



SRT PAGING & DATA RECEIVER MANUAL



Covering the following:
SRT150R, SRT280R, SRT320R, SRT450R & SRT950R

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1.0 INTRODUCTION

The SRT Series are high quality receivers with an RS232 output and two addressable digital outputs. Designed for the Paging and Data markets, the products are available in the VHF, 280MHz, 320MHz, UHF & 930MHz bands.

The SRT series feature flash processor to allow easy program upgrades or changes should they be required. The receiver is built into a small, milled aluminium housing which can be DIN or panel mounted.

1.1 APPLICATIONS

The SRT receivers can be used in wide or local area paging and data systems.

Applications include; information receivers, wireless local or wide area sign control, point and multi-point data distribution, remote control of systems & equipment, telemetry and transmitter site monitoring. For suitable local area transmitters, see the ART series of Data

& Paging transmitters.

1.2 SPECIFICATION:

The SRT products have been developed for use in areas of high interference and low signal levels, but where the correct reception of data is still critical. Particular attention has been given to the sensitivity, Intermodulation, selectivity, blocking and spurious response parameters to ensure the product will perform in even the worst areas.

1.3 RS232 SERIAL PORT

The SRT receivers have a programmable RS232 port that may be programmed for 1200, 2400, 4800 or 9600bps with various data and stop bits.

1.4 PROGRAMMING

The SRT Series can be programmed directly from a PC. Programmable parameters include; RF channel, POCSAG or Data mode, Serial port set-up & Power save functions.

1.5 RSSI

The Receivers Signal Strength is measured within the receiver and the DC voltage representing the level is fed to both the internal processor and outside via the 15W "D" connector. The internal processor converts this voltage to a uV value which can be read by a host PC or microprocessor to provide link conditions during set-up.

1.6 SOFTMODEM

The SRT features a "soft modem" which offers unparalleled performance and flexibility over a wide range of speeds and formats and enables future formats to be downloaded from a PC. The current firmware supports; 150-2400bps FFSK with Bell202 & V23 supported, 150-4800 FSK, 4800bps GMSK & 512, 1200 & 2400 POCSAG.

1.7 REMOTE SWITCH APPLICATIONS

The SRT Receivers have two programmable open collector outputs and in the paging mode they can be programmed with unique addresses for stand alone remote switch operation within a paging scheme. The switches can be operated in an On/Off, Momentary or programmable timed mode.

1.8 EXTERNAL AUDIO OUTPUT

A buffered audio output has been provided where the internal modem is not required.

1.9 EXTERNAL DIGITAL OUTPUT

The external digital output is direct FSK, that can be programmed between 150-4800bps.

1.10 PAGING MODE

When used as a Paging receiver, the SRT's internal "softmodem" can be programmed for speeds of 512, 1200 & 2400bps.

1.11 DATA MODE

When used as a data receiver, the SRT's "softmodem" can be programmed to receive data between 150 - 2400bps FFSK with V23 & Bell 202 supported or 4800bps GMSK.

1.12 POWER SAVE

The Receivers may be powered down to reduce current consumption using the sleep mode, this can be enabled by selecting a combination of the RTS and program enable lines.

1.13 PROGRAMMABLE POWERSAVE

The microprocessor controls the on/off function of the receiver and after a pre-programmed time the MPU will switch on the receiver to look for a carrier. If a carrier is not detected, the transceiver goes back into sleep mode. If during the time the transceiver is awake a carrier is received, the unit will stay awake. After the carrier drops out, the receiver will stay awake until the programmed resume time elapses. Once the resume time has elapsed the transceiver will go back into sleep mode. The save ON/OFF and resume time are all programmable via the PC program.

1.14 EXTERNAL POWERSAVE

In the external power save mode the ON/OFF function of the receiver is controlled by the host via the RTS & DTR line.

1.15 STATUS LED's

The SRT Receivers have LED's to indicate the status of the product.

These include; SYSTEM, BUSY, DATA, RXD, TXD, DCD, RTS & DTR.

