



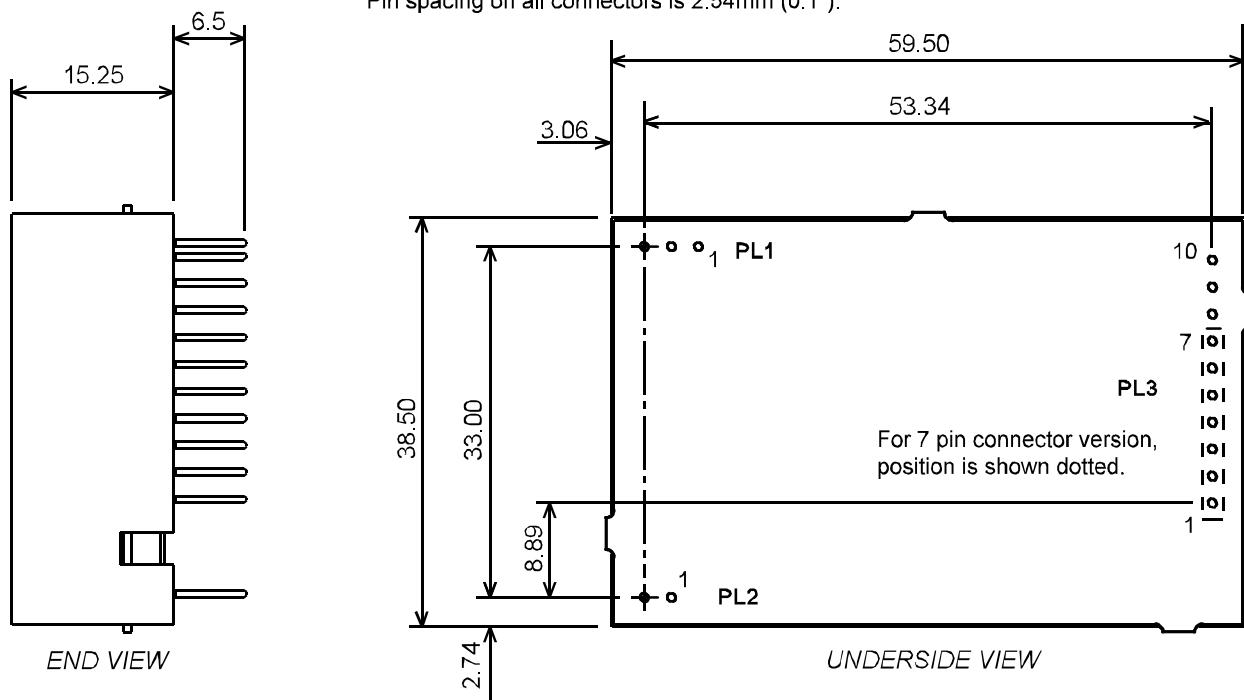
## SR800 RECEIVER OPERATING INSTRUCTIONS

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These operating instructions are intended to provide the user with sufficient information to install and operate the unit correctly.

The Wood & Douglas SR800 UHF synthesized receiver is intended to fulfil numerous OEM requirements by virtue of its highly flexible synthesized design approach, miniature size and cost-effective performance. The unit has been designed to comply with the receiver part of the EN 300 200 specification.

### INSTALLATION



## CONNECTIONS

Connection to the SR800 receiver is via PL1, PL2 and PL3 which plug directly into the user's own equipment. The location of these connectors is shown in Figure 1 and detailed in the following tables.

PIN	NAME	FUNCTION	REMARKS
1	0V	0 volts	common ground
2	RF I/P	RF input	50 ohms input
3	0V	0 volts	common ground

Connector PL1 pin detail

PIN	NAME	FUNCTION	REMARKS
1	+VIN	positive supply	+6.0V to +15.0V
2	0V	0 volts	common ground

Connector PL2 pin detail

PIN	NAME	FUNCTION	REMARKS
1	RSSI	S meter output	0.5 - 2V signal strength indicator, 60dB range
2	SQF	Squelch flag	open collector output, ON (low) = no signal (SR800C: ON = signal received)
3	AUDIO	AF output	250mV p-p ±20% into 10kΩ <b>Note:</b> The audio is inverted with respect to the ST800 (or similar Wood & Douglas product) audio input.
4	DATA	Data output	open collector, no pull-up <b>Note:</b> The data output is inverted with respect to the ST800 (or similar Wood & Douglas product) data input.
5	+5V	+5 volt supply output	50mA maximum current drain
6	0V	0 volts	common ground
7	RS232 I/P	serial programming input	RS232 programming input. <b>Note:</b> Inverted TTL level data can also be used. If not used, leave not connected, or connect to ground.
8	RB1	parallel frequency select	internal pull-up to +5V, active low
9	RB2		
10	RB3		

Connector PL3 pin detail

## FREQUENCY PROGRAMMING

The SR800 has an internal memory which can store up to 128 RF channels (16 randomly programmed and 112 sequentially programmed). The frequency and set-up information is programmed into the unit by a synchronous PCM interface protocol.

