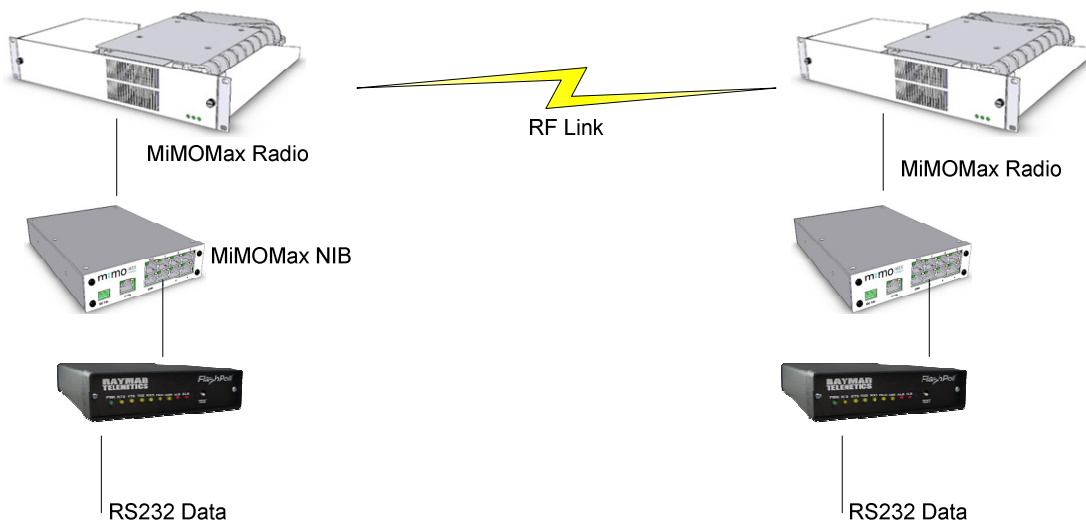


*4 Wire Audio NIB Connection to Raymar Telenetics FlashPoll Modem*

**Description**

This Application note describes how to use a Raymar Telenetics FlashPoll modem with the MiMOMax radio and NIB. Figure 1 shows a system diagram of the various components in the system.

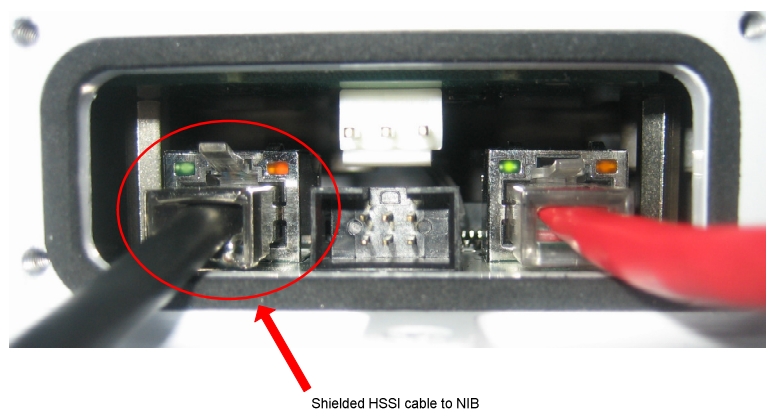


**Figure 1: MiMOMax - FlashPoll modem system diagram**

Radio software used for testing was 6.3. NIB firmware was 4WA-5B5-2C8-0100 (4WA-5B5-2C8 release 1.00)

**Connections on MiMOMax Radio**

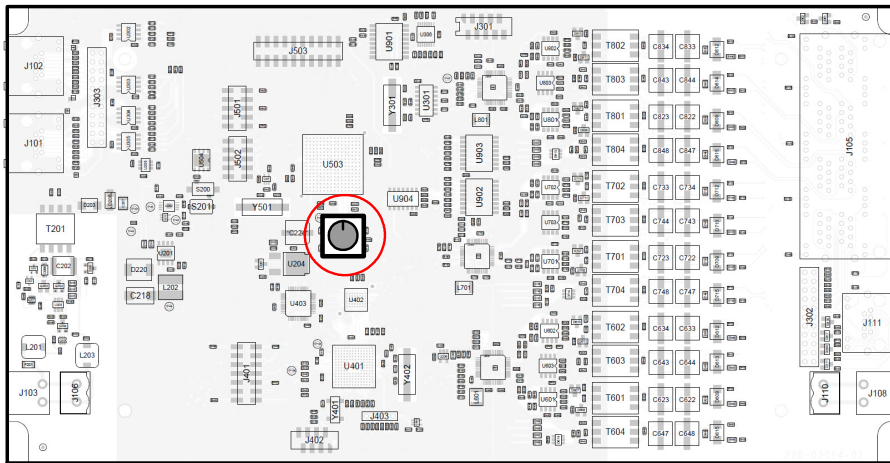
The MiMOMax radio is connected to the MiMOMax NIB via a shielded HSSI cable (provided). The shield of the HSSI cable is connected to the shield of the RJ-45 connectors and provides a ground connection between the two units. This cable is connected to the left hand side RJ-45 connector on the DIF (Digital Interface) module, see Figure 2.



