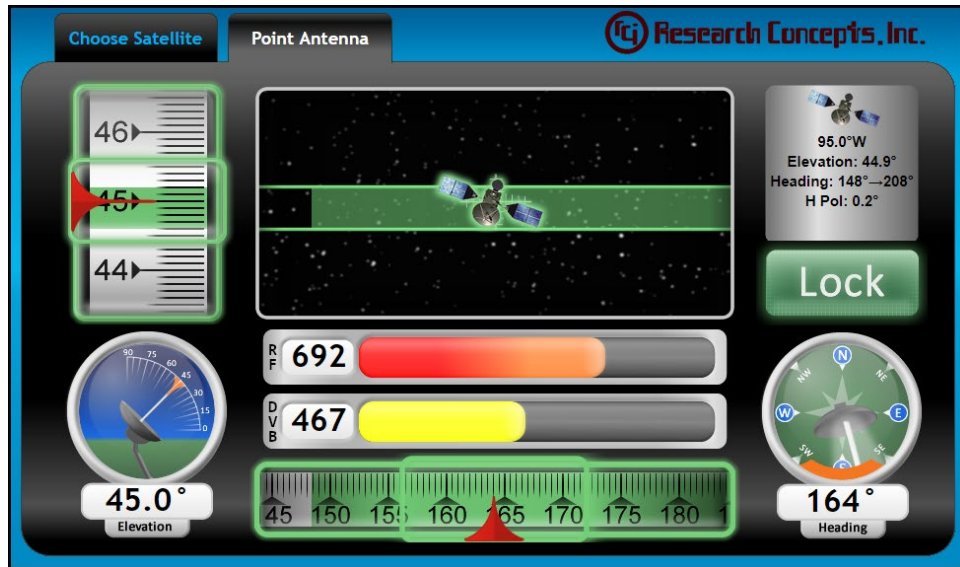
- Adjust the antenna's elevation until the target elevation is reached.



- Adjust the antenna's heading until the crosshair is displayed in the target box.



- Begin scanning across the target box by adjusting the antenna's heading until Source Lock (DVB, BCN – SBS2 Beacon, EXT - External) is achieved.



4.3 Choosing a Satellite Manually

- Select the “Enter Manually” option.
- Enter the longitude of the target satellite in degrees.
- Enter the polarization position (Pol) associated with the satellite.
- Select the signal source being used (DVB-S, DVB-S2, SBS2 for SBS2 Beacon, EXT for External Receiver).
- Enter the frequency of the target signpost in MHz.
- Enter the symbol rate of the target signpost in kS/sec (only applicable when using DVB-S and DVB-S2).
- Enter the FEC of the target signpost (only applicable when using DVB-S, this entry is not displayed when DVB-S2 is selected).

NOTE: In the case where an external receiver (EXT) is used as the signal source, steps 5-7 will not apply. If the external receiver has a discrete lock output, leave the Threshold value at 0. If the external receiver does not have a discrete lock output, the Threshold value will be used to create a lock when the signal strength is above the Threshold value (acceptable values range from 0-999).

The screenshot displays the 'Choose Satellite' and 'Point Antenna' sections of the RC300 Flyaway Companion software. The interface is titled 'Research Concepts, Inc.' and features three main panels: 'Satellite Data', 'Antenna Position', and 'Pointing Angle'.

Satellite Data Panel:

- Data Entry: Enter Manually (dropdown)
- Longitude: 95.0 (input) ° W (dropdown)
- Polarization: Horizontal (dropdown)
- Source: DVB-S (dropdown)
- Frequency: 11779.0 (input) MHz
- LO: 10750 (input) MHz
- Symbol Rate: 20760 (input) kS/sec
- FEC: 3/4 (dropdown)

Antenna Position Panel:

- Antenna Location: Use GPS (dropdown)
- GPS Status: GPS Ready

Pointing Angle Panel:

- Calculate Pointing Angles (button)

4.4 Enter Antenna Position Manually

- Select the “Enter Manually” option.
- Enter the Latitude of your antenna in degrees and minutes.
- Select the hemisphere (N for North, S for South) by clicking on the drop down box.
- Enter the Longitude of your antenna in degrees and minutes.
- Select the hemisphere (E for East, W for West) by clicking on the drop down box.

