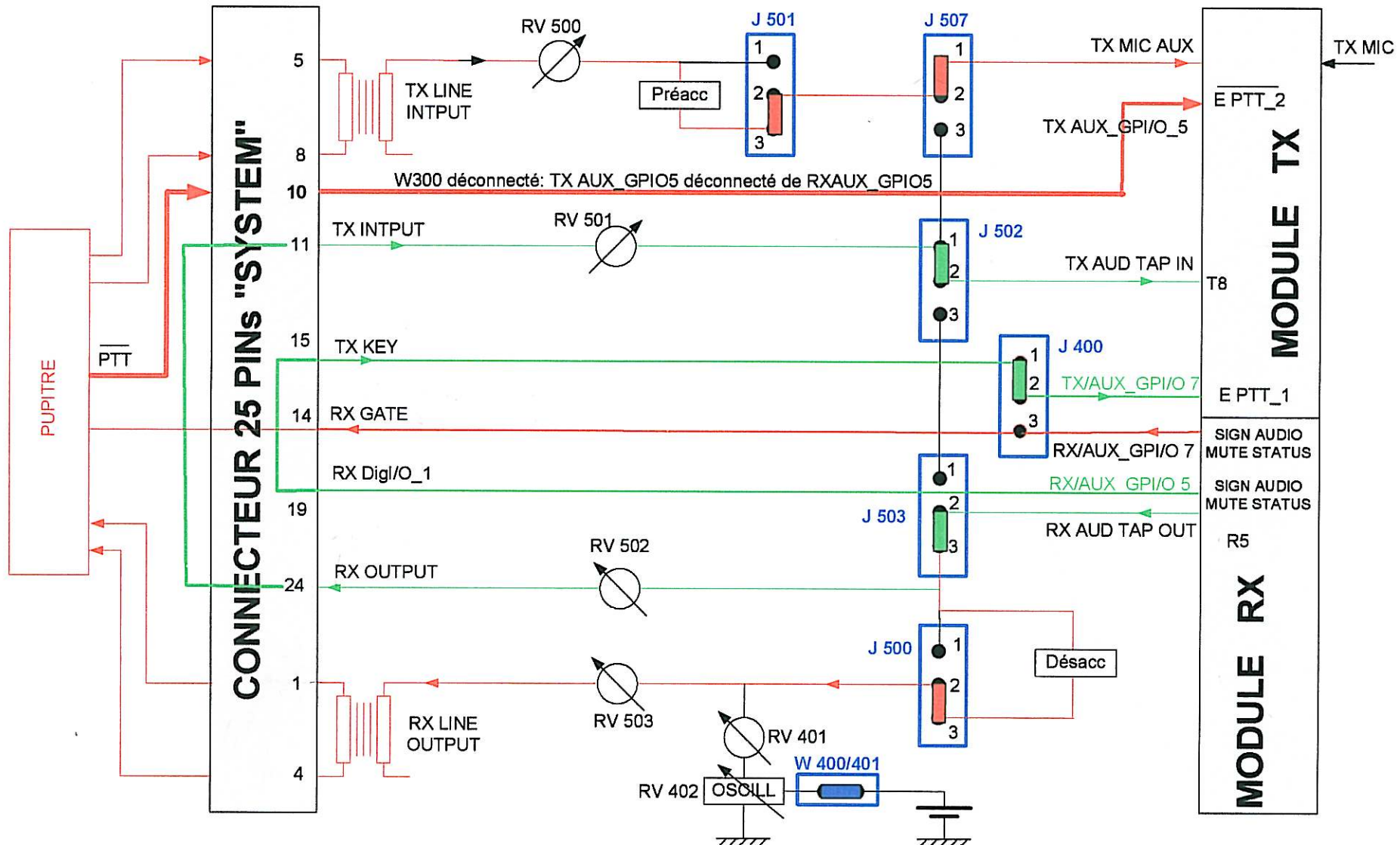