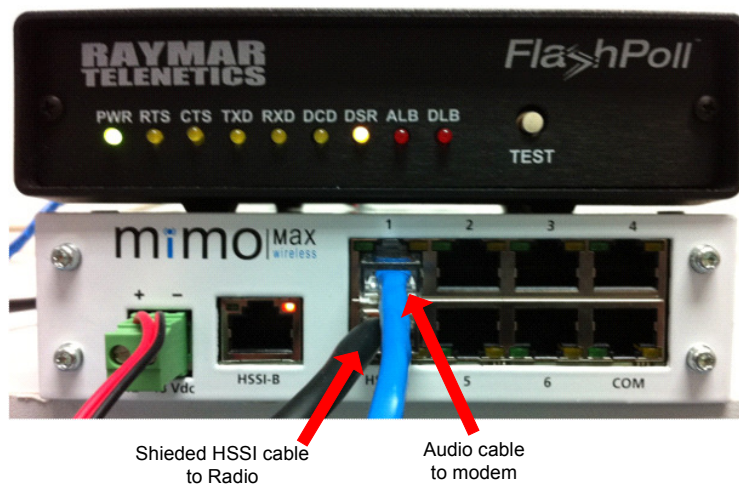
**Figure 2: MiMOMax Radio DIF connections**

**Connections on MiMOMax NIB**

The MiMOMax NIB is connected to the MiMOMax radio via a shielded HSSI cable mentioned in the previous section. The HSSI cable is plugged in to the port labelled “HSSI-A”. The 4 wire audio connection to the FlashPoll modem is via Cat-5 cable on port 1, see Figure 4. The NIB was configured in single channel 64kbit/sec PCM fixed mode (Rotary switch position “E”), for use with the modem in 9600bps mode, see Figure 3. For 4800bps operation, the 32k ADPCM option can be used (See the NIB user manual for details). In mode “E” NIB ports 2 and 3 are disabled and ports 4, 5 and 6 are 32k APCM ports under E&M control.



**Figure 3: Position of rotary switch mode selector**



**Figure 4: MiMOMax NIB Connections**

### Connections on Raymar Telenetics FlashPoll Modem

The 4 wire audio connections on the FlashPoll modem are via a 4 pin connector, pins 1 and 2 are audio input (Rx) and pins 3 and 4 are audio output (Tx), see Figure 5. Standard CAT-5 cable was used between the NIB and FlashPoll Modem. The Tx and Rx signals are each on a differential pair of the cable. A wiring diagram can be seen in Table 1.



Figure 5: RFL Modem Connections

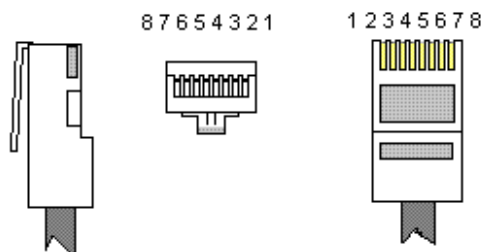


Figure 6: RJ-45 Plug

NIB – Port 5		FlashPoll	
Pin	Signal Name		Signal Name
1	E-Lead (SIGNAL)		
2	E-Lead (GND)		
3	Audio Input A	3	Audio Output
4	Audio Output A	1	Audio Input
5	Audio Output B	2	Audio Input
6	Audio Input B	4	Audio Output
7	M-Lead (SIGNAL)		
8	M-Lead (GND)		

Table 1: NIB to Modem Wiring

**FlashPoll Modem settings**

The DIP switches on the FlashPoll modem were not changes from their defaults which can be seen in Figure 7 (Off = white switch up). An explanation of the settings can be seen in Figure 8.



