RAIN BIRD®

# IQ Server/Client Satellite Radio Configuration & Installation

1 Required Equipment

① Two models of radios can be used for IQ Server/Client Satellite secondary communication:
 a. IQSSRADIO Metal Case Radio
 b. RB-SS-TN9B Plastic Case Radio
② Required equipment for Radio configuration:
 a. Windows laptop or Surface tablet with MDS TransNET Configuration Software v2.3.5 installed
 b. Software and Programming Cable Kit (Rain Bird IQSSRADPK)
 c. USB-to-Serial Adapter if the computer does not have a serial port
③ Required equipment for Radio communication:
 a. 120VAC power receptacle to plug in the provided transformer
 b. IQ Y-Cable interconnecting the IQ NCC Cartridge and Radio (use a 9-pin serial cable [non-null] if the Y-Cable cannot reach the radio location)
 c. 902MHz radio antenna (Radio has TNC-Female connector; Antenna type determined by radio site survey)
 d. RSSI (signal strength) of -50 to -90 dB to upstream radio

2 Radio Configuration

① Connect DB-9 end of Programming Cable to computer serial port
② Use USB to Serial Adapter to connect to USB port if computer does not have a serial port
③ Connect RJ-11 end of Programming Cable to radio DIAG Port
④ Connect radio antenna to TNC radio antenna output
⑤ Connect supplied Power Transformer Cable to radio and tighten screws; Plug the radio power supply pigtail into a 120VAC power receptacle to power the radio

TO POWER
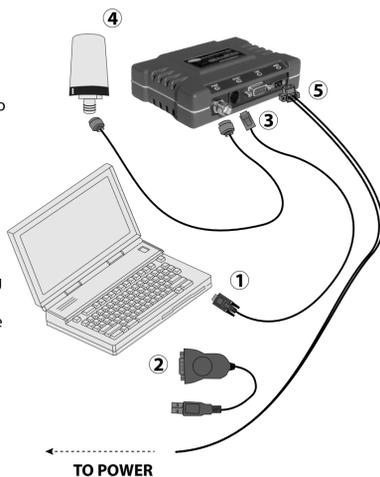
3 MDS TransNET Radio Configuration Utility

① Download, extract, and install MDS-Toolbox installation software
 a. Download from: ww3.rainbird.com/documents/turf/IQ-MDS-Toolbox1-0-3.zip
 b. Extract all files
 c. Double click on the Setup file to launch the Toolbox installer
 d. Select MDS TransNET Configuration option only from the menu, then install
② Start the TransNET Configuration Program
③ Click on CommPort drop down menu and select Setup
④ Select the COM Port the Programming Cable is connect to, then press OK
⑤ A connection to the radio will be attempted automatically
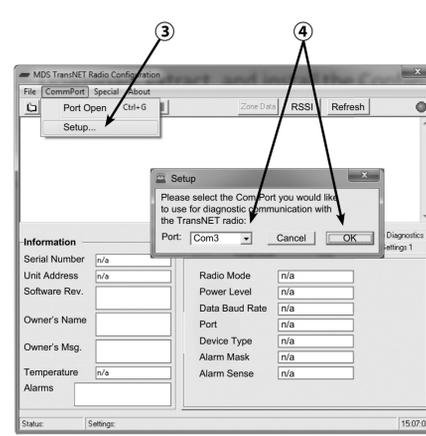
4 MDS TransNET Radio Configuration Utility