The system LED is used to detect any internal product error and will flash a code to indicate the error and the radio will reset. The fault can then be determined simply by counting the number of flashes & looking up the error code in the installation, operation and programming manual. If the error persists the radio will stay in the error mode permanently.

1.16 FREQUENCY RANGES

Although the defined frequency ranges in the specification cover most Paging & Data applications. We can supply product against special orders anywhere between 130 - 950MHz.

2.0 TECHNICAL SPECIFICATIONS

2.1 GENERAL

Power Requirement:	12V Nominal (10 -16VDC) or 5VDC
Protection:	Internal fuses
Number of Channels:	1 programmable
Channel Spacing:	25KHz (optional 12.5 , 20 & 30KHz)
Operating Temperature:	-30deg C to +60Deg C.
Humidity:	0 - 95% Non-Condensing
Frequency stability:	<2.0ppm -25deg C to +60deg.C
Construction:	Milled aluminium enclosure
Size:	54mm W, 125mm H, 48mm D
Weight:	280gms
Connectors: Interface	15way condensed "D"
Antenna	BNC
Approvals:	Will Meet current UK, European, USA, Canadian and Australian specifications.

2.2 RECEIVER:

Frequency Range:	SRT150R	138 - 175MHz
	SRT280R	260 - 285MHz
	SRT320R	320 - 340MHz
	SRT450R	406 - 512MHz
	SRT950R	820 - 950MHz
Programmable Bandwidth:	SRT150/280/320R	5MHz
	SRT450R	10MHz
	SRT950R	5MHz
Sensitivity:	Better than -120dBm for 99% decodes	
Blocking:	>90dB relative to 1 μ V	
Intermodulation: Spurious & Image response:	>60dB	
	VHF & UHF	>75dB
	900MHz	>65dB
Adjacent channel:	>70dB at 25KHz	
IF frequencies:	45MHz and 455KHz	

Spurious emissions: <2nW
Mute response time: <3msec
Received Signal Strength (RSSI): Range -120dBm to -40dBm
Output voltage 0-5VDC

2.4 SERIAL INTERFACE

Type: RS232 with a programmable serial baud rate of 1200, 2400, 4800 or 9600bps.
Data Bits: Programmable 7 or 8.
Parity: Programmable Odd, Even, or None.
Stop Bits: Programmable 1 or 2.

2.3 AUDIO MODE

Audio Output: Flat 150mV peak-peak
Frequency Response: DC - 3KHz (12.5KHz Channel)
DC - 4.5KHz (25KHz Channel)

2.5 EXTERNAL DIGITAL MODE

Programmable Data Rates: 150 - 4800bps

2.6 DATA MODE

Signalling Formats: V23, Bell202, FFSK, 2 level FSK, 4 Level FSK & GMSK.
NRZI: On or Off
Baud Rate: 150 - 4800bps
Bit Error Rate: 2400 baud, less than 1 in 10⁻³ at -120dBm
4800 baud, less than 1 in 10⁻³ at -117dBm

2.7 POCSAG PAGING MODE

Signalling formats: 512, 1200 & 2400 POCSAG
POCSAG Decoder: Better than 99% decoded for -120dBm at 512bps

2.7.1 Programmable Addressing

Text address: 4 Addresses & Groups

Digital outputs: 1 Address & Group per output

2.7.2 Programmable Text Options

Start of text character: None or 1

Start of text ch. mode: Keep, Delete, Insert

End of text character: None or 1

End of text ch. mode: Keep, Delete Insert

Suppression of nulls: On or Off

2.8 ACCESSORIES

Antennas:

Rubber helical

¼ wave whip antenna

Power supplies:

110/240AC to 12VDC PSU

Programming software:

DOS SRT Programming software

WIN95 SRT Programming software

Mounting Bracket

ART54/MB Individual mounting bracket

In the interest of improvement the above specifications are subject to change without notice.

