TB8100 base station

Release Notes

TAIT *radio*
communications

This technical note contains late-breaking information to accompany the May 2006 release of the TB8100 base station. It also provides additional information about:

■ Service Kit software version 03.01.

■ Reciter firmware versions 03.01 and earlier.

■ PA firmware versions 02.09 and earlier.

■ PMU firmware versions 02.08 and earlier.

1   What's New in This Release

The following features and enhancements are new as compared with earlier versions. For more detail, see the Installation and Operation Manual and the Service Kit online Help. Two issues have also been fixed in this release (refer to "Issues Fixed" on page 8).

Ethernet

The TB8100 Base Station now supports Ethernet. This allows all Service Kit communication (including configuration, monitoring, diagnostics, and firmware download) as well as CCI communication over IP/Ethernet. The TaitNet Ethernet system interface board has an RJ45 Ethernet input, as well as an enhanced TaitNet interface connector. The TaitNet interface has been enhanced to provide the following extra functionality that is switch-selectable: E&M signalling, RSSI, and Tx relay. The three digital outputs and one digital input have been replaced by four bidirectional digital lines.

Not supported over IP/Ethernet are the Calibration Kit and Alarm Center applications. The Calibration Kit still communicates via the front panel RS-232 port. Alarm collection over IP/Ethernet is now supported through syslog messaging (e.g. Kiwi Syslog Daemon - see www.kiwisyslog.com).

The TaitNet Ethernet system interface board does not support VoIP.

Refer to TN-1142-AN for more information.

Multi-reciter Subrack

The TB8100 subrack can now accommodate one to seven reciters without a PMU, or one to five reciters with a PMU. The reciters would typically be receive-only reciters. This has been made possible by introducing a new subrack interconnect board and a new control panel. These new products allow you to select which reciter you communicate with via the control panel's serial port. The reciter status LEDs on the control panel operate for the selected reciter, and a configurable status LED (Rx gate or alarm) is also provided for each reciter.

Refer to TN-1148-AN for more information.

Task Manager

Task Manager now supports the following statement:

IF NOT **Base Station in Run mode** THEN *action*

When changing from Run mode to Standby mode, the base station runs one more cycle in order to evaluate this statement.

Refer to the Task Manager Programming Guide (TN-1154-AN) for more information.

Bit/Pin Mapping

The TB8100 Service Kit and base station now support fully flexible allocation of digital inputs for the purpose of channel selection. Each bit of the channel selection register can be mapped to any digital input.

2   Compatibility

When the Service Kit is used for reading or programming a base station with modules that have earlier firmware versions, rules are applied to convert between new and old data versions, as explained in the Service Kit online Help.

The following table specifies all compatible configurations of the TB8100 base station. A compatible configuration is a combination of module hardware, module firmware, Service Kit software, and Calibration Kit software, where each part of the whole is compatible with all the other parts.

■ Each row in the table identifies a compatible base station configuration.

■ Each cell within a row contains the version number of the hardware, firmware, Service Kit software, or Calibration Kit software that is compatible with the other versions in the row. If a cell contains more than one version number, more than one version is compatible.

■ Table footnotes indicate any restrictions imposed on a particular combination by the version of hardware, firmware, Service Kit software, or Calibration Kit software.

■ Any other combination is not compatible and not supported.

■ When servicing a module, you must use the version of Calibration Kit software that matches the version of firmware loaded into the module.