The screenshot displays the 'Point Antenna' configuration window. It features three main panels:

- Satellite Data:** Includes a 'Data Entry' dropdown set to 'Enter Manually', 'Longitude' (95.0 ° W), 'Polarization' (Horizontal), 'Source' (DVB-S), 'Frequency' (11779.0 MHz), 'LO' (10750 MHz), 'Symbol Rate' (20760 kS/sec), and 'FEC' (3/4).
- Antenna Position:** Includes an 'Antenna Location' dropdown set to 'Enter Manually', 'Latitude' (38 ° 57 ' N), and 'Longitude' (94 ° 49 ' W).
- Pointing Angle:** Contains a 'Calculate Pointing Angles' button.

Chapter 5 Configuration

5.1 Configuration Page

Enter “192.168.252.1/config” into the address bar of your web browser to access the configuration page.

Signpost List

Edit:

Download:

Upload: No file chosen

TCP/IP Settings

IP Address: . . .

Netmask: . . .

Gateway: . . .

Beacon Receiver IP: . . .

Beacon Receiver Port:

AMIP Port:

Antenna Settings

Look Angle: Deg

Elevation Offset: Deg

Heading Offset: Deg

LNB LO Frequency: MHz

Polarization Reference:

Expert Settings

Signal Sources:

Elevation Sensor:

TAC Pitch Zero Angle: Deg

TAC Pitch Scale Factor: Deg

TAC Roll Zero Angle: Deg

Sensor Filtering:

Minimum Elevation Angle: Deg

Always Show Receiver Signal Strength:

Skip Choose On Startup:

GUI Firmware: RC300-C-R3SM v1.16.EG1113 SN:FF

5.2 Signpost List Section

This section contains controls to modify the Signpost List.

Signpost List

Edit:

Download:

Upload: No file chosen

5.2.1 Edit the Signpost List

Open the signpost editor by clicking the “Click to Launch Signpost Editor” button. This opens another browser window. Some pop-up blockers may have to be disabled if the window does not open.

Satellite Name	Longitude (deg)	Pol	
75W	75.0 ° W	Vert	Delete
75W	75.0 ° W	Horz	
79W	79.0 ° W	Vert	
79W	79.0 ° W	Horz	
83W	83.0 ° W	Vert	
83W	83.0 ° W	Horz	
87W	87.0 ° W	Vert	
87W	87.0 ° W	Horz	
85W	87.0 ° W	Horz	
89W	89.0 ° W	Vert	
89W	89.0 ° W	Horz	
91W	91.0 ° W	Vert	
91W	91.0 ° W	Horz	
93W	93.0 ° W	Vert	
93W	93.0 ° W	Horz	

(Max 100)

Source	Freq (MHz)	Symrate (kS/sec)	FEC	
DVB-S	12059	27694	2/3	Delete

(Max 5)

Source **Freq (MHz)**

(Max 2)

Source **Thres**

(Max 1)

Click the “Save” button at the bottom of the page after making any changes to the Signpost List.

5.2.2 Download the Signpost List

The Signpost List can be downloaded to your local machine by clicking the “Download File” button.

5.2.3 Uploading the Signpost List

The Signpost List can be uploaded from your local machine by choosing a file and clicking the “Upload File” button.

5.3 TCP/IP Settings Section

This section contains controls to change the IP settings of the RC300. Beacon and OpenAMIP settings are also available if the installed software supports these devices.

TCP/IP Settings

IP Address:	<input type="text" value="192"/>	<input type="text" value="168"/>	<input type="text" value="1"/>	<input type="text" value="100"/>
Netmask:	<input type="text" value="255"/>	<input type="text" value="255"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Gateway:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Beacon Receiver IP:	<input type="text" value="192"/>	<input type="text" value="168"/>	<input type="text" value="1"/>	<input type="text" value="15"/>
Beacon Receiver Port:	<input type="text" value="26482"/>			
AMIP Port:	<input type="text" value="5005"/>			

Click the “Save Values” button at the bottom of the page after making changes. The configuration page will automatically reload at the new IP address.

NOTE: Write down any changes to the IP address or netmask. You will not be able to connect to the unit without this information.

5.4 Antenna Settings Section

This section contains controls to calibrate the antenna sensors.