3.0 OPERATION & INTERFACE

3.1 CONNECTION DETAILS

Control signals are made to the receiver by the 15 way “condensed D” connector. Pin connections are as follows:

1	RXD
2	TXD
3	DCD
4	DTR
5	RTS
6	Ground
7	Ground
8	Ground
9	Ground
10	RX audio
11	Digital output 0
12	Digital output 1
13	RSSI voltage
14	+5V supply (note 1)
15	+12V supply (note 1)

Note 1: The receiver is supplied either for use with a 5V power supply or for use with a 12V supply, do not connect a 5V supply if the unit has been supplied for use with a 12V supply.

3.2 POWER SUPPLY

The receivers can be supplied to operate either from a 5V or 12V power source, this option is set by the fitting or depopulation of certain components at the time of manufacture, for this reason the correct power supply for which the unit was manufactured must be used. When using a 5V power source ensure that the supply is well regulated and within the limits 4.75 to 5.25V. A 12V supply need not be regulated and may lie in the range 9V to 15V.

3.3 RS232 SIGNALS

RXD and TXD are the RS232 level serial connections, RXD is the received data output, TXD is the serial data input used during programming. Note that if LK1 on the PCB is not bridged the RS232 driver is switched off if DTR and RTS are inactive. In this condition RXD and DCD will fall to 0V instead of a normal RS232 level.

The mode of the receiver is controlled by RTS and DTR as follows:

DTR	RTS	MODE
low	low	Sleep
low	high	Program
high	low	Receive
high	high	-

When connecting to a PC to use the set up program TXD, RXD, DTR and RTS and ground connections are required, the PC programme sets DTR and RTS to the correct levels during programming.

For normal receive operation DTR must be connected to a signal of +3V to +12V, RTS and TXD may be left disconnected or connected to ground. Receive data is then output on RXD.

DCD provides an indication that a carrier with valid modulation is being received.

3.4 RX AUDIO OUTPUT

The RX audio output delivers the analogue received audio signal, the signal is muted in the absence of a carrier.

3.5 RSSI OUTPUT

The RSSI output provides an indication of the received signal strength, the DC signal varies in proportion to the logarithmic value of the signal strength over the range 0 - 5VDC. Its level is not calibrated and its value cannot be guaranteed from device to device.

3.6 DIGITAL OUTPUTS

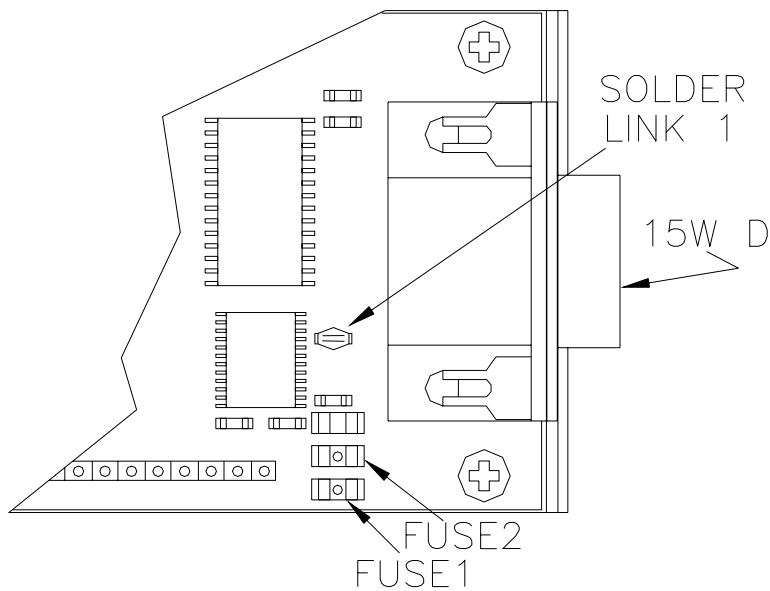
The digital outputs are open collectors that can be controlled via

