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# **ASTi SYNAPSE Remote Control Guide**

**Document: DOC-01-SYN-RC-1**



Product Name: ASTi Synapse Remote Control

ASTi Synapse Remote Control Guide

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ASTi

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## 1.0. Introduction

ASTi Remote Control is an optional feature of the ASTi Synapse Radio Bridge. Remote Control adds the capability to adjust live radio settings over an IP network using ASTi's intuitive Remote Management System (RMS) webpage user interface.

ASTi's web server based RMS is embedded inside every Synapse system, so you can manage all ASTi hardware (with device auto-discovery) and software resources on the network. The optional Remote Control provides users with the ability to remotely control and monitor multiple live radios from any browser access point on the network.

## 2.0. Remote Control and Monitoring Capabilities

Remote Control is compatible with the URC-200 (v2) Radio Set.

URC-200 remote control capabilities include:

- Preset channel select
- Receive and Transmit Frequency
- Receive and Transmit Modulation mode
- Squelch level
- Transmit power level
- Text mode
- Store Preset (store current preset to URC-200 memory)

URC-200 monitoring capabilities include:

- Preset selected
- Receive and Transmit Frequency
- Receive and Transmit Modulation mode
- Squelch status
- Squelch level
- Transmit power level
- Text mode
- Receive signal strength
- Synthesizer Lock/Unlock status
- Overtemp status
- Software Version information
- Installed options
- Operational mode

## 3.0. Compatibility

ASTi Remote Control is compatible with:

- ASTi Synapse Radio Bridge, with ACE Software v4.31 or later and ASTi Software Project Version SYN4-RT-04-RC-A or later
- URC-200 Radio Transceiver, PN with Software Version VC 98-P41135F Ver01 Jun 03 1999 07:49:10

## 4.0. Software and Hardware Description

Radio Control is comprised of the following components:

### Hardware

#### RIU Adapter Cables, URC-200 Version

**Part Numbers:** MS3116-D9M-25-A and CA-D9M-NC6M-25-C

**Description:** The MS3116-D9M-25-A cable connects to URC-200 J2 (26-pin MIL connector, for serial control) and the serial data convertor.

The CA-D9M-NC6M-25-C cable connects to URC-200 J4 (6-pin connector, for audio and PTT) and RIU Audio/PTT port.

#### Modular Data Cable

**Part Number:** CA-RJ12-RJ12

**Description:** Connects Serial Data Convertor to the RIU serial data port. Includes four cables per Synapse Radio Bridge.

#### Serial Data Convertor

**Part Number:** SDCM-01

**Description:** Compact module converts serial data protocol from radio RS-232 to RIU RS-422. Powered through the serial data line.

### Software

#### ASTi ACE Software

**Version Number:** 4.31 or later

**Description:** ASTi application software, installed on Target (main server).

#### ASTi Synapse Project (with Remote Control Option)

**Version Number:** SYN4-RT-04-RC-B or later

**Description:** ASTi application file, installed on Target (main server).

## 5.0. Functional Description

Reference the following diagrams.

1. Install the upgrade hardware to interface the URC-200 radio's audio / serial data port to the ASTi Remote Interface Unit (RIU). The hardware includes: adapter cable, serial data convertor and serial data cable.
2. Upgrade Telestra software to add URC-200 control and monitoring interfaces and control-monitoring user interface to the embedded secure web server.
3. Activate URC-200 radios and fill or preset channel presets.
4. Use a networked PC running a standard web browser to access the RMS webpage and gain remote control and monitoring of all URC-200s connected to Synapse Radio Bridges.

