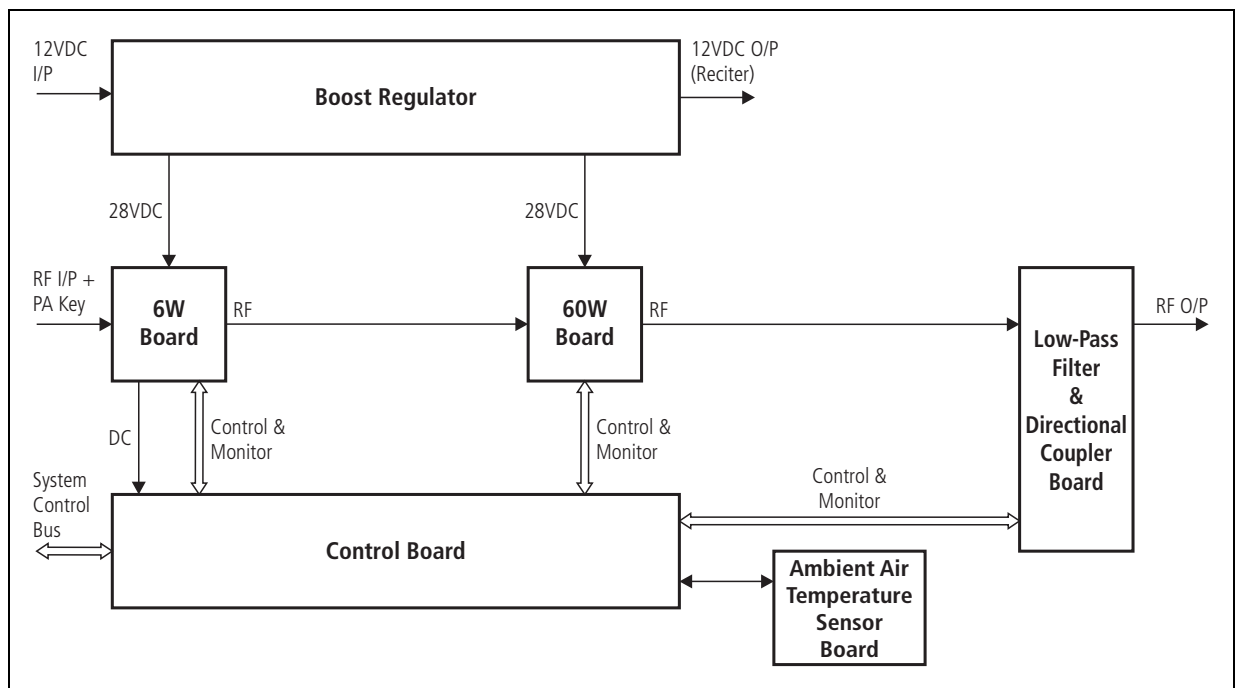


Appendix 1: 12V PA

Boost Regulator Circuit Description

This section provides a brief description of the circuitry on the boost regulator board. [Figure 1.1](#) below shows the configuration for a 5 W or 50 W PA, along with the main inputs and outputs for power, RF and control signals. Note that the 60 W board is only fitted to the 50 W PA. The circuit description for the rest of the PA is provided in the “Circuit Description” chapter.

