

6.4 Base Station Connections

6.4.1 Rear Panel

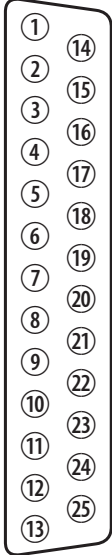
The rear panel has the serial interface, the system interface, the DC input and the RF in and out connectors. Each of these is described in this section.

System Interface

The system interface connector provides the following:

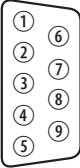
■ transformer isolated 600Ω balanced audio I/O	■ Tx key
■ opto-isolated keying	■ Tx relay
■ opto-isolated gate output	■ Rx gate
■ digital I/O (bidirectional)	■ RSSI

The pin allocations for the 25-way female D-range system interface connector are listed in the table below.

System Interface	Pin	Signal Name	Signal Type	Notes
 <p>external view</p>	1	Rx line output +	audio output	transformer isolated line
	2	Tx/Rx digital input 1	input	high ≥ 1.7 V, low ≤ 0.7 V
	3	Tx/Rx digital input 2		
	4	Rx line output -	audio output	transformer isolated line
	5	Tx line input +	audio input	transformer isolated line
	6	Tx/Rx digital input 3	input	high ≥ 1.7 V, low ≤ 0.7 V
	7	Tx/Rx digital input 4	input	output: high ≥ 3.1 V (no load), low < 0.6 V (10mA sink) input: high ≥ 1.7 V, low ≤ 0.7 V
	8	Tx line input -	audio input	transformer isolated line
	9	RSSI	output	DC signal
	10	Tx digital in/out 1	input/output	output: high ≥ 3.1 V (no load), low < 0.6 V (10mA sink) input: high ≥ 1.7 V, low ≤ 0.7 V
	11	Tx audio input	audio input	
	12	Tx digital in/out 2	input/output	output: high ≥ 3.1 V (no load), low < 0.6 V (10mA sink) input: high ≥ 1.7 V, low ≤ 0.7 V
	13	ground	ground	
	14	Rx gate	output	open collector
	15	Tx key	input	active low
	16	Rx relay (comm)	output	
	17	Rx relay (NO or NC)	output	
	18	Rx Inhibit	input	
	19	Rx digital in/out 1	input/output	output: high ≥ 3.1 V (no load), low < 0.6 V (10mA sink) input: high ≥ 1.7 V, low ≤ 0.7 V
	20	Tx Opto input +	input	input voltage range 10VDC to 60VDC
	21	Tx Opto input -	input	
	22	Rx digital in/out 2	input/output	output: high ≥ 3.1 V (no load), low < 0.6 V (10mA sink) input: high ≥ 1.7 V, low ≤ 0.7 V
	23	Digital output/Tx relay	output	
	24	Rx audio output	output	
	25	13.8 volt output	power output	resettable SMD fuse 1.5A

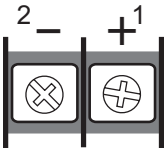
Serial Interface

The serial interface connector provides a data connection to the TB7100 base station. The pin allocations for the 9-way female D-range serial interface connector are listed in the table below.

Serial Interface	Pin	Signal Name	Signal Type	Notes
 external view	1	not connected	not used	
	2	receive data	output	data transmitted by TB7100
	3	transmit data	input	data received by TB7100
	4	not connected	not used	
	5	ground	ground	
	6	not connected	not used	
	7	ready to transmit	output	request to send
	8	clear to send	input	clear to send
	9	not connected	not used	

DC Input

The DC input connector is a heavy duty M4 screw terminal connector suitable for many forms of connection. The pin allocations for the 2-way DC input connector are listed in the table below.

DC Input	Pin	Signal Name	Signal Type	Notes
 External view Bottom of TB7100	1	13.8VDC	input	
	2	ground	input	