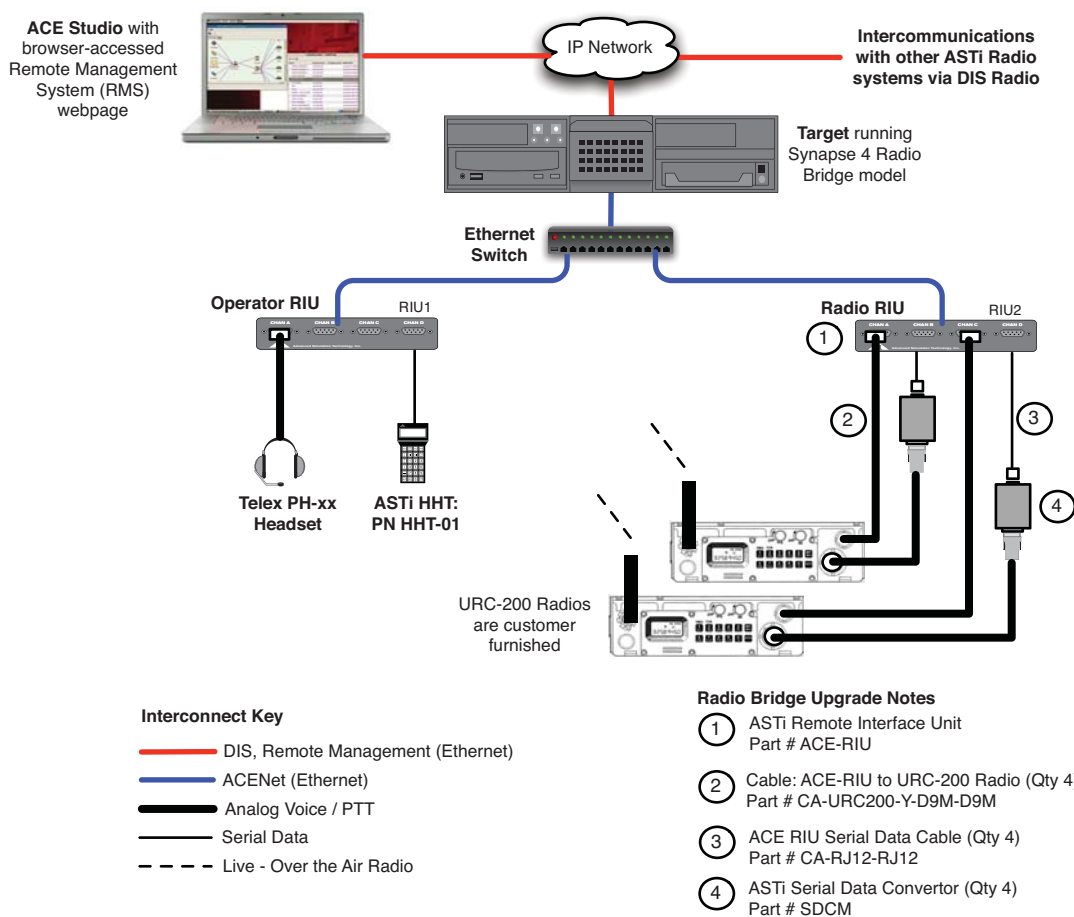
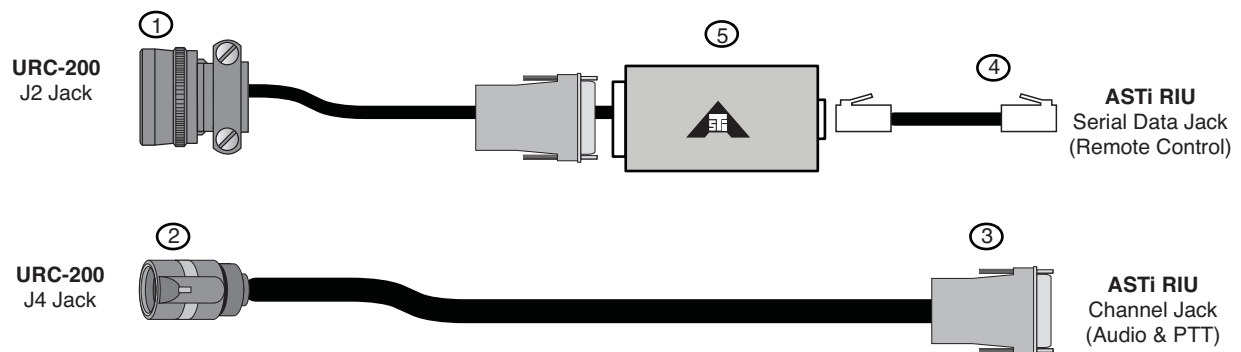


Figure 1: Top Level Layout of Synapse Radio Bridge with URC-200 Remote Control Option

## 6.0. Installation

1. Ensure a compatible version of ACE is installed and running on the Synapse server computer.
2. Ensure a compatible Synapse software project is installed and running on the Synapse server computer.
3. Attach URC-200 live radios to ACE-RIUs. Refer to Figure 2.
  - 3a. Attach X-Mode connector (1) to radio.
  - 3b. Connect 6-pin connector (from cable CA-D9M-NC6M-25-C) (2) to the radio.
  - 3c. Attach 'Audio' DB9 connector (3) to an ACE-RIU audio channel. Refer to Table 1 below for channel selection.
  - 3d. Attach 'Serial' DB9 connector to ASTi serial data convertor (5).
  - 3e. Attach ASTi serial data convertor to modular data cable (4).
  - 3f. Attach modular data cable (4 below) to ACE-RIU serial port. Refer to Table 1 below for channel selection.