Figure 7: modem DIP switch settings

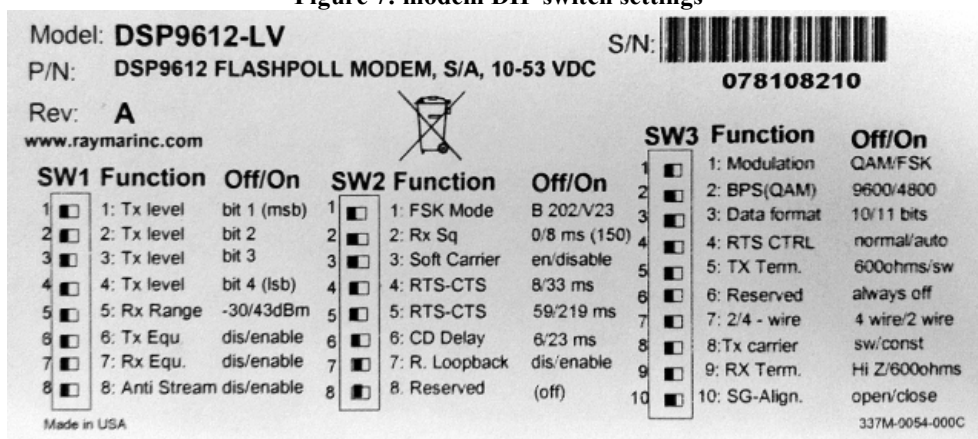


Figure 8: MODEM settings label

The modem was therefore set to the following:

- 0dBm Tx level (NIB supports -20 to +9dBm)
- -30dBm Rx range
- 9600 bps
- 600ohms
- 4 wire mode

**CCMS Settings**

Radio Software version 6.3 or higher is required. The NIB requires a High Speed Serial Interconnect (HSSI) connection to the MiMOMax radio. HSSI is offered on the DIF2 module. For correct operation, DIF2 must be selected on the System Page of the CCMS, see Figure 9.

Secondly, the HSSI protocol must be selected on the Serial Interfaces CCMS page, see Figure 10.

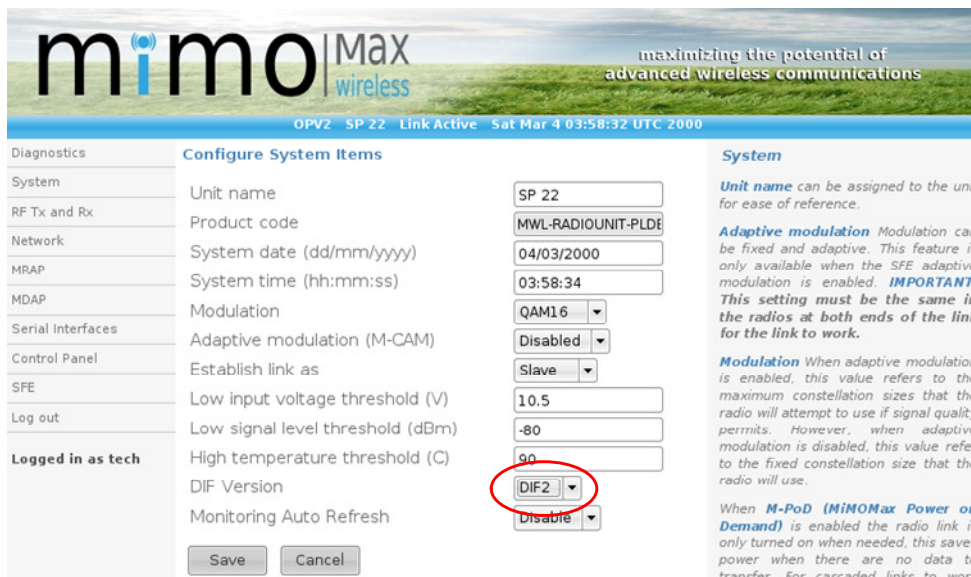


Figure 9: CCMS System page

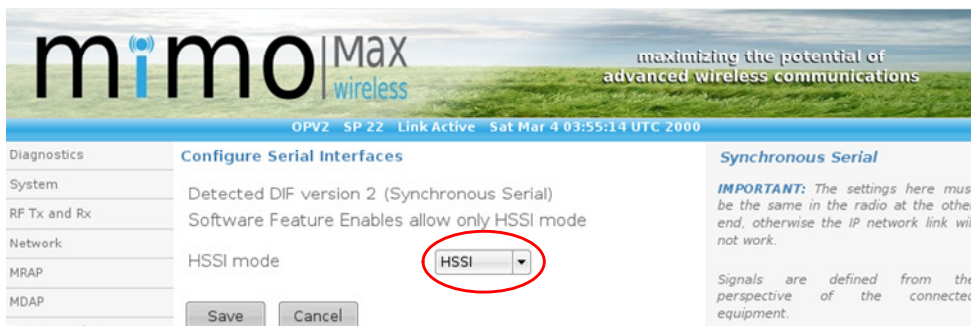


Figure 10: Serial Interfaces Page

### Power supplies and grounding

It is recommended that all units are grounded via appropriate ground connections.

The MiMOMax Radio and NIB can be powered from the same supply (10.5V – 32V DC) via appropriately rated cables.