① The current radio configuration will be displayed on the six tabs
② Click on the tab and individual setting field to open a dialog box where you can change the displayed values to match those shown in the following settings tables
③ Example: Click the Radio Mode field in the Radio Settings 1 tab and enter the Radio Mode based on the type of IQ Satellite, then press OK:
 M - Master Radio at the IQ Server Satellite
 R - Remote Radio at IQ Client Satellites communicating directly with the Master Radio or an Extension Radio
 X - Extension (Repeater) Radio at IQ Client Satellites repeating the network signal to downstream Client Satellite Radios that cannot communicate directly with the Master Radio
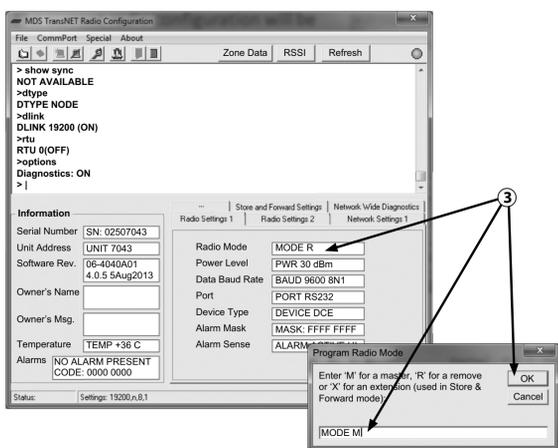
5 Master Radio Settings for the IQ Server Satellite

✎ **NOTE: Highlighted** settings are different than the default settings.

Radio Settings 1	
Radio Mode	*MODE M*
Power Level	PWR 30 dBm
Data Baud Rate	*BAUD 38400 8N1*
Port	PORT RS232
Device Type	DEVICE DCE
Alarm Mask	MASK: FFFF FFFF
Alarm Sense	Alarm active HI

Radio Settings 2	
CTS Delay	*CTS 1 ms*
CTSHOLD Delay	CTSHOLD n/a
Receive Time Out Timer	RXTOT NONE
Receive Data Holdover	RXD 0 ms
Sleep Mode	SLEEP n/a
Low Power Mode HOLD	LPMHOLD 20 ms
Output Triggering	OT OFF

Network Settings 1	
Network Address	*ADDR ** (see NOTE)*
Clock Sync Address	NONE
Hope Time	HOPE TIME 7
Skipped Zones	SKIP NONE
Low Power Mode Settings	LPM 0

✎ **NOTE:** Set **Store and Forward** (SAF) ON If you are using Extension (repeater) radios in this radio network.

Network Settings 2	
Repeat Count	*REPEAT 2 TIMES*
Retry Count	*RETRY 2 TIMES*
Forward Error Correction	FEC OFF
Data Buffering	BUFF OFF
Minimum RSSI	MRSSI NONE

Store and Forward Settings	
Store and Forward	*SAF ON*
Extension Address	XADDR 0
Extension Map	
Primary Extension Addr.	XPRI 0
Extension RSSI	XRSSI NONE
Show Sync	Not Available

✎ **NOTE:** Set **Store and Forward** (SAF) ON If you are using Extension (repeater) radios in this radio network.

Network Wide Diagnostics	
DTYPE	DTYPE NODE
DLINK	DLINK 19200 (ON)
Software RTU	RTU 0 (OFF)
Diagnostic Options	Diagnostics: ON

✎ **NOTE:** Each Radio Network requires a unique **Network Address**. Use the last 4 digits of the Master Radio serial number for the Network Address. Configure all radios (Master, Remotes, and Extensions) in this network to this common Network Address.

6 Remote Radio Settings for IQ Client Satellites

✎ **NOTE: Highlighted** settings are different than the default settings.

Radio Settings 1	
Radio Mode	*MODE R*
Power Level	PWR 30 dBm
Data Baud Rate	*BAUD 38400 8N1*
Port	PORT RS232
Device Type	DEVICE DCE
Alarm Mask	MASK: FFFF FFFF
Alarm Sense	Alarm active HI

Radio Settings 2	
CTS Delay	*CTS 1 ms*
CTSHOLD Delay	CTSHOLD n/a
Receive Time Out Timer	RXTOT NONE
Receive Data Holdover	RXD 0 ms
Sleep Mode	SLEEP n/a
Low Power Mode HOLD	LPMHOLD 20 ms
Output Triggering	OT OFF

Network Settings 1	
Network Address	*ADDR ** (see NOTE)*
Clock Sync Address	Not Available
Hope Time	Not Available
Skipped Zones	Not Available
Low Power Mode Settings	Not Available

✎ **NOTE:** Set **Primary Extension Addr.** of the upstream radio (use XPRI 0 for the Master Radio).