### KEY

- |   |  |
|---|--|
| ① URC-200 J2 Jack<br>X-Mode 26-pin MIL                  | ④ ASTi Cable Ass'y:<br>Part Number: CA-RJ12-RJ12   |
| ② URC-200 J4 Jack<br>6-pin connector for audio/PTT      | ⑤ ASTi Serial Data Converter:<br>Part Number: SDCM |
| ③ ASTi Cable Ass'y:<br>Part Number: CA-URC200-Y-D9M-D9M |  |

Figure 2: Detail, Synapse Radio Bridge with URC-200 Remote Control Option

**Table 1: ACE-RIU Channel Connections**

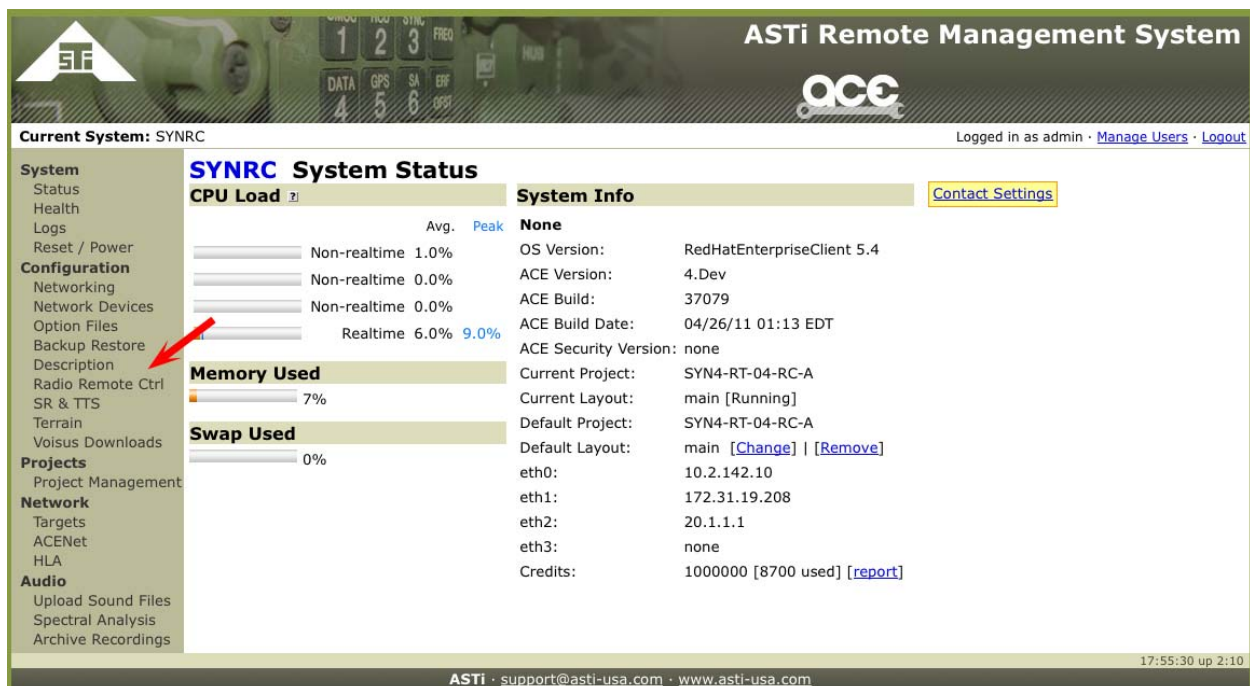
<b>Live Radio</b>	<b>Radio Handle</b>	<b>RIU Address</b>	<b>RIU Audio Channel</b>	<b>RIU Serial Port</b>
1	RT01	2	A	A
2	RT02	2	C	B
3	RT03	3	A	A
4	RT04	3	C	B

## 7.0. Operation

**Note:** Using the URC-200 with an attached remote control unit will put the radio into a ‘remote control’ mode and the keypad will be locked, this is a constraint inherent to the URC-200. To release the lock the user can disable the remote control from the RMS interface (see below).

To check live radio status:

1. Ensure all live radios are connected and turned ON.
2. Access the RMS system on the Synapse server. One can use a web browser on any machine that is connected to the same network as the Synapse server.
3. Navigate to the ‘Radio Remote Ctrl’ item on the left side of the display. See Figure 3 below.



The screenshot shows the ASTi Remote Management System (RMS) interface. The top header displays the ASTi logo and the text 'ASTi Remote Management System'. Below the header, the current system is identified as 'SYNRC' and the user is logged in as 'admin'. The main content area is divided into several sections:

- System Status:** Displays CPU Load with a bar chart and a table showing Average and Peak values for Non-realtime and Realtime processes.
- System Info:** Provides details about the OS (RedHatEnterpriseClient 5.4), ACE Version (4.Dev), ACE Build (37079), ACE Build Date (04/26/11 01:13 EDT), and ACE Security Version (none).
- Memory Used:** Shows a bar chart indicating 7% memory usage.
- Swap Used:** Shows a bar chart indicating 0% swap usage.

The left navigation menu includes categories such as System, Configuration, Projects, Network, and Audio. The 'Radio Remote Ctrl' option is highlighted with a red arrow.

Figure 3: RMS Radio Remote Control

4. Access the 'View Radio' drop-down selector to choose which live URC-200 transceiver to control. See Figure 4 below. Refer to Table 1 to identify the Radio Handle to look for in the drop down list.

