



SecureSync®

Time and Frequency Synchronization System

# Option Card Installation Guide

1200-5000-0052 Rev.6, November 2016



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## Introduction – SecureSync

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 (1PPS, 1MHz / 5MHz / 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.

<b>NOTE:</b>	The installation procedure varies, depending on the type of option card to be installed.
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## 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 the chassis cover.

<b>CAUTION:</b>	NEVER install an option card from the back of the unit, ALWAYS from the top. It is therefore necessary to remove the top cover of the main chassis (housing).
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- **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.

	<p><b>WARNING</b></p> <p><b><i>The interior of this equipment does not have any user serviceable parts. Contact Spectracom Technical Support if this equipment needs to be serviced.</i></b></p> <p><i>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.</i></p> <p><i>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.</i></p> <p><i>Never remove the cover or blank option card plates with power applied to this equipment.</i></p> <p><i>This equipment has Double Pole/Neutral Line Fusing on AC power.</i></p>
	<p><b>CAUTION</b></p> <p><i>Electronic equipment is sensitive to Electrostatic Discharge (ESD). Observe all ESD precautions and safeguards when handling Spectracom equipment.</i></p>

## **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
- 6mm 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 option card installation procedure varies, depending on the the option card model, the chosen installation slot, and if the bottom slot is used or not (for upper slots only).

- Identify the last two digits of the **part number** of your option card (see label on bag).
- 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.

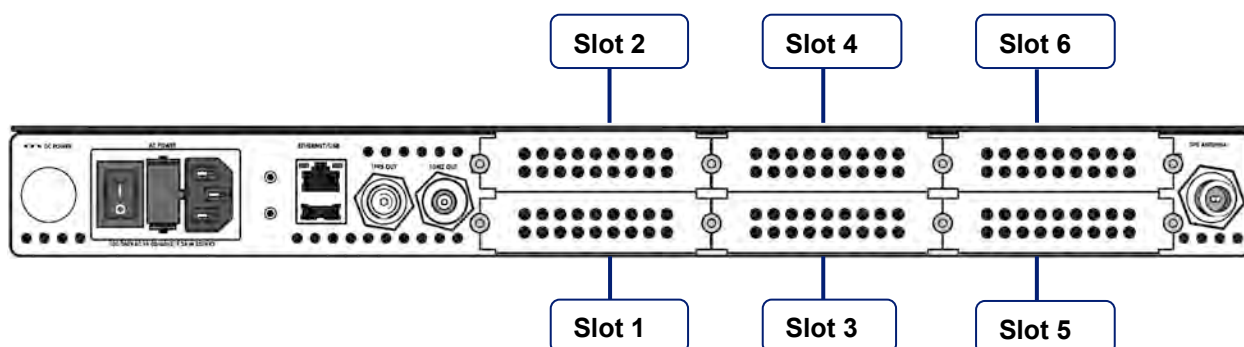


Figure 1: Rear view of SecureSync unit

- Consult **Table 1: INSTALLATION STEPS** below:
  - Find your **part number** in the left-hand column
  - Choose your **installation location** (as determined above)
  - When using an *upper* slot, choose the row **bottom slot** “empty” or “populated”
  - Continue with the installation by following the **PROCEDURES** listed in the corresponding row on the right hand side.

**NOTE:** Follow only 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
1204-08 1204-26 1204-1C/0C	Frequency output	Slot 2, 4, or 6	empty	(1), 2, 3, <b>5</b> , 7, 11, (12)
			populated	(1), 2, 3, <b>6</b> , 7, 11, (12)
		Slot 1, 3, or 5		(1), 2, 3, <b>4</b> , 7, 11, (12)
1204-0F	Alarm relay	Slot 2, 4, or 6	empty	(1), 2, 3, <b>5</b> , 7, <b>10</b> , 11, (12)
			populated	(1), 2, 3, <b>6</b> , 7, <b>10</b> , 11, (12)
		Slot 1, 3, or 5		(1), 2, 3, <b>4</b> , 7, <b>10</b> , 11, (12)
1204-06	Gigabit Ethernet	Slot 2	empty	(1), 2, 3, <b>8</b> , 11, (12)
			populated	(1), 2, 3, <b>9</b> , 11, (12)
all other Part Numbers	miscellaneous	Slot 2, 4, or 6	empty	(1), 2, 3, <b>5</b> , 11, (12)
			populated	(1), 2, 3, <b>6</b> , 11, (12)
		Slot 1, 3, or 5		(1), 2, 3, <b>4</b> , 11, (12)

