



SD9 RADIO SETUP

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Revision:
A

Basic Radio Setup of a SD9 for x710 Emulation

Overview

These instructions are for preparing a new GE MDS SD9 radio for use as a remote in an existing MDS x710 radio network.

- 1) Connect to the radio.
- 2) Adjust the Radio Configuration.
- 3) Adjust the Device Configuration.
- 4) Adjust the Security Configuration.
- 5) Adjust the Ethernet Configuration.
- 6) Adjust the Serial Configuration.
- 7) Put the radio into x710 mode.

Details

There are two methods for accessing the SD9 for configuration and management, Ethernet and Serial. On the front of the radio are a DC power connector, Ethernet port, 2 COM ports, and an antenna connector.

PREREQUISITES:

- If using Ethernet to do the configuration, turn off Wi-Fi on the laptop. Set the IP network on the laptop to same subnet as the radio (Control Panel>Network Connections>Local Area Connection>Properties>TCP/IP Properties). The default IP address of the radio is 192.168.1.1.
- If using Serial to do the configuration, determine the COM port being used by the laptop (Control Panel>System>Device Manager>Ports). Connect to the COM1 port on the radio. A straight-through DB-9 cable may be used for this purpose.

1. Connect to the radio management utility.

- 1.1. **Ethernet** – Launch a Telnet program (e.g., PuTTY) and enter the IP address of the radio.
- 1.2. **Serial** – Launch a terminal program (e.g., PuTTY) and set the parameters to: 8 bits, no parity, one stop bit (8N1), flow control disabled, and VT100 emulation. Press the [Enter] key several times until a prompt appears.

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NOTE: If a command prompt appears type `Menu`. Although the radio can be configured using CLI it is much easier to use the built-in menu configuration.

- 1.3. Login to the radio. The default username and password are both `admin`.
The “Starting Information Screen” is displayed.
- 1.4. Press [G] to go to the Main Menu.

```
                                Main Menu
=====

A) Starting Information          F) Serial Configuration
B) Radio Configuration         G) Radio Performance
C) Device Configuration       H) Maintenance / Tools
D) Security Configuration     I) Statistics / Events
E) Ethernet Configuration

Select a letter to configure an item, 'Q' to exit menu █
```

2. Press [B] to adjust the Radio Configuration.
 - 2.1. Press [A] to enter the Basic Settings Menu.
 - 2.1.1. Press [A] to adjust the RF Output Power. Enter the appropriate dBm level (30 dBm=1 Watt and 37 dBm=5 Watts).
 - NOTE:** If you don't know the required dBm, set the output to 37 and adjust it to the minimum required power output during the startup and commissioning phase.
 - 2.1.2. Press [B] and verify the modem type is set to *9600 – 9600bps/12.5Khz*. If this needs to be changed, use the [spacebar] to toggle between different values.
 - 2.1.3. Press [C] and enter the *Receive* frequency of the radio. This must match the transmit frequency of the Master radio.
 - 2.1.4. Press [D] and enter the *Transmit* frequency of the radio. This must match the receive frequency of the Master radio.
 - 2.1.5. Press [esc] to return to the previous menu.
- 2.2. Press [B] to enter the Advanced Settings Menu.
 - 2.2.1. Verify and adjust the settings (as necessary) to match the screenshot below.

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```
=====
                          Advanced Settings Menu
=====

A) Soft-Carrier Dekey (ms)           0
B) RX Time-Out Enable                ON
C) RX Time-Out Delay (min)          20
D) TX Time-Out Status                OFF
E) TX Time-Out Delay (sec)           30
F) Datakey                            ON
G) RTSkey                             OFF
H) Push-To-Talk Delay (ms)           0
I) Clear-To-Send Delay (ms)          0
J) Automatic Freq. Correction        OFF
K) Switched Carrier (B modems)       OFF
L) RX Signal Attenuation              ON

Select a letter to configure an item, <ESC> for prev menu
```

2.2.2. Press [esc] to return to the previous menu.

2.3. Press [C] to enter the LBT Settings Menu.

2.3.1. Verify and adjust the settings (as necessary) to match the screenshot below.