Current System: SYNRC Logged in as admin · [Manage Users](#) · [Logout](#)

**System**

- Status
- Health
- Logs
- Reset / Power

**Configuration**

- Networking
- Network Devices
- Option Files
- Backup Restore
- Description
- Radio Remote Ctrl
- SR & TTS
- Terrain
- Voisus Downloads

**Projects**

- Project Management

**Network**

- Targets
- ACENet
- HLA

**Audio**

- Upload Sound Files
- Spectral Analysis
- Archive Recordings

## SYNRC Remote Control

### Radios & Interfaces

View Radio: Radio: RT01, Type: URC200, Interface: RIU2 / Ch. A

- Radio: RT01, Type: URC200, Interface: RIU2 / Ch. A
- Radio: RT02, Type: URC200, Interface: RIU2 / Ch. C
- Radio: RT03, Type: URC200, Interface: RIU3 / Ch. A
- Radio: RT04, Type: URC200, Interface: RIU3 / Ch. C

**RT01 R**

Interface Name:	RIU2
Interface Channel:	A
Radio Interface Status:	✓
Radio Type:	URC200
Status:	✓ Okay
Overtemp:	✓
Synth Lock:	✓
Preset:	0
Frequency:	154.6000 MHz
Tx Frequency:	154.6000 MHz
Squelch:	10.0
Power Level:	LOW
Text Mode:	PT
Modulation Mode:	FM
Tx Modulation Mode:	FM

Figure 4: View Radios

5. The 'Radio Status' page displays radio status items in a tabular format. The radio status should stream to the browser, so that changes will be displayed without having to refresh the page (this feature is subject to browser compatibility). See Figure 5 below. Refer to section 8.0 'Status Items' for more information on each item seen on this page.

<ul style="list-style-type: none"> <li>Networking</li> <li>Network Devices</li> <li>Option Files</li> <li>Backup Restore</li> <li>Description</li> <li>Radio Remote Ctrl</li> <li>SR &amp; TTS</li> <li>Terrain</li> <li>Voisus Downloads</li> <li><b>Projects</b></li> <li>Project Management</li> <li><b>Network</b></li> <li>Targets</li> <li>ACENet</li> <li>HLA</li> <li><b>Audio</b></li> <li>Upload Sound Files</li> <li>Spectral Analysis</li> <li>Archive Recordings</li> </ul>	<h3 style="margin: 0;">RT01 Radio Status</h3> <table border="0" style="width: 100%;"> <tr> <td style="padding: 2px;">Interface Name:</td> <td style="padding: 2px;">RIU2</td> </tr> <tr> <td style="padding: 2px;">Interface Channel:</td> <td style="padding: 2px;">A</td> </tr> <tr> <td style="padding: 2px;">Radio Interface Status:</td> <td style="padding: 2px;">✔</td> </tr> <tr> <td style="padding: 2px;">Radio Type:</td> <td style="padding: 2px;">URC200</td> </tr> <tr> <td style="padding: 2px;">Status:</td> <td style="padding: 2px;">✔ Okay</td> </tr> <tr> <td style="padding: 2px;">Overtemp:</td> <td style="padding: 2px;">✔</td> </tr> <tr> <td style="padding: 2px;">Synth Lock:</td> <td style="padding: 2px;">✔</td> </tr> <tr> <td style="padding: 2px;">Preset:</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="padding: 2px;">Frequency:</td> <td style="padding: 2px;">154.6000 MHz</td> </tr> <tr> <td style="padding: 2px;">Tx Frequency:</td> <td style="padding: 2px;">154.6000 MHz</td> </tr> <tr> <td style="padding: 2px;">Squelch:</td> <td style="padding: 2px;">10.0</td> </tr> <tr> <td style="padding: 2px;">Power Level:</td> <td style="padding: 2px;">LOW</td> </tr> <tr> <td style="padding: 2px;">Text Mode:</td> <td style="padding: 2px;">PT</td> </tr> <tr> <td style="padding: 2px;">Modulation Mode:</td> <td style="padding: 2px;">FM</td> </tr> <tr> <td style="padding: 2px;">Tx Modulation Mode:</td> <td style="padding: 2px;">FM</td> </tr> <tr> <td style="padding: 2px;">Operating Mode:</td> <td style="padding: 2px;">RECEIVE</td> </tr> <tr> <td style="padding: 2px;">Rx Signal Strength:</td> <td style="padding: 2px;">5.5</td> </tr> <tr> <td style="padding: 2px;">Squelch Status:</td> <td style="padding: 2px;">Transceiver Squelched</td> </tr> <tr> <td style="padding: 2px;">Option:</td> <td style="padding: 2px;">None</td> </tr> <tr> <td style="padding: 2px;">Software Version:</td> <td style="padding: 2px;">UA Sep 27 1995 09:27:52</td> </tr> </table> <p style="text-align: right; margin-top: 5px;"><a href="#" style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 5px; text-decoration: none; color: inherit;">Change Radio Settings</a></p>	Interface Name:	RIU2	Interface Channel:	A	Radio Interface Status:	✔	Radio Type:	URC200	Status:	✔ Okay	Overtemp:	✔	Synth Lock:	✔	Preset:	0	Frequency:	154.6000 MHz	Tx Frequency:	154.6000 MHz	Squelch:	10.0	Power Level:	LOW	Text Mode:	PT	Modulation Mode:	FM	Tx Modulation Mode:	FM	Operating Mode:	RECEIVE	Rx Signal Strength:	5.5	Squelch Status:	Transceiver Squelched	Option:	None	Software Version:	UA Sep 27 1995 09:27:52
Interface Name:	RIU2																																								
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Tx Modulation Mode:	FM																																								
Operating Mode:	RECEIVE																																								
Rx Signal Strength:	5.5																																								
Squelch Status:	Transceiver Squelched																																								
Option:	None																																								
Software Version:	UA Sep 27 1995 09:27:52																																								