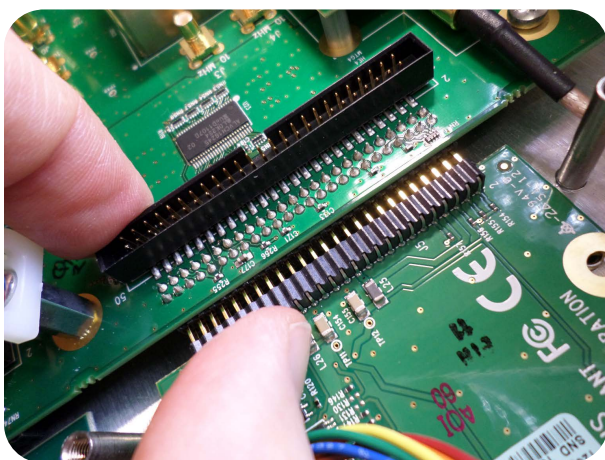
## **PROCEDURE 4: Bottom Slot Installation**

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>CAUTION:</b>	NEVER install an option card from the back of the unit, ALWAYS from the top. It is therefore necessary to remove the top cover of the main chassis (housing).
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- (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.

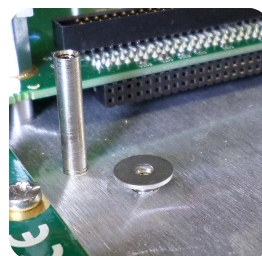
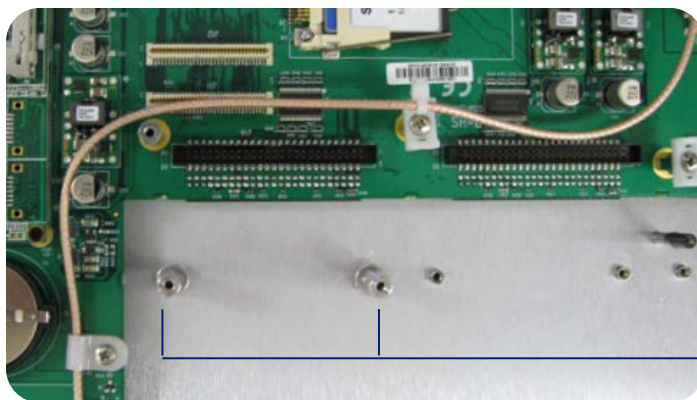
<b>CAUTION:</b>	Ensure that screw holes on the card are properly lined up and secured to the chassis before powering the unit up, otherwise damage to the equipment may result.
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## **PROCEDURE 5: Top Slot Installation, Bottom Slot Empty**

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

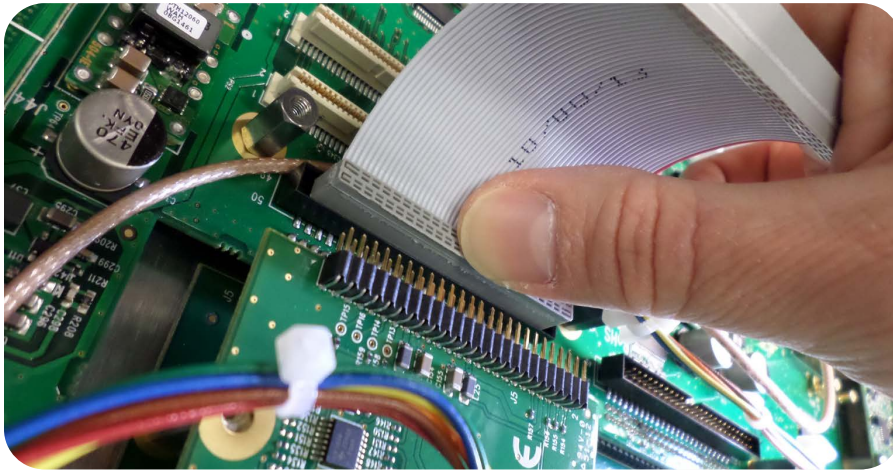


Place washers above the chassis screw holes, then secure the 18 mm standoffs above the washers.