```
=====
                          LBT Settings Menu
=====

Listen Before Transmit                OFF
LBT Behavior                          Listen on RX
Min Channel Wait (ms)                 0
Max Channel Wait (ms)                 100
Timeout (ms)                          500
Packet Action on Timeout               Drop
Clear Channel RSSI (dBm)              -100

Listen Before Transmit is not applicable in current configuration
Select a letter to configure an item, <ESC> for prev menu
```

2.3.2. Press [esc] twice to return to the main menu.

3. Press [C] to adjust the Device Configuration.

3.1. Press [F] to enter the Diagnostics Settings Menu.

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3.4. Press [D] to enter the Packet Settings Menu.

3.4.1. Verify that:

- A) COM1 Inter-Packet Gap 15 Character Times
- B) COM2 Inter-Packet Gap 15 Character Times
- C) Transparent RX Timeout (ms) 20

3.4.2. Press [esc] to return to the previous menu.

3.5. Press [E] to enter the Media Access Control Menu.

3.5.1. Verify that:

- A) Device Type Access Point
- B) Repeater Network FALSE
- C) Retry Count 1
- D) Time-to-live (s) 10

3.5.2. Press [esc] twice to return to the Main Menu.

4. Press [D] to adjust the Security Configuration.

4.1. Press [B] to enter the Wireless Security Menu.

4.1.1. Verify that:

- A) Encryption OFF
- C) Dlink Security OFF

4.1.2. Press [esc] to return to the previous menu.

4.2. Press [C] to enter the Device Security Menu.

4.2.1. Verify that:

- A) Local Security Local Login Required
- B) Telnet Access Telnet Access Allowed
- C) Web Access Web Access Allowed

4.2.2. Press [esc] twice to return to the Main Menu

5. Press [E] to adjust the Ethernet Configuration.

5.1. Press [A] to adjust the IP Configuration.

NOTE: This is only necessary if the site requires the radio to be configured for Ethernet access. Otherwise this can remain at the defaults to allow easy Telnet access.

NOTE: If you change the IP address you will lose your Telnet connection and you will have to configure your laptop to the new subnet.

5.2. Press [B] to enter the Bridge Configuration Menu.

5.2.1. Verify that:

- A) Bridge Mode Bridge is ON

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- B) Basic Bridge Filter Sel Broadcast/Unicast (ALL)

5.2.2. Press [esc] to return to the previous menu.

5.3. Press [C] to enter the Ethernet Port Config Menu.

5.3.1. Verify that:

- A) Auto Power Save ENABLE

5.3.2. Press [esc] to return to the previous menu.

5.4. Press [D] to enter the IP Payload 1 Config Menu.

5.4.1. Verify the screen matches the screenshot below.

```
IP Payload 1 Config Menu
=====
A) Commit Configuration
B) Restore Configuration
C) Status                Disable
D) Mode                  UDP Socket
E) Talk on               VRC-1
F) Listen to             ALL
G) Local Radio IP Port   0
H) Destination IP Address 0.0.0.0
I) Destination IP Port   0
   Current Socket State   Disabled

Select a letter to configure an item, <ESC> for prev menu
```

5.5. [E] same as [D].

5.6. [F] same as [D].

5.7. Return to the Main Menu.

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6. Press [F] to adjust the Serial Configuration.

6.1. Verify (and adjust as necessary) COM1 settings to match the screenshot below.

```
=====
                        COM1 Settings Menu
=====

A) Startup Mode           Console
B) Current Mode          Console
C) Data Baud Rate        9600 bps
D) Data Format            8 char bits, no parity, 1 stop bit
E) Talk on               VRC-1
F) Listen to             ALL

Select a letter to configure an item, <ESC> for prev menu
```

6.2. The settings for COM2 are device dependent and should be adjusted for proper communication. Typically, only the baud rate may need to be changed to match the baud rate set on the RTU.

```
=====
                        COM2 Settings Menu
=====

A) Mode                  RS232
B) Baud Rate             9600 bps
C) Format                8 char bits, no parity, 1 stop bit
D) Buffer                 Data Handling ON
E) Device                DCE
F) Talk on               VRC-1
G) Listen to             ALL

Select a letter to configure an item, <ESC> for prev menu
```

6.3. Return to the Main Menu.

7. Press [C] to enter the Device Configuration Menu.

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7.1. Press [B] to enter the Device Settings Menu.

7.1.1. Press [E] and toggle through the choices to reach *x710*.

7.1.2. Press [Enter].

The radio is now in x710 mode. You can type MENU to re-enter the Menu Mode.

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