Antenna Settings

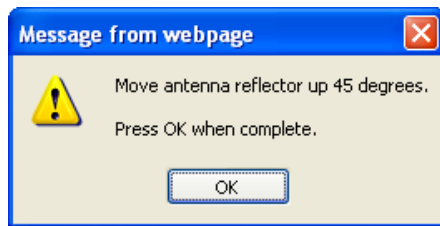
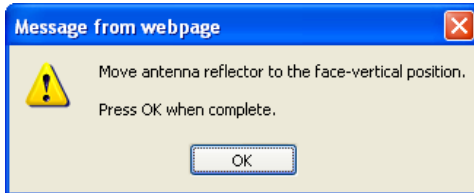
<input type="button" value="Calibrate Inclinometer..."/>	
<input type="button" value="Calibrate Compass..."/>	
<input type="button" value="Calibrate Compass Z..."/>	
<input type="button" value="Reset Compass..."/>	
Look Angle:	<input type="text" value="0.0"/> Deg
Elevation Offset:	<input type="text" value="0.0"/> Deg
Heading Offset:	<input type="text" value="0.0"/> Deg
LNB LO Frequency:	<input type="text" value="10750"/> MHz
Polarization Reference:	<input type="text" value="Horizontal"/> ▾

5.4.1 Calibrate the Inclinometer

This calibration routine should be performed with the RC300 attached to the antenna.

This routine calibrates the inclinometer and three-axis compass simultaneously.

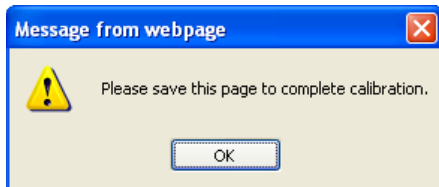
Click the “Calibrate Inclinometer...” button and follow the prompts as shown below:



The results of the inclinometer calibration will be displayed in the “Inclinometer Zero Voltage” and “Inclinometer Scale Factor” boxes.

The results of the three-axis compass calibration will be displayed in the “TAC Pitch Zero Angle”, “TAC Pitch Scale Factor”, and “TAC Roll Zero Angle” boxes.

NOTE: Only the boxes related to the current “Elevation Sensor” will be visible when both Inclinometer and Three-Axis Compass sensors are available.



If prompted, save your changes by clicking the “Save Values” button.

5.4.2 Calibrate the Compass

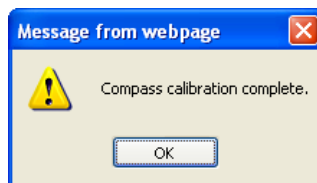
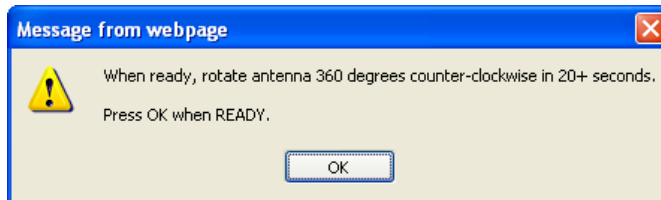
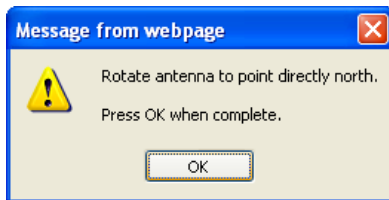
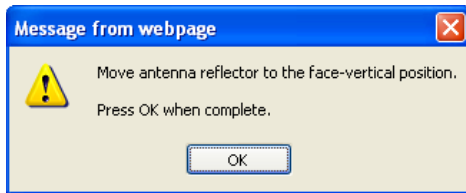
There are two separate calibration routines for the compass. The first routine (described in Section 5.4.2.1) calibrates the XY-axes. The second routine (described in Section 5.4.2.2) calibrates the Z-axis. The XY calibration is typically all that is required for calibration. However, if the compass accuracy is very poor when you adjust the elevation of your antenna then a Z-axis calibration may be needed.

5.4.2.1 Calibrate the XY-Axes of the Compass

This calibration routine should be performed with the RC300 attached to the antenna. If that is not possible, remove it from the antenna and perform the calibration routine.

The antenna should be kept as level as possible during this routine.

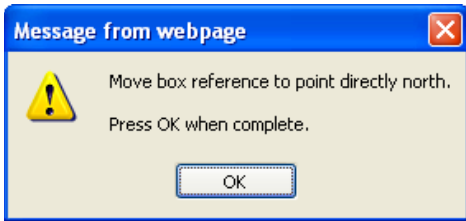
Click the “Calibrate Compass...” button and follow the prompts as shown below:



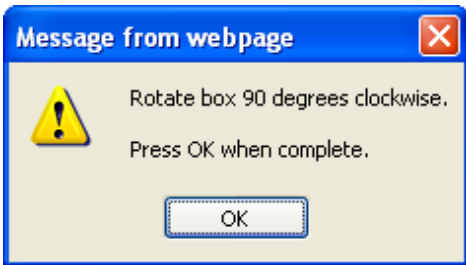
5.4.2.2 Calibrate the Z-Axis of the Compass

This calibration routine should be performed with the RC300 removed from the antenna.