3.7 FUSES & LINKS

Fuse 1 12VDC

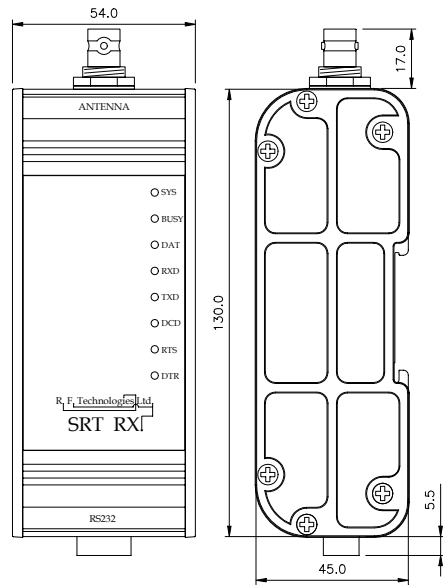
Fuse 2 5VDC

Link 1 LK1



3.8

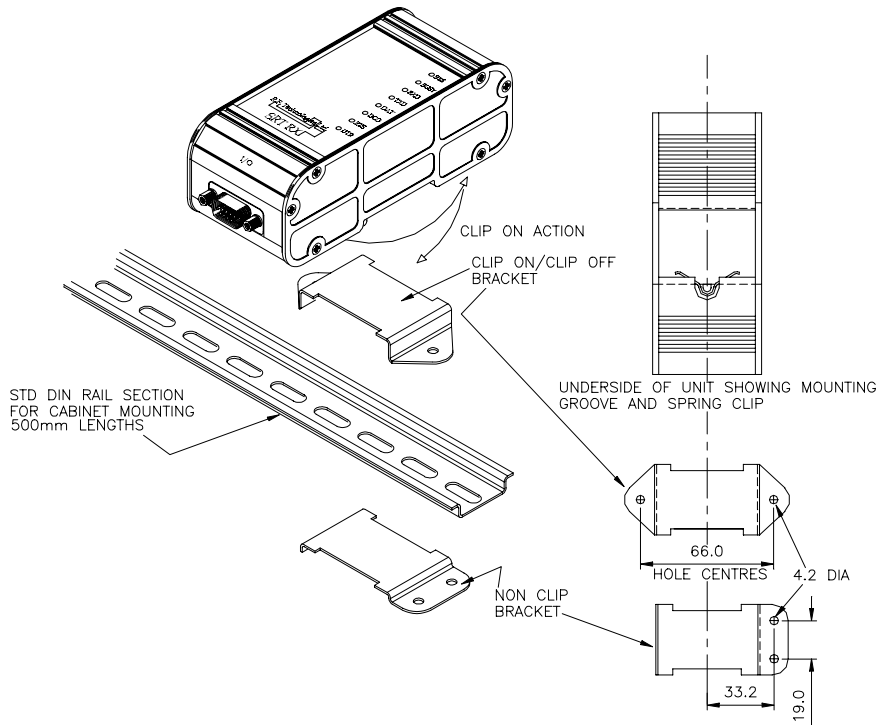
DIMENSIONS



3.9

MOUNTING

The SRT is designed for DIN rail mounting to a standard DIN rail or to a short clip bracket. Alternatively, we have a non-clip bracket, that is inserted into the DIN rail slot and the bracket is screwed to the wall/flat plate with the module attached. Once fixed the unit be removed without unscrewing the bracket.



4.0 PROGRAMMING

4.1 SETUP PROGRAMME

The DOS set up programme should be copied to a suitable hard drive directory on your PC, the files required are CMP.EXE, DEFAULTS.DAT and RP.CFG. To start the programme open a DOS window and type "CMP", or alternatively to set the programme up for a different screen or communications port type "CMP/C" and follow the instructions given.

Note that the CMP programme is used to set up several other types of radio besides the paging receiver and so some fields may seem irrelevant.

On starting the programme will load and display the opening menu.

4.2 OPENING MENU

```
SRT RECEIVER FORMAT PROGRAMME V 1
COMPATIBILITY NUMBER 2

PROGRAM RADIO
READ RADIO
LOAD PROGRAM FROM DISC
SAVE PROGRAM TO DISC
EDIT PROGRAM
EDIT NOTES
ERASE PROGRAM
CALIBRATE
QUIT

USE CURSOR KEYS TO MOVE AROUND SCREEN
SELECT OPTIONS WITH ENTER KEY
```

"Arrow Keys" are used to move round the menu and the RETURN key is used to make the selection required. Whenever a programme is produced for a radio, it may be stored and retrieved from disc by using the SAVE TO DISC and LOAD FROM DISC options.

