1 Description

The TB8100 is a software-controlled base station system (BSS) which is designed for operation on most standard frequency ranges[1]. It makes extensive use of digital and DSP technology. Many operating parameters such as channel spacing, audio bandwidth, signalling, etc. are controlled by software. It is also capable of generating alarms for remote monitoring.

The TB8100 BSS comprises a number of separate modules. Each module is inserted into the TB8100 4U subrack from the front and is secured at the front with a metal clamp. Both clamp and module are easily removed for rapid module replacement. The modules are secured laterally with plastic guides which clip into the top and bottom of the subrack. These guides can be easily repositioned to change the configuration of a subrack. The heavier modules are also secured laterally by metal tabs at the rear of the subrack.

All modules are interconnected at the front of the subrack. The only connections at the rear of the subrack are:

- RF input from and output to the antenna
- external frequency reference input
- AC and/or DC power supply input
- auxiliary 40W 13.8VDC output (optional)
- system inputs and outputs (via the optional system interface PCB fitted to the reciter).

The TB8100 BSS features rugged construction with generous heatsinks and fan-forced cooling for continuous operation from −30°C to +60°C (−22°F to +140°F). Several different configurations are possible. The most common are:

- one 5 or 50W base station plus accessory modules or extra receivers
- two 5 or 50W base stations
- one 100W base station plus accessory modules or extra receivers.

1. Consult your nearest Tait Dealer or Customer Service Organisation for information on the most suitable equipment for your area and application.

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1.1 The TB8100 BSS Modules

The modules which make up the TB8100 BSS are described briefly below. You can find more detailed information on these modules in the other chapters in this manual, and also in the service manual.

Reciter

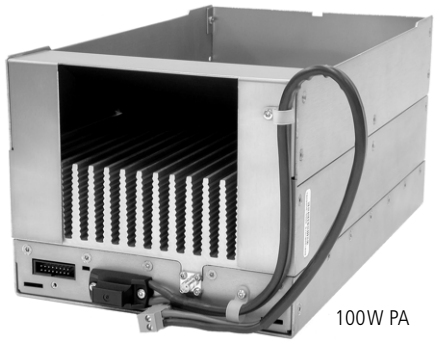
The receiver, exciter and digital control circuitry is located in the reciter module. It also incorporates an optional system interface PCB which provides standard system inputs and outputs.

Power Amplifier

The power amplifier (PA) amplifies the RF output from the reciter and is available in 5, 50 and 100 W models.

The 5 and 50 W models mount vertically in the subrack, while the 100 W model mounts horizontally as it has a wider heatsink. The 100 W PA is also fitted with an airflow duct.

5/50 W PA



100 W PA

Power Management Unit

The power management unit (PMU) provides the 28 VDC power supply for the modules in the TB8100 BSS. A 13.8 VDC auxiliary output is also available when the optional 40 W power supply is fitted. The input voltage can be AC, DC or both AC and DC, depending on the model.

AC and DC PMU shown

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Front Panel

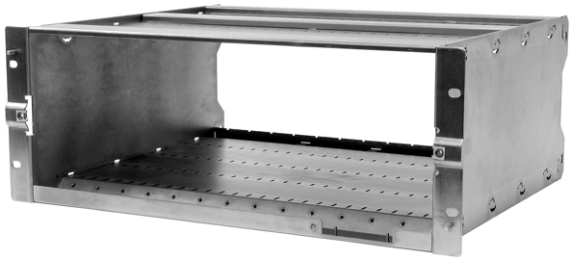
The TB8100 front panel is mounted onto the subrack with two quick-release fasteners. It incorporates the cooling fans for the PA and PMU.

Control Panel

The TB8100 control panel is mounted onto the subrack and is accessible through an opening in the front panel. It provides the user with hardware controls and connections for direct control of the BSS.

Subrack

The TB8100 4U subrack is made of passivated steel and is designed to fit into a standard 19 inch rack or cabinet.



Calibration Test Unit

The TB8100 calibration test unit (CTU) provides a selection of inputs and outputs which allows the TB8100 BSS to be connected to standard test equipment, and also to a PC running the Service Kit or Calibration Kit software.