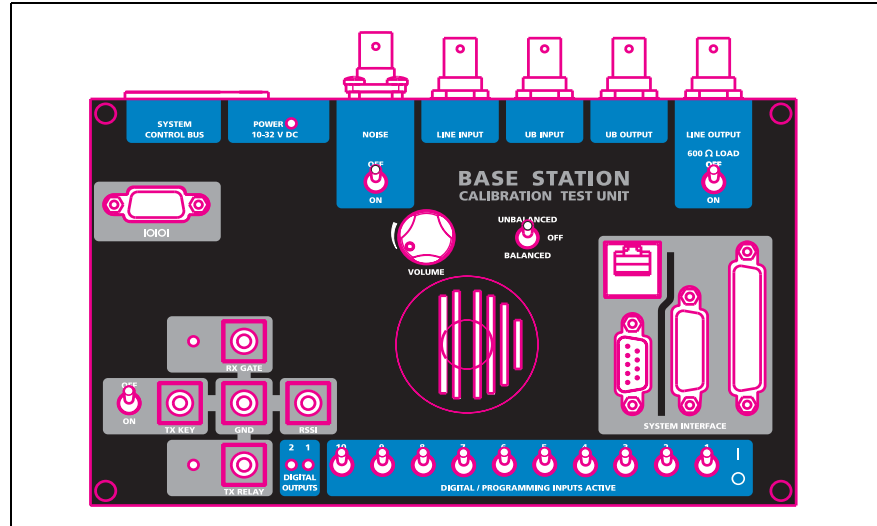
RF Connectors

See earlier reference on page 54.

Ground

Mounted on the rear panel in the left hand corner is a terminal for grounding the TB7100 tray to the mounting rack.

Figure 7.2 CTU

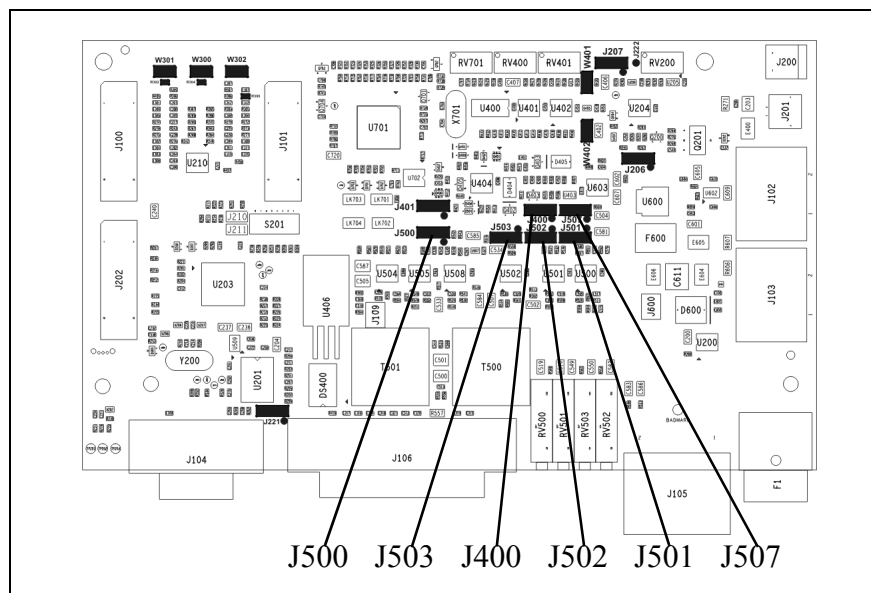


7.3.4 Link Settings

Remove the cover as detailed in “Preliminary Disassembly” on page 45 and set the jumper positions on the system interface to match the table below. Replace the cover as detailed in “Final Reassembly” on page 52.

LINK	Pins	Name	Default Position	Function	Alternate Position	Function
J400	3	Tx Key Source	1-2	External PTT signal to transmitter	2-3	PTT derived from RX Gate
J500	3	Line Out Frequency Response	2-3	De-Emphasis	1-2	Flat response
J501	3	Line In Frequency Response	2-3	Pre-Emphasis	1-2	Flat response
J502	3	Tx Audio Source	1-2	External audio line in to transmitter	2-3	Rx audio to transmitter
J503	3	Rx Audio Destination	2-3	Received audio sent to balanced and unbalanced external outputs	1-2	Tx audio
J507	3	Line in Destination	2-3	ADIO_TAP_IN The Tx audio tap point	1-2	TX_MIC_AUD Tx audio from a microphone

Figure 7.3 system interface link positions



7.3.5 Applying Power

Before turning on the TB7100 base station check that:

- All looms and cables at the front and rear of the base station are fitted correctly.
- All connectors are secure.
- The 20A fuse is fitted.

Turn on the power supply and check that the base station powers up correctly:

- The power LED on the user interface lights up.
- The LCD indicates the current channel number.