4.2.1 PROGRAMMING/READING RADIO

The radio data can be read using the "Read Radio" function or programmed with the "Program Radio" function. Reading/programming progress is shown on the screen, when programming/reading has finished the screen reverts to normal.

4.2.2 VERSION NUMBER & COMPATIBILITY MESSAGE

If new fields are added or changes are made to the PC program, the version number changes but in most cases a new program will program older radios. To complicate matters more, over time there will be changes and upgrades to the firmware in the radio which may not be compatible with older PC programming software. To overcome this, each modem has a compatibility serial number which is changed at the factory if and when the firmware changes. If the product and PC software are not compatible, the PC will not read or write to

the modem but will display a compatibility error message. If this happens a different edition of PC programming software with the same compatibility number may be required.

4.2.3 EDIT NOTES

The PC program has a text editor accessed from the main menu that will allow the user to enter the unit's hard link configuration and add notes if required. The file has defaults but these can be over typed and changed as required.

4.3 MAIN EDIT MENU

The from the edit menu the "OPERATING MODE" mode can be selected, this selection will display one of four menus, the common elements are outlined below

4.4 MENU COMMONALITIES

4.4.1 FREQUENCY RANGE

The frequency range must be set to encompass the band of frequencies that the receiver has been aligned for. For paging applications the MPT1329 and MPT1411 settings may be ignored.

4.4.2 RX FREQUENCY

The RX frequency can be typed in or if one of the UK bands is selected, the selection of a channel number will display the frequency.

4.4.3 CHANNEL RESOLUTION

The operating frequency of the receiver must be an integer multiple of the channel resolution, the resolution can be set to 5 or 6.25kHz. If either can be multiplied up to give the operating frequency show preference to 6.25kHz.

4.4.4 SLEEP MODE

Sleep mode can be turned on or off, if sleep mode is enabled the processor and peripheral circuits are shut off when DTR and RTS are both de-activated. Note that if solder link LK1 on the main circuit board is bridged the RS232 driver chip remains active during sleep. If the link is left open the RS232 driver shuts off when DTR and RTS are de-activated even if sleep mode is disabled in software.

4.4.5 POWER SAVE OPTIONS

The save on, save off and resume time are all programmable parameters to provide further power saving features.

4.4.5.1 Save On Time

This parameter sets the time the receiver is switched off for during the power save cycle (power save on). The Save On Time is programmable from 0 - 1500ms in 100ms steps. A setting of 0 disables power save.

4.4.5.2 Save Off Time

This parameter sets the time the receiver is switched on for during the power save cycle (power save off). The Save Off Time is programmable from 100 - 1500ms in 100ms steps.

4.4.5.3 Save Resume Time

When a carrier is received during power save mode, the unit will come out of its power save mode to receive the signal. The resume time is the time the receiver stays active after the received carrier has dropped out, i.e. the time power save mode is deferred. This is programmable between 0 - 255 seconds in 1 second steps.

4.4.6 SERIAL BAUD RATE, DATA BITS, PARITY & STOP BITS

The format of the serial port signal is set with these options, note that a setting of 7 data bits with no parity will always result in 2 stop bits being output regardless of the setting of the STOP BITS option.

4.5 PAGING RECEIVER MENU

```
EDITING FILE 'NONAME'
OPERATING MODE          PAGING RX          RETURN TO MAIN MENU
FREQUENCY RANGE (MHz)  U 406-512          SERIAL BAUD RATE      9600
.....                  SERIAL DATA BITS      8
RX FREQUENCY (MHz)    452.25000          SERIAL PARITY         NONE
CHANNEL RESOLUTION    6.25kHz             SERIAL STOP BITS      1
RADIO BAUD RATE        1200          DIGITAL OUTPUT MODE  N/O
.....                  PAGER TEXT ADDRESS 1 1048632 GROUP ANY
.....                  PAGER TEXT ADDRESS 2 0      GROUP A
.....                  PAGER TEXT ADDRESS 3 0      GROUP A
.....                  PAGER TEXT ADDRESS 4 0      GROUP A
.....                  PAGER DIG OP ADDRESS 1048640 GROUP ANY
SLEEP MODE             ENABLED          POCSAG SOT CHARACTER -
SAVE ON TIME (msecs)   0          .....
SAVE OFF TIME (msecs) 100         POCSAG EOT CHARACTER 0D
SAVE RESUME TIME (secs) 0          POCSAG EOT MODE      INSERT
SUPPRESS POCSAG NULLS NO
USE CURSOR KEYS TO MOVE AROUND SCREEN
SELECT OPTIONS WITH ENTER KEY
```

