

VelaSync®

1232 MODEL



Getting Started Guide

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Introduction

VelaSync® High-Speed Time Server is an enterprise-class time serving appliance designed for high-frequency trading and other network applications with low-latency requirements.

VelaSync's customized configuration, comprising network synchronization software, precision GNSS timing technology, and reliable server hardware allows it to provide high-performance time management over multiple Ethernet interfaces at speeds of up to 40 Gb.



NOTE

This Quick Reference Guide is a supplement to the main user manual for the VelaSync. The latest version of the main user manual can be found online, at: manuals.spectracom.com

Specifications

- ▶ Intel® Xeon® E5 Series quad-core processor, 8 GB RAM min.
- ▶ 2x Enterprise-Class Hard Drives, RAID configuration
- ▶ 2x hot-swap power supplies, 100-240 V_{AC}, 50-60 Hz, 500 W each, with IEC60320 C14 inlet coupler
- ▶ Spectracom TSync Precision Timing Card with GNSS Receiver
- ▶ OCXO or Rubidium Oscillator
- ▶ 2x 1GbE network ports
- ▶ 2x 10 GbE (optional 4x) network ports, or 2x 10 GbE plus optional 2x 40 GbE
- ▶ All network ports offer hardware time stamping.
- ▶ I/O connectors: See Section “Rear Panel” on page 4.

Note: Specifications are subject to change without notice.

Environment

- ▶ Operation: ...10°C to 35°C, RH: 8 to 90% (@ 35°C)
- ▶ Storage: .. -40°C to +50°C , RH: 5 to 95% (@ 70°C)

Size, Weight & Power

- ▶ Dimensions: (WxHxD) 17.2 x 1.7 x 25.6 in. (432 x 43 x 650 mm)
- ▶ Weight: 23.5 lbs. (10.7 kg)
- ▶ AC Input: 100 - 240 V_{RMS}, 50 - 60 Hz, 6.1 - 2.6 A.

Safety Precautions



WARNING

Before connecting the unit to mains voltage, see manufacturer's safety warnings under: manuals.spectracom.com

Electrical hazard. No user serviceable parts inside. Do NOT open panel before unplugging BOTH power supplies first (the POWER button will not de-energize the system!)



CAUTION

Do not use power supplies other than the model installed in your VelaSync, and do not mix power supplies with different power ratings.

In the unlikely event of a power supply failure, a replacement unit can be procured directly from Spectracom (part no. PSO9R-070J-SLO1).

Unpacking and Inventory



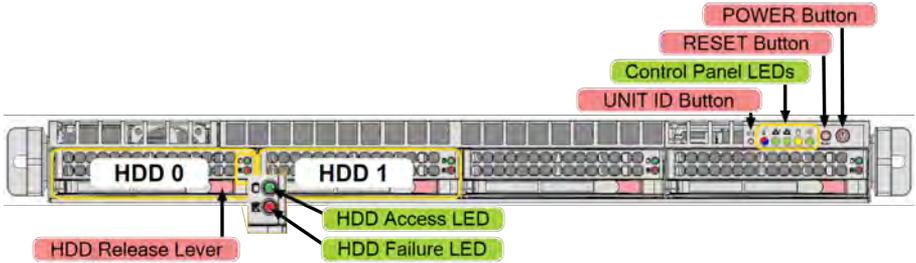
CAUTION

Electronic equipment is sensitive to Electrostatic Discharge (ESD). Observe all ESD precautions and safeguards when handling the unit.

Included Materials

- ▶ VelaSync unit
- ▶ Two (2) sets of rail assemblies
- ▶ Two (2) rail mounting brackets, extension elements, and mounting hardware
- ▶ Front bezel, and keys
- ▶ Two (2) power cables
- ▶ Spectracom Ancillary Kit, containing one (1) **antenna cable**, one (1) **TSync standard breakout cable**, and one (1) **timing I/O adapter cable**. When connected to the 25 pin Micro D-Sub Timing Connector, these last two cables provide additional access to the Vela Sync: External 1PPS Input, IRIG AM Input, IRIG DCLS Input, IRIG AM Output, (1) GP Input, and (2) GP Outputs. For more info on these cables and their setup, see the main VelaSync User Manual.
- ▶ Optional equipment e.g., GNSS antenna and surge suppressor

Front Panel



Control Buttons

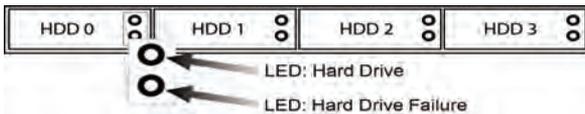
- ▶ **UID:** Unit identifier button – press button (or activate via IPMI) to turn blue LED in front and back of unit on/off, so as to identify the unit
- ▶ **Reset:** Reboot the system
- ▶ **Power:** Apply/remove power from the power supply of the server.
(**Note:** Standby power continues to be supplied to the system)