Figure 5: Radio Status

To control live radios:

1. From the 'Radio Status' page, navigate to the very bottom of the page and click the 'Change Radio Settings' button. See Figure 6 below.
2. The 'Radio Settings' page will guide the user through the process of changing settings.

The screenshot displays the 'RT01 Radio Status' page. On the left is a navigation menu with categories: Networking, Projects, Network, and Audio. The main content area shows the following details:

Interface Name:	RIU2
Interface Channel:	A
Radio Interface Status:	✓
Radio Type:	URC200
Status:	✓ Okay
Overtemp:	✓
Synth Lock:	✓
Preset:	0
Frequency:	154.6000 MHz
Tx Frequency:	154.6000 MHz
Squelch:	10.0
Power Level:	LOW
Text Mode:	PT
Modulation Mode:	FM
Tx Modulation Mode:	FM
Operating Mode:	RECEIVE
Rx Signal Strength:	5.5
Squelch Status:	Transceiver Squelched
Option:	None
Software Version:	UA Sep 27 1995 09:27:52

At the bottom right of the page, there is a button labeled 'Change Radio Settings' with a red arrow pointing to it from the right.

Figure 6: Change Radio Settings

3. To disable the remote control data link between a live radio and ACE-RIU click the ‘Turn if OFF’ button at the top of page. See Figure 7 below.

3a. Disabling the remote control data link also releases the live radio from ‘remote control’ mode so that its keypad will become functional again.

3b. If the remote control data link is currently off, the only option on the ‘Radio Settings’ page will be to turn it back on by clicking the ‘Turn it ON’ button. This will enter the live radio into remote control mode and effectively lock the keypad. See Figure 8 below.

**System**  
Status  
Health  
Logs  
Reset / Power

**Configuration**  
Networking  
Network Devices  
Option Files  
Backup Restore  
Description  
Radio Remote Ctrl  
SR & TTS  
Terrain  
Voisus Downloads

**Projects**  
Project Management

**Network**  
Targets  
ACENet  
HLA

**Audio**  
Upload Sound Files  
Spectral Analysis  
Archive Recordings

**SYNRC Remote Control**

## Radio Settings

### RT01

Remote Control: **Active**  ←

Do you wish to switch a preset, or modify a preset?

Switch Preset  
 Modify Preset

Currently on: **Preset 0**

Preset Number:  Range 0 - 9

Squelch:  Range 0 - 10

Figure 7: Disable the Link Between Live Radio and ACE-RIU

**Current System: SYNRC**

**System**  
Status  
Health  
Logs  
Reset / Power

**Configuration**  
Networking  
Network Devices  
Option Files  
Backup Restore  
Description

**SYNRC Remote Control**

## Radio Settings

### RT01

Remote Control: **Disabled**  ←

Figure 8: Turn Radio On

#### 4. URC-200 control can proceed in one of two ways: a preset switch or a preset modification.

##### 4a. Switch Preset (See Figure 9 below.)

- i. This method of control will allow the user to switch the preset and load the settings from the new preset.
- ii. Any temporary changes made to the current preset will *not* be saved before switching to the new one.
- iii. The user may re-load the current preset by submitting the preset number for the preset the radio is currently using.
- iv. The user may optionally adjust the squelch level, as this is not a setting associated with a preset.

Current System: SYNRC

**System**  
Status  
Health  
Logs  
Reset / Power

**Configuration**  
Networking  
Network Devices  
Option Files  
Backup Restore  
Description  
Radio Remote Ctrl  
SR & TTS  
Terrain  
Voisus Downloads

**Projects**  
Project Management

**Network**  
Targets  
ACENet  
HLA


## SYNRC Remote Control

### Radio Settings

#### RT01

Remote Control: **Active**

Do you wish to switch a preset, or modify a preset?

Switch Preset 

Modify Preset

Currently on: **Preset 0**

Preset Number:  Range 0 - 9

Squelch:  Range 0 - 10

Figure 9: Switch Preset

#### 4b. Modify Preset

- i. This method of control will allow the user to change the parameters associated with the current preset.
- ii. Changing these parameters will *not* overwrite the current preset in the radio's memory. Instead, the changes will be temporary, until the preset is explicitly stored, or the preset is switched.
- iii. Preset settings can be made in a 'coupled' (see Figure 10 below) or 'decoupled' (see Figure 11 below) manner – that is, the user can adjust Rx and Tx Frequency and/or Rx and Tx Modulation mode simultaneously or separately. The user will select a radio button to specify his preference.
- iv. The user may optionally adjust the squelch level, but this is not necessarily a setting associated with a preset.

