spectracom

SecureSync®

Time and Frequency Synchronization System

Option Card Installation Guide

1200-5000-0052 Rev E, January 2014

Option Module shown: IRIG Input/Output

Contents

Introduction

The Spectracom *SecureSync* time and frequency synchronization system offers customizability and expandability via the addition of a range of modular option cards.

Up to 6 cards can be accommodated to offer synchronization to a wide variety of references and devices. An extensive number of traditional and contemporary timing protocols and signal types are supported including:

- digital and analog timing and frequency signals (1 PPS, 1 MHz / 5 MHz / 10 MHz)
- timecodes (IRIG, STANAG, ASCII)
- high accuracy and precision network timing (NTP, PTP)
- telecom timing (T1/E1), and more.

About this Document

This option card installation guide contains information and instructions for installing option module cards in the Spectracom *SecureSync* unit.

NOTE:	The installation procedure varies, depending on the type of option card to be installed.

Outline of the Installation Procedure

The general steps necessary for installing *SecureSync* option cards are as follows:

- If adding or removing option cards that provide a reference, optionally **backup** your SecureSync configuration (refer to Section: "*PROCEDURE 2: Saving Reference Priority Configuration*", if applicable to your scenario or environment)
- Safely **power down** the *SecureSync* unit and remove chassis cover.
- **Determine** which slot the option card will be installed into.
- Prepare slot (if required), and **plug card** into the slot.
- **Connect** any required **cables** and secure option card into place.
- Replace chassis cover, **power on** unit.
- Log in to the *SecureSync* web interface; **verify** the installed card is identified.
- **Restore** *SecureSync* configuration (if it had been previously backed up in initial steps).

Safety

Before beginning any type of option card installation, please carefully read the following safety statements and precautions to ensure that the *SecureSync* unit has been safely and properly powered down (with all AC and DC power cords disconnected). All installation instructions detailed henceforth in this document assume that the *SecureSync* unit has been powered down in this manner.

Always ensure that you adhere to any and all applicable safety warnings, guidelines, or precautions during the installation, operation, and maintenance of your product.

	WARNING
	The interior of this equipment does not have any user serviceable parts. **Contact Spectracom Technical Support if this equipment needs to be serviced.** *This unit will contain more than one power source if both the AC and DC power options are present. Turning off the rear panel power switch will not remove all power sources.* *Ensure all power sources are removed from the unit prior to installing any option cards by removing both the AC and DC power cords connected to the equipment.* *Never remove the cover or blank option card plates with power applied to this equipment.* *This equipment has Double Pole/Neutral Line Fusing on AC power.*
	CAUTION
	Electronic equipment is sensitive to Electrostatic Discharge (ESD). Observe all ESD precautions and safeguards when handling Spectracom equipment.

PROCEDURE 1:   Unpacking

On receipt of materials, unpack and inspect the contents and accessories (retain all original packaging for use in return shipments, if necessary).

The following additional items are included with the ancillary kit for the option card(s) and may be required for installation depending upon your card type, and installation location:

Item	Quantity	Part Number
50-pin ribbon cable	1	CA20R-R200-0R21
Washer, flat, alum., #4, .125 thick	2	H032-0440-0002
Screw, M3-5, 18-8SS, 4 mm, thread lock	5	HM11R-03R5-0004
Standoff, M3 x 18 mm, hex, M-F, Zinc-pl. brass	2	HM50R-03R5-0018
Standoff, M3 x 12 mm, hex, M-F, Zinc-pl. brass	1	HM50R-03R5-0012
Cable tie	2	MP00000

Additional Equipment Needed For Installation

In addition to the parts supplied with your option card, the following items are required for installation:

- #1 Philips head screwdriver
- Cable tie clipper
- 6-mm hex wrench

PROCEDURE 2:   Saving Reference Priority Configuration (optional)

When adding or removing option module cards which reference inputs such as IRIG Input, ASCII Timecode Input, HAVE QUICK, 1-PPS Input, Frequency Input, etc., **any user-defined Reference Priority Input setup configuration will be reset back to the factory default state** for the *SecureSync* hardware configuration, and the user/operator will need to reconfigure the Reference Priority Table.