LEDs

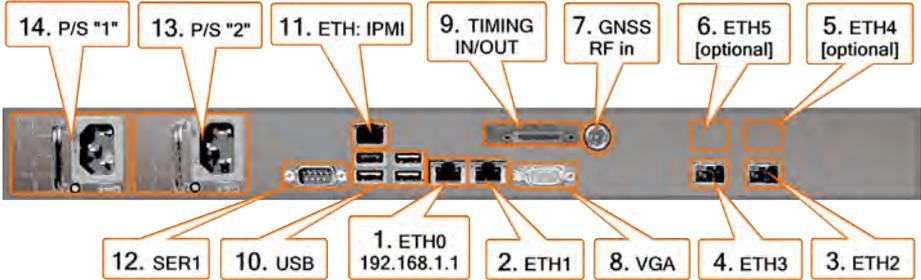


- ▶ **Info** (red): Fast blink: Fan fail; slow blink: Power fail; solid red: CPU overheat (blue): Solid: Local UID button depressed; blinking: UID activated via IPMI
- ▶ **NIC2, 1:** Activity on GLAN 1,2 when flashing
- ▶ **HDD:** IDE channel activity when flashing
- ▶ **Power:** Power is applied to power supplies

Hard Disks



Rear Panel



- 1./2.....1GbE ports (RJ-45)
- 3./4.....10 GbE ports (SFP+)
- 5./6..... optional 10 GbE, or 40 GbE ports (SFP+, or QSFP+)
- 7..... GNSS antenna connector
- 8..... VGA
- 9.....TSync Timing I/O connector (also includes status LED's)
- 10.....USB (4x)
- 11.....IPMI
- 12..... Serial Port - requires null-modem cable (not included)
- 13.....power supply
- 14.....power supply

Installation



For detailed installation instructions, see the Chapter “Installation and Setup” in the latest version of the main user manual, found online under: manuals.spectracom.com

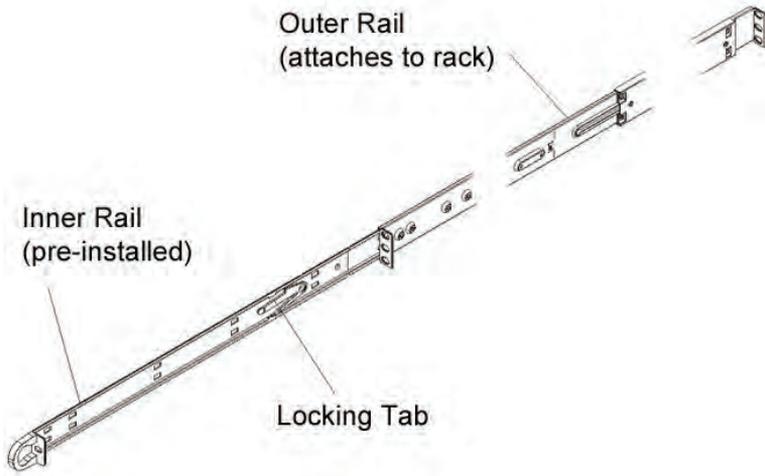
The following is a brief summary for experienced installation personnel:

Server Location Selection

- ▶ Dedicated room with restricted access
- ▶ Clean, dust-free, ambient temperature not to exceed 35°C [95°F]
- ▶ Virtually free of EMC noise
- ▶ Mechanically stable
- ▶ Electrically grounded rack with physical clearance for air flow and servicing: approx. 65 cm [25"] in front of rack, 75 cm [30"] in the back of rack
- ▶ Use of a UPS is recommended

Mechanical Installation

Each of the two rack rail assemblies comprise an **inner chassis rail** (pre-installed to the server chassis), and an **outer rail** that needs to be mounted to the rack:



1. Measure the distance from the front rail to the rear rail of the rack. Attach a **short bracket** to the front side of each of the outer rails, and a **long bracket** to the rear side of each outer rail.
2. Adjust both the short, and the long brackets to the distance measured earlier so that the rails fit snugly into the rack. Secure the short bracket to the front side of the outer rail with **two screws**, and the long bracket to the rear side of the outer rail with **three screws**. Take note of the **locking tabs**, which prevent the server from sliding out too far out of the rack.
3. Line up the rear of the inner rails at the chassis with the front of the outer rails at the rack. Slide the server chassis into the rack, keeping the pressure even on both sides. Depress the locking tabs, if needed (they will click upon proper engagement).

TELCO rack installation: Use two L-shaped brackets on either side of the chassis. Determine a balanced front-to-back position of the chassis. Remove bezel from server, if installed. Attach the two front brackets to each side of the chassis, then the two rear brackets, leaving enough space to accommodate the width of the telco rack. Slide the chassis into the rack, and tighten the brackets to the rack.

Connecting the GNSS Antenna

Connect a GPS/GNSS antenna system to the GNSS connector (see page 4, rear panel illustration, item number 7), using the supplied Type-N antenna cable, and an LMR-400 equivalent cable with surge suppressor and active GPS L1 antenna, such as Spectracom model 8230.

Note the GNSS receiver connection provides 5 V_{DC} power for the antenna.

Connecting Power

Plug in both power supplies. (You may hear a fan noise from inside the housing).

Switch the unit on by pressing the ON/OFF button on the front panel. Wait for the device to boot up.