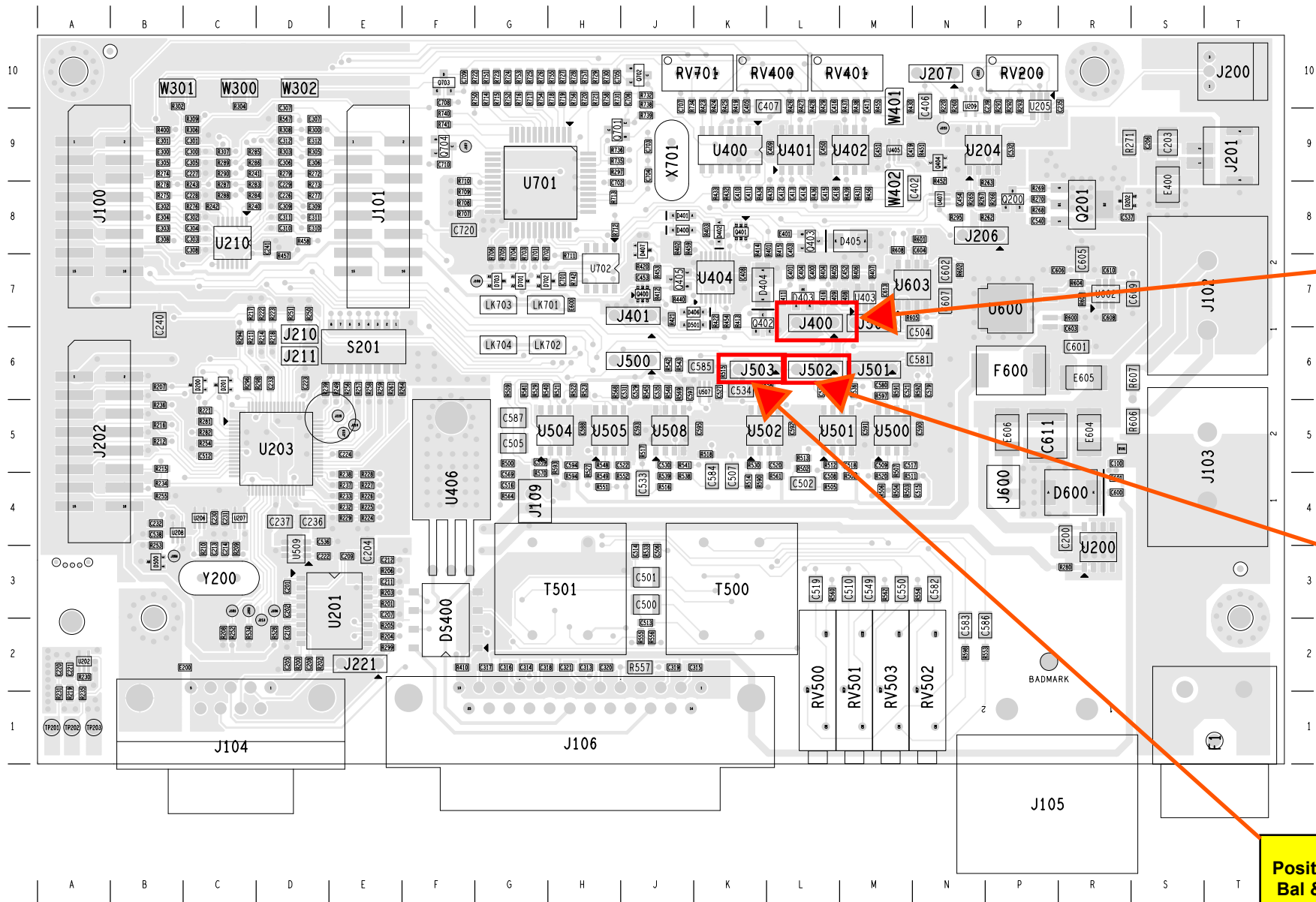