Network Settings 2	
Repeat Count	Not Available
Retry Count	Not Available
Forward Error Correction	Not Available
Data Buffering	Not Available
Minimum RSSI	MRSSI NONE

Store and Forward Settings	
Store and Forward	Not Available
Extension Address	Not Available
Extension Map	
Primary Extension Addr.	*XPRI **
Extension RSSI	XRSSI NONE
Show Sync	Not Available

✎ **NOTE:** Set **Primary Extension Addr.** of the upstream radio (use XPRI 0 for the Master Radio).

Network Wide Diagnostics	
DTYPE	DTYPE NODE
DLINK	DLINK 19200 (ON)
Software RTU	RTU 0 (OFF)
Diagnostic Options	Diagnostics: ON

✎ **NOTE:** Configure the **Network Address** to match the address configured in the Master Radio.

7 Extension Radio Configuration for IQ Client Satellites

Radio Network Addressing

XADDR = Extension Address:
A unique radio network address (0-31) assigned to the Master Radio and all Extension (Repeater) Radios in this network.

XPRI = Primary Extension Address:
The radio network address of the upstream Master or Extension (Repeater) Radio to which this radio should communicate. XPRI is the XADDR of the upstream radio.
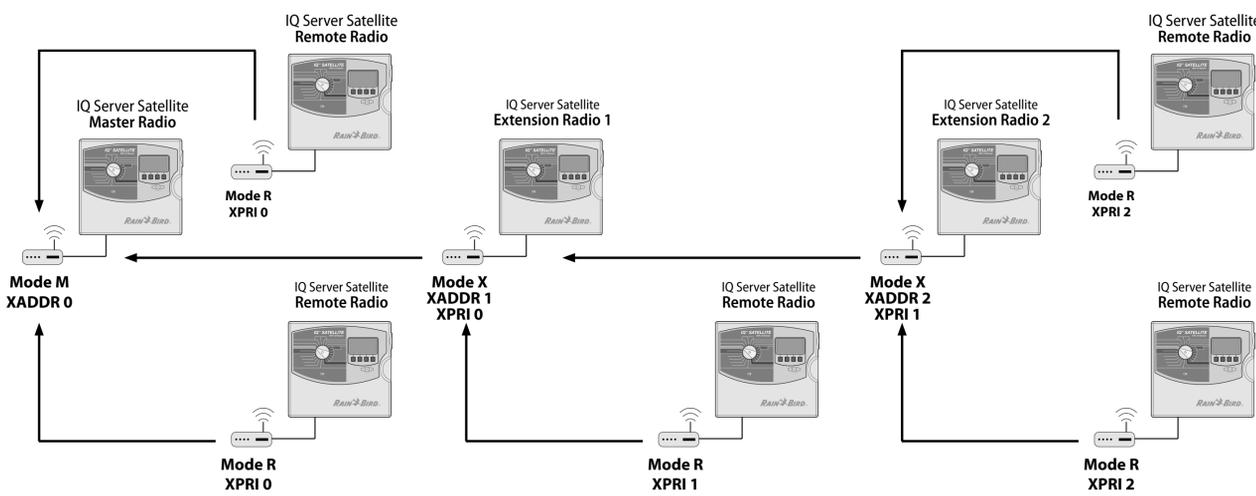
Radio Modes

M = Master Radio – IQ Server Satellite
R = Remote Radio – IQ Client Satellite
X = Extension (Repeater) Radio – IQ Client Satellite

✎ **NOTE:** Remote Radios do not have XADDR Extension Addresses.

8 Extension Radio Settings for IQ Client Satellites

✎ **NOTE: Highlighted** settings are different than the default settings.

Radio Settings 1	
Radio Mode	*MODE X*
Power Level	PWR 30 dBm
Data Baud Rate	*BAUD 38400 8N1*
Port	PORT RS232
Device Type	DEVICE DCE
Alarm Mask	MASK: FFFF FFFF
Alarm Sense	Alarm active HI

Radio Settings 2	
CTS Delay	*CTS 1 ms*
CTSHOLD Delay	CTSHOLD n/a
Receive Time Out Timer	RXTOT NONE
Receive Data Holdover	RXD 0 ms
Sleep Mode	SLEEP n/a
Low Power Mode HOLD	LPMHOLD 20 ms
Output Triggering	OT OFF

