



## SecureSync®

Time and Frequency Synchronization System

### QuickStart Guide

1200-5000-0051 Rev 11, April 2016



IRIG INPUT / OUTPUT OPTION MODULE

### OPTION MODULE CARDS

Add the features you need by selecting from a variety of SecureSync option module cards.

Available Option Module Cards Include:

- 1PPS / 10 MHz INPUT AND 1PPS OUTPUT
- IRIG INPUT/OUTPUT
- FREQUENCY OUTPUTS (1, 5, 10 MHz)
- ASCII TIME CODE
- E1 / T1 OUTPUT
- MULTI-GIGABIT ETHERNET
- HAVE QUICK
- PTP

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## Introduction




SecureSync™ combines Spectracom's precision master clock technology and secure network-centric approach with a compact, modular hardware design to bring you a powerful time & frequency reference system at the lowest total cost of ownership. Military and commercial applications alike will benefit from its extreme reliability, security, and flexibility for synchronizing critical operations.



## About This Document

This *SecureSync QuickStart Guide* contains instructions and information that can be used to get your product up and running quickly by helping complete initial setup steps and common post-installation configuration tasks.

## Safety

Before beginning, carefully read the following important safety statements. 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><i>Installation of this product is to be done by authorized service personnel only. This product is not to be installed by the user/operator.</i></p> <p><i>Installation of the equipment must comply with local and national electrical codes.</i></p> <p><b>DO NOT OPERATE THIS EQUIPMENT WITH THE COVER OR BLANK PLATES COVERING UNUSED OPTION CARD SLOTS REMOVED.</b></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>
	<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>WARNING</b></p> <p><i>This equipment must be earth grounded. Never defeat the ground connector or operate the equipment in the absence of a suitably installed earth ground connection. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.</i></p> <p><i>The AC and DC power connectors of this equipment have a connection to the earthed conductor of the AC and DC supply earthing conductor through the AC and DC power cords. The AC source outlet must contain a protective earthing connection.</i></p> <p><i>This equipment shall be connected directly to the AC power outlet earthing pin or DC supply system earthing electrode conductor.</i></p> <p><i>This equipment shall be located in the same immediate area (such as, adjacent cabinets) as any other equipment that has a connection to the earthing conductor of the same AC or DC supply circuit earthing conductor, and also the point of earthing of the AC or DC system. The AC or DC system shall not be earthed elsewhere.</i></p> <p><i>The DC supply source is to be located within the same premises as this equipment.</i></p> <p><i>Switches or other disconnection devices shall not be in the earthed circuit conductor between the AC and DC source and the point of the connection of the earthing electrode conductor to SecureSync's AC and DC input power connectors earthing pin.</i></p>
	<p><b>CAUTION</b></p> <p><i>For continued protection against risk of fire, replace fuses only with same type and rating of fuse.</i></p> <p><i>Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.</i></p>

## ***Installation***

To begin the installation of your product, follow the steps and information outlined in this section.

**NOTE:** There are some commonly desired product configuration scenarios after physical installation (for example: applying local time to the product front panel display, instead of UTC time). For additional information, refer to the Section of the *NetClock 9400 Series Instruction Manual* titled “**Common Post-Installation Configuration Scenarios**”.

## ***Unpacking***

1. Unpack and inspect the unit and accessories (retain all original packaging for use in return shipments if necessary). **NOTE:** Any options on the original purchase order have been preinstalled. The following items are included with your shipment:
  - SecureSync Unit
  - QuickStart Guide
  - AC Power Cord (if equipped)
  - Rack Mount Kit
  - Purchased Optional Equipment