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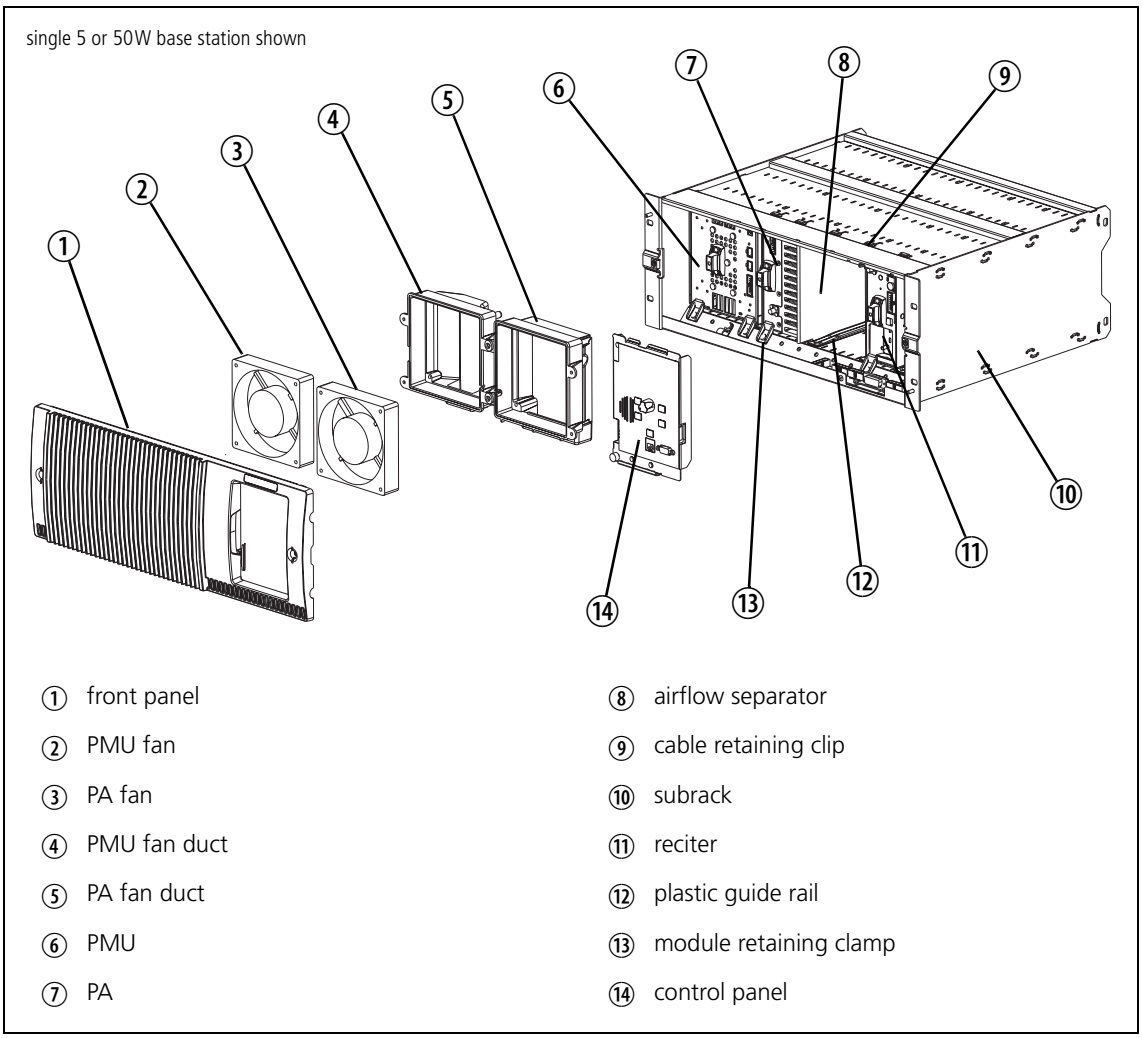
1.2 Mechanical Assembly

The main mechanical components of the TB8100 BSS are shown in the following illustrations.