Base/relais avec Pupitre local (2)



TB7100 Line Controlled Base Link Options



Position 1 - 2
External PTT
Input

Position 1 - 2
Bal & UnBal
Audio Inputs
To Tx

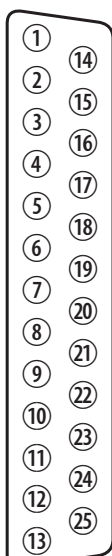
Position 2 - 3
Bal & UnBal
Audio outputs
from RX

TAIT ELECTRONICS IPN: 220-02077-04 ISS: A DATE: 14Apr05 SCALE: NTS
TB7100 System Interface LAYOUT-PRIMARY-SIDE

Connecteur du système (SYSTEM)

Le connecteur du système (J106) à l'arrière de la station de base est une prise DB25 standard à 25 voies.

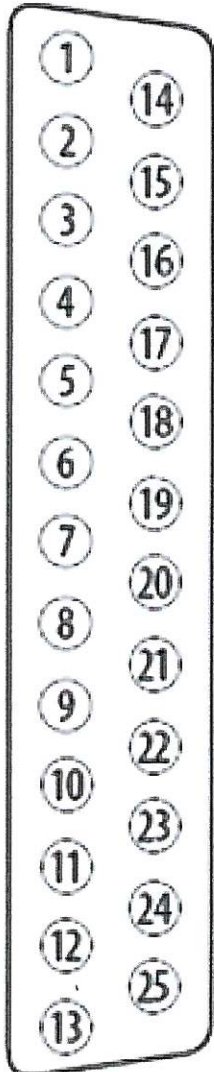
| Broche | Nom du signal | Type du signal | Notes |
|--------|------------------------------------|---------------------|--|
| 1 | Sortie ligne Rx + | sortie audio | ligne isolée galvaniquement <6dBm |
| 2 | Entrée logique Tx/Rx 1 (AUX_GPI1) | entrée | haute $\geq 1,7$ V, basse $\leq 0,7$ V |
| 3 | Entrée logique Tx/Rx 2 (AUX_GPI2) | | |
| 4 | Sortie ligne Rx - | sortie audio | ligne isolée galvaniquement |
| 5 | Entrée ligne Tx + | entrée audio | ligne isolée galvaniquement |
| 6 | Entrée logique Tx/Rx 3 (AUX_GPI3) | entrée | haute $\geq 1,7$ V, basse $\leq 0,7$ V |
| 7 | Entrée logique Tx/Rx 4 (AUX_GPIO4) | entrée | sortie : haute $\geq 3,1$ V (sans charge), basse $< 0,6$ V (10mA écoulement du courant) entrée : haute $\geq 1,7$ V, basse $\leq 0,7$ V |
| 8 | Entrée ligne Tx - | entrée audio | ligne isolée galvaniquement |
| 9 | RSSI | sortie | signal CC, 0,6 à 2,5V |
| 10 | E/O logique Tx 1 (TX_AUX_GPIO5) | entrée/sortie | sortie : haute $\geq 3,1$ V (sans charge), basse $< 0,6$ V (10mA écoulement du courant) entrée : haute $\geq 1,7$ V, basse $\leq 0,7$ V |
| 11 | Entrée audio Tx | entrée audio | |
| 12 | E/O logique Tx 2 (TX_AUX_GPIO6) | entrée/sortie | sortie : haute $\geq 3,1$ V (sans charge), basse $< 0,6$ V (10mA écoulement du courant) entrée : haute $\geq 1,7$ V, basse $\leq 0,7$ V |
| 13 | masse | masse | |
| 14 | Rx gate (Détection de porteuse) | sortie | collecteur ouvert |
| 15 | activation Tx | entrée | active basse |
| 16 | Relais Rx (commun) | sortie | opto-coupleur |
| 17 | Relais Rx (NO ou NC) | | |
| 18 | Interdire Rx | entrée | 0 à 3,3V, active basse |
| 19 | E/O logique Rx 1 (RX_AUX_GPIO5) | entrée/sortie | sortie : haute $\geq 3,1$ V (sans charge), basse $< 0,6$ V (10mA écoulement du courant) entrée : haute $\geq 1,7$ V, basse $\leq 0,7$ V |
| 20 | Entrée opto Tx + | entrée | plage de tension d'entrée 10VCC à 60VCC |
| 21 | Entrée opto Tx - | entrée | |
| 22 | E/O logique Rx 2 (RX_AUX_GPIO6) | entrée/sortie | sortie : haute $\geq 3,1$ V (sans charge), basse $< 0,6$ V (10mA écoulement du courant) entrée : haute $\geq 1,7$ V, basse $\leq 0,7$ V |
| 23 | Sortie logique /relais Tx | sortie | active basse, écoulements de courant jusqu'à 250mA |
| 24 | Sortie audio Rx | sortie | $< 4,4V_{pp}$ |
| 25 | Sortie 13,8 volt | sortie alimentation | Fusible SMD 1,5A avec réinitialisation |