## SecureSync Front and Rear Panels

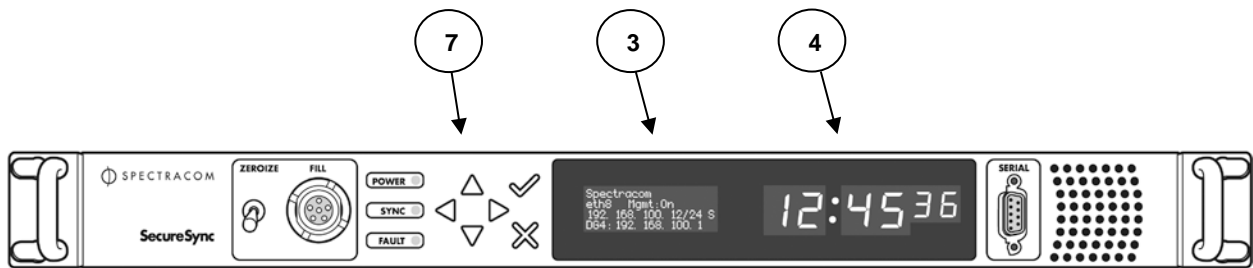


Figure 1-1: SecureSync Front Panel

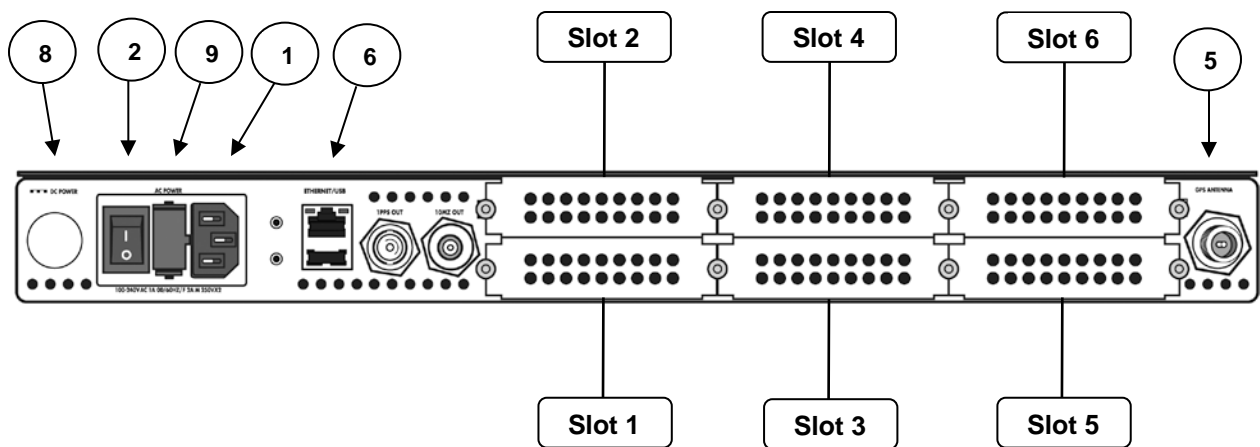


Figure 1-2: SecureSync Rear Panel

**NOTE:** Base units include AC power, Ethernet network port and USB port, 1PPS and 10 MHz output signals, GPS reference, and internal oscillator options.

- If installing the unit in a rack, install the rack-mount ears on the two sides of the front panel and mount the unit in a standard 19 inch rack cabinet. The unit is intended to be installed in the upright orientation only. The unit should be mounted so the front panel interface keys are to the left of the display area. Detailed rack mounting instructions are available in the *SecureSync Instruction Manual*.
- Connect the AC power cord to the AC input **[Figure 1-2 (1)]** on the rear panel and AC power source outlet. If rear panel DC port **[Figure 1-2 (8)]** is available, connect DC power if desired.

**NOTE:** DC power is an option chosen at time of purchase. Different DC power input options are available. Review the DC power requirement chosen prior to connecting DC power. Detailed AC and DC power connection instructions are available in the *SecureSync Instruction Manual*.

**IMPORTANT NOTE:** If your SecureSync unit is equipped with a SAASM receiver card that has a battery switch, place the switch into the “**Operating Mode**” position (the switch labeled “1”) before continuing, or before power is turned on or applied to the unit.

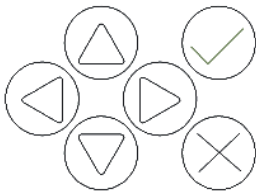
Review the “Battery Switch Usage Guidelines” section of the *SecureSync SAASM Receiver Addendum* document for additional information.