**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

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<b>CAUTION:</b>	<i>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.</i>
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## ***PROCEDURE 6: Top Slot Installation, Bottom Slot Occupied***

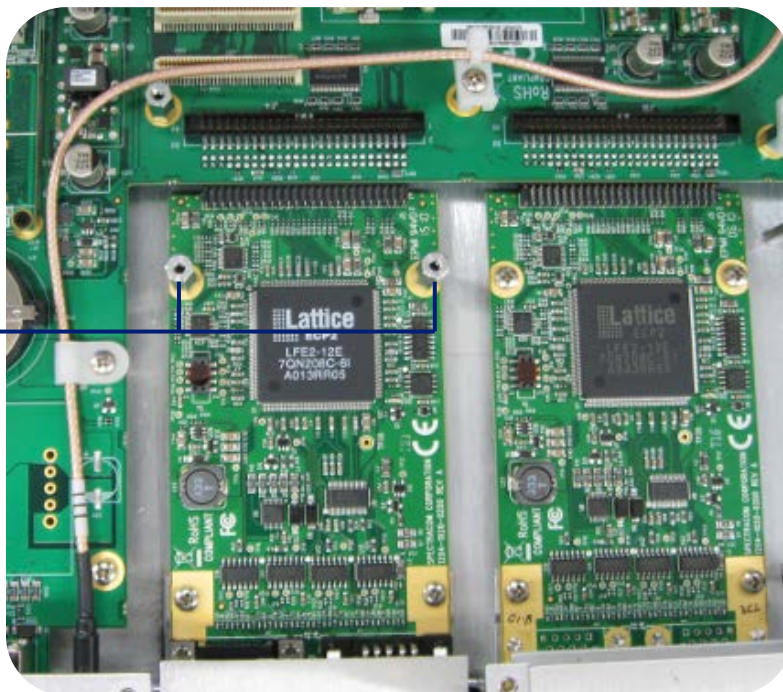
This section provides instructions for installing an option card into an upper slot (2, 4, or 6) of the SecureSync unit, above a populated bottom slot.

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

<b>CAUTION:</b>	NEVER install an option card from the back of the unit, ALWAYS from the top. It is therefore necessary to remove the top cover of the main chassis (housing).
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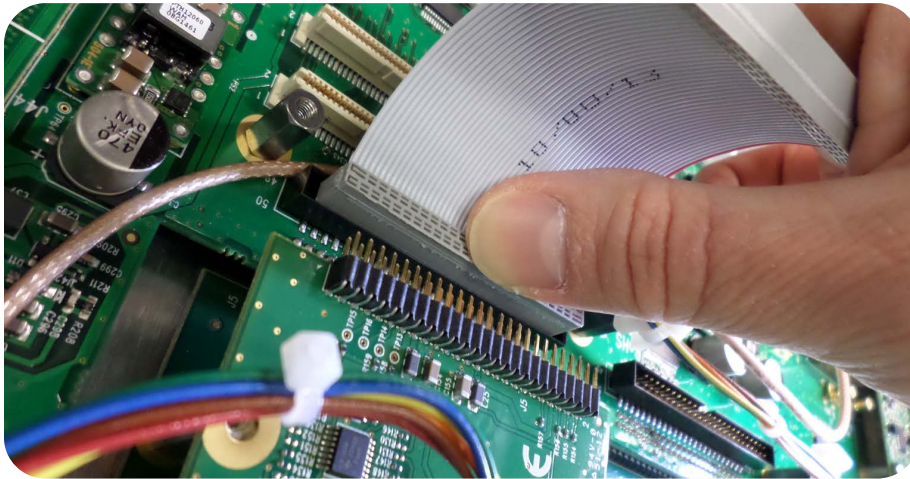
- (b) Remove blank panel or existing option card.  
(c) Remove screws securing the card already populating the bottom slot.  
(d) Screw the 18-mm standoffs into the option card populating the bottom slot (see Figure 6) , applying a torque of 0.9 Nm/8.9 in-lbs.