The software supplied with the SR800 receiver is the STSRN00S.exe program. This program is for use with the commercial range of Wood & Douglas ST/SRn00 radios. The software runs on a PC with the serial port connected to PL3 of the SR800 receiver via a suitable adaptor as shown in Figure 2. If the read-back function is desired, then PL3 pin 10 of the receiver must be connected to pin 2 of the PC serial port via a buffer circuit. A 1k pull-up resistor to +5V must also be provided as shown.

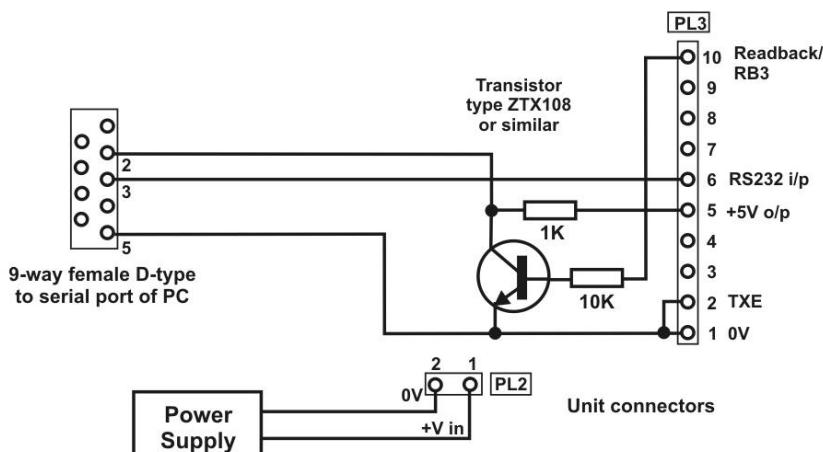


Figure 2 Programming adaptor

## RUNNING THE SOFTWARE

1. Connect SR800 to a suitable supply and to the PC using the programming adaptor.
2. Insert the STSRN00S disk into drive A and type:

**A:STSRN00S <return>** then type:

3. The user is then prompted to enter the serial port number of his PC which is used to communicate with the SR800 receiver. Enter 1 or 2.
4. Next there is a prompt to select the STN00S or SRN500S. Enter '1' for the SR800.

After the software has successfully loaded the main menu screen is displayed as shown in Figure 3. The screen shows the default settings which are entered at factory set-up. These default settings will be displayed whenever the STRN00S software is run.

Please note that mouse operation is not supported with this program.

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STSR500 Programmer

Chan 0 458.5 MHz << Comparison Freq. 12.5 kHz
Chan 1 458.5125 MHz Ref. (TCXO) freq. 12.8 MHz
Chan 2 458.525 MHz Parallel Channel Select
Chan 3 458.5375 MHz
Chan 4 458.55 MHz Serial channel selected: 0
Chan 5 458.5625 MHz
Chan 6 458.575 MHz COMMANDS:
Chan 7 458.5875 MHz
Chan 8 458.6 MHz F2 : copy Ch 16-31 to Ch 0-15
Chan 9 458.6125 MHz F3 : change comparison frequency
Chan 10 458.625 MHz F4 : set parallel channel mode
Chan 11 458.6375 MHz F5 : read from unit
Chan 12 458.65 MHz F6 : program unit
Chan 13 458.6625 MHz F7 : Program serial channel
Chan 14 458.675 MHz F12 : QUIT
Chan 15 458.6875 MHz

Start table 458.7 MHz Sequential frequencies, Chan. 16 to 127
Max. Freq. 458.95 MHz
Table step 1 x 12.5 kHz

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Figure 3 STSRN00S S/W Screen

#### NOTES:

1. The reference (TXCO) frequency is non-programmable.
2. Function F5 is only enabled when a read-back programming adaptor is used, (refer to Figure 2). This function displays the current frequency table of the connected SR800 receiver.
3. A value for each parameters has to be entered.
4. Only channel 0 to 15 frequencies can be displayed by this software

#### Serial channel selection

The unit defaults to serial channel selection whenever the software is run. Selecting the F7 function key prompts the user to enter the new serial channel number which is then displayed in 'Serial channel selected'.