4. Turn rear panel power switch **[Figure 1-2 (2)]** on and observe the Power LED illuminates and the LCD display **[Figure 1-1 (3)]** illuminates and displays the current settings after approximately 2 minutes.
5. Obtain the following network information from your network administrator before continuing:

Is DHCP enabled?	Yes / No (if yes, continue to step 7.)
<b>Available IP Address:</b>	This is the unique address assigned to the SecureSync unit by the network administrator. The default static IP address of the SecureSync is <b>10.10.201.1</b> .
<b>Subnet mask:</b>	The subnet mask defines the number of bits taken from the IP address that are used in the network portion. The number of network bits used in the net mask can range from 8 to 30 bits.
<b>Gateway Address:</b>	The gateway/router address is needed if communication to the SecureSync is made outside the local network. By default, the gateway is disabled.

### Using the Front Panel Keypad Buttons

The SecureSync front panel keypad has six buttons for making certain configuration changes or viewing status information on the LCD display:



- Use the arrow keys to navigate through the menu options.
- To select a menu option, use the arrow keys to highlight it and then press the ✓ button.
- To cancel an operation or to move back through the menu options, use the ✕ button.

6. If your network does not support DHCP, use the front panel **[Figure 1-1 (7)]** to input the static IP address, subnet mask, and gateway values.

### Disable DHCP Using Front Panel

- Press the ✓ key.
- Using the arrow keys, navigate and select the DHCP option (**Home ▶ Netv4 ▶ eth0 ▶ DHCP**).
- The display will show **O=On** and **N=On**.

**NOTE:** The “o” data is the current setting and the “n” data is the new setting. You can only change the “n” setting in all menus.

- Select **N=On** and press the down arrow to change the selection to **N=Off**.
- Press the ✓ key once to enter the setting, then a second time to apply the new setting.

## Enter IP Address and Subnet Mask

- From the **Home** ▶ **Netv4** menu, select the **IP Addr** option (**Home** ▶ **Netv4** ▶ **eth0** ▶ **IP Addr**).
- Change **N=000.000.000.001/16** to assign the static IP address and subnet mask.
- Press the **✓** key once to enter the setting, then a second time to apply the new setting.

Network Bits	Equivalent Netmask	Network Bits	Equivalent Netmask
30	255.255.255.252	18	255.255.192.0
29	255.255.255.248	17	255.255.128.0
28	255.255.255.240	16	255.255.0.0
27	255.255.255.224	15	255.254.0.0
26	255.255.255.192	14	255.252.0.0
25	255.255.255.128	13	255.248.0.0
24	255.255.255.0	12	255.240.0.0
23	255.255.254.0	11	255.224.0.0
22	255.255.252.0	10	255.192.0.0
21	255.255.248.0	9	255.128.0.0
20	255.255.240.0	8	255.0.0.0
19	255.255.224.0		

## Enter Gateway Address

- Still on the **Home** ▶ **Netv4** menu, select the **Gateway** option (**Home** ▶ **Netv4** ▶ **eth0** ▶ **Gateway**).
- Change the **N=Off** to **N=On**.
- Press the **✓** key once to enter the setting, then a second time to apply the new setting.
- The display will change, allowing you to input an address at **N=000.000.000.001**. Enter the gateway address here.
- Press the **✓** key once to enter the setting, then a second time to apply the new setting.
- After all addresses are entered, press the **X** key three times to return to the main display. It should resemble the following example:

```
Spectracom
eth0
192.168.100.12/12 S
DG4=01:23:45:67:89:a
```

Where the 3<sup>rd</sup> line is the IP address and Subnet Mask you entered and “**DG4**” is the MAC address.

**NOTE:** The remainder of the initial configuration will be performed using the product web interface.

7. Determine whether configuration will be done from a computer attached to the network, or from a computer connected directly to the SecureSync unit. For management from a computer attached to the network, connect a standard Ethernet cable to the Ethernet port **[Figure 1-2 (6)]** on the



SecureSync rear panel. For management from a standalone computer, connect a crossover cable between the computer and the Ethernet port **[Figure 1-2 (6)]** on the SecureSync rear panel. Verify the green link light on the Ethernet port is illuminated.