Figure 1.1 Mechanical Assembly - Front Panel, Fans and Control Panel



① front panel
② PMU fan
③ PA fan
④ PMU fan duct
⑤ PA fan duct
⑥ PMU
⑦ PA
⑧ airflow separator
⑨ cable retaining clip
⑩ subrack
⑪ reciter
⑫ plastic guide rail
⑬ module retaining clamp
⑭ control panel

The front panel can be easily removed from the subrack by undoing two quick-release fasteners. Once the front panel is removed, the control panel can also be removed from the subrack by undoing a single screw. Refer to "Replacing Modules" on page 43 for more details.

Note Figure 1.1 above shows the cooling fans and their ducts detached from the front panel only for the clarity of the illustration. The cooling fans and ducts are normally screwed to the rear of the front panel.

Figure 1.1 above also shows the configuration for a typical single 5 or 50W base station. The PMU occupies the slot at the left end of the subrack, with the PA directly beside it. The single reciter normally occupies the second slot from the right of the subrack.

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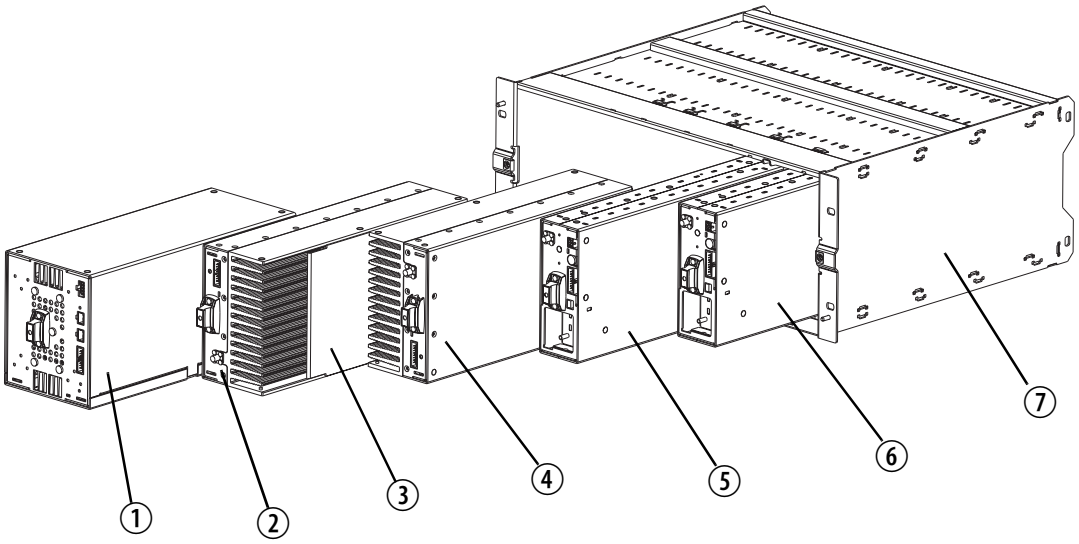
The single PA is mounted vertically with the heatsink facing the centre of the subrack. This positions the cooling fins directly behind the PA fan. The airflow separator is fitted directly beside the PA to help direct the cooling airflow through the heatsink.

Figure 1.2 Mechanical Assembly - Dual 5 or 50W Base Station



1. PMU
2. PA for base station 1
3. airflow separator
4. PA for base station 2
5. reciter for base station 1
6. reciter for base station 2
7. subrack

Figure 1.2 above shows the configuration for a typical dual 5 or 50W base station. The PMU occupies its normal slot at the left end of the subrack, with the reciters in the two right-hand slots.

The two PAs are mounted vertically in the middle of the subrack with the heatsinks facing each other. This positions the cooling fins directly behind the PA fan. The airflow separator between the PAs helps to direct the cooling airflow evenly through each heatsink.