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

<b>CAUTION:</b>	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.
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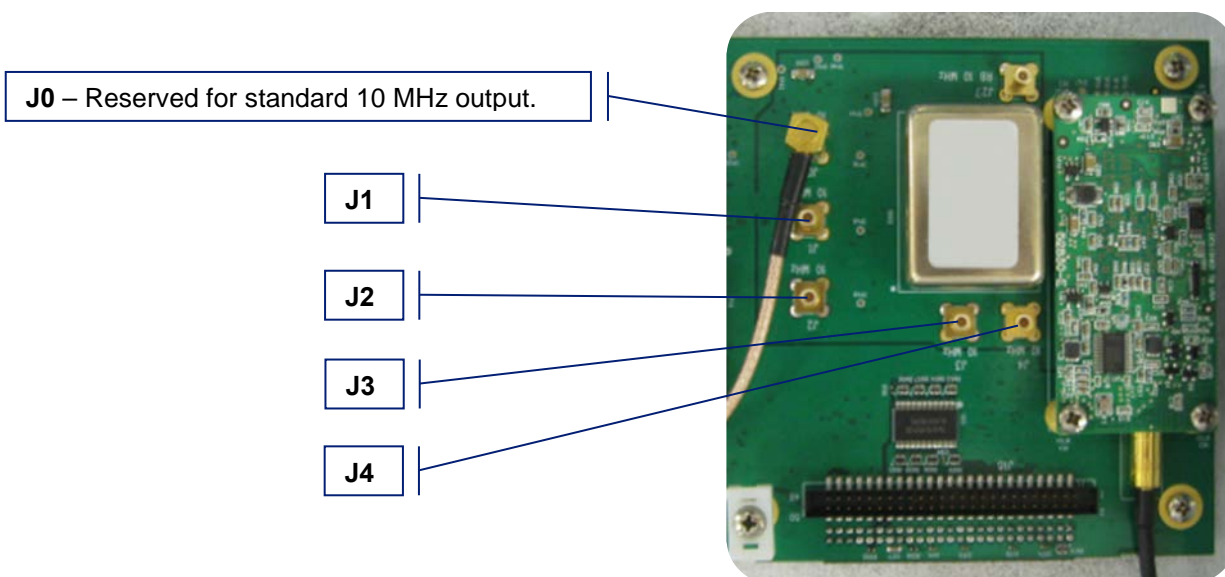
## ***PROCEDURE 7: Frequency Output Module Cards: Wiring***

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

- **Frequency Output** module cards:
  - 1 MHz (PN 1204-26)
  - 5 MHz (PN 1204-08)
  - 10 MHz (PN 1204-0C)
  - 10 MHz (PN 1204-1C)

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:



**Figure 8:** J Connectors

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

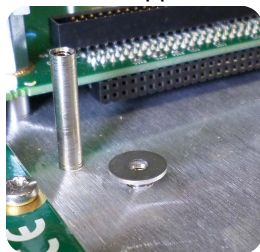
This procedure describes the installation of the Gigabit Ethernet module card (PN 1204-06), if slot 1 is empty.

<b>NOTE:</b>	<i>The Gigabit Ethernet option card <b>must be installed in Slot 2</b>. If there is a card already installed in <b>Slot 2</b>, it must be relocated to a different slot.</i>
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(a) Safely power down the SecureSync unit and remove chassis cover.

<b>CAUTION:</b>	NEVER install an option card from the back of the unit, ALWAYS from the top. It is therefore necessary to remove the top cover of the main chassis (housing).
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(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.



