

6 Connection

Once the TB8100 BSS hardware is installed, you need to connect the individual modules to each other, and to any ancillary equipment required in your system. This chapter provides information on all the inputs and outputs available on the TB8100 BSS.

6.1 Overview of Inputs and Outputs

This section identifies the main input and output connections for the TB8100 BSS. [Figure 6.1](#) below identifies the connections at the front of a dual base station, and [Figure 6.3 on page 57](#) identifies those at the rear. [Figure 6.2 on page 56](#) identifies the connections at the front of a single 100 W base station. [Figure 6.4 on page 57](#) identifies the connections on the control panel. Refer to the following sections in this chapter for more details on these connections.

Figure 6.1 Dual 5 or 50W Base Station Inputs and Outputs - Front View

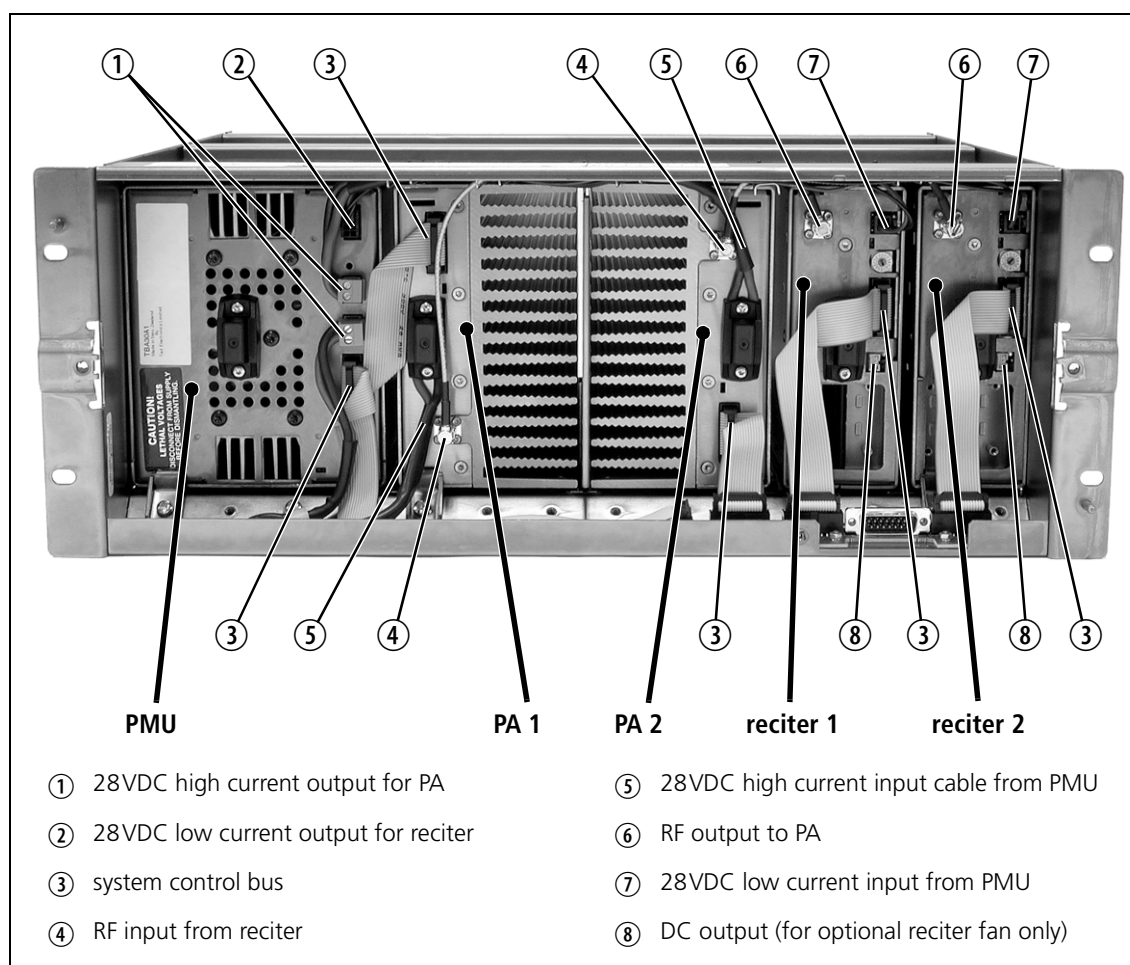


Figure 6.2 Single 100W Base Station Inputs and Outputs - Front View

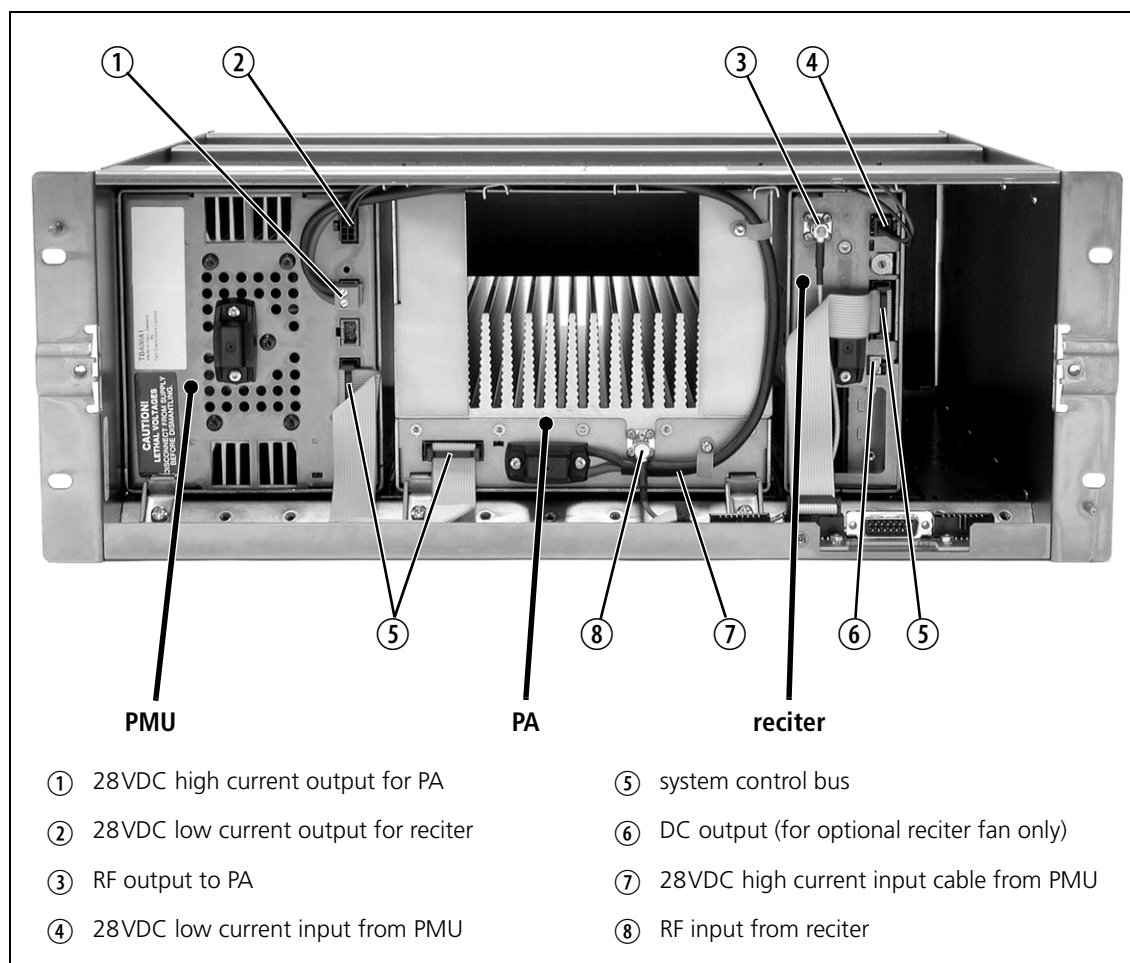


Figure 6.3 Dual 5 or 50W Base Station Inputs and Outputs - Rear View

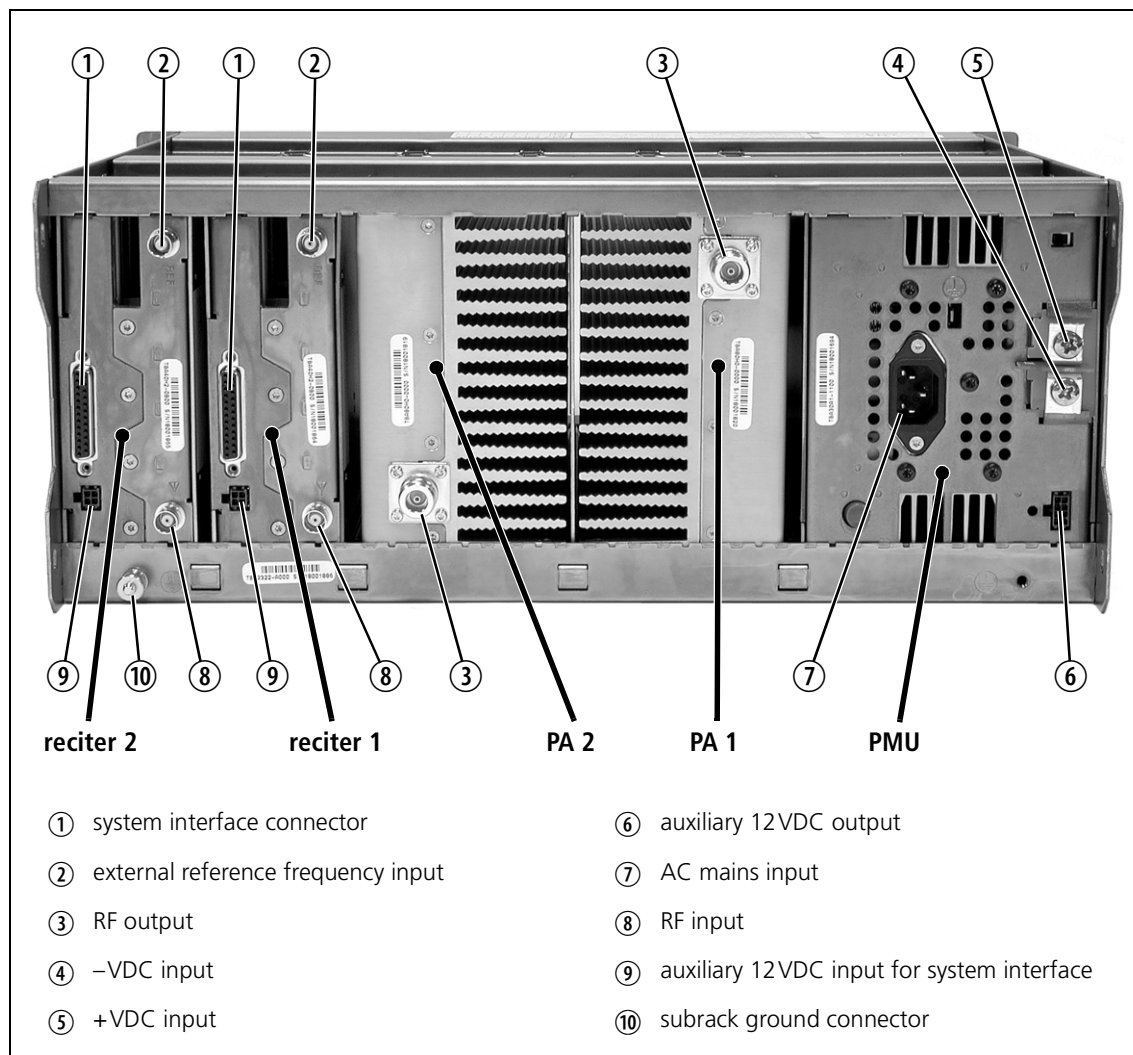
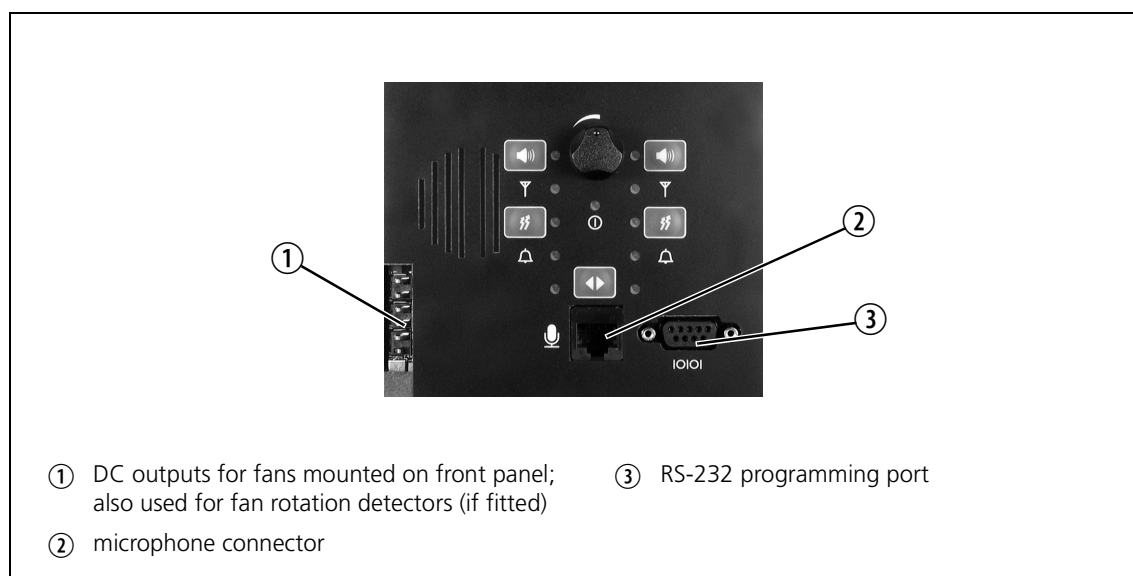