Base Station Hardware				Base Station Firmware			Service Kit Software	Calibration Kit Software
Reciter	PMU	PA	Control Panel	Reciter	PMU	PA		
00.05 00.04 00.03[a] 00.02[a] 00.01[a+b+c+d]	00.02 00.01 00.00[e+f]	00.01 00.00[g]	XBA2010 XBA2020[h] XBA2040[i] XBA2060	03.01 03.00	02.08	02.09	03.01 03.00	03.00
00.05 00.04 00.03[a] 00.02[a] 00.01[a+b+c+d]	00.02 00.01 00.00[e+f]	00.01 00.00[g]	XBA2010 XBA2020[h] XBA2040[i]	02.10	02.08	02.09	03.00 02.09	03.00 02.09
00.04 00.03[a] 00.02[a] 00.01[a+b+c+d]	00.02 00.01 00.00[e+f]	00.01 00.00[g]	XBA2010 XBA2020[h] XBA2040[i]	02.09	02.08	02.09	03.00 02.09	03.00 02.09
00.03[a] 00.02[a] 00.01[a+b+c+d]	00.02 00.01 00.00[e+f]	00.01 00.00[g]	XBA2010 XBA2020[h] XBA2040[i]	02.07	02.08 02.07	02.07	03.00 02.09 02.07	03.00 02.07
00.03[a] 00.02[a] 00.01[a+b+c+d]	00.02 00.01 00.00[e+f]	00.01 00.00[g]	XBA2010 XBA2020[h] XBA2040[i]	02.05	02.06 02.05	02.05	03.00 02.09 02.07 02.05	03.00 02.05
00.03[a] 00.02[a] 00.01[a+b+c+d]	00.02 00.01 00.00[e+f]	00.01 00.00[g]	XBA2010 XBA2020[h] XBA2040[i]	02.03	02.04[j] 02.03	02.03	03.00 02.09 02.07 02.05 02.03	02.03
00.03[a] 00.02[a] 00.01[a+b+c+d]	00.02 00.01 00.00[e+f]	00.01 00.00[g]	XBA2010 XBA2020[h] XBA2040[i]	02.02	02.03 02.02	02.02	03.00 02.09 02.07 02.05 02.03 02.02	02.02
00.02[a] 00.01[a+b+c+d]	00.02 00.01 00.00[e+f]	00.01 00.00[g]	XBA2010 XBA2020[h] XBA2040[i]	02.00	02.01[k] 02.00[l]	02.00	03.00 02.09 02.07 02.05 02.03 02.02[m] 02.00	02.00
00.02[a+n] 00.01[a+d]	00.02 00.01 00.00[e+f]	00.01 00.00	XBA2020 XBA2040[i]	01.01[b+c]	01.01[e]	01.01[o]	03.00 02.09 02.07 02.05 02.03 02.02[m] 02.00[m] 01.03 01.01	01.01

a. Extended bypass does not work.

b. Power saving does not work.

c. External reference changeover to internal reference does not work reliably.

d. Cannot be used with the TaitNet RS-232 system interface board.

e. The Mains Failure diagnostic test does not work.

f. The 12 VDC power supply cannot exceed 16V (6 cells).

g. Power saving does not work reliably: the base station may be unable to wake the PA up out of Deep Sleep mode.

h. Using a XBA2020 control panel in a base station with Power Save increases power consumption by approximately 0.5 W.

i. Hardware-switchable dual base stations must use the control panel XBA2040 together with the subrack interconnect PCB XBAK22C2.

j. Should not be used with a PMU running on a DC supply.

k. 48 VDC PMUs require PMU firmware version 02.01 or later.

l. 24 VDC PMUs require PMU firmware version 02.00 or later.

m. Conversion rules apply. See the online Help for general information.

n. DIP switches in the reciter must be set to positions that disable power saving if you downgrade a new reciter to old firmware (see TN-850 for details).

o. If downgrading the PA firmware to version 01.01, make sure the PMU supplying the PA is running on AC power. Alternatively, use a bench power supply set to 28V to power the PA during download.

Important   Power Saving is supported by firmware versions 02.00 and later, reciter hardware versions 00.02 and later, and PA hardware versions 00.01 and later. It is not supported by dual base stations.

B–band (VHF) operation is supported by firmware versions 02.02 and later, and reciter hardware version 00.03.

C–band (Band III) and K–band (800 MHz) operation is supported by firmware versions 02.03 and later, and reciter hardware version 00.03.

L–band (900 MHz) operation is supported by firmware versions 02.07 and later.

The TaitNet Ethernet system interface board and multi–reciter control panel are supported by reciter firmware versions 03.00 and later.

