TB8100 base station

Fitting a TBA101A E&M Applications Board to a TB8100 Reciter

TAIT *radio*
communications

1 Applicability

The TBA101A E&M applications board requires a TB8100 reciter fitted with one of the following system interface boards:

- TBA10T1 TaitNet
- TBA10L0 TaitNet RS-232.

2 Introduction

The TBA101A E&M applications board mounts on the rear of a TB8100 reciter, and connects directly to the TaitNet D-range connector on the TaitNet or TaitNet RS-232 system interface boards. It is designed to provide a combination of TaitNet and E&M inputs and outputs on one 25-way D-range, while still allowing access to the RS-232 connector on the TaitNet RS-232 board. The TaitNet I/O is brought out directly from the TaitNet D-range on the reciter, and circuitry on the application board provides the E&M I/O. Some I/O is also available on a 6-way screw terminal block (refer to "Connection" on page 4 for more details).

The TBA101A board provides the following I/O:

- transformer isolated 600Ω balanced audio I/O
- unbalanced audio I/O
- opto-isolated keying
- opto-isolated gate output
- digital I/O (3 outputs, 1 input)

- Tx key
- Rx gate

3 Method

Reciters manufactured after March 2005 should already have threaded mounting holes on the rear panel for mounting the applications board. If your reciter does not have the mounting holes, you will need to fit a new rear panel (Tait part number 316-06847-xx). Contact your nearest Tait Dealer or Customer Service Organisation for more details.

**Parts Required**   1 x TBA101A kit

Tools Required

Driver/ Spanner	Size	Location / Function
Pozidriv PZ1	M3	securing the board to the spacers
Philips PH1	4-40 UNC	securing 15-way connector J2 to the D-range connector on the system interface board
5.5mm AF	M3	securing the spacers to the rear panel of the reciter

Fitting the Board   Refer to Figure 1.

1.   Screw the two spacers ① into the threaded holes provided on the rear panel of the reciter and tighten securely.

2.   Plug the TBA101A board into the 15-way D-range ② and push the plug in firmly. Secure connector J2 to the D-range with the two 4–40 UNC screws ③ provided in the kit.