**Current System:** SYNRC

---

**System**

- Status
- Health
- Logs
- Reset / Power

**Configuration**

- Networking
- Network Devices
- Option Files
- Backup Restore
- Description
- Radio Remote Ctrl
- SR & TTS
- Terrain
- Voisus Downloads

**Projects**

- Project Management

**Network**

- Targets
- ACENet
- HLA

**Audio**

- Upload Sound Files
- Spectral Analysis
- Archive Recordings

## SYNRC Remote Control

### Radio Settings

#### RT01

Remote Control: **Active** Turn it OFF

Do you wish to switch a preset, or modify a preset?

Switch Preset

**Modify Preset**

Currently on: **Preset 0**

Will you have *the same* Rx & Tx frequencies and modulation types?

**Yes, Rx & Tx will be the same.** ← Coupled

No, Rx & Tx will be the different.

Modulation: FM ▾

Frequency:  in MHz

Squelch:  Range 0 - 10

Power Level: LOW ▾

Text Mode: PT ▾

Send Settings to Radio

Cancel

Figure 10: Coupled Mode

**System**  
Status  
Health  
Logs  
Reset / Power

**Configuration**  
Networking  
Network Devices  
Option Files  
Backup Restore  
Description  
Radio Remote Ctrl  
SR & TTS  
Terrain  
Voisus Downloads

**Projects**  
Project Management

**Network**  
Targets  
ACENet  
HLA

**Audio**  
Upload Sound Files  
Spectral Analysis  
Archive Recordings

## SYNRC Remote Control

### Radio Settings

#### RT01

Remote Control: **Active** Turn it OFF

Do you wish to switch a preset, or modify a preset?

Switch Preset  
 Modify Preset

Currently on: **Preset 0**

Will you have *the same* Rx & Tx frequencies and modulation types?

Yes, Rx & Tx will be the same.  
 No, Rx & Tx will be the different. **← Decoupled**

Rx Modulation: FM

Rx Frequency:  in MHz

Tx Modulation: FM

Tx Frequency:  in MHz

Squelch:  Range 0 - 10

Power Level: LOW

Text Mode: PT

Send Settings to Radio  
Cancel

Figure 11: Decoupled Mode

5. Once all changes have been made click the ‘Send Settings to Radio’ button to submit the commands. If a parameter value is deemed invalid, the page will refresh with a list of items to amend before trying the request again.

5a. Immediately after submitting a change to the live radio’s settings, the user will be returned to the ‘Radio Status’ page. It might take a small amount of time (on the order of a few seconds) before all of the requested settings are made on the radio. The user should monitor the status closely for this time to ensure his changes were made.

5b. Notice the ‘Last Access’ string that is now present in the ‘Radio Status’ page. This will detail the time of the last modification to the radio’s setting and who made it (IP address and username). (See Figure 12 below.)

5c. Storing presets: If the user has modified a preset he should now have the option to store the preset while on the ‘Radio Status’ page. Once available, the user can click the ‘Store Preset?’ button to commit the preset settings currently being displayed to the radio’s memory. (See Figure 13 below.)

The screenshot shows a web interface for 'Radios & Interfaces'. On the left is a navigation menu with categories: Health, Configuration, Projects, Network, and Audio. The main content area is titled 'Radios & Interfaces' and includes a 'View Radio' dropdown menu set to 'Radio: RT01, Type: URC200, Interface: RIU2 / Ch. A'. Below this is the 'RT01 Radio Status' section. The 'Last access' string is highlighted with a red arrow: 'Last access: 18:00:31 04/27/11, User: admin, IP: 10.2.0.118'. The status section lists various parameters such as Interface Name (RIU2), Radio Type (URC200), Status (Okay), and Frequency (154.6000 MHz). At the bottom of the status section is a 'Change Radio Settings' button.

Figure 12: Last Accessed

The screenshot displays a web interface for configuring radios. On the left is a navigation menu with categories: Health (Logs, Reset / Power), Configuration (Networking, Network Devices, Option Files, Backup Restore, Description, Radio Remote Ctrl, SR & TTS, Terrain, Voicuis Downloads), Projects (Project Management), Network (Targets, ACENet, HLA), and Audio (Upload Sound Files, Spectral Analysis, Archive Recordings). The main content area is titled 'Radios & Interfaces' and shows 'View Radio: Radio: RT01, Type: URC200, Interface: RIU2 / Ch. A'. Below this is the 'RT01 Radio Status' section, which includes a timestamp 'Last access: 18:00:31 04/27/11, User: admin, IP: 10.2.0.118' and a list of parameters: Interface Name: RIU2, Interface Channel: A, Radio Interface Status: ✓, Radio Type: URC200, Status: ✓ Okay, Overtemp: ✓, Synth Lock: ✓, Preset: 0 (with a 'Store Preset?' button highlighted by a red arrow), Frequency: 154.6000 MHz, Tx Frequency: 154.6000 MHz, Squelch: 10.0, Power Level: MED, Text Mode: PT, Modulation Mode: FM, Tx Modulation Mode: FM, Operating Mode: RECEIVE, Rx Signal Strength: 5.6, Squelch Status: Transceiver Squelched, Option: None, and Software Version: UA Sep 27 1995 09:27:52. A 'Change Radio Settings' button is located at the bottom of the status list.