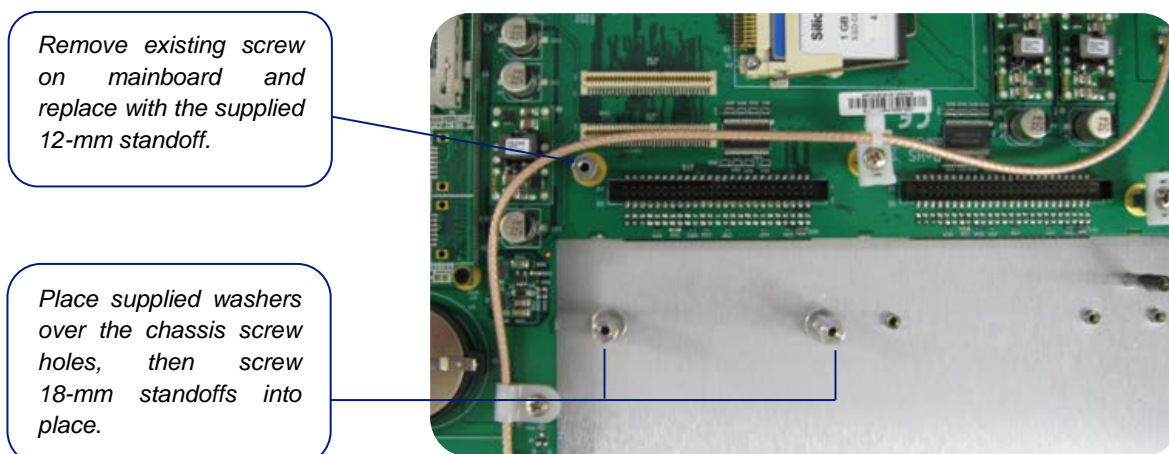


Figure 10: Gigabit Ethernet option card installation

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

This procedure describes the installation of the Gigabit Ethernet module card (PN 1204-06), if there is an option card installed in slot 1.

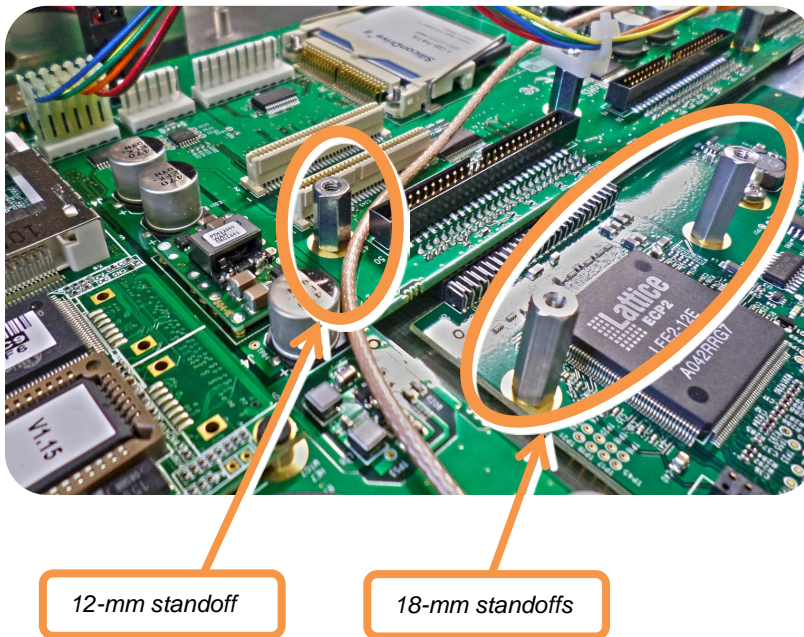
<b>NOTE:</b>	<i>The Gigabit Ethernet option card must be installed in <b>Slot 2</b>. If there is a card already installed in <b>Slot 2</b>, it must be relocated to a different slot.</i>
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- (a) Safely power down the SecureSync unit and remove chassis cover.

<b>CAUTION:</b>	NEVER install an option card from the back of the unit, ALWAYS from the top. It is therefore necessary to remove the top cover of the main chassis (housing).
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- (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.