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Figure 1.3 Mechanical Assembly - Single 100W Base Station

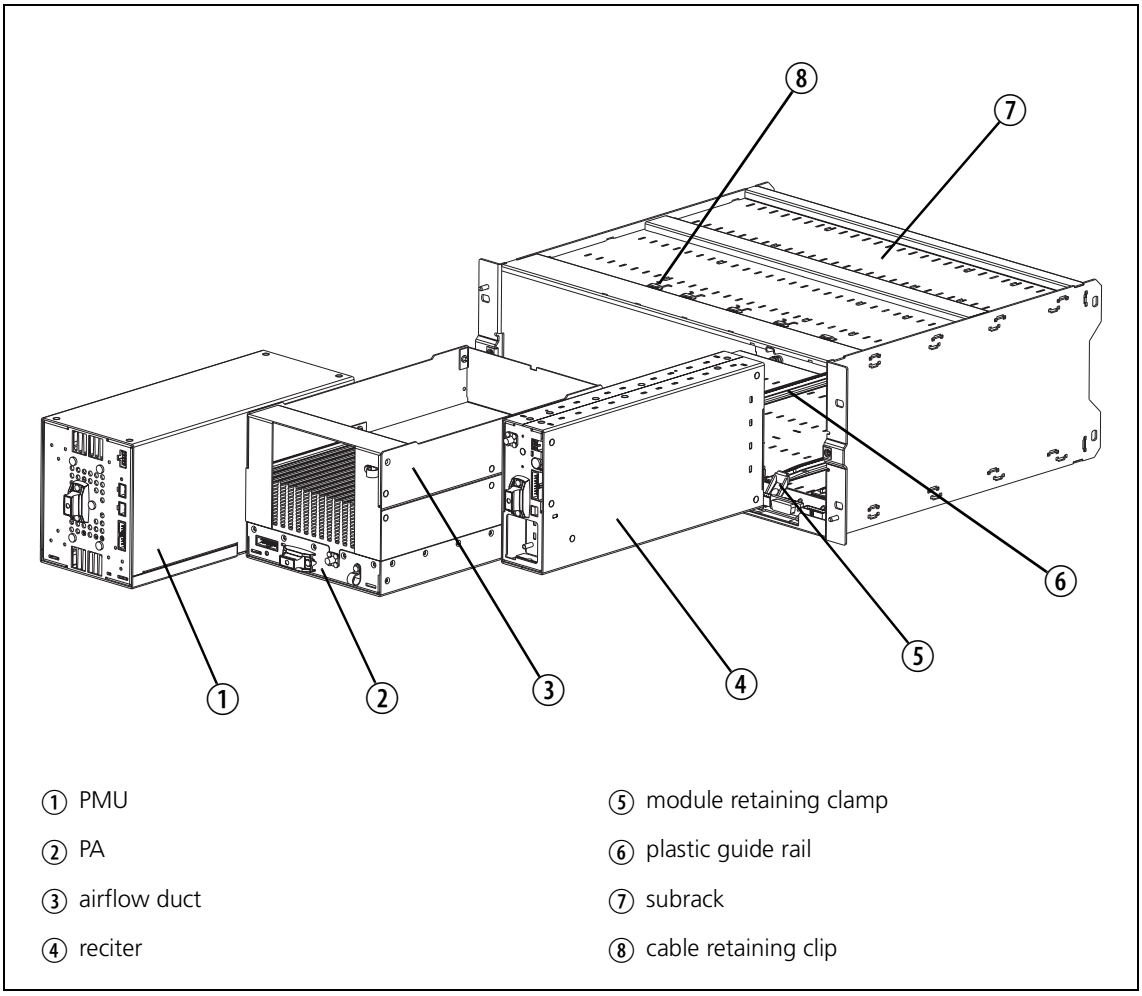

Figure 1.3 above shows the configuration for a typical single 100W base station. The PMU occupies its normal slot at the left end of the subrack, with the PA directly beside it. The single reciter occupies the slot immediately to the right of the PA.

Unlike the 5 and 50W PAs, the 100W PA is mounted horizontally with the heatsink facing upwards. It is also fitted with an airflow duct to channel the airflow from the cooling fan through the heatsink fins.

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