3 Upgrading to Service Kit Version 03.01

You must remove the old Service Kit version before installing the new version. Begin the installation in the usual way. In the Welcome screen, select Remove to remove all installed components. Then begin the installation again.

Note If you are upgrading from version 01.01, back up the connection definitions (SKLocal.mdb) before removing all installed compo-nents. Once the installation is complete, copy the backed up SKLocal.mdb files back into the directory where the Service Kit is installed.

Note A PC can only have one Service Kit version installed.

4 Upgrading or Downgrading Firmware

To upgrade or downgrade the firmware of any base station module, carry out the procedures described in "Upgrading Base Station Firmware" in the Service Kit online Help or User's Manual. Note that you must use the latest version of the Service Kit software.

Reciter Recalibration

In some situations you must recalibrate the reciter when you upgrade or downgrade the reciter's firmware, as described in the table below.

Upgrade or Downgrade	Procedures Required
upgrading the reciter firmware from version 02.00 or later to any later version	■ no recalibration is required
downgrading the reciter firmware from version 02.03 or later to version 02.02	■ automatically tune the frequency control loop (FCL)
■ upgrading the reciter firmware from version 01.01 to version 02.00 or later ■ downgrading the reciter firmware from version 02.02 to any earlier version	■ automatically tune the frequency control loop (FCL) ■ calibrate the FCL modulation ■ calibrate the VCO modulation

Refer to the Calibration Kit documentation for more details about tuning and recalibration procedures.

Important Always use the Calibration Kit software version compatible with the reciter firmware version you are upgrading or downgrading to (refer to "Compatibility" on page 3).

5 Documentation

Service Kit User's Manual and Online Help

By default, the TaitNet Ethernet system interface board has a private IP address (192.168.1.2). Before the base station is installed on site, you need to connect via RS-232, Ethernet crossover cable, or on an isolated network segment, and give it its proper network identity. The Service Kit User's Manual and online Help incorrectly state that the base station has no default identity.

Specifications Manual

The specifications for the PMU battery protection startup voltage limits have been changed. The appropriate section from the Specifications Manual (MBA-00001-09, page 50) is reproduced below. The amended specifications (shown as underlined) will be included in the next issue of the manual.

Input - DC Module

	12V PMU	24V PMU	48V PMU
Input Voltage			
User-programmable Alarms[a]			
Low Battery Voltage	10V to 14V	20V to 28V	40V to 56V
High Battery Voltage	14V to 17.5V	28V to 35V	56V to 70V
User-programmable Limits[b]			
Startup Voltage (after shutdown)	12V to 15.0V	23.9V to 30V	47.8V to 60V
Shutdown Voltage	10V to 13.5V	20V to 27V	40V to 54V
Battery Protection (Fail-safe) Limits[c]			
Startup Voltage	<u>12V ±0.2V</u>	<u>24V ±0.5V</u>	<u>48V ±1V</u>
Undervoltage Shutdown	9.5V ±0.3V	19V ±0.5V	38V ±1V
Overvoltage Shutdown	18.1V ±0.3V	36.2V ±0.5V	72.4V ±1V
Overvoltage Shutdown Reset	17.1V ±0.3V	34.2V ±0.5V	68.4V ±1V

a. User-programmable alarms can be set for low or high battery voltage, using the Service Kit software. The alarms will be triggered when the set voltage levels are reached. <u>These limits are subject to the tolerances of the battery protection circuitry, as stated in "Battery Protection (Fail-safe) Limits".</u>

b. The user-programmable startup and shutdown limits allow for adjustable startup and shutdown voltages. Using the Service Kit software, these limits can be adjusted for different numbers of battery cells, or for the particular requirements of the base station operation. Once the limits are reached, the PMU will shutdown. <u>These limits are subject to the tolerances of the battery protection circuitry, as stated in "Battery Protection (Fail-safe) Limits".</u> This feature is only available if the standby power supply card is fitted.

c. The battery protection limits are set in hardware at the factory, and cannot be adjusted by the user. These limits will not be reached under normal operation conditions, but are provided as "fail-safe" measures to protect the battery from deep discharge.