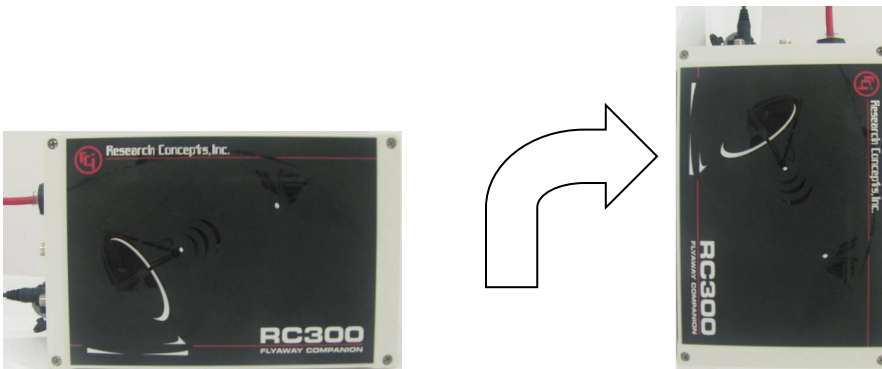
Click the “Calibrate Compass Z...” button and follow the prompts as shown below:

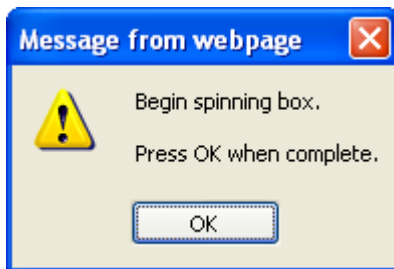
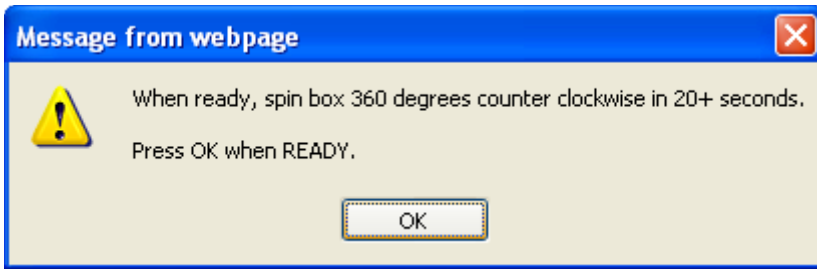


Move the unit so that the back of the box is facing directly north. The front of the box (the side with the black overlay) should be facing directly south. Press OK to continue.

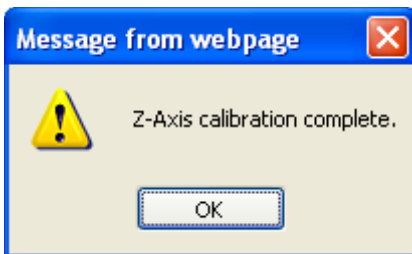
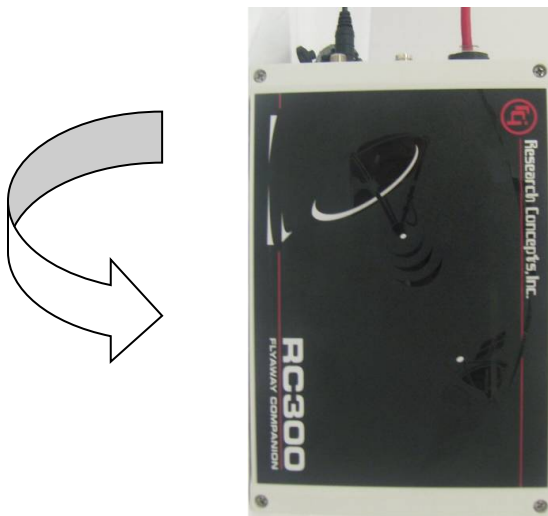


Rotate the box 90 degrees so that the connectors are on top side of the box as shown below. The front of the box (the side with the black overlay) should continue to face south. Press OK to continue.





Rotate the box 360 degrees counter-clockwise taking at least 20 seconds to complete the rotation. The unit should be kept as level as possible. Press OK when done.



5.4.3 Other Antenna Settings

Additional fields in this section are available to further calibrate the antenna sensors.

Antenna Settings

Calibrate Inclinometer...

Calibrate Compass...