If you would like to continue using your current Reference Priority Input configuration without having to re-enter it, Spectracom recommends to save the current *SecureSync* configuration before beginning with the hardware installation. Please refer to the *SecureSync Instruction Manual* for additional information (*"Backing Up the System Configuration Files"*).

After completion of the hardware installation, the *SecureSync* configuration can be restored (see **PROCEDURE 12**).

PROCEDURE 3: Determining the Correct Installation Procedure

The installation procedure for the option module cards varies, depending on the type of your card. Determine the procedure for your card as follows:

(a) Identify the first eight digits of the **part number** of your option card (see label on bag).

(b) Inspect the back of the *SecureSync* housing, and select an **empty slot** for the new card. If the card is to be installed in one of the upper slots, take note if the corresponding lower slot is occupied.
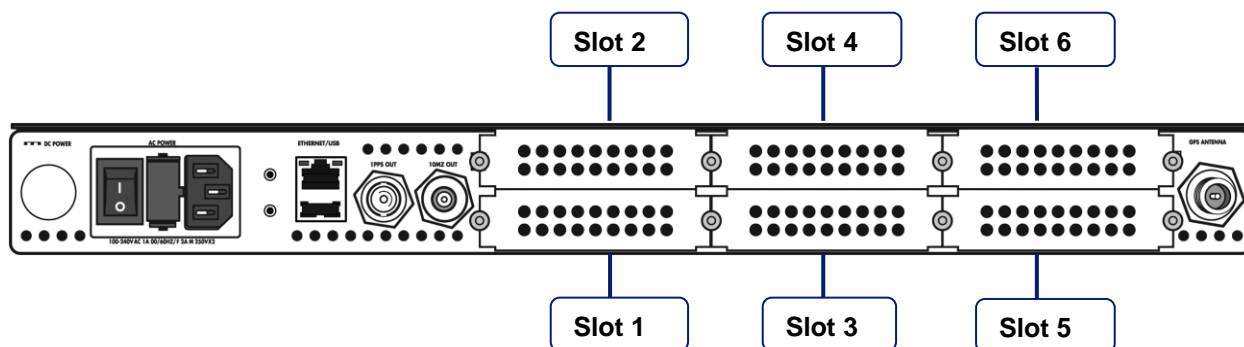

Figure 1: Rear view of SecureSync unit

(c) Consult *Table 1: INSTALLATION STEPS* below:

    i.   Find your **part number** in the left-hand column

    ii. Choose your **installation location** (as determined above)

    iii. When using an *upper* slot, choose the row **bottom slot** "empty" or "populated"

    iv. Continue with the installation by following the **PROCEDURES** listed in the corresponding row on the right hand side.

| NOTE: | Follow <u>only</u> the PROCEDURES listed for your option card and installation scenario! |

Table 1: INSTALLATION STEPS

Option card Part No.	Card function	Installation location	Bottom slot	PROCEDURES
1204-0080 1204-0260 1204-01C0/00C0	Frequency output	Slot 2, 4, or 6	empty	(1), 2, 3, **5**, **7**, 11, (12)
			populated	(1), 2, 3, **6**, **7**, 11, (12)
		Slot 1, 3, or 5		(1), 2, 3, **4**, **7**, 11, (12)
1204-00F0	Alarm relay	Slot 2, 4, or 6	empty	(1), 2, 3, **5**, **7**, **10**, 11, (12)
			populated	(1), 2, 3, **6**, **7**, **10**, 11, (12)
		Slot 1, 3, or 5		(1), 2, 3, **4**, **7**, **10**, 11, (12)
1204-0060	Gigabit Ethernet	Slot 2	empty	(1), 2, 3, **8**, 11, (12)
			populated	(1), 2, 3, **9**, 11, (12)
all other Part Numbers	miscellaneous	Slot 2, 4, or 6	empty	(1), 2, 3, **5**, 11, (12)
			populated	(1), 2, 3, **6**, 11, (12)
		Slot 1, 3, or 5		(1), 2, 3, **4**, 11, (12)

PROCEDURE 4:   Bottom Slot Installation

This section provides instructions for installing an option card into a bottom slot (**1**, **3**, or **5**) of the *SecureSync* unit.