**NOTE:** Typical installations include GPS. If GPS will not be used, continue with step **10**.

- 8.** Install the GPS antenna, surge suppressor, antenna cabling, and GPS preamplifier if required (see Antenna Installation Reference shipped with Model 8225 Antenna).
- 9.** Connect the GPS cable to the rear panel antenna input jack **[Figure 1-2 (5)]**.
- 10.** Connect to the SecureSync unit using a web browser (such as Mozilla Firefox or Internet Explorer) by entering the static IP address or the IP address assigned by DHCP to the SecureSync into your browser's address bar. You can now use a web browser to log in and configure the SecureSync unit via the product web interface.

**NOTE:** The default username and password are:

Username: spadmin
Password: admin123

- 11.** Verify the SecureSync front panel Sync lamp is green. If using GPS, verify that GPS is the sync source by viewing the **Selected Time Reference Source** in the table under **Time and Frequency Status**. The Selected Time Reference Source for GPS is gps0. Initial synchronization may take up to 35 minutes (approximately) when used in the default stationary GPS operating mode.
  - 12.** Connect the SecureSync to wall display clocks, peripheral devices, and other equipment as needed.
- NOTE:** For details on specific options and configurations, refer to the *SecureSync Instruction Manual*.
- 13.** Unless you are using DNS in conjunction with DHCP (with the client configured using the NTP server's hostname instead of IP address), DHCP must be disabled and the IP address must be changed to a static address once the SecureSync is properly configured. Failure to do this will result in a loss of time synchronization if the DHCP server assigns a new IP address to the SecureSync. Verify your setup before synchronizing the network PCs via NTP.
  - 14.** Synchronize the network PCs via NTP using the Ethernet port as desired. For a detailed description of synchronizing Windows PCs, configuration and troubleshooting documents are available from the **Support Library** section of the Spectracom website at [www.spectracomcorp.com](http://www.spectracomcorp.com).
  - 15.** Review your security configuration settings (refer to the *SecureSync Instruction Manual* for additional details.)

**NOTE:** During the initial configuration process, it may be necessary to power down or restart the unit. In this case, a 'halt' command should be issued prior to removing power from the unit. Failure

to do so may cause the SecureSync unit to take longer to boot on the next power up cycle. After the **halt** command is issued via the SecureSync web interface or front panel, wait until the LCD reads **Power off SecureSync** before removing power.

## **Troubleshooting**

This section covers common issues or problems that may occur during installation, configuration and operation of your product.

### **Power**

Two field replaceable fuses rated at slow-blow, 2 amps, 250 V (T 2A L 250V) **[Figure 1-2 (9)]** are available for AC power. In the event the unit does not power up with AC power, these fuses should be tested. Remove AC power by disconnecting the AC power cord before testing fuses.

### **No Network Connection**

- If there is no network connection, verify steps **5 - 7**.
- Attempt to ping the IP address of the SecureSync from a computer on the network.
- Verify that a proper IP address, subnet mask, and gateway values have been assigned to the SecureSync, or if using DHCP, try to use a static IP address on the network.

### **SecureSync Does not Sync with GPS**

For troubleshooting problems with GPS reception, please visit the Spectracom website at [www.spectracomcorp.com](http://www.spectracomcorp.com). From the main site navigation menu, select **Support → FAQs and Troubleshooting** and refer to the *GPS Reception Troubleshooting* document.

## Technical and Customer Support

If you have technical issues, questions, or require further assistance regarding the usage of your product, please contact Spectracom Technical Support via one of our regional service and support centers.

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

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C	2548	Minor maintenance.	December 2010
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H	3103	General updates coinciding with latest software release	December 2012
9	000081	Correction: Fuse specifications	June 2014
10	0693	Correction: Default IP address	Dec 2015

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