Calibrate Compass Z...

Reset Compass...

Look Angle: Deg
 Elevation Offset: Deg
 Heading Offset: Deg
 LNB LO Frequency: MHz
 Polarization Reference:

These fields are described in the following table:

Field Label	Definition
Look Angle	Antenna bore sight elevation angle when the reflector face is vertical.
Elevation Offset	Difference between the theoretical and actual elevation angle.
Heading Offset	Difference between the theoretical and actual heading angle.
LNB LO Frequency	Local oscillator of the antenna LNB. (1000 MHz to 30000 MHz)
Polarization Reference	Antenna feed polarization at zero angle.

Save changes to these fields by clicking the “Save Values” button. The interface may have to be refreshed for changes to take effect.

5.5 Expert Settings Section

Fields in this section are available to control seldom-used configuration values.

Expert Settings

Signal Sources:

Elevation Sensor:

TAC Pitch Zero Angle: Deg

TAC Pitch Scale Factor: Deg

TAC Roll Zero Angle: Deg

Sensor Filtering:

Minimum Elevation Angle: Deg

Always Show Receiver Signal Strength:

Skip Choose On Startup:

GUI Firmware: RC300-C-R3SM v1.16.EG1113 SN:FF

These fields are described in the following table:

Field Label	Definition
Signal Sources	Specifies the signal sources available on the Choose Page. (Any combination of DVB/Beacon/External)
Elevation Sensor	Sensor to use for the elevation angle. (Fluid-Filled Inclinator or Three-Axis Compass)
Inclinometer Zero Voltage	Inclinometer voltage when antenna is face-vertical. Automatically set by the Calibrate Inclinator routine. (Section 5.4.1) Only displayed if "Elevation Sensor" is "Inclinometer".
Inclinometer Scale Factor	Inclinometer voltage scaler specified as mVolts/Degree. Automatically set by the Calibrate Inclinator routine. (Section 5.4.1) Only displayed if "Elevation Sensor" is "Inclinometer".
TAC Pitch Zero Angle	Pitch angle when antenna is face-vertical. Automatically set by the Calibrate Inclinator routine. (Section 5.4.1) Only displayed if "Elevation Sensor" is "TAC Accelerometer".
TAC Pitch Scale Factor	Pitch angle scaler specified as ratio. Automatically set by the Calibrate Inclinator routine. (Section 5.4.1) Only displayed if "Elevation Sensor" is "TAC Accelerometer".
TAC Roll Zero Angle	Roll angle when antenna is face-vertical. Automatically set by the Calibrate Inclinator routine. (Section 5.4.1) Only displayed if "Elevation Sensor" is "TAC Accelerometer".
Sensor Filtering	Filter window size for all sensors.
Minimum Elevation Angle	Lowest target elevation angle that will be considered valid.
Always Show Receiver Signal Strength	Show receiver signal strength when not locked.
Skip Choose On Startup	Use last choose parameters and display Point tab when webpage is loaded.

Save changes to these fields by clicking the "Save Values" button. The interface may have to be refreshed for changes to take effect.

Chapter 6 Security

6.1 Security Page

Enter "192.168.252.1/security" into the address bar of your web browser to access the configuration page. The default username and password are listed below:

Username: admin

Password: password

Webpage Settings

Access Control

Require Password:

Change Password

Current Password:

New Password:

Confirm New Password:

SNMP Settings

Configuration

Version:

User Name	Access	Auth Type	Auth Secret	Priv Type	Priv Secret
<input type="text" value="public"/>	<input type="text" value="Read"/>	<input type="text" value="None"/>	<input type="text"/>	<input type="text" value="None"/>	<input type="text"/>
<input type="text" value="private"/>	<input type="text" value="Read+Write"/>	<input type="text" value="None"/>	<input type="text"/>	<input type="text" value="None"/>	<input type="text"/>

6.2 Webpage Settings Section

This section contains fields to control access to the web interface.

Webpage Settings

Access Control
 Require Password:

Change Password
 Current Password:
 New Password:
 Confirm New Password:

These fields are described in the following table:

Field Label	Definition
Require Password	"Yes" – All webpages require username/password. "No" – Only Security page requires username/password.
Current Password	Must be correct to change password to value in "New Password". Leave blank to keep current password.
New Password	New password.
Confirm New Password	Confirm new password.

Save changes to these fields by clicking the "Save" button. The interface may have to be refreshed for changes to take effect.

6.3 SNMP Settings Section

This section contains fields to control SNMP parameters.

