Syntinel

**The Tool to Monitor
& Troubleshoot
your Symmetra LX**

Introduction

Thank you for buying the Syntinel LX Monitoring Tool Kit.

Unpack the box and make sure you have all the parts.

1 - Syntinel LX Module (transmitter)
   A - power cable / cat5 plug
   B - data cable / RS232 type
2 - Phone charger and USB cable
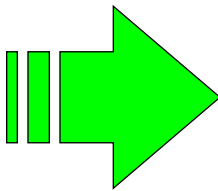3 - Phone in leather snap case
4 - Moto G Pure Phone/Tablet
[INSIDE CASE:]
   Syntinel LX Info
   QuickStart Cards (hardware & software)
   Syntinel Service Plan (if purchased)
   User Manual

Syntinel Screens

Home Screen

The Bluetooth icon button connects the Syntinel unit to the phone.

The Voltage is displayed for each phase of power (L1 & L2). The output amperage is expressed as A1 &A2. This shows how the LX is load balanced.

The Battery Bus voltage shows the charging voltage for all the batteries.

The waveform visual gives you insight on if the UPS is transforming power. In this case 208v input is being changed to 240v output.

The Battery Summary gives you actionable info about the battery system.

The bottom 4 buttons allow more access...

Power Screen

The Syntinel's LX Power Module home screen displays the active power modules in Symmetra LX mimic frame.

Click any of the active power modules (shown as green or red blocks) to get more operational details.

The Syntinel reads the Lx's communication coming from the power module.

Key information about its status and several data checks provide the user with better information to troubleshoot.

Swipe right to go through the several pages of data.

Battery Screen

The Syntinel's Battery table details key information about the SYBT5 modules.

Remember, only genuine APC batteries and those with Syntelligence will give you all the all the data.

Each battery reports if its installed (Present?) and is active (Is On?).
The Shunt current is the amount of amperage charging or discharging at this time. When the UPS goes on battery, the Shunt values of each batteries will show the rate of discharge.

The table also reports temperature data and manufacturer information.

The frame visual helps identify your batteries for troubleshooting.

You may need to swipe back and forth to match your frame with the Syntinel.

Graph Screen

The Syntinel Lx's graphing feature allows users to log data about each modules during online and battery modes.

Battery current (A) and Voltage are shown at regular intervals.

Click RUN to begin the data-logging. Click STOP to end

Running this feature is the first step in troubleshooting battery & frame issues.

Share this data with your service provider

QuickStart

Testing your SYBT5 Batteries

1) OPEN the APP

Follow the quick start instruction to install and connect the Syntinel to your ups if needed.

Click on the Battery Table button at the bottom on main app screen.

2) LOOK at the Table

Give the app time to load each SYBT5 battery's module data.

APC genuine batteries & rebuilt SYBT5s with new Syntelligence will fully populate with Age & Cal factors showing the health.

If you don't have that data you may have unprotected batteries.

Syntelligence

Unlike other battery trays, you can't just replace the internal batteries in a SYBT5 and expect it to work like a new one.

This is because inside each SYBT5 is a board that tracks the health and charge status throughout the tray's life.

This Syntelligence, as we call it, is only found in genuine APC brand SYBT5s and special rebuilt ones showing the logo

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Need Syntelligence?

Good news! You can now buy SYBT5 boards reprogrammed with fresh new Syntelligence.

Ask your UPS service provider for new boards to use with your new batteries inside an old shell.

3) READ the Table

The table shows upto 16 SYBT5s by their address on each intell module. (Notice how the intelligence modules share the battery data duties)

Each working battery should show "Present & On". SYBT5s that test bad will show Off.

B #	Pres ent?	Is On?	Shunt Curren
			Ba
0	1	1	0.056
1	1	1	0.000
2	1	1	0.072
3	1	1	0.138

The Shunt current shows the charge/discharge behavior of a SYBT5. If the unit has been running awhile, they may be fully charged with little or no current.

This is normal. During discharge or recharge these values will change. In an ideal setting ALL the SYBT5s will move together.