Network Settings 1	
Network Address	*ADDR ** (see NOTE)*
Clock Sync Address	Not Available
Hope Time	Not Available
Skipped Zones	Not Available
Low Power Mode Settings	Not Available

Network Settings 2	
Repeat Count	Not Available
Retry Count	Not Available
Forward Error Correction	Not Available
Data Buffering	Not Available
Minimum RSSI	MRSSI NONE

Store and Forward Settings	
Store and Forward	Not Available
Extension Address	*XADDR**
Extension Map	*Click to View*
Primary Extension Addr.	*XPRI **
Extension RSSI	XRSSI NONE
Show Sync	Not Available

✎ **NOTE:** Set **Extension Address** to a unique network address 1 to 31. Set **Primary Extension Address** of the upstream radio (use XPRI 0 for the Master Radio).

| Network Wide Diagnostics	
DTYPE	DTYPE NODE
DLINK	DLINK 19200 (ON)
Software RTU	RTU 0 (OFF)
Diagnostic Options	Diagnostics: ON

✎ **NOTE:** Configure the **Network Address** to match the address configured in the Master Radio.

9 Check Radio Signal Strength

Signal Strength can be displayed for a Remote Radio or Extension Radio by clicking on the RSSI (Received Signal Strength Indicator) tab. RSSI cannot be read at the Master Radio.

In the MDS TransNET Radio Configuration window, click on the RSSI button. A dialog box showing RSSI value will be displayed.

• The scale should display a minimum of -90 dBm and a maximum of -50 dBm.
• To increase signal strength, use an antenna with a higher dB gain and/or increase the height.
• To decrease signal strength, use an attenuator or decrease the power setting in the radio.

RSSI BUTTON
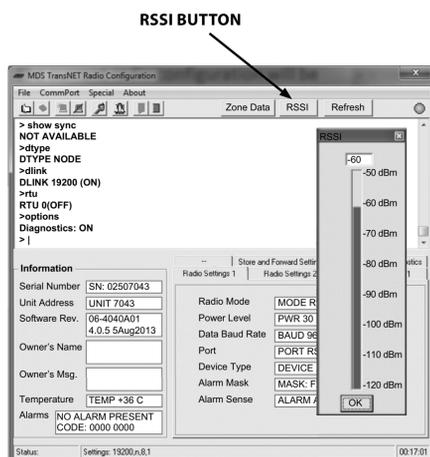
10 Radio Installation

Mount the radio in the pedestal for free-standing IQ Satellite pedestal enclosure applications
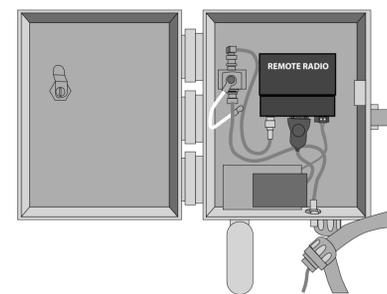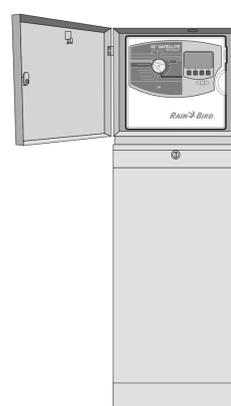
✎ **NOTE:** Install the radio with the connectors facing down. Include a drip loop on all cables.

900MHz Radio Omni-Directional Antennas & Accessories			
Model	**Description**	**dB Gain**	**Connector Type**
GSP-TRA9023NP	3" N-Mount with 3' Cable	3	TNC Male
GSP-ODA23	23" Pole Mount	3	N Female
GSP-ODA48	48" Pole Mount	5	N Male
GSP-ODA96	96" Pole Mount	7	N Male
GSP-MMK9	23" & 48" Antenna Clamp, Single		
GSP-FM2	96" Antenna Clamp, Double		
GSP-xxFT-LMR195	Antenna Cable; Specify cable length and connectors (N-M or -F x TNC-M)		
GSP-xxFT-LMR400	Antenna Cable; Specify cable length and connectors (N-M or -F x TNC-M)		