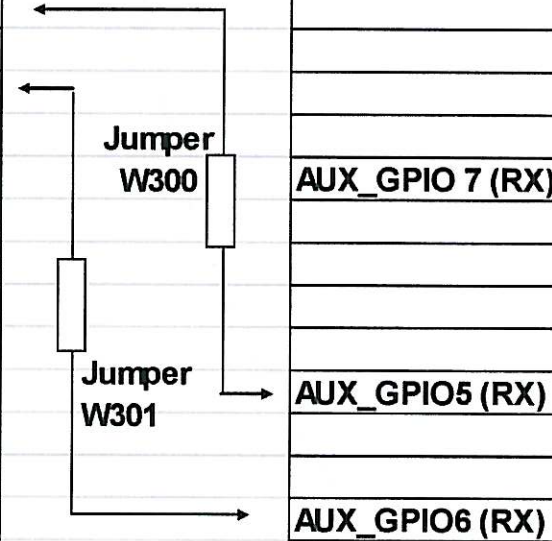
vue externe



SIF Entrées / Sorties programmables (1)



| CONNECTEUR 25 PINS | | PROGRAMMATION | | |
|--------------------|---------------------------|-----------------|----------------|-----------------|
| PIN | TB7100 FONCTION | MODULE TX | LIAISON "HARD" | MODULE RX |
| 1 | Rx line output + | | | |
| 2 | Tx / Rx Dig In_1 | AUX_GPI 1 (TX) | ↔ | AUX_GPI 1 (RX) |
| 3 | Tx / Rx Dig In_2 | AUX_GPI 2 (TX) | ↔ | AUX_GPI 2 (RX) |
| 4 | Rx line output - | | | |
| 5 | Tx line input + | | | |
| 6 | Tx / Rx Dig In_3 | AUX_GPI 3 (TX) | ↔ | AUX_GPI 3 (RX) |
| 7 | Tx / Rx Dig I/O_4 | AUX_GPIO 4 (TX) | ↔ | AUX_GPIO 4 (RX) |
| 8 | Tx line input - | | | |
| 9 | RSSI Out | | | |
| 10 | Tx Dig I/O_1 | AUX_GPIO 5 (TX) | ← | |
| 11 | Tx audio input | | | |
| 12 | Tx Dig I/O_2 | AUX_GPIO 6 (TX) | ← | |
| 13 | Ground | | | |
| 14 | Rx Gate Out | | | |
| 15 | Tx Key In | AUX_GPIO 7 (TX) | ← | |
| 16 | Rx relay (comm) | | | |
| 17 | Rx relay (NO / NC) | | | |
| 18 | Rx inhibit In | | | |
| 19 | Rx Digl I/O_1 | | | |
| 20 | Tx opto input + | | | |
| 21 | Tx opto input - | | | |
| 22 | Rx Dig I/O_2 | | | |
| 23 | Digital Output / Tx relay | | | |
| 24 | Rx audio output | | | |
| 25 | 13.8v output | | | |



