



Application Note #5430

Rain Bird CCU and Satellite Connection

December 20, 2005

The Rain Bird sprinkler control systems can use the TTL FreeWave radio modems in place of the Johnson or Dataradio RNet 450S used in the past. The FreeWave point to multi-point system allows much greater flexibility with repeaters, has greater range, and is license free. FreeWave also gives you the choice of multiple frequency bands, 900 MHz and 2.4 GHz.

Operation Mode Specific Radio Configurations:

These parameters must be changed from the defaults:

FreeWave Multi-Point Master Configuration:

<i>Operation Mode</i>	2 (multi-point master)
<i>Baud Rate</i>	600 (To set the baud rate to 600 baud, please use EZ Config version 2.4).
<i>Data, Parity</i>	3 (8, N, 2)
<i>Serial Mode</i>	RS232

FreeWave Multi-Point Slave Configuration:

<i>Operation Mode</i>	3 (multi-point slave)
<i>Baud Rate</i>	600 (To set the baud rate to 600 baud, please use EZ Config version 2.4).
<i>Data, Parity</i>	0 (8, N, 1)
<i>Serial Mode</i>	RS232
<i>MODBus RTU</i>	2

FreeWave Multi-Point Repeater Configuration (optional)

<i>Operation Mode</i>	7 (multi-point repeater)
<i>Data, Parity</i>	N/A

FreeWave Multi-Point Slave/Repeater Configuration (optional)

<i>Operation Mode</i>	7 (multi-point repeater)
<i>Slave/Repeater</i>	1 (both functions)
<i>Baud Rate</i>	600 (To set the baud rate to 600 baud, please use EZ Config version 2.4).
<i>Data, Parity</i>	0 (8, N, 1)
<i>Serial Mode</i>	RS232
<i>MODBus RTU</i>	2



Configurations for all radios in network:

Max Packet Size* 0
Min Packet Size* 0
RF Data Rate 3
Master Packet Repeat 1
Max Slave Retry 1
Retry Odds 0

**In areas with multiple networks, Max/Min Packet Sizes of 0/1 or 1/0 are optional for networks with out repeaters.*

- In a system without repeaters, the *Number of Repeaters* parameter should be set to zero to keep latency to a minimum.
- In a system with repeaters, up to 4 Serial Repeaters can be installed without degraded radio performance.

Wiring Connections:

Rain Bird CCU		FreeWave		
DB9 Pin #	Function	10 Pin Header	Function	Notes
1	TXD	7	RXD	
2	RXD	5	TXD	
4	GROUND	4	GND	
5	+8V	1	B+ IN (>+7.5VDC)	
6	CD	8	CD	
3	RTS (PTT)	9	RTS	Optional

Rain Bird Satellite		FreeWave		
DB9 Pin #	Function	10 Pin Header	Function	Notes
1	TXD	7	RXD	
2	RXD	5	TXD	
4	GROUND	4	GND	
5	+8V	1	B+ IN (>+7.5VDC)	
6	CD	10	CTS	