Figure 13: Storing Presets

---

## 8.0. Status Items

**Interface Name:** The ACE-RIU device name.

**Interface Channel:** The ACE-RIU device channel.

**Radio Interface Status:** The overall health of the live radio interface. The health can be in three states:

- **Critical** (red x): If none of the status items can be retrieved from the radio.
- **Semi-critical** (yellow question mark [?]): If some of the status items cannot be retrieved from the radio or the remote control function has been disabled.
- **Okay** (green check-mark): Normal operation

**Radio Type:** The model of the live radio.

**Status:** Detailed status information of the live radio interface, some of the messages the user might see here are:

- **Remote Control Off:** Signifies that the serial messaging is disabled for the interface.
- **Err: Bad device name / chan:** An invalid ACE-RIU device or channel has been specified.
- **Err: check mask / log:** A control query might be failing consistently. A log is available to view if it is enabled within the ACE Studio development tool.
- **Okay:** Normal operation

**Overtemp:** Live radio overtemp status

- **Critical** (red x): The live radio is in an overtemp state
- **Semi-critical** (yellow question mark [?]): The overtemp status cannot be retrieved from the live radio.
- **Okay** (green check-mark): The live radio temperature is Okay.

**Synth Lock:** Live radio synthesizer lock state

- **Critical** (red x): The synthesizer is unlocked
- **Semi-critical** (yellow question mark [?]): The synthesizer lock status cannot be retrieved from the live radio.
- **Okay** (green check-mark): The synthesizer is locked.

**Preset:** Live radio's currently selected preset. Valid presets are 0-9.

**Frequency:** Live radio receive frequency. Refer to the radio's operator manual for operational ranges.

**Tx Frequency:** Live radio transmit frequency. Refer to the radio's operator manual for operational ranges.

**Squelch Level:** Live radio's squelch level. Valid range is 0-10.

**Power Level:** Live radio power level. Valid states are LO, MED, and HI. Refer to the radio's operator manual for operational considerations.

**Text Mode:** Live radio text mode. Valid states are PT (plain text) and CT (cipher text).

**Modulation Mode:** Live radio receive modulation mode. Valid states are AM and FM. Refer to the radio's operator manual for operational considerations.

**Tx Modulation Mode:** Live radio transmit modulation mode. Valid states are AM and FM. Refer to the radio's operator manual for operational considerations.

**Operation Mode:** Live radio operating mode. Valid states are RECEIVE, TRANSMIT, and BEACON.

**Rx Signal Strength:** Live radio receive signal strength. Valid range is 0-10.

**Squelch Status:** Live radio squelch status. Valid states are 'Transceiver Squelched' and 'Transceiver Squelch Broken'.

**Option:** Live radio installed options. Valid options are:

- **None:** No options installed.
- **30\_90:** The EBN-30 option is installed.
- **420:** The EBN-400 option is installed.
- **30\_90 && 420:** Both EBN-30 and EBN-400 options are installed.

**Software Version:** Live radio software version. Refer to the radio's operator manual for more information on the format of this string.

## 9.0. Troubleshooting / FAQ

**Note:** The RMS Remote Control user interface will provide helpful suggestions when errors occur. The user should heed these suggestions as a first step to troubleshooting.

### **Why are some status items being displayed as ‘Unavailable’?**

If the remote control software cannot retrieve the state of a particular status item from the live radio its value will be reported as ‘Unavailable’. Such failures can occur for several reasons. The user should ensure that the radio’s software is compatible, specifically with regards to its serial protocol. The user should also ensure the cabling is installed correctly on the system.

### **The ‘Radio Settings’ form permitted me to modify some settings on the radio, but the settings don’t seem to be taking affect.**

The ‘Radio Settings’ form will attempt to thoroughly validate the user input by checking for syntax errors and live radio operational constraints. In some cases, the settings will seem to be valid but still fail. This is most likely due to radio software incompatibility. The user should verify that their intended settings will work if they attempt to input them manually, using the keypad on the URC-200 and without the ASTi Remote Control connected.

As an example, using an older URC-200 with software from 1995, the user can attempt to set the Frequency to 399.995 MHz (see Figure 14 below), which is valid by the URC-200 v2 manual (see further reading). However, for this specific radio, the settings will not succeed and an error message will display (see Figure 15 below). In this case the user will find that setting the Frequency to something else might work.