Figure 6.4 Control Panel Inputs and Outputs



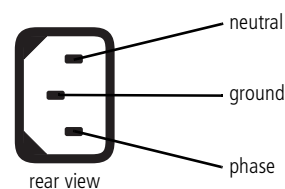
6.2 Power Supply Connections

AC Power

The TB8100 PMU is designed to accept a mains input of 88 to 264 VAC at 45 to 65 Hz. We recommend that a standard 3-wire grounded outlet is used to supply the AC power. The socket-outlet must be installed near the equipment and must be easily accessible. This outlet should be connected to an AC power supply capable of providing a maximum of 600 W. The requirements of two typical AC supplies are given in the following table.

Nominal Supply	Current Requirement	Circuit Breaker/Fuse Rating
115 VAC	8 A	10 A
230 VAC	4 A	6 A

Your TB8100 BSS should come supplied with a power supply cord to connect the male IEC connector on the PMU to the local AC supply. The pins of the IEC connector on the PMU are identified at right.



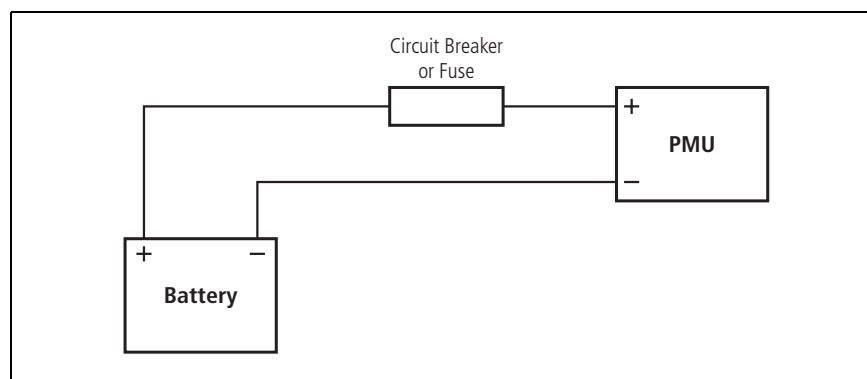
DC Power

The TB8100 PMU is designed to accept a DC input of 10.3 to 15.5 VDC with negative or positive ground. There is a minimum DC start-up threshold to prevent damaging a battery which has little capacity left.

You must connect the DC supply from the battery to the PMU via a fuse or DC-rated circuit breaker with a rating of 60 A. The DC input leads should be of a suitable gauge to ensure less than 0.2 V drop at maximum load over the required length of lead.

Terminate and insulate the DC input leads so they are protected from accidentally shorting to the subrack if the PMU is removed before the leads are disconnected.

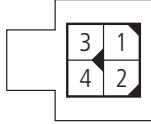
Figure 6.5 Recommended DC Power Connection



Reciter Auxiliary DC Input

The system interface PCB in the reciter has an auxiliary DC input connector. DC from the auxiliary DC output on the PMU (see “[PMU Auxiliary DC Output](#)” below) can be supplied to the +AUX_V pin on the system interface connector via this input.

The pin allocations for the auxiliary DC input on the system interface PCB are given in the following table. Note that pins 1 & 3 and pins 2 & 4 on this connector are linked. Refer to “[System Connections](#)” on page 60 for the pin allocations for +AUX_V on each system interface PCB.

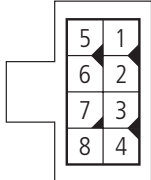
	Pin	Description	Links
 rear view	1	+V input	●
	2	ground	● ●
	3	+V input	● ●
	4	ground	● ●

The DC output from the PMU is 12VDC. Although this power output is isolated, the negative side of the supply is grounded on the system interface PCB to give a +V output.

PMU Auxiliary DC Output

The PMU can provide an auxiliary DC output when it is fitted with the optional 40 W auxiliary power supply PCB. This power supply is current limited to 3 A and is available on the auxiliary DC output connector on the rear panel. DC from this output can be supplied to the +AUX_V pin on the system interface connector on the reciter via the auxiliary DC input connector on the system interface PCB (see “[Reciter Auxiliary DC Input](#)” above).

The pin allocations for the auxiliary DC output on the PMU are given in the following table. Note that pins 1 to 4 and pins 5 to 8 on this connector are linked.

	Pin	Description	Links
 rear view	1	+V output	●
	2	+V output	●
	3	+V output	●
	4	+V output	●
	5	ground	●
	6	ground	●
	7	ground	●
	8	ground	●

6.3 RF Connections

The RF input to the TB8100 BSS is via the lower BNC connector on the rear panel of the reciter. The RF output is via the N-type connector on the rear panel of the PA (refer to [Figure 6.3 on page 57](#)).

We recommend that you use dual-screened coaxial cable such as RG223 for the BNC connections, and RG214 for the N-type connections.