3.   Secure the board to the spacers with the two M3 screws ④ provided.

Figure 1   **Fitting the board to the reciter**
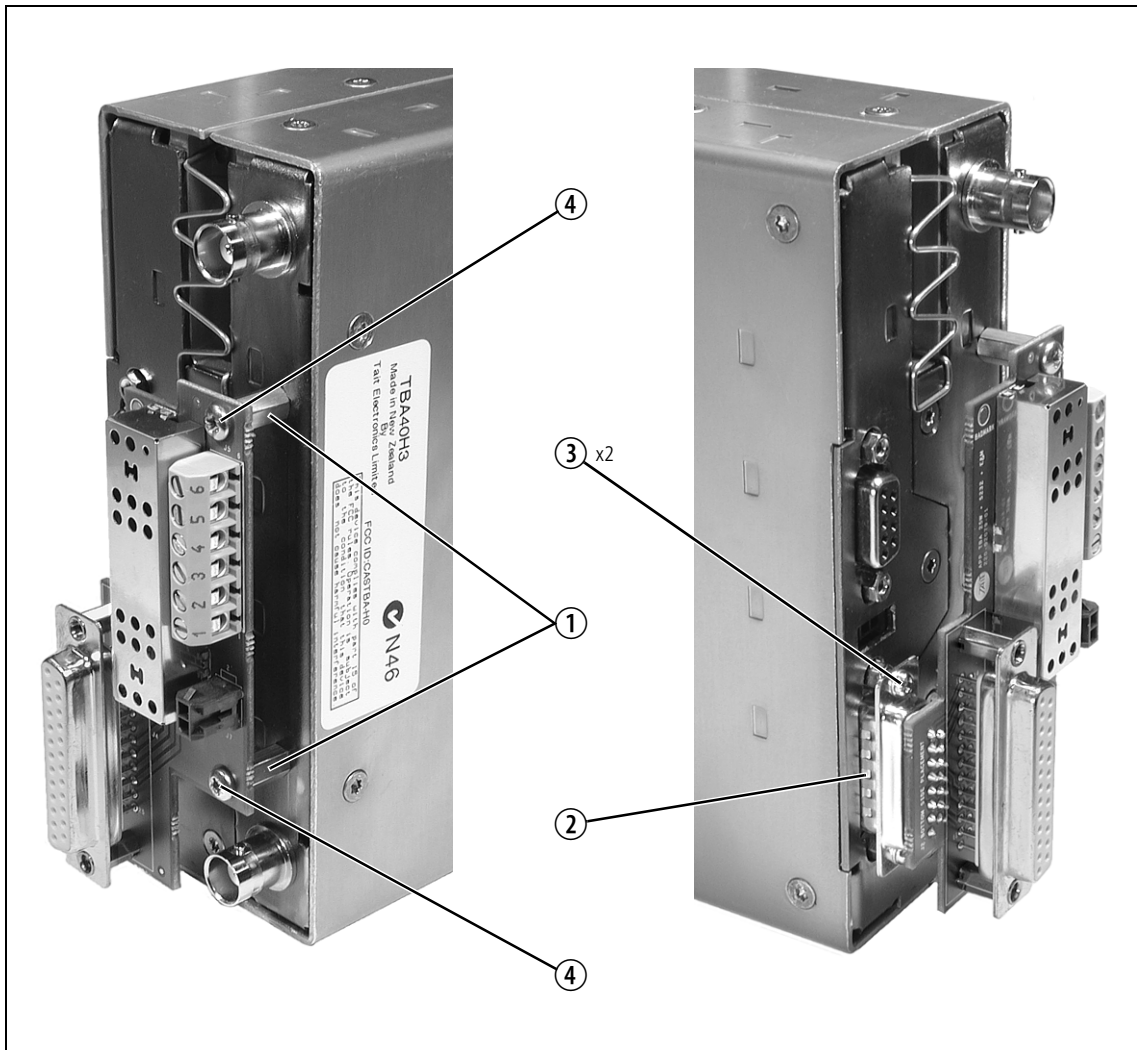
4 Connection

The TBA101A board is fitted with four connectors. These are described in the following table.

Table 1   Connector descriptions

Name	Type	Notes	Location
J2	15-way male D-range	connects to the TaitNet D-range on the system interface board	bottom of board
J4	25-way female D-range	base station interface	
J5	6-way screw terminal block	the inputs and outputs on this connector are duplicates of those available on J4	
J7	2-way Molex 43045-0212	this connector is a duplicate of the auxiliary DC input connector on the reciter; it provides an alternative means of supplying the auxiliary DC output from the PMU to J4 and J5; the matching connector is available under Molex part numbers 43025-0200 (housing) and 43030-0001 (crimp socket)[a]	top of board

a. Also available under Tait part numbers 240-02011-64 (housing) and 240-00026-42 (crimp socket).

Figure 2 below identifies the connectors on the top of the board, and lists the inputs and outputs for J5 and J7. The pin allocations for J4 are listed in Table 2 on page 5.