Application Notes

Application Notes have been published for the TaitNet Ethernet system interface board, and multi–reciter subracks. These documents will be merged into the manuals in a later release.

6 Issues Fixed

The following is the full list of known issues or limitations from previous versions that have been fixed in this release.

Tait Reference	Headline
00021674	Increase talk-through repeater gain limits
00056265	Reciter firmware v3.00 changes Balanced line values

7 Known Issues or Limitations

Alarm Center: Does not release the line after sending an email

Tait reference: 00027117 After the Alarm Center has used the modem to connect to the internet to send an email, the modem connection is not closed. The Alarm Center will then be unable to go into Auto Answer mode until the connection is manually closed, or it times out (from being idle for longer than the time specified in the connection).   This problem only occurs on Windows 95, 98 and NT machines that have a version of Internet Explorer earlier than 5.01. To fix the problem on these machines, install version 5.01 or later of Internet Explorer.

Alarm Center: No answer from Alarm Center when using multiple modem drivers

Tait reference: 00012467 The Alarm Center does not answer modem calls when more than one Modem Driver is installed for a single COM port.

Alarms: Air intake temperature alarm activates before PA fan comes on

Tait reference: 00042198 When the PA fan is not running, as soon as the PA heatsink reaches the maximum PA air intake temperature threshold, the air intake temperature alarm is raised.   The default maximum PA air intake temperature threshold is 50°C, which is lower than the default PA fan control threshold temperature of 60°C. To prevent spurious air intake temperature alarms, adjust the maximum PA air intake temperature to be 10°C above the PA fan control threshold temperature, or reduce the PA fan control temperature.

Alarms: Transmit power alarm at low power

Tait reference: 00018814 The forward and reverse power alarm threshold (Configure > Alarms > Thresholds) can be as low as 1W. However, this is not practical when using a 5W PA, so it is recommended that the VSWR alarm is used instead. VSWR is calculated with better precision, and reliably detects load failure.

Base Station: Revert to Run doesn't occur after firmware upgrade

Tait reference: 00054784 During a firmware upgrade, the base station is taken out of Run mode, the firmware is upgraded, and the base station is restarted. If the user does not put the base station back into Run mode before disconnecting the Service Kit, automatic Revert to Run will not happen.

Calibration: Carrier frequency offset adjustment icon doesn't indicate procedure is complete

Tait reference: 00048932 After finishing the carrier frequency offset adjustment, the light icon next to it does not turn on (change colour) to indicate the procedure is complete.

Calibration: PA Stage Bias error "not at this time" is described as "non-critical"

Tait reference: 00046033 During PA Stage Bias calibration, if the Calibration Kit returns an error saying that "A (valid) command code has been received by the Base Station but it cannot be processed at this time", then the stage bias calibration has not been completed. The Calibration Kit reports this error as non-critical, invites the user to Ignore it, and indicates that the stage bias has been calibrated – which it has not.   The user should check the supply voltage, the supply voltage calibration, and the temperature of the PA, and try again.

Communications: Aux. power supply is reported as active in email when it is not

Tait reference: 00026972 When the PMU Auxiliary power supply is deactivated via Task Manager, the status emails are still stating the Aux supply is active, when in fact it is not.

Configuration: "Superimpose" for CTCSS does not work when tone externally generated

Tait reference: 00041444 If externally generated subaudible signalling is to be applied to Tx path B, limiting caused by audio on Tx path A may cause the signalling to be lost. In this case, the Tx path B filtering should be bypassed.

Configuration: Channel selection in Standby mode confusing

Tait reference: 00016859 After re-configuring your base station channels, note that the system may not start operation on the correct channel while still in Standby mode. As soon as the base station is put into Run mode, it will operate on the correct channel as configured.