Once the boot process is completed, only the green POWER status LED should be lit.



CAUTION

If only one power supply is running, and the other one is inserted all the way, but not plugged in, or defective, VelaSync will emit a long BEEP, so as to alert you of a problem with the backup power.

Establishing a Network Connection

To communicate with Vela Sync without using DHCP, connect a PC with a configured LAN port via Ethernet cable to the VelaSync server using ETH0. The unit is shipped with one static IP address: ETH0 = 192.168.1.1

To connect and set up a device using DHCP, connect to an Ethernet port without a static IP address (any Ethernet port except ETH0). Find the unit on your network by contacting your network administrator, and log in to the unit's assigned IP address. Log on to the Web UI (see directions in the next section).

VelaSync also has a command-line login available on its **serial port**, which can be used as an alternate way to initially communicate with the unit.

To connect using the serial port, connect a PC to the serial port of the VelaSync using a null-modem cable. The VelaSync serial port operates at 9600 baud, 8 data bits, no parity, 1 stop bit.

For more information on the Command Line Interface (CLI), see the main VelaSync manual.

Operation



NOTE

For more detailed information pertaining to VelaSync's Web UI operation, please consult the VelaSync User's Manual, found online under: manuals.spectracom.com

The Web UI

In addition to a CLI, VelaSync has an integrated web user interface (Web UI) to configure and monitor the unit, that can be accessed from a network-connected computer, using a standard web browser.

Start a web browser, and go to **192.168.1.1** (or the IP address assigned to the unit in Establishing a Network Connection) in order to log into the Web UI. It is also recommended that you change the default static IP address. You can do so in the Web UI under **MANAGEMENT > Network Setup**. Select the gear symbol next to each Ethernet port for options.

On this screen, you can turn DHCP on or off for each port. If the DHCP function is disabled on an Ethernet port, you can manually reset the IP address.



NOTE

The default login credentials are:
User name = **spadmin**
Password = **admin123**



CAUTION

For security reasons, please change the default password immediately by navigating to the **MANAGEMENT** menu > **Change My Password**.

Navigation

The HOME screen of the Web UI provides comprehensive status information:

- ▶ vital system information
- ▶ current status of the references
- ▶ key performance/accuracy data
- ▶ major log events
- ▶ access to the primary navigation bar



The Primary Navigation Bar of the Web UI provides access to all menus:

- **HOME:** Return to the HOME screen
- **INTERFACES:** Access the configuration pages for:
 - ▶ references (e.g., GNSS, NTP), and
 - ▶ outputs (e.g. 10 MHz, PPS, NTP)
- **MANAGEMENT:** Access the NETWORK setup screens, including: Ethernet port configuration, SSH Setup, SNMP Setup, NTP Setup, PTP Setup, as well as password, notification, and time management tasks.
- **TOOLS:** Opens a drop-down menu for access to system maintenance screens and system logs.
- **HELP/MONITORING:** Opens a drop-down menu for access to system help and information on how to contact Spectracom for further assistance.

Verify Setup

External:

1. On the front of the unit, the green POWER LED should be the only bulb lit.
2. On the back of the unit, only the green LED marked TIMING should be lit, once the VelaSync is in-sync with a timing source (GPS/GNSS).

Internal (via the Web UI):

3. To verify your VelaSync is functioning correctly, navigate to the HOME screen of the Web UI and check the System Status window. Power, status, and alarms are all listed on this screen. Should an urgent issue require your attention, it will appear here.
4. In MANAGEMENT > Network Setup, you can see and manipulate your system connections, including all inputs and outputs.

About IPMI

IPMI is a protocol that allows for out-of-band management of computer systems, even when they are turned off. IPMI is active whenever the server is powered.

VelaSync has a dedicated IPMI Ethernet interface (see page 4: rear panel illustration, item number 11.) By default, the IPMI interface uses DHCP to obtain an IP address.

The IP address of the IPMI interface is listed in the Web UI under MANAGEMENT > Network Setup > Actions panel > IPMI. If you un-check the DHCP box, the current IP address will be visible. A static IP address can also be set if preferred over DHCP.

Users will need the ADMIN password to make changes in the IPMI setup panel.

Power Replacement

For redundancy purposes, VelaSync is equipped with two hot-swap power supply modules. Should either of the modules fail, the other will take the full load, and supply power without interruption to the server. The LED on the control panel will blink slowly until the defective module has been replaced.

NOTE

For detailed information about hot-swapping, see the main VelaSync manual at manuals.spectracom.com

Technical Support

Please navigate to the “Support” page of the Spectracom website, where you can not only submit a support request, but also find additional technical documentation:

<https://spectracom.com/support/request-service-product-support>

To speed up the diagnosis of your VelaSync unit, please send us your current product configuration and the events log (if available).



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The Orolia logo consists of the word "orolia" in a lowercase, sans-serif font. The letter "o" is orange, while the other letters are white. To the right of the text is a stylized orange swoosh that curves upwards and then downwards, resembling a signal or a globe.

orolia

The industry-leading Spectracom products you depend on - brought to you by Orolia,
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