(a) Safely power down the *SecureSync* unit and remove chassis cover.

(b) Remove blank panel or existing option card in the slot. If a card is populating the slot above the bottom slot your option card is to be installed into, remove it.

(c) Insert the card into the bottom slot by carefully pressing its connector into the mainboard connector (see *Figure 2*), and lining up the screw holes on the card with the chassis.
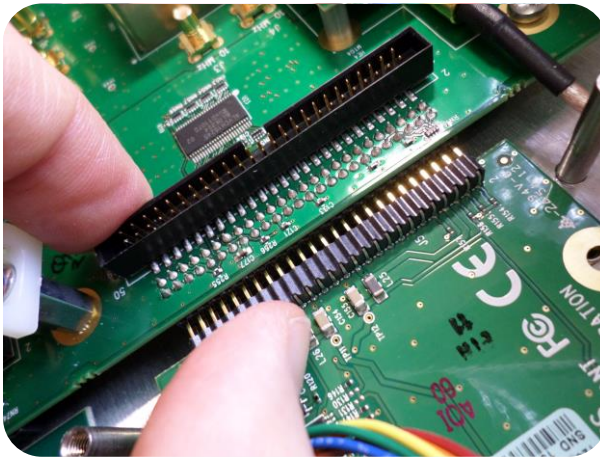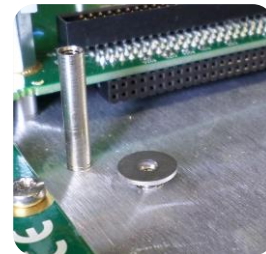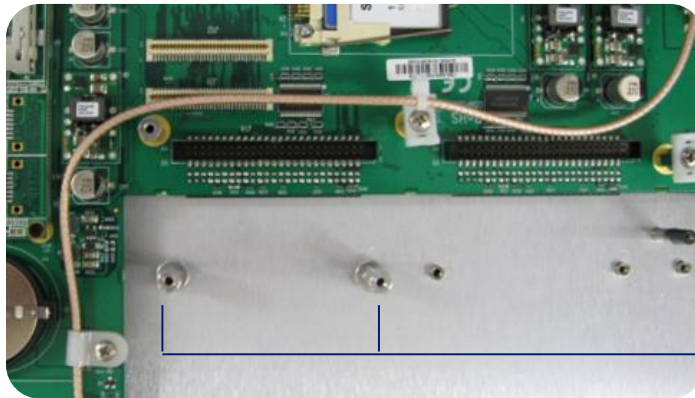

Figure 2: Connector installation

(d) Using the supplied M3 screws, screw the board and option plate into chassis, applying a torque of 0.9 Nm/8.9 in-lbs.

CAUTION:	Ensure that screw holes on the card are properly lined up and secured to the chassis before powering the unit up, otherwise damage to the equipment may result.

PROCEDURE 5:   Top Slot Installation, Bottom Slot Empty

This section provides instructions for installing an option card into an upper slot (**2**, **4**, or **6**) of the *SecureSync* unit, with <u>no</u> card populating the bottom slot.

(a) Safely power down the *SecureSync* unit and remove chassis cover.

(b) Remove blank panel or existing option card.

(c) Place one of the supplied washers over each of the two chassis screw holes (see *Figure 4*), then screw the 18 mm standoffs (= the longer standoffs) into the chassis (see *Figure 3*), applying a torque of 0.9 Nm/8.9 in-lbs.

Place washers above the chassis screw holes, then secure the 18 mm standoffs above the washers.

Figures 3 & 4: *Washers & standoffs secured to chassis screw holes*

(d) Insert option card into the slot, lining up the screw holes on the card with the standoffs.

(e) Using the supplied M3 screws, screw the board into the standoffs, and the option plate into the chassis, applying a torque of 0.9 Nm/8.9 in-lbs.

(f) Take the supplied 50-pin ribbon cable and carefully press it into the connector on the mainboard (lining up the red sided end of the cable with **PIN 1** on the mainboard), then into the connector on the option card (see *Figure 5* next page).