4.5.1 RADIO DATA RATE

This field must be set to match the baud rate of the incoming POCSAG paging signal. 512, 1200 or 2400 baud may be set.

4.5.2 DIGITAL OUTPUT MODE

The two digital outputs can be programmed for normally open (N/O) or normally closed (N/C) operation. The outputs are not isolated relay contacts but open drain mosfet outputs referenced to ground, they are rated at 30V maximum switching voltage and 100mA current. Switching of inductive loads should be avoided.

4.5.3 PAGER TEXT ADDRESS 1 - 4

The receiver will output text for any of the four text addresses programmed, the group code (also known as beep type) can be set such that text is only output for a specific group code or for all group codes. An address is disabled by setting it to zero.

4.5.4 PAGER DIG OP ADDRESS

Commands for the digital outputs are encoded using text messages, the address to which the messages must be sent is set by this field, note that this address must be different from the text addresses. As with text messages the receiver can be programmed to respond to a specific group code or to all group codes.

4.5.5 POCSAG SOT CHARACTER/POCSAG SOT MODE

This field allows various operations on a start of text character, the SOT MODE field only appears if a SOT character has been entered. The SOT character must be entered as a hex value. If the SOT mode is set to keep or delete no text is output until the first occurrence of the SOT character, if the mode is keep the SOT character and the following text are output, if the mode is delete only the following text is output. If the mode is set to insert the SOT character is inserted at the start of each received text message.

4.5.6 POCSAG EOT CHARACTER/POCSAG EOT MODE

This field operates similarly to the SOT options for an end of text character. If the mode is keep or delete all text is output until the EOT character is encountered, if the mode is keep the EOT character is output, if the mode is delete it is not. If the mode is insert the EOT character is inserted at the end of each text message.

4.5.7 SUPPRESS POCSAG NULLS

Unused spaces in POCSAG messages are padded with null characters, if this option is set to YES these null characters are suppressed.

4.5.8 DIGITAL OUTPUT MESSAGES

The digital outputs are controlled using two character messages, the first character should be ascii "0" or ascii "1" (hex 30 or hex 31) to address output 0 or 1 respectively, the second character determines the output action as tabulated below. Note that the outputs are open collector, where the table indicates that an output is ON the open collector output will be conducting producing a logical "low", to see a logical "high" the output must be OFF and pulled up (to no more than 30V) using a suitable pull up resistor. The actions outlined below assume that the digital outputs are programmed for normally open (N/O) operation, setting normally closed (N/C) operation inverts all the actions.

In summary all characters in the range 00 to 3F hex will turn an output off, the character 40 will turn it on indefinitely. Characters in the range 41 to 5F will pulse an output on for 10ms times the value of the 5 lsb of the character, characters in the range 61 to 7F will pulse an output on for 1s times the value of the 5 lsb of the character.

Note that POCSAG text messages use 7 bit characters, and therefore the binary form shown below does not have an 8th bit.

It is permissible to string commands together to control both outputs simultaneously, for example the message

0a1b (hex 30,61,31,62)

turns on output 0 for 1 second and output 1 for 2 seconds.