6.4 System Connections

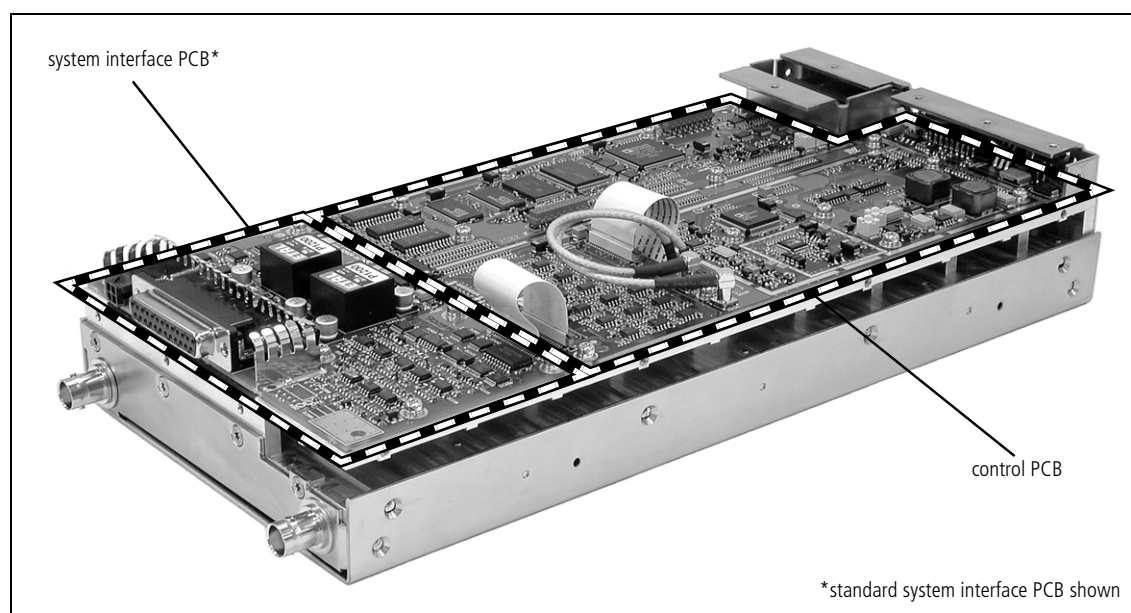
The reciter can be fitted with an optional system interface PCB which provides the links between the reciter's internal circuitry and external equipment. This PCB is securely mounted to the reciter's chassis and is connected to the control PCB with a flexible connector. The system interface PCB is fitted with industry-standard connectors and several standard types are available for different applications.

The circuitry on the system interface PCB provides additional signal processing so that the outputs meet standard system requirements. It also enables the PCB to identify itself to the reciter control circuitry.

The system interface PCB is removable, which makes it possible to change the application of a reciter by removing one type of PCB and fitting another. Only one system interface PCB can be fitted to a reciter at any one time.

This section provides details on the system interface PCBs available at the time of publication. Other types may be developed for future applications.

Figure 6.6 System Interface PCB

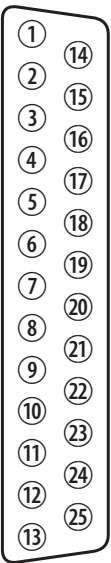


Standard

The standard system interface PCB is fitted to reciters bearing the product code TBA4xxx-0A0x or TBA5xxx-0A0x. If purchased separately, it has the product code TBA10A0. It provides:

- non-isolated 600 Ω balanced audio I/O
- high impedance unbalanced audio I/O
- Tx key
- Rx gate
- RSSI
- Tx relay
- digital I/O.

It is fitted with a 25-way female D-range connector and an auxiliary DC input connector. The pin allocations are listed in the table below.

	Pin	Signal Name	Signal Type	Notes
 rear view	1	Rx line out +	audio output	non-isolated AC coupled line
	2	Rx line out –		
	3	Rx audio out	audio output	AC coupled
	4	ground	ground	
	5	Tx audio in	audio input	AC coupled
	6	Tx line in +	audio input	AC coupled line
	7	Tx line in –		
	8	RSSI	DC signal	
	9	Rx gate	output	open collector
	10	Tx key	input	
	11	digital out 1	output	open collector
	12	digital out 2		
	13	+AUX_V	power output	
	14	digital in 1	input	5V logic
	15	digital in 2		
	16	digital in 3		
	17	digital in 4		
	18	digital in 5		
	19	digital in 6		
	20	digital in 7		
	21	digital in 8		
	22	digital in 9		
	23	digital in 10		
	24	Tx relay	output	open collector
	25	ground	ground	

Isolated

This system interface PCB is fitted to reciters bearing the product code TBA4xxx-0B0x or TBA5xxx-0B0x. If purchased separately, it has the product code TBA10B0. It is the same as the standard model, except that the balanced audio interfaces are galvanically isolated.