Figure 5*: Ribbon cable installation*

CAUTION:	*Ensure that the ribbon cable is aligned and fastened properly to all pins on the connector of the card.*
	Otherwise, damage to equipment could result during power up.

PROCEDURE 6:   Top Slot Installation, Bottom Slot Occupied

This section provides instructions for installing an option card into an upper slot (**2**, **4**, or **6**) of the *SecureSync* unit, above a <u>populated</u> bottom slot.

(a) Safely power down the *SecureSync* unit and remove chassis cover.

(b) Remove blank panel or existing option card.

(c) Remove screws securing the card already populating the bottom slot.

(d) Screw the 18-mm standoffs into the option card populating the bottom slot (see *Figure 6*) , applying a torque of 0.9 Nm/8.9 in-lbs.

Remove screws from the bottom card and replace with 18 mm standoffs.

Figure 6: *Bottom card with standoffs installed*

(e) Insert option card into the slot above the existing card, lining up the screw holes with the standoffs.

(f) Using the supplied M3 screws, screw the board into the standoffs, and the option plate into the chassis, applying a torque of 0.9 Nm/8.9 in-lbs.

(g) Take the supplied 50-pin ribbon cable and carefully press it into the connector on the mainboard (lining up the red sided end of the cable with **PIN 1** on the mainboard), then into the connector on the option card (see *Figure 7* next page).
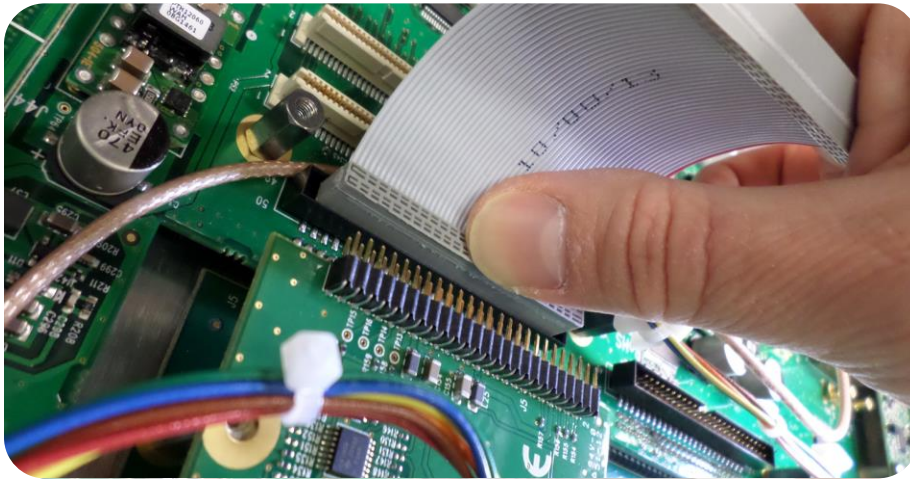
Figure 7: Ribbon cable installation

CAUTION:	Ensure that the ribbon cable is aligned and fastened properly to all pins on the connector of the card. Otherwise, damage to equipment could result during power up.

PROCEDURE 7:   Frequency Output Module Cards: Wiring

This procedure includes additional installation instructions for the following option card types:

- **Frequency Output** module cards:
  1 MHz (PN 1204-0260)
  5 MHz (PN 1204-0080)
  10 MHz (PN 1204-00C0)
  10 MHz (PN 1204-01C0)

For the cable installation, follow the steps detailed below:

(a) Install the coax cable(s) onto the main PCB, connecting them to the first available open connectors, from **J1** - **J4**. Refer to figure below:
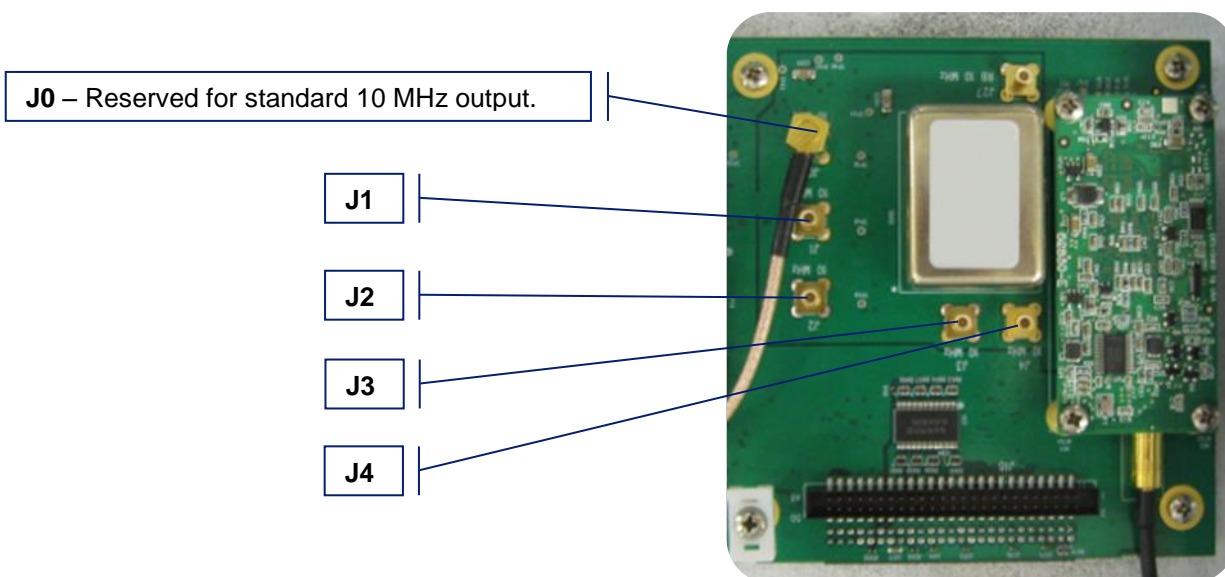
J0 – Reserved for standard 10 MHz output.

J1

J2

J3

J4

Figure 8: J Connectors

NOTE: *For 10 MHz option cards with 3 coax cables: From the rear of the option card, outputs are labeled J1, J2, J3. Start by connecting the cable attached to J1 on the card to the first available open connector on the SecureSync mainboard, then connect the cable attached to J2, then J3 etc.*

(b) Using the supplied cable ties, secure the coax cable from the option card to the white nylon cable tie holders fastened to the mainboard.

PROCEDURE 8:   Gigabit Ethernet Module Card Installation, Slot 1 Empty

This procedure describes the installation of the Gigabit Ethernet module card (PN 1204-0060), if slot 1 is empty.

NOTE:	*The Gigabit Ethernet option card **must be installed in Slot 2**. If there is a card already installed in **Slot 2**, it must be relocated to a different slot.*

(a) Safely power down the *SecureSync* unit and remove chassis cover.

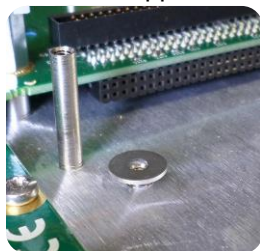(b) Take the supplied washers and place them over the chassis screw holes.

Fig. 9: *Washer placement*

(c) Screw the supplied 18-mm standoffs into place above the washers (see *Figure 10*), applying a torque of 0.9 Nm/8.9 in-lbs.

(d) On the *SecureSync* mainboard, remove the screw located under the J11 connector and replace with the supplied 12-mm standoff (see *Figure 10*).

(e) Insert the Gigabit Ethernet option card into **Slot 2**, and carefully press down to fit the connectors on the bottom of the Gigabit Ethernet card to the connectors on the mainboard.

(f) Secure the option card by screwing the supplied M3 screws into
   - both standoffs on the chassis
   - the standoff added onto the mainboard
   - and into the rear chassis. Apply a torque of 0.9 Nm/8.9 in-lbs.

Remove existing screw on mainboard and replace with the supplied 12-mm standoff.