**System**  
Status  
Health  
Logs  
Reset / Power

**Configuration**  
Networking  
Network Devices  
Option Files  
Backup Restore  
Description  
Radio Remote Ctrl  
SR & TTS  
Terrain  
Voisus Downloads

**Projects**  
Project Management

**Network**  
Targets  
ACENet  
HLA

**Audio**  
Upload Sound Files  
Spectral Analysis  
Archive Recordings

## SYNRC Remote Control

### Radio Settings

#### RT01

Remote Control: **Active** Turn it OFF

Do you wish to switch a preset, or modify a preset?

Switch Preset  
 Modify Preset

Currently on: **Preset 0**

Will you have *the same* Rx & Tx frequencies and modulation types?

Yes, Rx & Tx will be the same.  
 No, Rx & Tx will be the different.

Modulation: FM

Frequency: 399.995 in MHz

Squelch: 10.0 Range 0 - 10

Power Level: MED

Text Mode: PT

Send Settings to Radio  
Cancel

Figure 14: Invalid Frequency

**SYNRC Remote Control****Radios & Interfaces**View Radio: **RT01 Radio Status**

Last access: 19:03:20 04/27/11, User: admin, IP: 10.2.0.118

Interface Name: RIU2  
Interface Channel: A  
Radio Interface Status: ?  
Radio Type: URC200  
Status: ✘ Err: check mask / log  
Overtemp: ✔  
Synth Lock: ✔  
Preset: 0   
Frequency: 154.6000 MHz  
Tx Frequency: 154.6000 MHz  
Squelch: 10.0  
Power Level: MED  
Text Mode: PT  
Modulation Mode: FM  
Tx Modulation Mode: FM  
Operating Mode: RECEIVE  
Rx Signal Strength: 5.4  
Squelch Status: Transceiver Squelched  
Option: None  
Software Version: UA Sep 27 1995 09:27:52

**Radio is unresponsive to some commands.****Details:**

Set Frequency failed.  
Set Transmit Frequency failed.

**Suggestions:**

Check that RIU is powered on and correctly configured.  
Check radio and RIU connections.  
Try setting unresponsive controls to different values.  
Verify radio's software compatibility. See ASTi Radio Bridge manual.

*Figure 15: Frequency Error Example*

### **An “Invalid software project” message is displayed when I attempt to access the ‘Radio Remote Ctrl’ page from the navigation sidebar in RMS.**

The Synapse server (i.e. the ‘Target’) is not running the correct Synapse software project. Chances are, the correct project will be set to run by default on a reboot so they user might try rebooting his Synapse server first.

If the correct project is not set as the default project, the user can use the ACE Studio development tool (available on ACE Studio workstations, or as a VM) to install the correct project. Alternatively he can use the ace-user command line tool on the Synapse server to install the project. The command might look like:

```
$ ace-user install-layout SYN4-RT-##-RC-A main
```

### **Why is remote control ‘paused’ while the live radio is transmitting?**

When the software detects that the live radio is actively transmitting over the air it will pause the serial data messaging between the ACE-RIU and the URC-200. This is done to ensure that no serial data noise bleeds into the live radio’s transmit audio. The user should be aware that the information on the ‘Radio Status’ page is considered ‘stale’ once this happens, since no more commands are being sent to the radio.

Periodically the software will do a check on the radio’s transmit status, to determine if it is once again safe to resume the serial messaging.

The screenshot displays the 'RT01 Radio Status' interface. On the left is a navigation menu with categories: Networking (Network Devices, Option Files, Backup Restore, Description, Radio Remote Ctrl SR & TTS, Terrain, Voibus Downloads), Projects (Project Management), Network (Targets, ACENet, HLA), and Audio (Upload Sound Files, Spectral Analysis, Archive Recordings). The main area shows the following status information:

Interface Name:	RIU2
Interface Channel:	A
Radio Interface Status:	✓
Radio Type:	URC200
Status:	✓ Okay
Overtemp:	✓
Synth Lock:	✓
Preset:	0
Frequency:	154.6000 MHz
Tx Frequency:	154.6000 MHz
Squelch:	10.0
Power Level:	MED
Text Mode:	PT
Modulation Mode:	FM
Tx Modulation Mode:	FM
Operating Mode:	TRANSMIT
Rx Signal Strength:	0.0
Squelch Status:	Transceiver Squelched
Option:	None
Software Version:	UA Sep 27 1995 09:27:52

Below the settings is a button labeled 'Change Radio Settings'.

**Important radio information:**

- Live radio is transmitting, remote control is paused.

Figure 16: Remote Control Pause

## 10.0. Further Reading

- URC-200 (v2) Operation and Limited Maintenance Manual  
General Dynamics Document No: 99-P42304K, Revision: September 2009
- URC-200 (v2) Operation and Maintenance Manual  
General Dynamics Document No. 68-P36745M\_REV.