7.3.6 Programming

To program a TB7100 for line controlled base operation follow the instructions below. Do not add CTCSS or any additional settings at this stage. These are covered in “Programmable Features” on page 90. See “Connecting to the PC” on page 90 before beginning.

Transmitter

1. Place the transmit/receive programming switch on the user interface into the transmit position.
2. Read the transmitter or start with a new transmitter data file.
3. Use the reset to defaults command under the file menu to ensure all the mandatory and recommended settings are in their correct default states.

- RF test set with:

- RF power meter
- modulation analyser
- RF signal generator
- sinad meter
- audio distortion meter
- audio level meter
- audio signal generator

7.4.2 Test Equipment Setup

1. Connect the PC to the programming port on the front panel of the TB7100. See “Connecting to the PC” on page 90.
2. Connect the receiver N-type connector to the RF test set (signal generator) output port.
3. Connect the transmitter N-type connector to the RF test set (power and modulation meter) input port, check the test set is rated for the transmit power of the TB7100.
4. Connect the 13.8V power supply to the DC input on the TB7100, ensuring correct polarity.

7.4.3 Link Settings

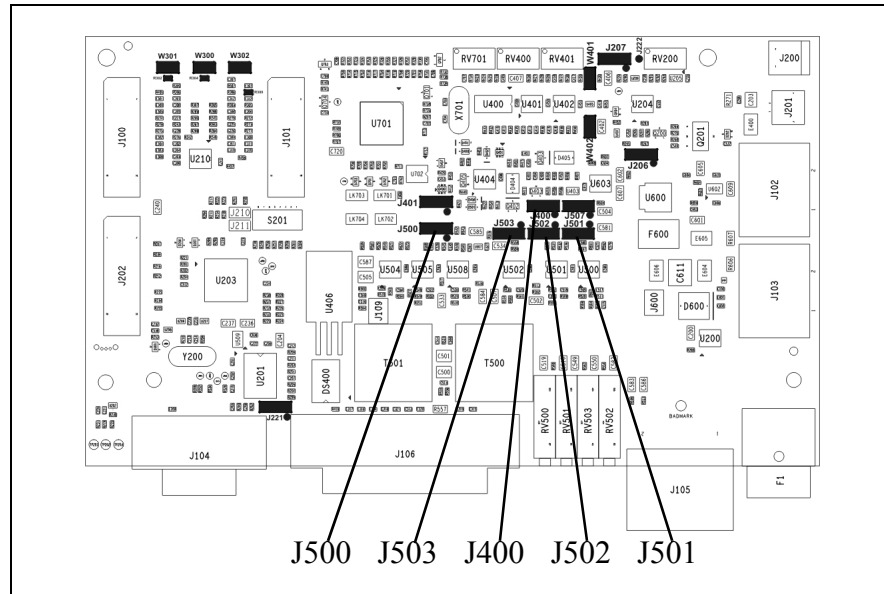
Remove the cover as detailed in “Preliminary Disassembly” on page 45 and set the jumper positions on the system interface to match the table below. Replace the cover as detailed in “Final Reassembly” on page 52.

Link	Pins	Name	Default Position	Function	Alternate Position	Function
J400	3	Tx Key Source	2-3	PTT derived from RX Gate	1-2	External PTT signal to transmitter
J500	3	Line Out Frequency Response	1-2	Flat response	2-3	De-Emphasis
J501	3	Line In Frequency Response	1-2	Flat response	2-3	Pre-Emphasis
J502	3	Tx Audio Source	2-3	Rx audio to transmitter	1-2	External audio line in to transmitter
J503	3	Rx Audio Destination	1-2	Tx audio	2-3	Received audio sent to balanced and unbalanced external outputs



Note By default the audio frequency response will be flat.

Figure 7.5 system interface link positions



7.4.4 Applying Power

Before turning on the TB7100 base station, check that:

- All looms and cables at the front and rear of the base station are fitted correctly.
- All connectors are secure.
- The 20A fuse is fitted.

Turn on the power supply and check that the base station powers up correctly:

- The power LED on the user interface lights up.
- The LCD indicates the current channel number.

7.4.5 Programming

No changes to the values programmed for line controlled base operation are required. See “Programming” on page 67 for details.



Note If a soft tail setting is required see later in this chapter “Soft Off (Tx Tail Time)” on page 102.

7.4.6 Audio Level Adjustment

There is no audio level adjustment necessary in repeater mode. The internal linking is designed to produce a repeater with no talk through gain. If talk