Place supplied washers over the chassis screw holes, then screw 18-mm standoffs into place.
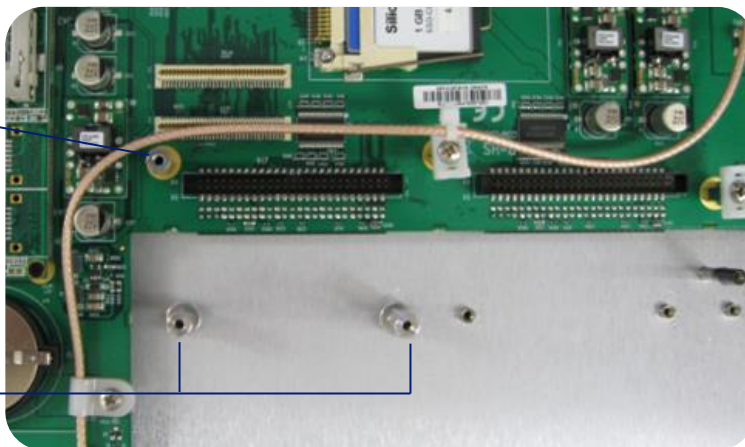

Figure 10: *Gigabit Ethernet option card installation*

PROCEDURE 9: Gigabit Ethernet Module Card Installation, Slot 1 Occupied

This procedure describes the installation of the Gigabit Ethernet module card (PN 1204-0060), if there is an option card installed in slot 1.

NOTE:	*The Gigabit Ethernet option card must be installed in **Slot 2**. If there is a card already installed in **Slot 2**, it must be relocated to a different slot.*

(a) Safely power down the *SecureSync* unit and remove chassis cover.

(b) Remove blank panel or existing option card.

(c) Remove the two screws securing the lower card (not the panel screws).

(d) Screw the supplied 18-mm standoffs into place, applying a torque of 0.9 Nm/8.9 in-lbs.

(e) On the *SecureSync* mainboard, remove the screw located under the J11 connector and replace with the supplied 12-mm standoff (see *Figure 11*).

(f) Insert the Gigabit Ethernet option card into **Slot 2**, and carefully press down to fit the connectors on the bottom of the card to the connector on the mainboard.

(g) Secure the option card by screwing the supplied M3 screws into
 - both standoffs on the chassis
 - the standoff added onto the mainboard
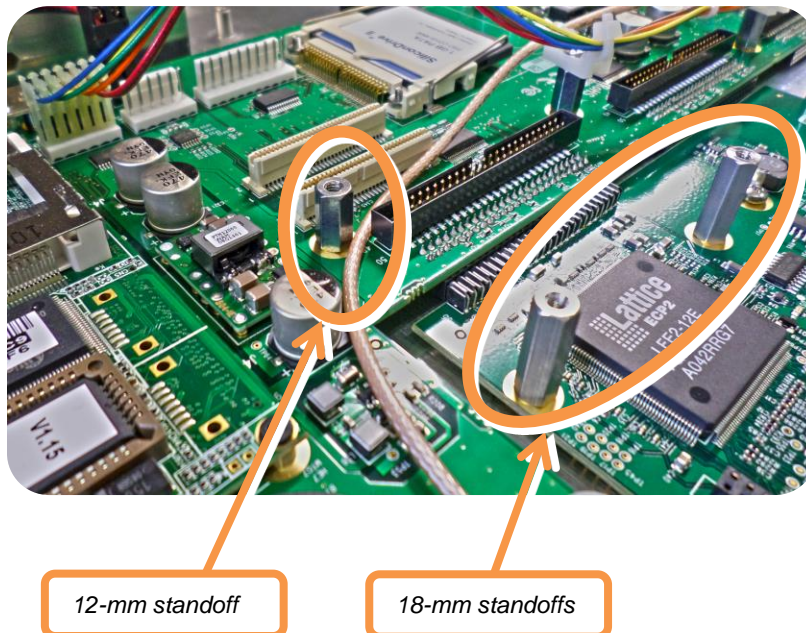 - and into the rear chassis. Apply a torque of 0.9 Nm/8.9 in-lbs.

Figure11: Gigabit Ethernet option card installation

12-mm standoff   18-mm standoffs

PROCEDURE 10:   Alarm Relay Module Card, Cable Installation

This procedure describes additional steps for the installation of the Alarm Relay Output module card (PN 1204-00F0).