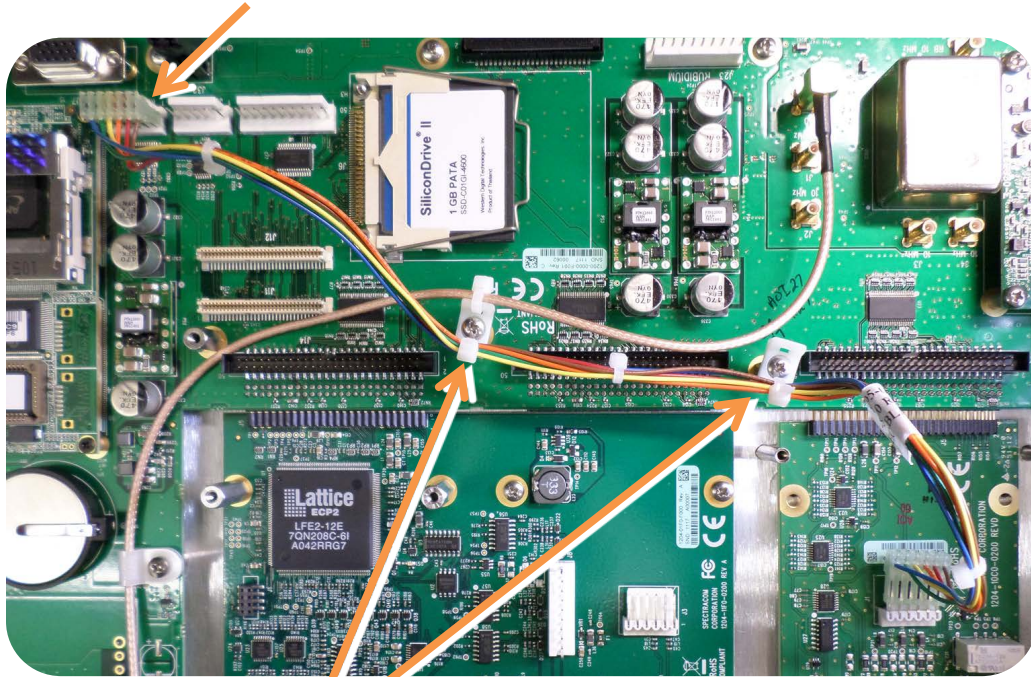
**Figure11:** Gigabit Ethernet option card installation



## **PROCEDURE 10: Alarm Relay Module Card, Cable Installation**

This procedure describes additional steps for the installation of the Alarm Relay Output module card (PN 1204-0F).

- (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 HW Detection and SW Update**

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

- (a) Re-install the top cover of the unit chassis (housing), using the saved screws.

<b>CAUTION:</b>	<i>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.</i>
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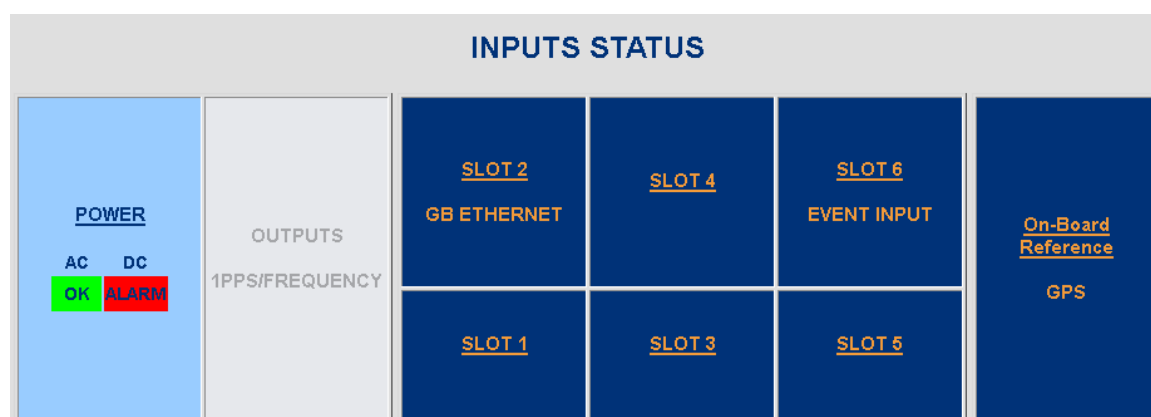
- (b) Power on the unit.