Cal Factor is the overall health of the SYBT5. In practice the more discharges, the lower the score & the weaker the battery. When Cal Factor goes below 0.25, the SYBT5 is flagged bad.

surements			
ax mp	Cal Factor	Mfr Date	GL ?
	lied by IM 0		
9	92	03/02/18	
0	74	02/04/22	GL
0	100	01/15/19	
2	100	05/12/12	

Mfr Data and Age are read from the chip. In theory most SYBT5s last no more than 5 years.

4) RUN the Datalogger

While the data can give you key information, only a real battery test can tell you how the SYBT5s are doing.

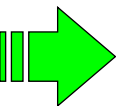Return to the Main Screen and select Line Graph.

Click the Run button to start the datalogger.

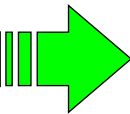Notice how each SYBT5 is plotted with amps and voltage.
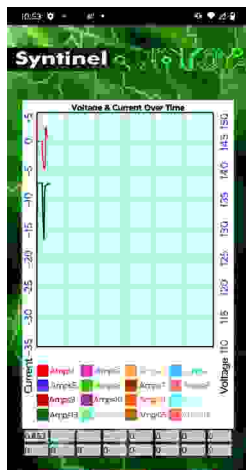
QuickStart

Testing your
SYBT5 Batteries

5) RUN a Self Test

Now on your LXs screen, Goto Control and run a Self Test.

Watch the chart as the batteries begin to discharge without AC power.

This is a visual display of the health of your batteries. Good batteries won't drop as much as weaker batteries.

6) SEND us the Results

Stop the test and Screen Capture the Chart by dragging 3 fingers down the Moto G Screen.

Share it with your Symmetra partner or info@symmtools.com
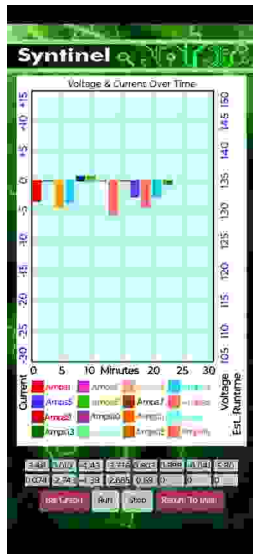
The Syntinel LX system was invented by Robert Furmanak, Senior Engineer at GreenLightUPS, Inc.

At its core, it's a data collection device to read and then transmit Symmetra LX data to a computer.

The innovation of the Syntinel LX system is how it takes this data and translates it into actionable visuals.

It a passive but powerful tool to troubleshoot and learn about the Symmetra LX
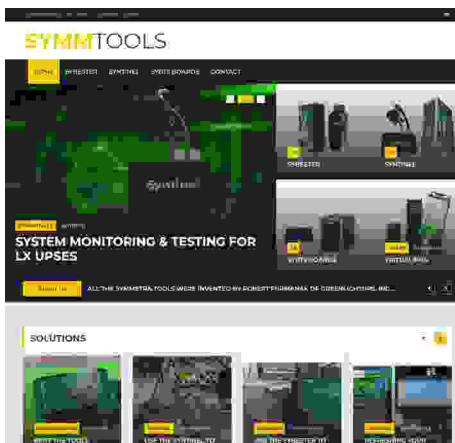
More innovations

Follow Robert Furmanak's innovations on his LinkedIn page and learn more about UPS reverse engineering, troubleshooting and more.

https://www.linkedin.com/in/robertfurmanak/

Online Resources

Feel free to view the online resource
SYMMtools.com
for more information about the Syntinel
including videos, FAQs, and help info

QuickTips

The Syntinel can plug into either SYMIM5 intelligence module.

Most Syntinel Tablet/Phone bundles include a magnetic phone protector which can attach to the Symmetra frame.

SYBT5s generally cannot be re-used when the batteries expire. We recommend using only genuine new APC SYBT5s, new SYBT5+ or use refurbished SYBT5s with Syntelligence.

Talk to your UPS provider if you need new Syntelligence replacement boards.

Most systems ship with a locked cell phone. However you can do screen captures and share using the wifi feature on the phone.

Questions: Email info@SymmTools.com

Learn More at: SymmTools.com

A Look Inside

Inside the Syntinel LX Module is a Bluetooth chip, and custom built board.

Follow Robert at
https://www.linkedin.com/in/robertfurmanak/