SNMP Settings

Configuration

Version:

User Name	Access	Auth Type	Auth Secret	Priv Type	Priv Secret
<input type="text" value="public"/>	<input type="text" value="Read"/>	<input type="text" value="None"/>	<input type="text"/>	<input type="text" value="None"/>	<input type="text"/>
<input type="text" value="private"/>	<input type="text" value="Read+Write"/>	<input type="text" value="None"/>	<input type="text"/>	<input type="text" value="None"/>	<input type="text"/>

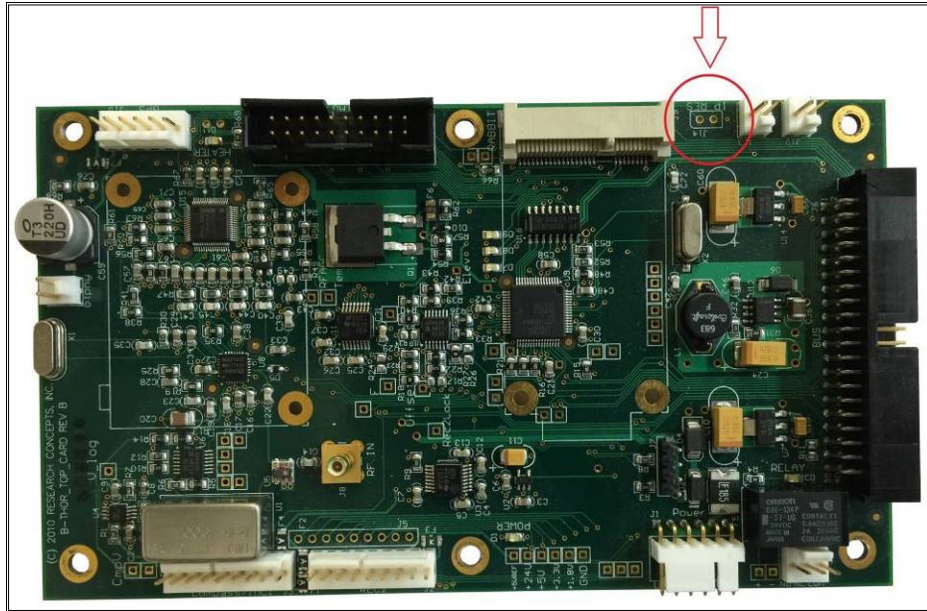
These fields are described in the following table:

Field Label	Definition
Version	SNMP message version accepted.
User Name	Community string if version is SNMPv1 or SNMPv2c. Username if version is SNMPv3.
Access	Read/Write access for this community/user.
Auth Type	Authentication Type for this user. (MD5 or SHA-1)
Auth Secret	Authentication key for this user
Priv Type	Privacy Type for this user. (DES or AES)
Priv Secret	Privacy key for this user.

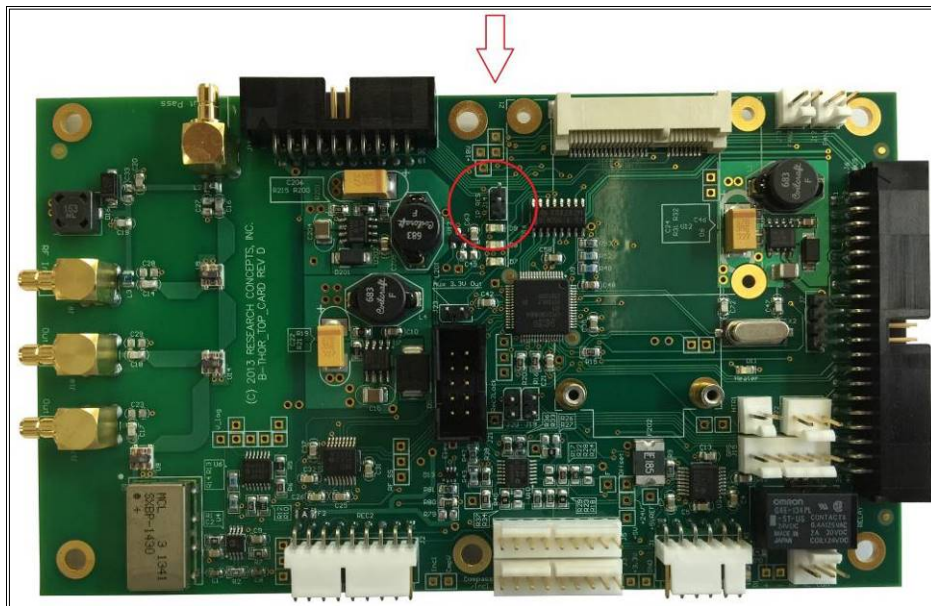
Save changes to these fields by clicking the “Save” button. The interface may have to be refreshed for changes to take effect.