- (c) Verify the successful installation by ensuring the card has been detected:

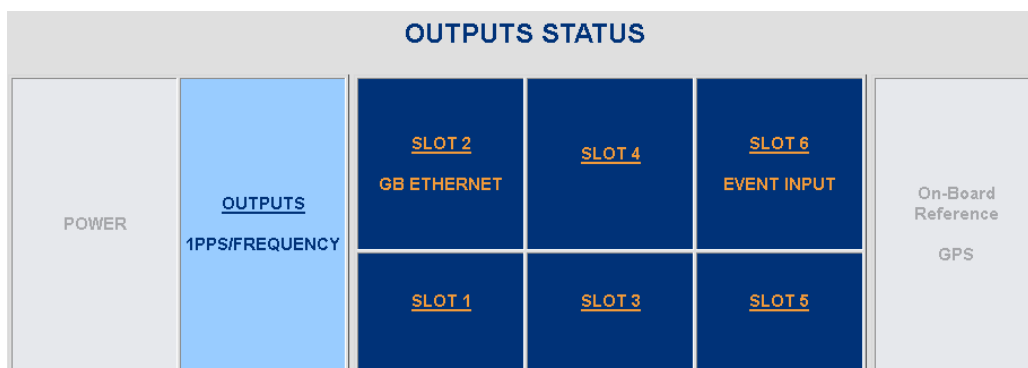
### **Securesync Web UI, ≤ Version 4.x**

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).

<b>NOTE:</b>	<i>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.</i>
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**Figure 13:** Example STATUS/INPUTS page – SecureSync web user interface



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

### **SecureSync Web UI, ≥ Version 5.0**

Open a web browser, log in to the SecureSync Web UI, and navigate to **INTERFACES > OPTION CARDS**: The new card will be displayed in the list.

- If the card does not appear to be properly identified, proceed with the System Software update as described below, and then navigate to **INTERFACES > OPTION CARDS** again to confirm the card has been detected.
- If the card has been detected properly, proceed with the Software update as described below to ensure SecureSync and the newly installed card are using the same, latest available version.

### ***Updating the System Software***

Even if the newly installed option card has been detected, and even if the latest System Software version is installed on your SecureSync unit, you must (re-)install the software to ensure both SecureSync, and the option card are using the latest software:

- Follow the System Software update procedure, as outlined in the main User Manual under [Software Updates](#).

**NEXT:** Restore your reference priority configuration, as described in the following topic, and configure other option card-specific settings, as described in the main User Manual.

## **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.spectracom.com](http://www.spectracom.com):

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

<b>North America</b>	
<b>Phone</b>	+1 585.321.5800
<b>email</b>	<a href="mailto:techsupport@spectracom.com">techsupport@spectracom.com</a>
<b>Europe</b>	
<b>France</b>	
<b>Phone</b>	+33 (0)1 6453 3980
<b>email</b>	<a href="mailto:techsupport-france@spectracom.orolia.com">techsupport-france@spectracom.orolia.com</a>

<b>Document Revision History</b>			
<b>Rev</b>	<b>ECO</b>	<b>Description</b>	<b>Date</b>
A	2513	<i>Version 1.</i>	September 2010
B	2542	<i>Updated with new option card information.</i>	November 2010
C	2804	<i>Updated to include information regarding addition / removal of Input cards that provide a reference and their effects on the Reference Priority Table.</i>	December 2011
D	2868	<i>General updates and document maintenance.</i>	February 2012
E	3373	<i>Added HM50R-03R5-0012 standoff. Updated Gbit Ethernet installation procedures, added Alarm Relay inst. procedure.</i>	January 2014
6	DOC39	<i>Added notes about chassis cover removal, and system software update. General maintenance updates.</i>	November 2016