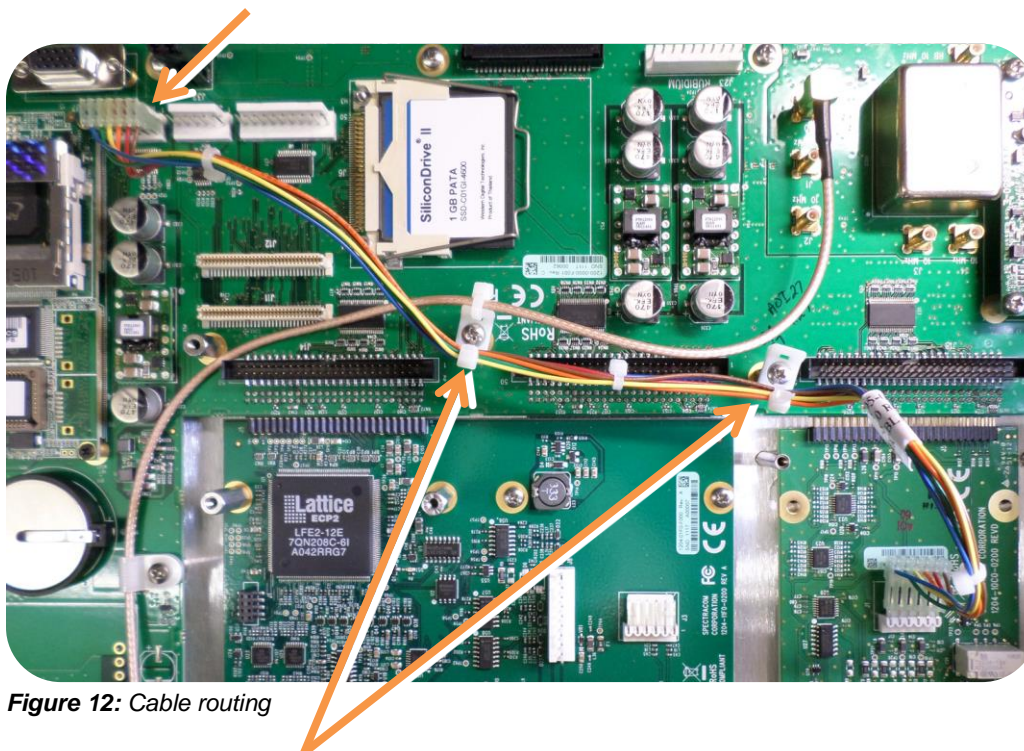(a) Connect the supplied cable, part number 8195-0000-5000, to the mainboard connector J19 "RELAYS".

Figure 12: Cable routing

(b) Using the supplied cable ties, secure the cable, part number 8195-0000-5000, from the option card to the white nylon cable tie holders fastened to the mainboard (see *Figure 12*).

PROCEDURE 11:   Verifying Successful Installation

Prior to beginning managing any features or functionality provided by the new card, it is advisable to verify the successful installation by ensuring the card has been detected by the SecureSync unit.

CAUTION:	Ensure that screw holes on the card are properly lined up and secured to the chassis before powering the unit up, otherwise damage to the equipment may result.

(a) Replace the chassis cover, and power on the unit.

(b) To verify that the option card has been installed successfully and is being correctly recognized by the SecureSync:

Securesync web user interface, ≤ Version 4.x

Open a web browser, and log in to the SecureSync web interface. Navigate to the **STATUS/INPUTS** and/or **STATUS/OUTPUTS** pages. Information displayed on these pages will vary depending upon your option module card/SecureSync configuration (for example, the Multi-Gigabit Ethernet option module card has both input and output functionality, and so is displayed in both pages).

NOTE:	If after an installation the card does not appear to be properly identified, it may be necessary to update the SecureSync system software to the latest available version.