3. TB7100 Programming

TB7100 Receiver TB7100 RX > Programmable I/O > Digital

Configure the Digital/Audio I/O to reflect the following –

Programmable I/O

Digital | Audio | BCD |

| Pin | Direction | Label | Action | Active | Debounce | Signal State | Mirrored To |
|-----------|-----------|----------|-------------|--------|----------|--------------|-------------|
| AUX_GPI1 | Input | RT_DL_1 | BCD Pin 0 | Low | 10 | None | None |
| AUX_GPI2 | Input | RT_DL_2 | BCD Pin 1 | Low | 10 | None | None |
| AUX_GPI3 | Input | RT_DL_3 | BCD Pin 2 | Low | 10 | None | None |
| AUX_GPI4 | Input | RT_DIO_1 | BCD Pin 3 | Low | 10 | None | None |
| AUX_GPI5 | Output | I | Busy Status | Low | None | None | None |
| AUX_GPI6 | None | R_DIO_2 | No Action | None | None | None | None |
| AUX_GPI7 | Output | I | Busy Status | High | None | None | None |
| IOP_GPI01 | None | PIN_9 | No Action | None | None | None | None |
| IOP_GPI02 | None | PIN_10 | No Action | None | None | None | None |
| IOP_GPI03 | None | PIN_11 | No Action | None | None | None | None |
| IOP_GPI04 | None | PIN_12 | No Action | None | None | None | None |
| IOP_GPI05 | None | PIN_13 | No Action | None | None | None | None |
| IOP_GPI06 | None | PIN_14 | No Action | None | None | None | None |
| IOP_GPI07 | None | PIN_15 | No Action | None | None | None | None |
| CH_GPI01 | None | C_HEAD | No Action | None | None | None | None |

Action Parameters

Emergency Mode: Stealth

Unmute Audio Output: Speaker Audio Path

Mute Audio Input: Audio Tap In

Home Channel: 1

Mute Audio Output: Speaker Audio Path

Preset Channel: 1

Points of interest –

- **AUX_GPI07** is used to feed the link repeater or dispatcher console. This can be set to active low or high to suit the particular application.
- **AUX_GPI05** is used for the repeater operation, this should remain active low.

TB7100 RX > Programmable I/O > Audio

Programmable I/O

Digital | Audio | BCD |

| Rx/PTT Type | Tap In | Tap In Type | Tap In Unmute | Tap Out | Tap Out Type | Tap Out Unmute |
|-------------|--------|---------------|---------------|---------|--------------|----------------|
| Rx | None | A - Bypass In | On PTT | R7 | D - Split | Busy Detect |
| Mic PTT | None | A - Bypass In | On PTT | None | C - Bypass 0 | On PTT |
| EPTT1 | None | A - Bypass In | On PTT | None | C - Bypass 0 | On PTT |
| EPTT2 | None | A - Bypass In | On PTT | None | C - Bypass 0 | On PTT |

Points of interest –

- **R7** was chosen as the tap out point as this is positioned after the 300Hz HPF, and also provides flat audio for the line, hence the position of J500. This tap out point supplies receiver audio to both the balanced and unbalanced line outputs.

TB7100 Transmitter
TB7100 TX >
Programmable I/O >
Digital

Configure the Digital/Audio I/O to reflect the following –

Programmable I/O

Digital | **Audio** | BCD |

| Pin | Direction | Label | Action | Active | Debounce | Signal State | Mirrored To |
|-----------|-----------|----------|----------------|--------|----------|--------------|-------------|
| AUX_GPI1 | Input | RT_DI_1 | BCD Pin 0 | Low | 10 | None | None |
| AUX_GPI2 | Input | RT_DI_2 | BCD Pin 1 | Low | 10 | None | None |
| AUX_GPI3 | Input | RT_DI_3 | BCD Pin 2 | Low | 10 | None | None |
| AUX_GPI4 | Input | RT_DIO_1 | BCD Pin 3 | Low | 10 | None | None |
| AUX_GPI5 | Input | | External PTT 2 | Low | 2 | None | None |
| AUX_GPI6 | None | T_DIO_2 | No Action | None | None | None | None |
| AUX_GPI7 | Input | | External PTT 1 | High | 2 | None | None |
| IOP_GPI01 | None | PIN_9 | No Action | None | None | None | None |
| IOP_GPI02 | None | PIN_10 | No Action | None | None | None | None |
| IOP_GPI03 | None | PIN_11 | No Action | None | None | None | None |
| IOP_GPI04 | None | PIN_12 | No Action | None | None | None | None |
| IOP_GPI05 | None | PIN_13 | No Action | None | None | None | None |
| IOP_GPI06 | None | PIN_14 | No Action | None | None | None | None |
| IOP_GPI07 | None | PIN_15 | No Action | None | None | None | None |
| CH_GPI01 | None | C_HEAD | No Action | None | None | None | None |

