

IRC PATHFINDER RADIO

(07/01/2000)

Interface protocol between control head and radio.

Format : Asynchronous serial data
 9600 BAUD
 8 data bits (sent LSB first)
 No parity
 1 start bit, 1 stop bit

START	C/D	D6	D5	D4	D3	D2	D1	D0	STOP
0	1=C 0=D	COMMAND NUMBER OR DATA VALUE 0 TO 127 (dec)							1

C/D 1 - A COMMAND IS BEING SENT
 0 - A DATA VALUE IS BEING SENT

A message consists of a command byte followed by 0 to 16 data bytes

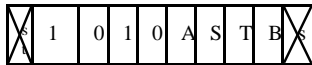
Commands are grouped as :

- 0X - LCD
- 1X - Settings
- 2X - Lamps
- 4X - Modes

The bytes are sent back to back. A break of more than 50mS between consecutive bytes will cause the radio to ignore the command.

Messages to control head

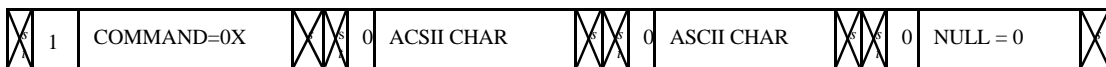
Update Lamps and send pressed key - This message is issued by the radio every 100mS



- A 1 : AUX LAMP ON
- S 1 : SCANNING
- T 1 : TRANSMITTER ON
- B 1 : CHANNEL IS BUSY

LCD (commands 00 to 0FHex)

Write ASCII string to LCD



- Command
- 0- Writes to the next N positions on the LCD until a NULL character (dec=0) is received
 - 1-Clears line 1 and writes on it
 - 2-Clears line 2 and writes on it
 - 3-Write channel identification string
 - 4-Writes transmit call identification string
 - 5-Writes Function key identification string
 - 6-Writes received call identification string

Goto XY



Sets up the LCD position to write to (X = column 0 to 15, Y = Row 0 or 1)
Xposn occupies 5 bits, Yposn occupies 2 bits

Clear LCD



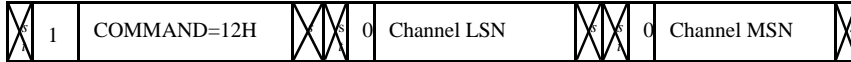
Clears the LCD and returns its position to 0,0

SETTINGS (commands 10 to 1F Hex)

Volume Setting (90)



Channel Setting (92)

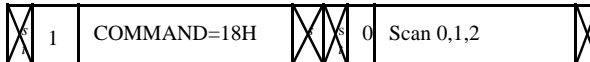


Channel LSN and Channel MSN make up a byte with the value 1 to 200 dec

Mute Setting (94)



Scan Setting (for a channel - set scan mode) (98)



Scan has the following values : 0 - OFF, 1 = ON, 2 = PRIORITY, 3=ACS, 4 =ACS+PRIORITY

Call Number (mode = call) (99)



MODE COMMANDS (Commands 40 to 4F Hex) - Radio tells head which mode it is in

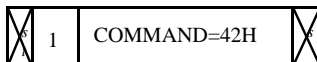
Set VolumeMode (C0)



Set Channel Mode (C1)



Set Mute Mode (C2)



Set Call Number - user will select the call to be sent (C3)



Set Scan Mode (C4)



Set Group Mode (C5)



Not Programmed (CA)

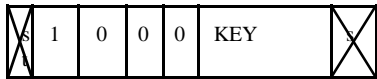


OFF Mode (CB)



Messages from Control Head to Radio

KEYS (key which has been pressed)



The numerical value of the key which has been pressed

Volume (VOL)	1	
Channel (CH)	2	
Scan	3	
Clear / No	4	
F1 / Mode	5	
F2 / Yes	6	
F3	7	
F4	8	
Display F1	9	Long F1
Display F2	10	Long F2
Display F3	11	Long F3
Display F4	12	Long F4
Off	13	Long Volume
Nuisance Scan	14	Long Scan

COMMANDS (30 to 3FHex) These are commands which are sent by the control head or a computer.

Channel Up (B0)



Channel Down (B1)



Volume Up (B2)



Volume Down (B3)



Mute Up(B4)



Mute Down (B5)



Scan Setting Up (B6)



Call Number Up (B8)



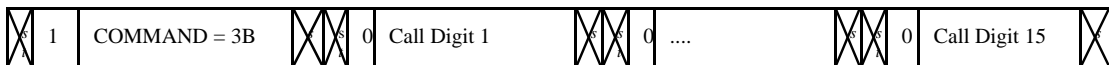
Call Number Down (B9)



Issue a call (Computer only)



Issue the call sequence (dial call)



Group Up (BC)



Group Down (BD)



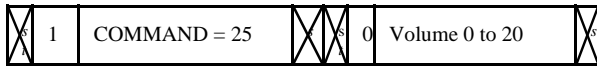
COMMANDS TO RADIO (20 to 2F Hex) These are commands which are sent by a PC or controller.

Set Channel



Channel number is made up of the MSN and the LSN which together form a number 1 to 200

Set Volume



Set Mute



Scan On



Scan Off



Reprogram



Read the radio



Reference Frequency Up (In transmit only)



Reference frequency Down (In transmit only)



Other Data from Radio

These are commands which can be sent to a controller or a PC.



Scan stopped on channel
Call received