## Parallel channel selection

To enable parallel channel selection mode select the F4 (Select channel) function key. The screen then displays 'parallel channel selected'.

Three inputs RB1, RB3 and RB3 applied via PL3 to pin 8, pin 9 and pin 10 respectively, select the operating channel as shown in the table right:

CHANNEL SELECTION			
PIN 10	PIN 9	PIN 8	CHANNEL
LOW	LOW	LOW	7
LOW	LOW	HIGH	6
LOW	HIGH	LOW	5
LOW	HIGH	HIGH	4
HIGH	LOW	LOW	3
HIGH	LOW	HIGH	2
HIGH	HIGH	LOW	1
HIGH	HIGH	HIGH	0

The logic levels are :      LOW < 0.8V  
                                  HIGH > 2V or floating

## Programming random channels

Random channels between 0 and 15 can be entered using the Up ▲ and Down ▼ arrow keys and then entering the required operating frequency. The entered value must be an integer multiple of 12.5kHz otherwise an 'invalid' message is displayed.

## Programming sequential channels

To generate a new frequency table the following parameter values must be entered:

- start frequency
- the maximum frequency
- the table step as a multiple of 12.5kHz.

The maximum frequency is calculated from the start table frequency and the table step.. Therefore if the calculation exceeds the maximum frequency then this parameter will be increased automatically.

When the frequency table has been generated the user then selects F6 to program the unit.

The function key F2 can be used to copy the contents of channel 16-31 to channel 0 - 15 to ease sequential programming.

## **Programming from customer equipment**

In the event of a customer wishing to program the SR800 receiver from his own equipment then the following data sequence must be used allowing 5ms between the characters in the data stream:

1200 baud, RS232 interface, 1 start bit - 8 bit data - no parity - 1 stop bit

40 (decimal 64) synchronising code

7 bit channel 0 - 127 (bit 7 = 0)

95 (decimal 149) confirmation byte

## **RANGE INFORMATION**

The following table gives an indication of the typical ranges to be expected between a transmitter and receiver that have simple end-fed dipole antennas.

The following assumptions have been made in the calculations:

line-of-sight between antennas

0dB gain for the transmitter and receiver antennas

0dB loss for connectors and cables between the antenna and the radio connector

20dB fade and environmental margin

-100dBm received signal strength, allowing for digital and analogue signals

Range versus TX power			
Frequency (MHz)	Power (mW)	Power (dBm)	Range (km)
869	1mW	0	0.25
869	10mW	10	0.90
869	25mW	14	1.40

## TECHNICAL SPECIFICATION

Frequency range	:	868 - 870 MHz
Switching bandwidth	:	2MHz
Frequency stability	:	±2.5ppm
Number of RF channels	:	up to 128 (16 randomly programmed, 112 sequential), serial select/reprogram, 1200 baud RS232 or 1 of 8 parallel select (10 pin option)
Channel switching delay	:	<50ms across switching bandwidth
Channel spacing	:	25kHz
Modulation type	:	F3D
Spurious emissions (conducted & radiated)	:	in accordance with ETS/CEPT specifications
Supply voltage	:	6-15 DC, -ve earth
Supply current at 7.2V	:	<40mA
Interface connections	:	2 + 10 pin 0.1" header
RF connection	:	3 pin 0.1" header
Operating temperature	:	-20°C to +55°C
Storage temperature	:	-30°C to +70°C
Weight	:	35g
Size	:	60 x 39 x 15mm (2.36 x 1.53 x 0.59 inches)
Sensitivity	:	<-115 dBm for 12dB SINAD (Measured with a flat audio response)
Image/spurii	:	>60dB
Intermodulation response rejection	:	>60dB
Blocking	:	>75dB
Intermediate frequencies	:	45 MHz and 455kHz
Adjacent chan. selectivity	:	>70dB
Audio response	:	9Hz to 6kHz at -3dB (25kHz channels)
Recovered audio level	:	>250mV p-p (±20%) into 10kΩ
Squelch type	:	Noise-operated open-collector output (no audio mute)
General facilities	:	RSSI output (0.5 to +2V nominal) +5V output Independent data output