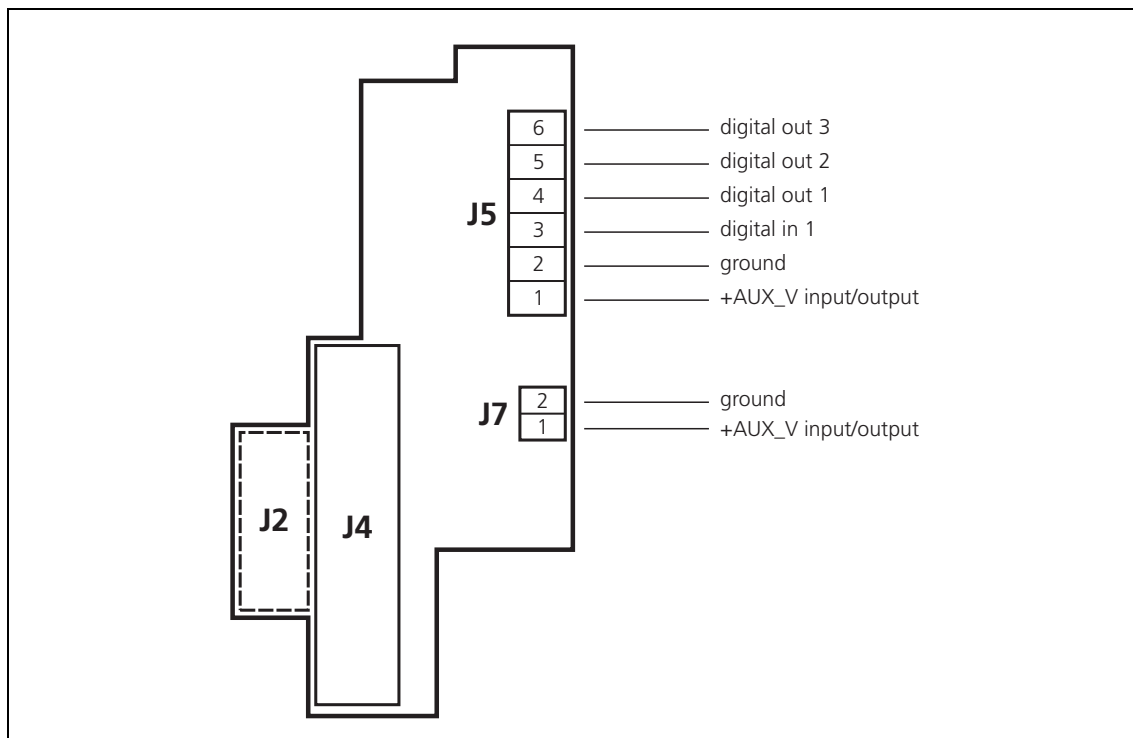**Figure 2   Identifying the connectors**

Table 2   Pin allocations for 25-way D-range J4

external view

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	—	—	not used
5	Tx audio in	audio input	
6	Tx line in +	audio input	transformer isolated line
7	Tx line in –		
8	—	—	not used
9	Rx gate	output	open collector
10	Tx key	input	active low
11	digital out 1[a]	output	open collector
12	digital out 2		
13	+AUX_V	power output	from auxiliary DC input
14	digital in 1	input	5V TTL logic, active low
15	digital out 3	output	open collector
16	—	—	not used
17	—	—	
18	—	—	
19	—	—	
20	opto +/–	isolated keying input (Opto Tx Key)	input voltage range ±10VDC to ±60VDC
21	opto –/+		
22	relay +/–	isolated gate output (Relay Rx Gate)	
23	relay –/+		
24	—	—	not used
25	ground	ground	
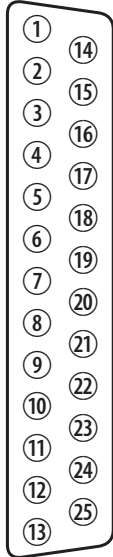
a. If a base station with a 12V PA is configured for Deep Sleep, digital out 1 is dedicated to Power Saving control and should not be used for any other Task Manager function.

✋ *Important*   You must connect the auxiliary DC output from the PMU to the TBA101A board to provide power for the relay (Relay Rx Gate) to work. The TBA101A board will accept the DC output from the 12V, 24V or 48V auxiliary power supply boards.

For more information on the standard Tait auxiliary DC supply cables available, refer to the "Connection" chapter in the TB8100 Installation and Operation Manual.

RJ-45 Connection   If you need to connect equipment to the TBA101A board via an RJ–45 connector, we recommend you use a suitable 25-way D-range-to-RJ-45 adaptor, such as MH Connectors part number MHDA25-PMJ8-K (Farnell part number 429739).