HEX	BINARY	ACTION
00	0 0 0 0 0 0 0	OFF
.		
.		
to		ALL CHARACTERS IN THE RANGE
.		00 TO 3F HEX TURN OUTPUT OFF.
.		
3F	0 1 1 1 1 1 1	OFF
40	1 0 0 0 0 0 0	ON PERMANENTLY
41	1 0 0 0 0 0 1	ON FOR 10ms
42	1 0 0 0 0 1 0	ON FOR 20ms

43	1 0 0 0 0 1 1	ON FOR 30ms
44	1 0 0 0 1 0 0	ON FOR 40ms
45	1 0 0 0 1 0 1	ON FOR 50ms
46	1 0 0 0 1 1 0	ON FOR 60ms
47	1 0 0 0 1 1 1	ON FOR 70ms
48	1 0 0 1 0 0 0	ON FOR 80ms
49	1 0 0 1 0 0 1	ON FOR 90ms
4A	1 0 0 1 0 1 0	ON FOR 100ms
4B	1 0 0 1 0 1 1	ON FOR 110ms
4C	1 0 0 1 1 0 0	ON FOR 120ms
4D	1 0 0 1 1 0 1	ON FOR 130ms
4E	1 0 0 1 1 1 0	ON FOR 140ms
4F	1 0 0 1 1 1 1	ON FOR 150ms
50	1 0 1 0 0 0 0	ON FOR 160ms
51	1 0 1 0 0 0 1	ON FOR 170ms
52	1 0 1 0 0 1 0	ON FOR 180ms
53	1 0 1 0 0 1 1	ON FOR 190ms
54	1 0 1 0 1 0 0	ON FOR 200ms
55	1 0 1 0 1 0 1	ON FOR 210ms
56	1 0 1 0 1 1 0	ON FOR 220ms
57	1 0 1 0 1 1 1	ON FOR 230ms
58	1 0 1 1 0 0 0	ON FOR 240ms
59	1 0 1 1 0 0 1	ON FOR 250ms
5A	1 0 1 1 0 1 0	ON FOR 260ms
5B	1 0 1 1 0 1 1	ON FOR 270ms
5C	1 0 1 1 1 0 0	ON FOR 280ms
5D	1 0 1 1 1 0 1	ON FOR 290ms
5E	1 0 1 1 1 1 0	ON FOR 300ms
5F	1 0 1 1 1 1 1	ON FOR 310ms
60	1 1 0 0 0 0 0	ON FOR 0s (DO NOT USE)
61	1 1 0 0 0 0 1	ON FOR 1s
62	1 1 0 0 0 1 0	ON FOR 2s
63	1 1 0 0 0 1 1	ON FOR 3s
64	1 1 0 0 1 0 0	ON FOR 4s
65	1 1 0 0 1 0 1	ON FOR 5s
66	1 1 0 0 1 1 0	ON FOR 6s
67	1 1 0 0 1 1 1	ON FOR 7s
68	1 1 0 1 0 0 0	ON FOR 8s
69	1 1 0 1 0 0 1	ON FOR 9s
6A	1 1 0 1 0 1 0	ON FOR 10s
6B	1 1 0 1 0 1 1	ON FOR 11s
6C	1 1 0 1 1 0 0	ON FOR 12s
6D	1 1 0 1 1 0 1	ON FOR 13s
6E	1 1 0 1 1 1 0	ON FOR 14s
6F	1 1 0 1 1 1 1	ON FOR 15s
70	1 1 1 0 0 0 0	ON FOR 16s
71	1 1 1 0 0 0 1	ON FOR 17s
72	1 1 1 0 0 1 0	ON FOR 18s
73	1 1 1 0 0 1 1	ON FOR 19s
74	1 1 1 0 1 0 0	ON FOR 20s
75	1 1 1 0 1 0 1	ON FOR 21s
76	1 1 1 0 1 1 0	ON FOR 22s
77	1 1 1 0 1 1 1	ON FOR 23s
78	1 1 1 1 0 0 0	ON FOR 24s
79	1 1 1 1 0 0 1	ON FOR 25s
7A	1 1 1 1 0 1 0	ON FOR 26s
7B	1 1 1 1 0 1 1	ON FOR 27s
7C	1 1 1 1 1 0 0	ON FOR 28s
7D	1 1 1 1 1 0 1	ON FOR 29s
7E	1 1 1 1 1 1 0	ON FOR 30s
7F	1 1 1 1 1 1 1	ON FOR 31s