Configuration: Disabled receiver shouldn't wake up in Power Saving mode when RF detected

Tait reference: 00041429 During Sleep or Deep Sleep modes, if the receiver is disabled by the Task Manager but RF is present, the Base Station will wake up and the idle timer will be reset. The idle timer is also reset when RF is received but the receiver LCB and TTR paths are disabled.

Configuration: Disabling subaudible tone decoding can result in a wrong transmit subaudible tone

Tait reference: 00020927 When subaudible decode is disabled through Task Manager, the Base Station does not need any Receive subtone for the received audio to be valid. The subtone to be transmitted should be the default encode value for Talk Through Repeater. This might be a specific subtone, or it might be None. The Base Station incorrectly transmits the subtone from the first entry in the subtone table (i.e. row 1).

Configuration: External reference may go out of lock when Power Saving enabled

Tait reference: 00026237 The combination of external reference presence and Power Saving operation is not supported in this release. This combination will result in many "External Reference Invalid" alarms.

Configuration: PTT press stops tone on idle on other line out

Tait reference: 00044401 If Tone on Idle is configured for the Unbalanced Line Output, and the Microphone to Balanced Line signal path is enabled, and the user then presses the PTT, the tone will stop on the Unbalanced Line Output, even though the audio from the microphone is only going out the Balanced Line Out.

Configuration: PTT press stops ungated audio on other line out

Tait reference: 00050847 If the Unbalanced Line Output is configured to be ungated, and the Microphone to Balanced Line signal path is enabled, and the user then presses the PTT, ungated audio on the Unbalanced Line Output will stop, even though the audio from the microphone is only going out the Balanced Line Out.

Configuration: Setting the first tone in the Subaudible Signalling table to None causes other tones to be ignored

Tait reference: 00053092 In the Signalling Profile > Subaudible Signalling table, if the first field (Tone 1) is set to None, the rest of the tones in the table are ignored. If the first tone field is used, all the tones work.

Configuration: Speaker outputs Rx Path A subaudible-band rumble continuously

Tait reference: 00045278 If the Rx Path A filter is set to Subaudible Band, then this filtered audio is still output to the speaker. The demodulator noise sounds like a low rumbling. This filtered audio is output to the speaker whether the receiver is busy or not.

Configuration: When extended bypass enabled, audio on unbalanced line stays unmuted when PTT released

Tait reference: 00052502 When Extended Bypass is enabled and the microphone is applied to the unbalanced line, pressing the PTT will unmute the audio output as expected. However, when the PTT is released, the audio output on the unbalanced line stays unmuted until the channel is changed or the base station is put into Standby mode.

Diagnostics: Inconsistent subaudible tones display error

Tait reference: 00022370 When testing subaudible scanning using the Diagnose > Reciter > Subaudible Scan function, the Base Station sometimes reports DCS017 and sometimes DCS050i. In reality these are exactly the same. The scanner should only scan through the non–inverted codes and display "DCS017 (050i) received" to indicate that the code received could actually be either of these codes.

Diagnostics: PMU auxiliary output test lasts only 5 seconds

Tait reference: 00043463 Under the Diagnose > Power Management > Control screen, an auxiliary power output test can be initialised in Standby Mode by pressing Start Test and then Toggle. When this is done, the auxiliary output is only toggled on for approximately 5 seconds before going off again.

Diagnostics: RSSI Forced output voltage stays constant

Tait reference: 00017156 The Diagnose > Reciter > Misc I/O > Force RSSI output level does not work properly.

Monitoring: 24 hour Duty Cycle graph reading incorrectly

Tait reference: 00017669 The 24 hour Duty Cycle graph in Monitor > Monitoring > Power Amplifier does not display the correct value when the Base Station has been running for less than 24 hours.

Monitoring: Misleading ambient temperature display on the Service Kit

Tait reference: 00014210 The air intake temperature shown on the Monitor > Power Amplifier screen can be misleading as it actually represents the temperature measured on the heatsink. If the PA has been transmitting without the fan turned on, the displayed temperature is much hotter than the actual air intake temperature.