5   Circuit Description

Relay   The relay provides an optocoupler–isolated output (Relay Rx Gate) which is driven by the Rx Gate signal. It has the following characteristics:

- peak voltage $\pm 350\,V$
- on resistance $35\,\Omega$
- peak load current $\pm 120\,mA$

Optocoupler   The optocoupler provides an optocoupler–isolated input (Opto Tx Key) to the reciter. It is connected in such a way that either the Tx Key or Opto Tx Key signals can key the transmitter. Opto Tx Key has the following characteristics:

- control current $> \pm 6\,mA$
- control voltage $> \pm 10\,V$
- control voltage $< \pm 60\,V$ with active current regulator

Figure 3   Block diagram
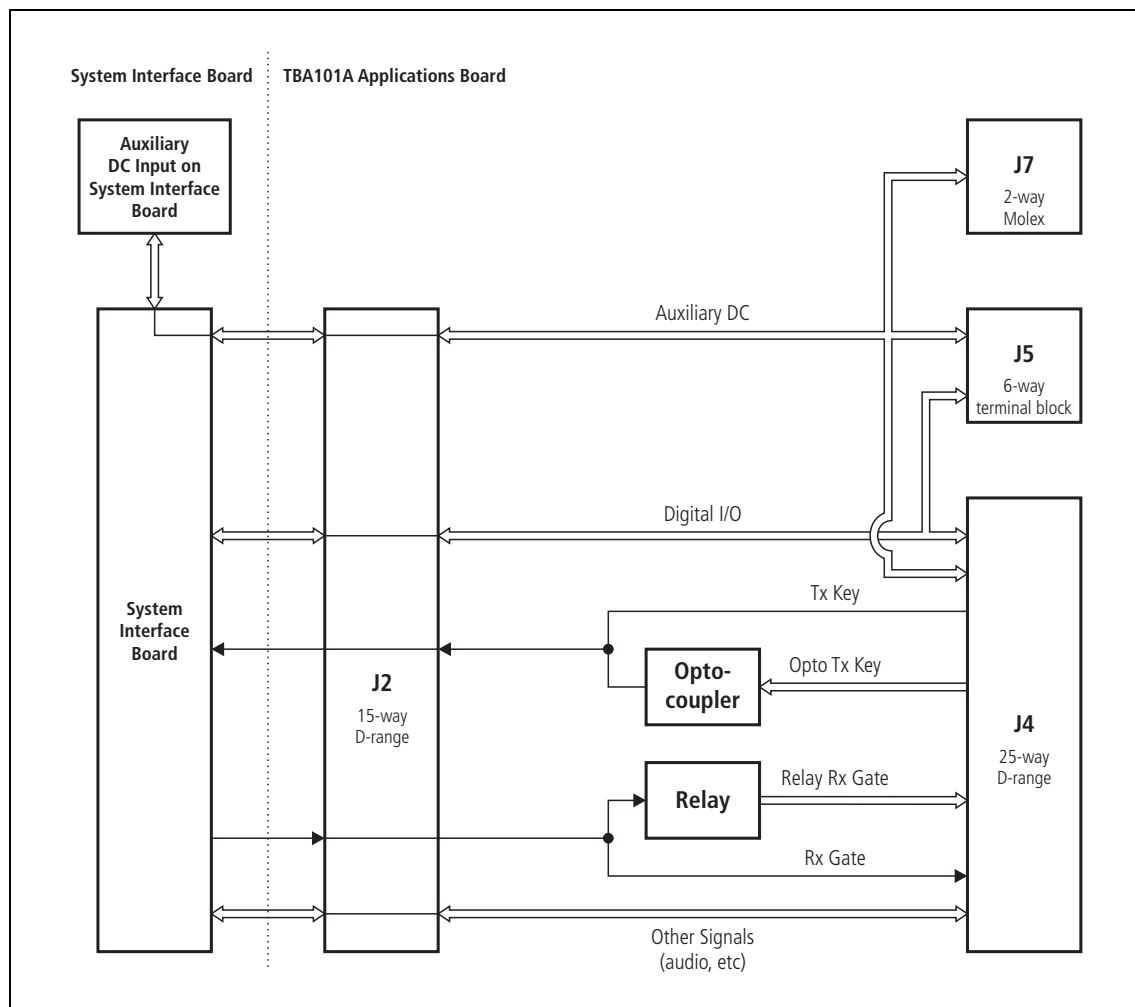
Issuing Authority

Publication History

Publication Date	Author
8 April 2005	D Reynolds

Amendment Record

Publication Date	Page	Amendment
8 April 2005		First release

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