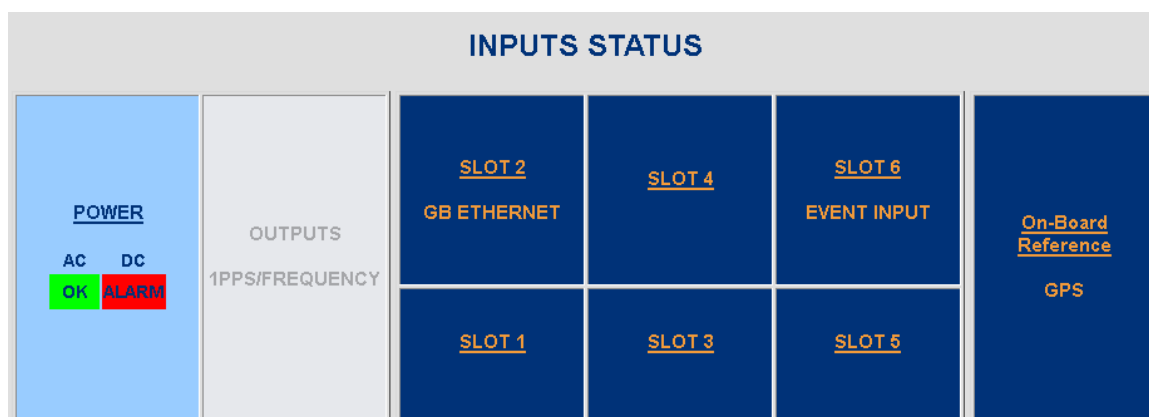*Figure 13*: Example STATUS/**INPUTS** page – SecureSync web user interface
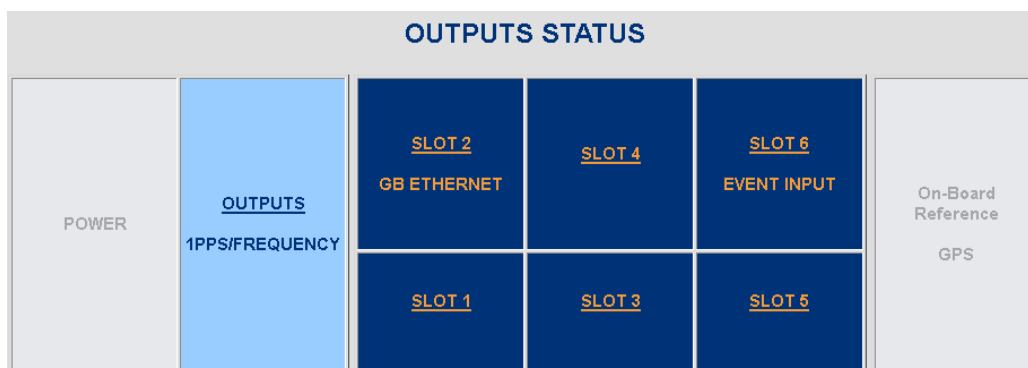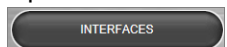
Figure 14: *Example STATUS/**OUTPUTS** page – SecureSync web user interface*

SecureSync web user interface, ≥ Version 5.0

Open a web browser, log in to the SecureSync web interface and click on the Menu item
INTERFACES .

Then click on OPTION CARDS : The new card will be displayed in the SLOT list.

NOTE:	If after an installation the card does not appear to be properly identified, it may be necessary to update the SecureSync system software to the latest available version.

PROCEDURE 12:   Restoring Reference Priority Configuration (optional)

Prior to configuring the new card in the web user interface, the System Configuration Files need to be restored, if you saved them under **PROCEDURE 2**.

Please refer to the SecureSync Instruction Manual under "Restoring the System Configuration Files" for additional information.

The SecureSync Instruction Manual also describes the configuration and functionality of the different types of option cards.

Technical and Customer Support

Should you require further assistance with the configuration or operation of your product, or have questions or issues that cannot be resolved using the information in this document, please contact Spectracom Technical/Customer Support at either our North American or European service centers, or visit the Spectracom website at www.spectracomcorp.com:

NOTE: Premium Support Customers can refer to their service contracts for emergency 24 hour support.

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Document Revision History			
Rev	**ECN**	**Description**	**Date**
A	2513	*Version 1.*	September 2010
B	2542	*Updated with new option card information.*	November 2010
C	2804	*Updated to include information regarding addition / removal of Input cards that provide a reference and their effects on the Reference Priority Table.*	December 2011
D	2868	*General updates and document maintenance.*	February 2012
E	3373	*Added HM50R-03R5-0012 standoff. Updated Gbit Ethernet installation procedures, added Alarm Relay inst. procedure.*	January 2014