Figure 1.1 5W or 50W PA high level block diagram



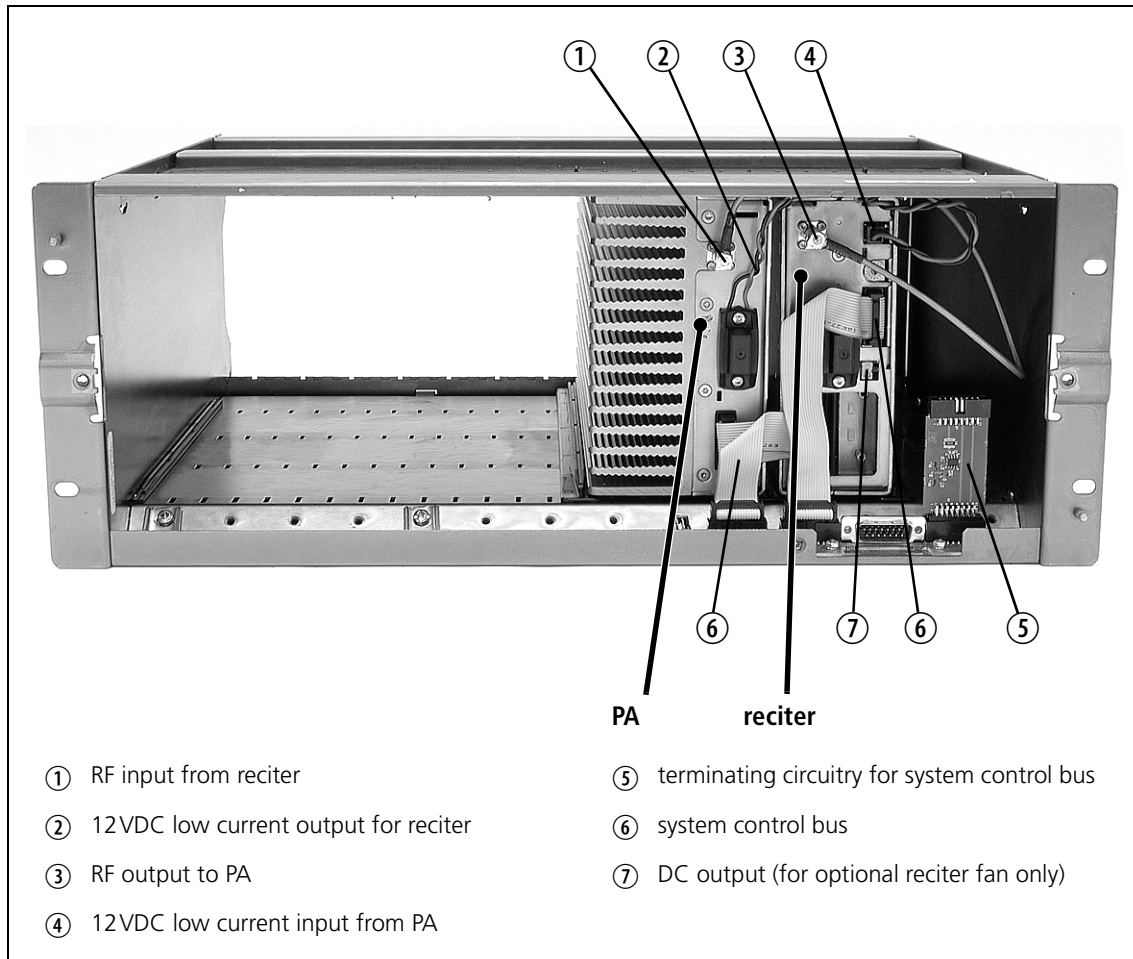
The boost regulator board accepts an input of 12VDC nominal. The input is firstly fed through the DC input filter, and is then fed through an output filter to provide the 12VDC (nominal) output for the reciter. The output from the DC input filter is also fed to the power stage where the voltage is boosted to 28VDC, and is then fed through an output filter to provide the 28VDC output for the PA circuit boards.

The battery control circuitry monitors the DC input voltage from the battery. Protection is provided against the wrong input voltage being supplied. The battery control circuitry also prevents deep discharge of the battery.

Overview of Inputs and Outputs

This section identifies the main input and output connections for the TB8100 BSS with 12V PA. [Figure 1.2](#) below identifies the connections at the front of the base station, and [Figure 1.3 on page iii](#) identifies those at the rear. Refer to the “Connection” chapter for more details.

