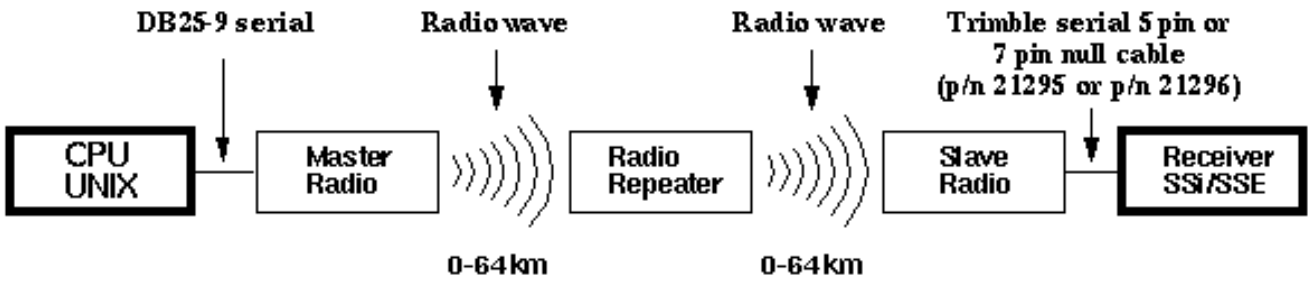
Comms Example: GPS Receiver--Radio Modem--Radio Modem--CPU

450 Beth Bartel June 19, 2020 Comms and Networking Examples (Diagrams), FreeWave 1389

GPS Receiver--Radio Modem--Radio Modem--CPU



NOTE: The outdated and offensive "master-slave" terminology has been replaced with "Access point (AP) - Station/Endpoint (STA)" in all instances, but will still remain in the configuration software when implemented

Equipment

In use by UNAVCO Boulder Facility -

- **Radio modem:** FreeWave DGR115-H
- **Antennas:** directional Yagi antennas
- **CPU:** UNIX (Sun OS 2.3)
- **Receiver:** Trimble 4000SSi/SSE

Possible Substitutions (based on site parameters) -

- **Radio modem:** Any radio modem which meets suggested minimum requirements as listed on our Radio Modem page.
- **Antennas:** omnidirectional antennas

- **CPU:** UNAVCO, Boulder currently supports UNIX or LINUX operating systems.

NOTE: The use of a repeater and directional vs. omnidirectional antennas depends on the specifics of the site, distances signals need to travel, topography etc. For more information contact UNAVCO Communications Help (support

unavco.org).

Connections in use by Boulder Facility

- 1=DB25-9 serial
- 2=Radio wave
- 3=Trimble serial 5 or 7 pin null cable (p/n 21295 or 21296)

Equipment Configuration in use by Boulder Facility

Radio modems

- Baud rate 19200 bps
- 8-None-1
- RTS/CTS HW flow control
- packet size max=8 (144 bytes) min=2 (16 bytes)

The transceivers are set to Point to Point Master, Point to Point Repeater, and Point to Point Slave respectively in order from the computer to the receiver.

Recommended master FreeWave radio modem register settings (in use at KAYT by UNAVCO Boulder Facility)

Main Menu
Version 5.39 2-06-98
Australia Hop Table
Modem Serial Number xxx-xxxx

Modem Mode is 6
Modem Baud is 019200
Entry to Call is 00
Radio Parameters

(0)	FreqKey	5
(1)	Max Packet Size	8
(2)	Min Packet Size	2
(3)	Xmit Rate	1
(4)	RF Data Rate	3
(5)	RF Xmit Power	9
(6)	Slave Security	0
(7)	RTS to CTS	0
(8)	Retry Time Out	255

Recommended FreeWave repeater radio modem register settings (in use at KAYT by UNAVCO Boulder Facility)

Main Menu
Version 5.39 2-06-98
Australia Hop Table
Modem Serial Number xxx-xxxx

Modem Mode is 5
Modem Baud is 019200
Entry to Call is 00
Radio Parameters

(0)	FreqKey	5
(1)	Max Packet Size	8
(2)	Min Packet Size	2
(3)	Xmit Rate	1
(4)	RF Data Rate	3
(5)	RF Xmit Power	9
(6)	Slave Security	0
(7)	RTS to CTS	0

(8)	Retry Time Out	255

Recommended FreeWave slave radio modem register settings (in use at KAYT by UNAVCO Boulder Facility)

Main Menu
Version 5.39 2-06-98
Australia Hop Table
Modem Serial Number xxx-xxxx

Modem Mode is 1
Modem Baud is 019200
Entry to Call is 01
Radio Parameters

(0)	FreqKey	5
(1)	Max Packet Size	8
(2)	Min Packet Size	2
(3)	Xmit Rate	1
(4)	RF Data Rate	3
(5)	RF Xmit Power	9
(6)	Slave Security	0
(7)	RTS to CTS	0
(8)	Retry Time Out	255

Receiver

Confirm these settings in the receiver's CONTROL menu:

- **BAUD RATE/FORMAT:** I/O port 1 or 2, 19200 bps, 8-None-1, no HW flow control
- **REMOTE PROTOCOL:** Data Collector Compatible

Download Specifications

Download software: Trimble Remote Control version 2.201 (15 MAY 1996) for UNIX. All functions of Remote Control software work. Effective receiver file download speed: 4300 bps. *[**Note:** Download rates will vary depending upon site location, local interference, phone line quality, and cellular service.]*

This product is used to perform remote control of 4000SSE/SSi - RC receivers. The programs are available for HP-UX, DOS, SunOS 4.1.x, and Sun Solaris 2.x. The following summarizes the functions and utilities provided by the Remote control programs. Refer to the Trimble Remote Control

documentation for details on these programs.

Function/Utility	Program
Modem link control	rconn, rdisconn
Station/session programming	rstation, rsession
Survey control	rsurvey
Global control	rcontrol
File/download control	rfile
File conversion (r00 to DAT)	runpkr00
Receiver status	rstatus
Receiver reset	rreset
Remote firmware update	rupdate
DAT file naming utility	rdatname