Action Parameters

Emergency Mode: Stealth | Unmute Audio Output: Speaker Audio Path

Mute Audio Input: Audio Tap In | Home Channel: 1

Mute Audio Output: Speaker Audio Path | Preset Channel: 1

Points of interest –

- **AUX_GPI07** is used as the TX key input for the repeater operation, this should remain active high.
- **AUX_GPI05** is used as the TX key input from the link repeater or dispatcher console. This can be set to active low or high to suit the particular application.

TB7100 TX >
Programmable I/O >
Audio

Programmable I/O

Digital | **Audio** | BCD |

| Rx/PTT Type | Tap In | Tap In Type | Tap In Unmute | Tap Out | Tap Out Type | Tap Out Unmute |
|-------------|--------|---------------|---------------|---------|--------------|----------------|
| Rx | None | A - Bypass In | On PTT | None | D - Split | On PTT |
| Mic PTT | None | A - Bypass In | On PTT | None | C - Bypass 0 | On PTT |
| EPTT1 | T5 | A - Bypass In | On PTT | None | C - Bypass 0 | On PTT |
| EPTT2 | None | A - Bypass In | On PTT | None | C - Bypass 0 | On PTT |

Points of interest –

- **R5** is suggested as the tap in point for the repeater audio. This will then complement the tap out point used for the receiver audio and pre-emphasise the repeater audio before re-transmission. Audio from the link repeater or dispatcher console being feed via the balanced line audio will be supplied to the transmitter module via the AUX_MIC input, allowing these two different audio inputs to have different priorities.

PTT Priorities
TB7100 TX > PTT

Due to the use of different audio inputs for the repeater and line operation it is possible to have different priorities for these two operations. This adds flexibility to enable the dispatcher to have control over the conversation in a dispatch operation, or the talk-through repeater to have priority in a repeater + link operation.

The Priorities are configured in the 'PTT' menu of the TB7100 programming application.

EXTERNAL PTT 1 – Repeater PTT and operation

The screenshot shows the 'PTT' configuration window with 'External PTT (1)' selected. In the 'Advanced EPTT1' section, the 'PTT Priority' dropdown is set to 'Medium' and the 'Audio Source' dropdown is set to 'Audio Tap In'. Other settings include 'PTT Press Call Setup' (checkbox), 'De-key After PTT Call Setup' (When Ack Expected), 'PTT Monitor' (Never), and 'De-key After PTT Monitor' (checkbox).

EXTERNAL PTT 2 – Dispatcher/Link PTT and operation

The screenshot shows the 'PTT' configuration window with 'External PTT (2)' selected. In the 'Advanced EPTT2' section, the 'PTT Priority' dropdown is set to 'Highest' and the 'Audio Source' dropdown is set to 'AUX MIC'. Other settings include 'PTT Press Call Setup' (checkbox), 'De-key After PTT Call Setup' (When Ack Expected), 'PTT Monitor' (Never), and 'De-key After PTT Monitor' (checkbox).

To change the priorities between the two PTT input operations simply switch the priorities between EXT PTT 1 and EXT PTT2.
Note – Two PTT's cannot have the same priority.

Additional Note – Control Head PTT is set to the 'Lowest' Priority with audio source set to CH_MIC.