Monitoring: Spurious reading of Balanced and Unbalanced line inputs during Rx cycling

Tait reference: 00045110 When Normal mode Rx Cycling is enabled, a spurious measurement of the input line levels may be displayed in the Monitoring > Reciter screen. This spurious measurement will remain until Valid Rx occurs, or the Tx Key is activated. The Base Station is unable to measure input line levels during Rx cycling.

Monitoring: Wrong output power displayed when 5W PA transmits at 1W

Tait reference: 00018815 The reciter–to–Service Kit protocol rounds power measurements to 1W increments. This rounding, when operating with a 5W PA, can mean reported values to the Service Kit can only be 0, 1, 2, 3, 4 or 5W. The PA operates internally with a resolution of 0.1dB. This means that the displayed value can be 0 when in fact the PA is operating at 0.99 Watts. Please keep this in mind when using the monitoring / diagnostics screens on 5W PA's.

Service Kit : Some Task Manager settings are not exported

Tait reference: 00048505 Some Task Manager settings are not included in the export file you can create from Task Manager. Custom inputs, actions, counters, timers and flags are not included in the file. The export file is provided to export Task Manager statements only.

Service Kit: A channel table exported with filter set to Pre/De-emph speech band is imported as flat speech band

Tait reference: 00052984 If a channel table is exported with the filter set up for Pre/De-emph Speech Band, and is then imported into another configuration, the filter settings are changed to Flat Speech Band.

Service Kit: After selecting a Modem Dialup port speed, higher port speeds no longer appear in the list

Tait reference: 00051146 When first configuring a dialup modem port speed, all the port speeds will be visible in the drop-down list. However, if you select one of the lower speeds, press OK, and then return to this list in the same PC session, the higher speeds will no longer be visible in the list. This is a problem with Microsoft Windows. The only way to gain access to the full list of port speeds is to reboot the PC.

Service Kit: Cannot connect to BS with 01.01 firmware using Service Kit @ 1200/9K6 Baud

Tait reference: 00024137 The Service Kit version 2.00 is not able to connect to a Base Station with Reciter firmware version 01.01 at a speed of 9600 Baud or lower.

Service Kit: Do not install a new Service Kit version via Repair Option

Tait reference: 00027076 The "Repair" option when installing new Service Kit software is not reliable. The correct procedure is to remove the Service Kit first by using either the "Remove" option from the Installation screen, or the "Add/Remove programs" from the Control Panel. Then install the new version (rebooting the PC when asked).

Service Kit: Firmware download may fail in France

Tait reference: 00022481 The attempt to download firmware using a Service Kit on an older version of Microsoft Windows with locale set to "French (France)" may fail. The message appears: "Le fichier de compatibilité est invalide. Le tableau est introuvable." Because of government regulation, the operating system does not permit the encryption required for firmware upgrade.   Upgrade your operating system with the latest Service Pack. An alternative workaround is to use the Control Panel, Regional Settings tool to change the locale to "French (Canada)."

Service Kit: Firmware download option gives invalid compatibility error

Tait reference: 00026360 If you are running Windows 2000 with Service Pack 3, the compatibility file can not be read by the Service Kit. This is due to an encryption problem in one of the Microsoft components being used. To resolve this problem, please upgrade to Service Pack 4 that is provided on the Product CD.

Service Kit: Print to file results in omitting the first column

Tait reference: 00015663 Printing a configuration file to file results in missing the first letter of each line. It is OK when printing to an actual printer. This is due to an issue with Microsoft Windows 2000 Service Pack 3.0. To resolve this problem please upgrade to Windows 2000 Service Pack 4.0.

Service Kit: Scroll bar on Channel Table moves to centre

Tait reference: 00026193 Sometimes the scroll bar in Configure > Channel Table moves from the right side of the screen to the centre.

Service Kit: Toolbar on Spanish version is cut off after connection

Tait reference: 00036524 In the Spanish version of the Service Kit it may sometimes happen that at startup part of the toolbar is not visible. Please enlarge the size of the window until all buttons reappear.

8 Publication Information

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