Motorola® GM338

Rev 1.0 29-July-2002

RADIO:

Motorola GM338

REQUIREMENTS:

Nexion universal radio cable, Motorola Expanded Accessory Connector (not supplied) and 8 Expanded Accessory Connector Pins (not supplied), wired as follows…

Nexion NX1500 Cable End			
HDDB9	**Description**	**I/O**	**Cable Colour**
Pin 1	Receive Audio	In	Black
Pin 2	Transmit Audio	Out	Brown
Pin 6	Ground	I/O	Dark Green
Pin 8	Busy connection	In	Violet
Pin 9	Press to Talk (PTT)	Out	White
Pin 10	Mute connection	Out	Grey
Pin 12	Power	In	Lite Green
Pin 13	Local PTT monitor	In	BK/WH stripe

Motorola GM338 Cable End			
J0501	**Description**	**I/O**	**Cable Colour**
Pin 11	Flat/Filtered RX Audio	Out	**See Note 1**
Pin 5	Flat TX Audio	In	Brown
Pin 7	Ground	I/O	Dark Green
Pin 4	CSQ Detect	Out	Violet
Pin 14	Data PTT	In	White
Pin 6	RX Audio Mute	In	Grey
Pin 13	Power (Switched)	Out	Lite Green
Pin 12	Clear To Send	Out	BK/WH stripe

GM338 TRANSCEIVER

Step 1 Program the GM338 as required (i.e. Tx/Rx frequencies, etc)

Step 2 Confirm the GM338 is fully functional (i.e. test Tx/Rx and adjust if required)

Step 3 If **no** CTCSS is required, adjust microphone deviation for 5Khz (on a 25Khz channel) or 4.5Khz (on a 25Khz channel) if using CTCSS

Step 4 Adjust sub audio deviation (if used) for 500Hz (on a 25Khz channel)

Step 5 Using the Motorola CPS software, check the following transceiver parameters are set in the Radio Configuration, Accessory Pins Tab section:

Accessory Package: Default

Pin # 3 External Mic PTT (input), Active Low, Debounce Enable

Pin # 4 CSQ Detect (Output), Active Low

Pin # 6 RX Audio Mute (Input), Active Low

Pin # 12 Clear To Send (Output), Active Low

Pin # 14 Data PTT (Input), Active Low,

Step 6 Using the Motorola CPS software check the following transceiver parameters are set in the Radio Configuration, Accessory Configuration Tab section:

Accessory Power Up Delay (ms) 500

Debounce Duration (ms) 25

Rx Audio Type: Flat Audio

Data PTT audio Source: Flat Tx Audio

NX1500 MODEM

Step 7 Connect the GM338 to the Nexion modem using the universal radio cable (wired as above), connect to a suitable power source and switch on.

Step 8 Connect the PC to the Nexion modem. This serial cable can be purchased from Nexion or assembled using the instructions in the Nexion Modem Installation Guide. Using any terminal program set the appropriate Com Port to 19,200bps, 8 Data, 1 Stop and No Parity (default). Also ensure Hardware hand shaking is enabled. To check if connected properly, type ATI, which will return the version and serial number of the attached modem

Step 9 Using the terminal program, set the TX modulation level by typing ATS115=3 <ENTER>, then type AT&W <ENTER>.

Step 10 Set the TX lead in duration to 100 by typing ATS111=100 <ENTER>, then type AT&W <ENTER>. 100mS is sufficient for direct radio-to-radio data communications, whereas 250mS to 500mS may be required when used through a repeater. A lower TX lead in duration is possible, however manual RX settings are required (see step 11).

Step 11 To enable Data Mute (if required), type ATS124=0 (Active Low default) <ENTER>. Then use the ATS125 command to specify the type of data mute: ATS125=1 for normal data mute or ATS125=2 for voice mute. When completed, type AT&W <ENTER> to save settings.

Step 12 Set the TX modulation level by typing ATS115=3 <ENTER>, then type AT&W <ENTER>

Step 13 Modem RX – For typical applications, the modem receive level adjust should remain at 0 (default). To increase performance when using a shorter transmit lead in duration, manually set the level in accordance with the AT%Q and S114 register instructions in the Nexion Modem Installation Guide.

Step 14 Program the modem as required, in particular Fleet, Group and Individual addresses. See Nexion Modem Installation Guide for further programming information.

GENERAL

Step 15 To confirm the changes made to the modem have been saved, switch the modem's power off (wait 2 seconds) and back on. Using the terminal program, type AT&V, which will display all the S register settings. If any settings differ, repeat steps 7 through 14.

Step 16 Key the transmitter by using the AT&T3 <ENTER> command on the PC terminal program (Modem will transmit a 1.5Khz test tone).

Step 17 Modem TX – Monitor the transmit frequency on a communications test set and note the TX signal purity. With the S115 register set to 3, there should be approximately 3.5Khz deviation on a 25Khz spaced channel. If there is any transmitted audio signal distortion, increase the value of register S115 (i.e. this increases the level of attenuation) until the transmitted signal is 'clean' and minimal audio distortion is observed.

Step 18 Key the transmitter by using the AT&T2, AT&T4, etc command on the PC terminal program as this will key the transmitter with different test tones. Perform Step 17 again; making sure the signal distortion is within the GM338 specification. Use AT&T to de-key the transmitter.

Step 19 Modem test – Using another modem to transmit data, use the AT%Q reading to determine level and quality as per the Nexion Modem Installation Guide.

Step 20 After all tests have been completed, reset the modem with an ATZ <ENTER> command.