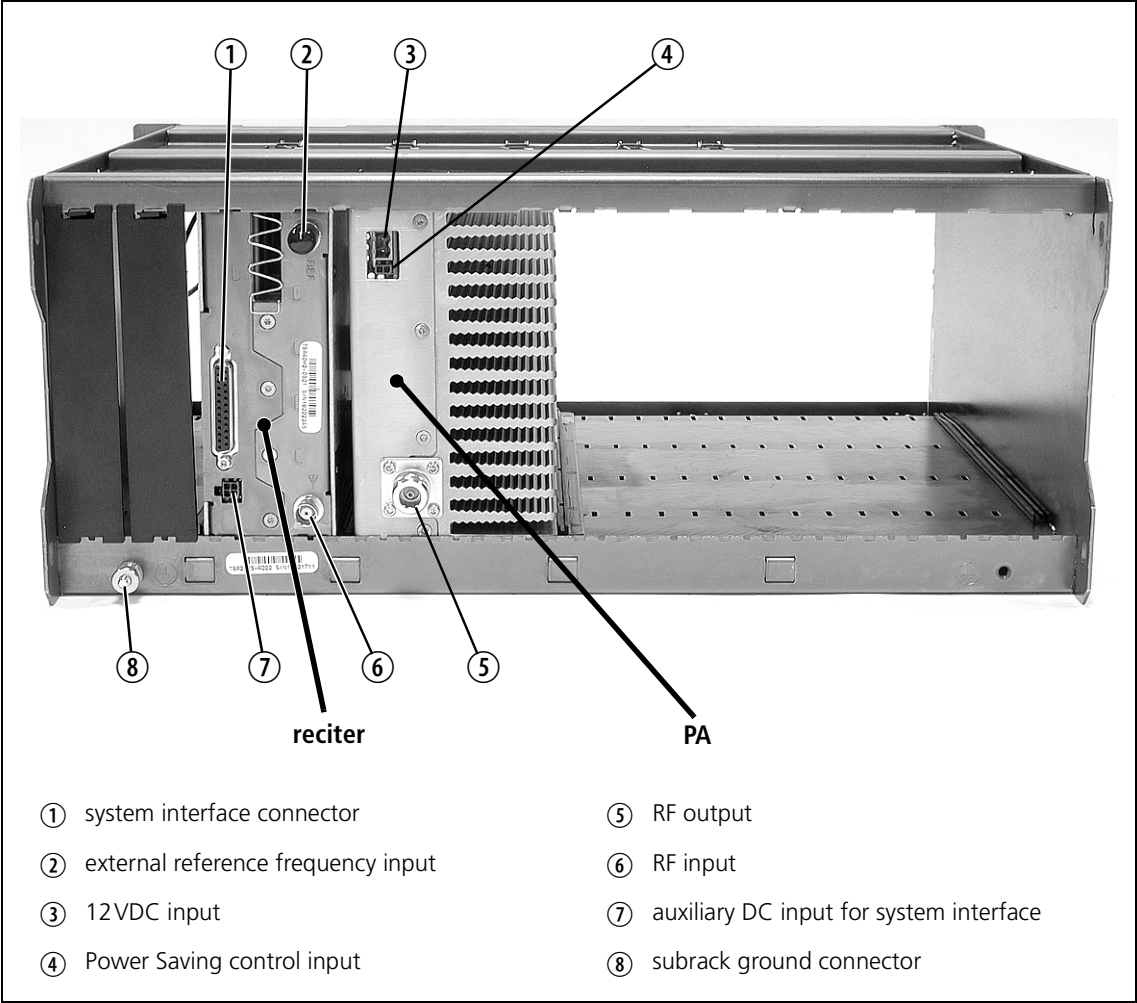
Figure 1.2 5W or 50W base station inputs and outputs - front view



Important

The system control bus terminating circuitry board must be connected to the system control bus at all times. If the board is disconnected, the state of much of the bus will be undefined. This may cause corrupted data to be present on the bus when the reciter reads the states of the switches on the control panel. This in turn may result in random actuations of microphone PTT, carrier, or speaker key, causing the BSS to transmit or the speaker to be actuated incorrectly.

Figure 1.3 5W or 50W base station inputs and outputs - rear view



DC Power

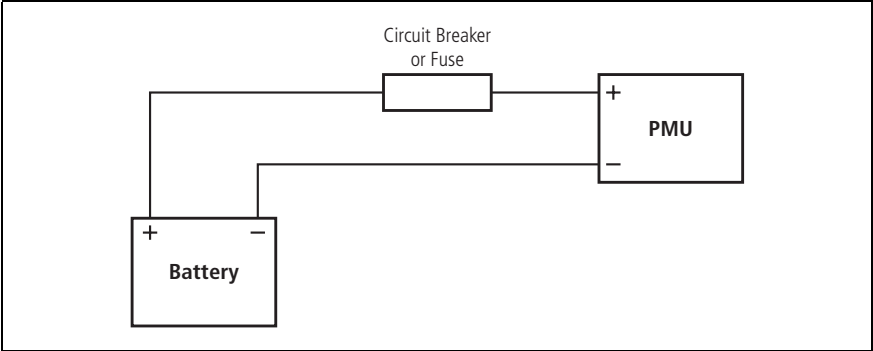
The TB8100 12V PA is designed to accept a nominal 12VDC input with negative ground. There is a minimum DC start-up threshold to prevent damaging a battery which has little capacity left.

You must connect the DC supply from the battery to the PA via a fuse or DC-rated circuit breaker with the appropriate rating, as shown in the table below. The DC input leads should be of a suitable gauge to ensure less than 0.2V drop at maximum load over the required length of lead.

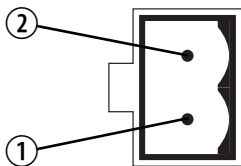
Nominal Supply Voltage	Input Voltage Range	Circuit Breaker/ Fuse Rating	Recommended Wire Gauge ^a
12VDC	10.6VDC to 16.8VDC	20A	2AWG / 35mm ²

a. For a length of 1.5m to 2m (5ft to 6.5ft) (typical).

Figure 1.4 Recommended DC power connection



The pin allocations for the 2-way DC input connector are shown below.

		Pin	Description
 2-way connector - external view	1	+V input	
	2	ground	