4.6 DATA RECEIVER MENU

```
EDITING FILE 'NONAME'
OPERATING MODE          DATA RX          RETURN TO MAIN MENU
FREQUENCY RANGE (MHz)  U 406-512          SERIAL BAUD RATE      9600
.....                  ..                  SERIAL DATA BITS     8
RX FREQUENCY (MHz)     452.25000        SERIAL PARITY         NONE
CHANNEL RESOLUTION     6.25kHz           SERIAL STOP BITS      1
RADIO BAUD RATE        1200                .....
RADIO DATA BITS       8                    .....
RADIO PARITY           NONE                 .....
RADIO STOP BITS        1                    .....
FFSK TONE SET          BELL 202          .....
SYNC/ASYNC             SYNCHRONOUS       .....

SLEEP MODE             ENABLED          .....
SAVE ON TIME (msecs)   0                    .....
SAVE OFF TIME (msecs) 100                   .....
SAVE RESUME TIME (secs) 0                   .....

USE CURSOR KEYS TO MOVE AROUND SCREEN
SELECT OPTIONS WITH ENTER KEY
```

4.6.1 RADIO BAUD RATE

Sets the baud rate of the internal radio modem, (currently 150 - 4800 baud within the prescribed 12.5KHz channel) this setting does not govern the speed at which the serial port operates which should be set either at the same speed or a higher speed. The radio baud rate should be set at the minimum possible to maintain the required throughput, lower speeds will give better results in poor signal conditions.

4.6.2 RADIO DATA BITS

Selects either 7 or 8 bits

4.6.3 RADIO PARITY

Selects none, even or odd

4.6.4 RADIO STOP BITS

Selects either 1 or 2.

4.6.5 FFSK TONE SET

Selects either Bell 202 or V23 mode 2, Bell 202 tones should be selected if possible since their wider separation yields better performance, V23 tones however are more common in existing systems. The tone set is fixed at speeds above 1200 baud.

4.6.6 FFSK SYNC/ASYNC

Allows either synchronous or asynchronous selection at up to 1200 baud FFSK.

4.7 EXTERNAL AUDIO RECEIVER MENU

```
EDITING FILE 'NONAME'
OPERATING MODE          EXT AUDIO          RETURN TO MAIN MENU
FREQUENCY RANGE (MHz)  U 406-512          .....
.....
RX FREQUENCY (MHz)     452.25000        .....
CHANNEL RESOLUTION     6.25kHz           .....
.....
.....
CARRIER MUTE          DISABLED           .....
.....
.....
SLEEP MODE             ENABLED           .....
SAVE ON TIME (msecs)   0                   .....
SAVE OFF TIME (msecs)  100                  .....
SAVE RESUME TIME (secs) 0                   .....
USE CURSOR KEYS TO MOVE AROUND SCREEN
SELECT OPTIONS WITH ENTER KEY
```

4.7.1 CARRIER MUTE

This function allows the carrier mute to be enabled or disabled

4.8 EXTERNAL DIGITAL RECEIVER MENU

```
EDITING FILE 'NONAME'
OPERATING MODE          EXT DIGITAL        RETURN TO MAIN MENU
FREQUENCY RANGE (MHz)  U 406-512          .....
.....
RX FREQUENCY (MHz)     452.25000        .....
CHANNEL RESOLUTION     6.25kHz           .....
.....
RADIO BAUD RATE        1200              .....
.....
RX SIGNAL POLARITY     TRUE               .....
.....
.....
SLEEP MODE             ENABLED           .....
SAVE ON TIME (msecs)   0                   .....
SAVE OFF TIME (msecs)  100                  .....
SAVE RESUME TIME (secs) 0                   .....
USE CURSOR KEYS TO MOVE AROUND SCREEN
SELECT OPTIONS WITH ENTER KEY
```

4.8.1 RADIO BAUD RATE

The Data baud rate can be set between 150 - 4800bps

4.8.2 RX SIGNAL POLARITY

This enables the selection of a true or inverted signal