APPENDIX A Resetting the IP Address

The IP address can be reset by connecting J14-1 to J14-2 for ten seconds. After the reset, all IP settings will return to default values. The location of the IP Reset pins is circled in the following pictures:



Rev B Options Board

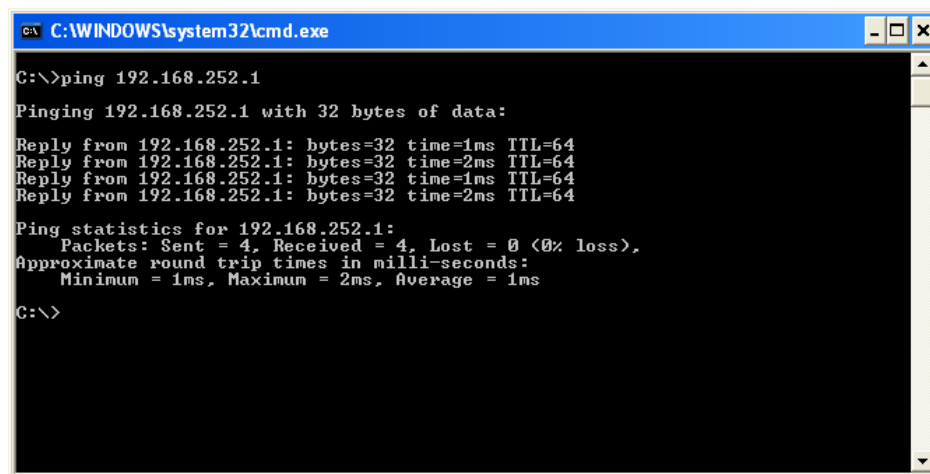


Rev D Option Board

APPENDIX B Troubleshooting

If you are having problems connecting to the unit:

- Check that the Ethernet and power cables are connected correctly.
- Check that the link lights on the Ethernet port of your computer are on.
- Check that your computer's IP address and netmask are configured correctly (see Chapter 3 of this manual for instructions on configuring your computer).
- Check that you are entering the correct IP address into the address bar of your browser.
- Check that you can ping the unit, as shown below:

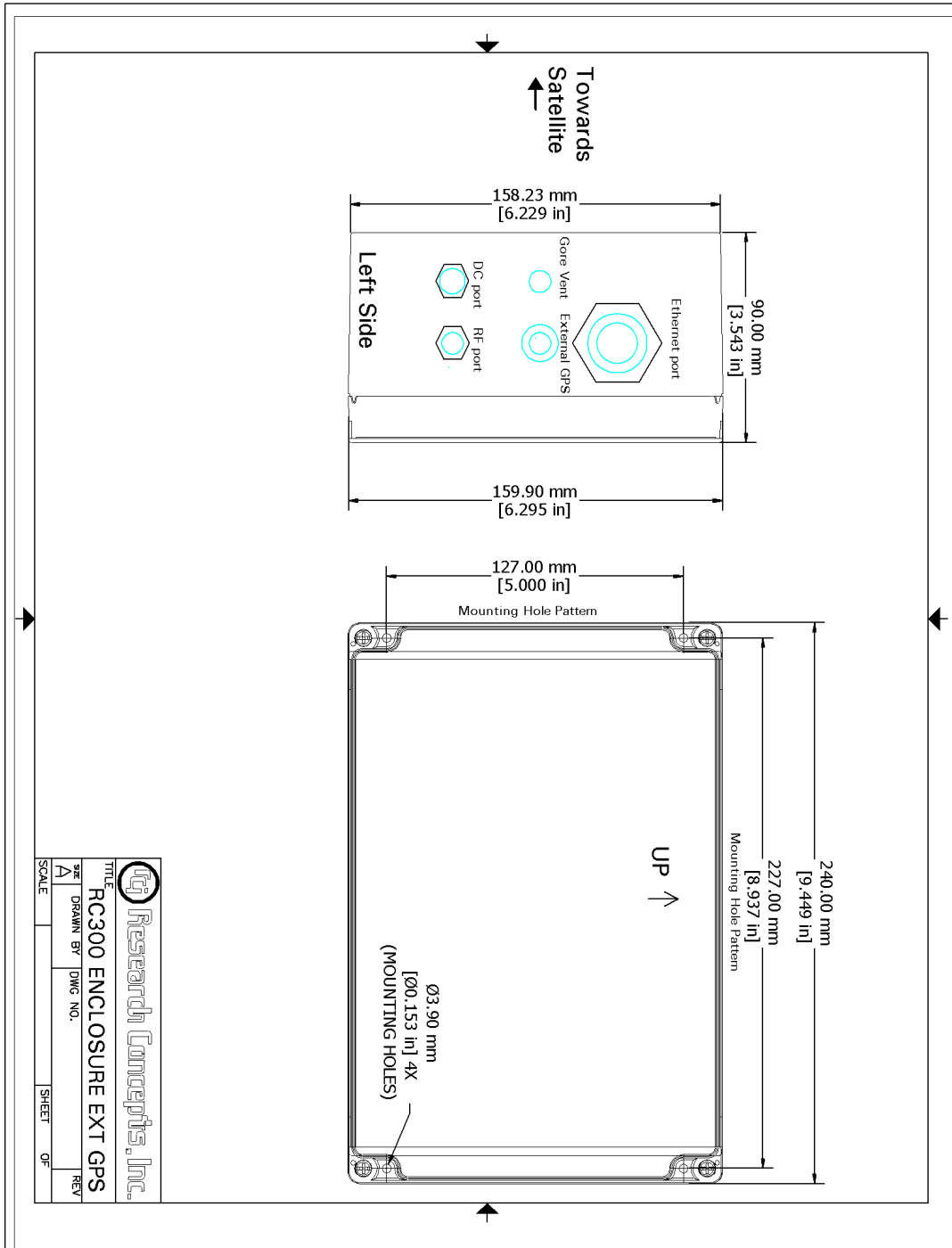


```
C:\WINDOWS\system32\cmd.exe
C:\>ping 192.168.252.1
Pinging 192.168.252.1 with 32 bytes of data:
Reply from 192.168.252.1: bytes=32 time=1ms TTL=64
Reply from 192.168.252.1: bytes=32 time=2ms TTL=64
Reply from 192.168.252.1: bytes=32 time=1ms TTL=64
Reply from 192.168.252.1: bytes=32 time=2ms TTL=64

Ping statistics for 192.168.252.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
C:\>
```

- If you cannot connect to the unit after performing Steps 1-6, restart your computer and power cycle the unit. Repeat steps 1-6.
- If you cannot connect to the unit after performing Step 7, reset the IP address of the unit as described in Appendix A.

APPENDIX C Drawings



LIMITED WARRANTY

New Products

Research Concepts, Inc., RCI, warrants to the original purchaser this product shall be free from defects in material and workmanship for one year, unless expressed otherwise, from the date of the original purchase. During the warranty period, RCI will provide, free of charge, both parts and labor necessary to correct such defects.

To obtain such a warranty service, the *original purchaser* must:

1. Notify RCI as soon as possible after discovery of a possible defect, with:
 - a. Model and serial number
 - b. Purchase date
 - c. Detailed description of the problem and circumstances when problem appears, including details on the electrical connection to associated equipment
2. Obtain an RMA number from RCI, then ship the product to RCI in original packaging or its equivalent, fully insured and shipping/customs charges prepaid. RCI is not responsible for damage during shipping.

Repaired Products

RCI warrants *repairs* to be free from defects in material and workmanship for six months from the repair date. If a possible defect is found, use the same process as above to obtain service.

Repair fees for end users are a flat charge based on the equipment being repaired.

Repair fees for Dealers and OEMs are an hourly labor charge plus parts cost. **** Dealers and OEMs are responsible for receiving and shipping the products from their customer. ****

RCI will pay for domestic shipping to return the product using the same method that RCI received it. Customers are responsible for all international shipping charges.

Correct maintenance, repair, and use are important to obtain proper performance from this product. Therefore, read the instruction manual carefully and completely. This warranty does not apply to any defect that RCI determines is due to, but not limited to:

1. Improper maintenance or repair, including the installation of parts or accessories that do not conform to the quality and specifications of the original parts
2. Misuse, abuse, neglect, or improper installation including disregard for installation of backup or safety override equipment
3. Accidental or intentional damage, including lightning
4. Water / Liquid damage

There are no implied warranties.

The foregoing constitutes RCI's entire obligation with respect to this product, and the original purchaser and any user or owner shall have no other remedy and no claim for incidental or consequential damages.

For service:

(913)422-0210

support @researchconcepts.com