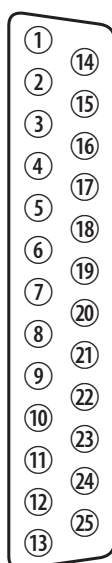
Isolated E&M

This system interface PCB is fitted to reciters bearing the product code TBA4xxx-0C0x or TBA5xxx-0C0x. If purchased separately, it has the product code TBA10C0. It provides:

- isolated balanced audio I/O
- opto-isolated keying
- opto-isolated gate output.

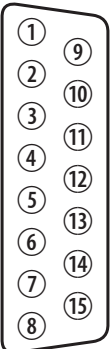
It is fitted with a 25-way female D-range connector and an auxiliary DC input connector. The pin allocations are listed in the table below.

Pin	Signal Name	Signal Type	Notes
1	Rx line out +	audio output	transformer isolated line
2	Rx line out –		
3	Rx audio out	audio output	
4	audio ground	ground	
5	Tx audio in	audio input	
6	Tx line in +	audio input	transformer isolated line
7	Tx line in –		
8	RSSI	DC signal	
9	Rx gate	output	open collector
10	Tx key	input	
11	digital out 1	output	open collector
12	digital out 2		
13	+AUX_V	power output	
14	digital in 1	input	5V logic
15	digital in 2		
16	digital in 3		
17	digital in 4		
18	digital in 5		
19	digital in 6		
20	opto +/-	isolated keying input	
21	opto -/+		
22	relay +/-	isolated gate output	
23	relay -/+		
24	Tx relay	output	open collector
25	ground	ground	



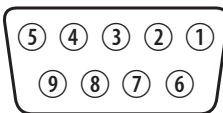
TaitNet

This system interface PCB is fitted to reciters bearing the product code TBA4xxx-0T1x or TBA5xxx-0T1x. If purchased separately, it has the product code TBA10T1. It is designed for use with MPT trunking systems. It is fitted with a 15-way female D-range connector and an auxiliary DC input connector. The pin allocations are listed in the table below.

	Pin	Signal Name	Signal Type	Notes
 rear view	1	Rx line out +	audio output	AC coupled line
	2	Rx line out –		
	3	Rx audio out	audio output	
	4	Rx gate	output	open collector
	5	Tx key	input	
	6	Tx audio in	audio input	
	7	Tx line in +	audio input	AC coupled line
	8	Tx line in –		
	9	+AUX_V	power output	
	10	digital out 3	output	open collector
	11	no connection		
	12	digital out 1	output	open collector
	13	digital out 2		
	14	digital in 1	input	5V logic
	15	ground	ground	

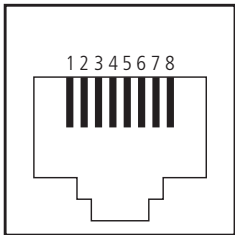
6.5 Service Kit Connections

The TB8100 service kit is connected to the BSS via the RS-232 serial port on the control panel. This port is a 9-way female D-range connector. Use a straight through cable, as supplied with the service kit, to connect your programming computer to the BSS. The pin allocations for the serial port are given in the following table. Note that pins 1, 4 & 6 and pins 7 & 8 are linked. This port is also used for remote connection to the Service Kit or Alarm Center software via a modem or radio modem.

	Pin	Description	Links
 front view	1	not connected	●
	2	receive data	
	3	transmit data	
	4	not connected	●
	5	ground	
	6	not connected	
	7	not connected	●
	8	not connected	
	9	not connected	

6.6 Microphone Connection

You can connect a microphone to the TB8100 BSS via the standard RJ45 socket on the control panel. If a standard TB8100 microphone has not been supplied with your BSS, you should use an electret microphone. The pin allocations for the microphone socket are given in the following table.

 front view	Pin	Description
	1	not connected
	2	not connected
	3	not connected
	4	PTT and hookswitch
	5	voice band (microphone) input
	6	microphone ground
	7	not connected
	8	not connected