



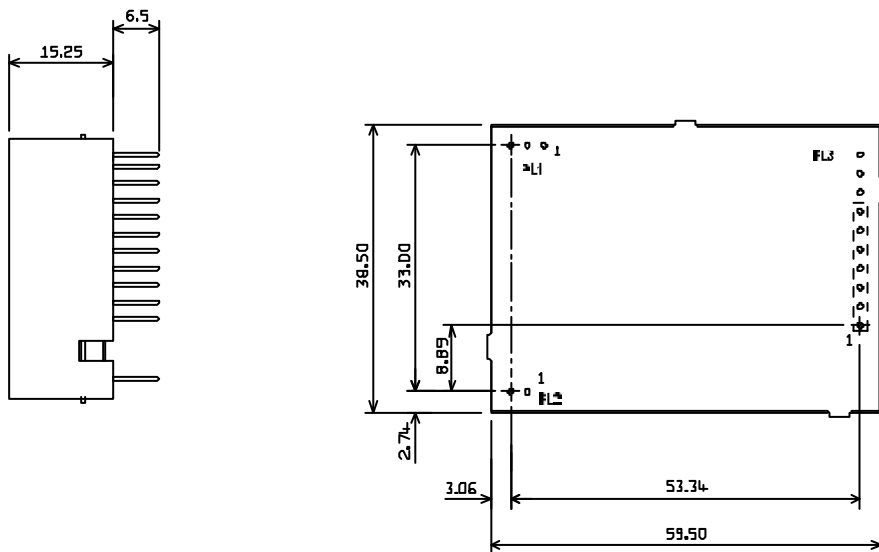
**SR600 RECEIVER
OPERATING INSTRUCTIONS**

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

The Wood and Douglas SR600 UHF synthesized receiver is intended to fulfil the numerous OEM applications by virtue of its highly flexible synthesized design approach, miniature size and cost-effective performance.

INSTALLATION

NOTES: Pin spacing on all connectors is 2.54mm (0.1")
All dimensions in millimetres



CONNECTION

Connection to the SR600 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
3	AUDIO	AF output	250mV p-p \pm 20% into 10k Ω Note: The output audio is inverted with respect to the ST600 (or similar Wood & Douglas product) audio input.
4	DATA	Data output	open collector, no pull-up Note: The data output is inverted with respect to the ST600 (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 Note: inverted TTL level data can also be used. If not used, leave not connected, or connect to 0V
8	RB1	parallel frequency select	internal pull-up to +5V, active low
9	RB2		
10	RB3		

Connector PL3 pin detail

FREQUENCY PROGRAMMING

The SR600 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 SR600 receiver is the STSRn00.exe program. The software can be run on a PC with the serial port connected to PL3 of the SR600 receiver via a suitable adaptor as shown in Figure 2. For the read-back function 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.

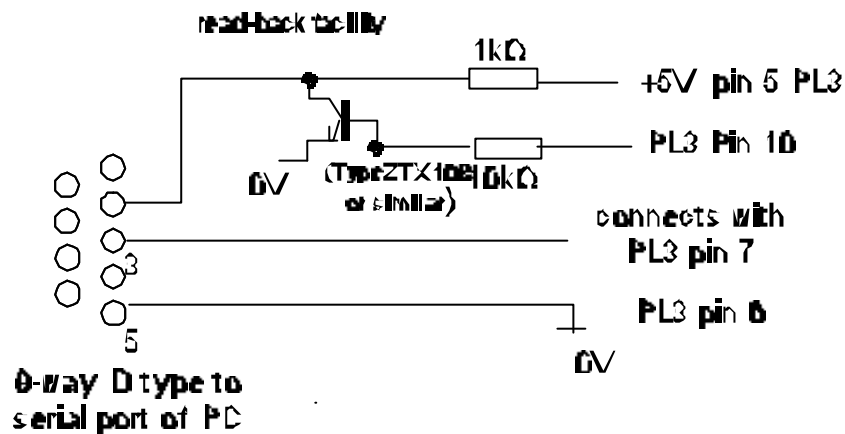


Figure 2 Programming adaptor

RUNNING THE SOFTWARE

1. Connect SR600 to a suitable supply and to the PC using the programming adaptor.
2. Insert the STSRn00PRG disk into drive A and type:

A:STSRn00 <return>

3. The user is then prompted to enter the serial port number of his PC which is used to communicate with the SR600 receiver. Enter 1 or 2.
4. Next there is a prompt to select STn00 or SRn00. Enter 2 for the SR600
5. Next is the prompt to select freq. range:
1 : ST100 (125 - 180MHz)
2 : ST/SR500 (400 - 650MHz)
3 : ST/SR800 (800 - 880MHz)

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 STSRn00 software is run.

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

FREQUENCY STORAGE

The internal PIC processor allows for both random allocated frequencies and sequential channels. The program displays the 16 (as channel 0 to 15) random channels on the main screen. If a sequential table is used then these are stored in channels 16 to 127. These cannot be displayed or printed out.

To simplify the situation, the first 16 channels of the sequential table can be copied to the random channel by pressing the F2 button.

The first 8 channels (0 to 7) can be selected using the serial interface or the parallel interface, as described later.

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STSRn00 Programmer v.1.0.02

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
Chan 5 458.5625 MHz
Chan 6 458.575 MHz
Chan 7 458.5875 MHz
Chan 8 458.6 MHz
Chan 9 458.6125 MHz
Chan 10 458.625 MHz
Chan 11 458.6375MHz
Chan 12 458.65 MHz
Chan 13 458.6625MHz
Chan 14 458.675 MHz
Chan 15 458.6875MHz

COMMANDS:
F2 :copy Ch 16-31 to Ch 0-15
F3 :change comparison frequency
F4 :set parallel ch. mode
F5 :read from unit
F6 :program unit
F7 :program serial channel
F12 :QUIT

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

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Figure 3

NOTES:

1. The reference (TXCO) frequency is not programmable.
2. The readback function (F5) reads the current settings from the unit into the PC.
3. Function F6 (program the unit) is only enabled after the read-back, (refer to Figure 2). This function re-programs the unit connected.
4. A value for each parameters has to be entered.
5. Only channel 0 to 15 frequencies can be displayed by this software explicitly.
6. Sequential channel table is displayed as start, step and stop frequencies.

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 press the F4 (Parallel channel mode) 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 following table.

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 comparison frequency 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 table step as a multiple of comparison frequency.

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, assuming the unit has been read before.

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 SR600 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 levels, 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)	Miles
600	1mW	0	0.4	0.3
600	10mW	10	1.3	0.8
600	25mW	14	2.0	1.2
600	100mW	20	4.0	2.5
600	500mW	27	8.9	5.5

TECHNICAL SPECIFICATION

Frequency range	:	580 - 625MHz
Switching bandwidth	:	8MHz
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	:	6-12 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	:	-30°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)
Type approval	:	
Sensitivity	:	<-117 dBm for 12dB SINAD (25 kHz) (Measured with a flat audio response)
Image/spurii	:	>60dB
Intermodulation response rejection	:	>60dB
Blocking	:	>75dB
Intermediate frequencies	:	45 MHz and 455kHz
Adjacent chan. selectivity	:	>60dB for 12.5kHz channel spacing >70dB for 25kHz channel spacing
Audio response	:	9Hz to 6kHz at -3dB (25kHz channels)
Recovered audio level	:	>250mV p-p ($\pm 20\%$) into 10k Ω
Squelch type	:	Noise operated open collector output
General facilities	:	RSSI output (0.5 to +2V nominal) +5V output Independent data output