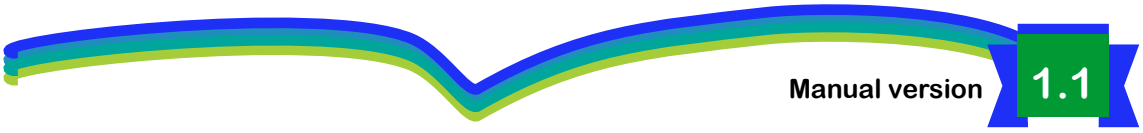
Operating Manual

Sybester Third Generation

SYB3KIT, SYB3



Stay Safe...

Warnings

To ensure safe operation and service of the tester, follow these instructions. Failure to observe these warning can result in injury or death.

The Sybester is designed to work on SYBTU1-PLP and SYBTU2 -PLP battery modules "trays" with a voltage range between 0 - 112volt DC.

RISK OF ELECTRIC SHOCK: The Sybester tests battery trays at 96VOLT DC VOLTAGE 7-9ah

DO NOT use the Sybester on damaged or swollen battery trays

DO NOT leave Sybester plugged into a tray unattented

DO NOT use the Sybester
- if the tester seems damaged in any way
- if the tester is warm to the touch
- in an outdoor environment
- on any other battery tray than speficied
- on any tray opened or with exposed batteries.

The Sybester uses four AAA Alkaline batteries for core operations. To replace batteries, remove screw cap from top and replace noting proper polarity. Disconnect the Sybester from trays when changing batteries.

Meet the Sybester...

Overview

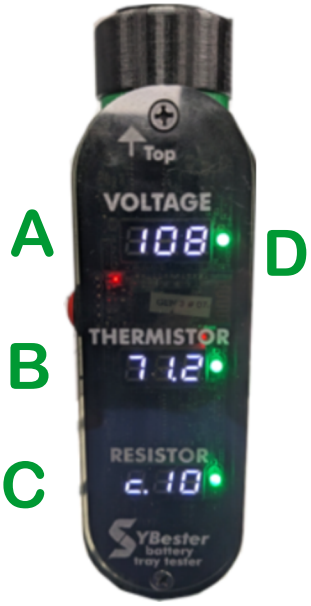
back side front

1- Heat Sink
2- Screw Top of Battery Access (uses 4 AAA)
3- Screen for Data
4- Test Button (Use to Load test batteries)
5- PLP socket

Note: SYB3KIT includes SYB3 tester unit
6- Phone w/App pre-installed
7- Case and charger

Display Screen

SYB3 unit



A- Voltage: When connected it displays the voltage of the entire battery tray.

B- Thermistor: Reads the temperature of the Thermistor inside the tray in F or C.. Or can be set to display the Resistance value. During Battery tests the value changes to the Voltage drop that occurred during the test.

C- Resistor: Displays the internal Rresistor type embedded in the tray. The Sybester recognizes many types including C10, V66, C69, etc. If it doesnt recognize the type, it displays the value.

D-Diagnostic Lights: These lights are used for Sybester troubleshooting. They include LEDs for Bluetooth functionality and test readings.

Let's get Started...

Step 1 – Quick Tray Test

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1: Align the Sybester to match the rear SYBTU1-PLP or SYBTU2-PLP battery tray.

2 : Firmly push in the Sybester tool into the back of the battery tray.

3 : The connectors on the tray and the Sybester will lock. The Sybester will wake up automatically with sufficient voltage.

4: The Sybester will display the tray Voltage, Thermistor, and Resistor values. You don't need the App to conduct basic tests.

CAUTION: The connectors on the back of battery trays contain high voltage (96volts DC). Exercise caution while connecting the Sybester to avoid electric shock.

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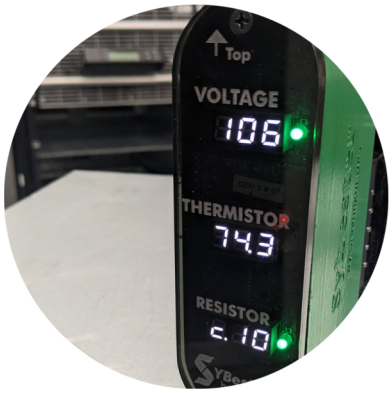


WARNING: Risk of Electric Shock. Use proper PPE for 96volt DC battery handling including leather gloves and safety glasses.

Let's get Started...

Step 2 – Connect & Pair

The Sybester comes with its own App to record Battery Tests.

1 - Launch the Sybester App on the provided phone.

2 - On the Home screen, Click on the Bluetooth logo and Pair this phone to the Sybester's address.

3 - The included phone will display the pre-paired MAC address of your Sybester.
The MAC address is also included in the original shipment documentation if you want to use your own phone or access multiple Sybester units.

You may need to Re-Pair after each use.

In order to Share test data from the Sybester App on the phone you need to Pair this Sybester Phone to your PC or other device.

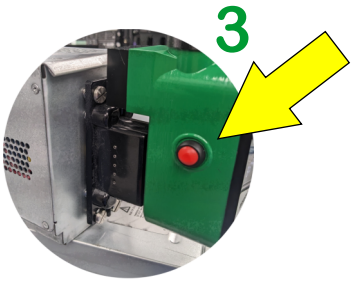
4 - Open up your Bluetooth device setting on your PC and Search for "Sybester Phone" Then Pair the two devices.

Let's get Started...

Step 3 – Battery Load Tests

NOTICE: When testing strings of batteries, make sure ALL batteries are similarly charged

The Sybester loads the batteries with 3 amp load for 1/3 of a second. The screen displays the voltage drop.



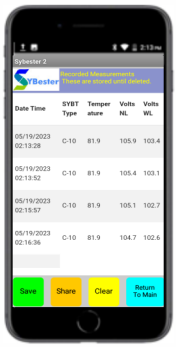
1: Make sure your phone App is active and paired to your Sybester.

2 - Firmly push in the SYBester tool into the back of a tray to test and wait for screen to light up.

3 - Press the Test button the Sybester to begin the battery test on the tray.

4 - The Sybester will beep and the voltage drop that occurred on the battery is displayed in the Thermistor screen value for 1 minute.

This voltage drop value can be referenced with other batteries and historical data to determine the battery tray's health.

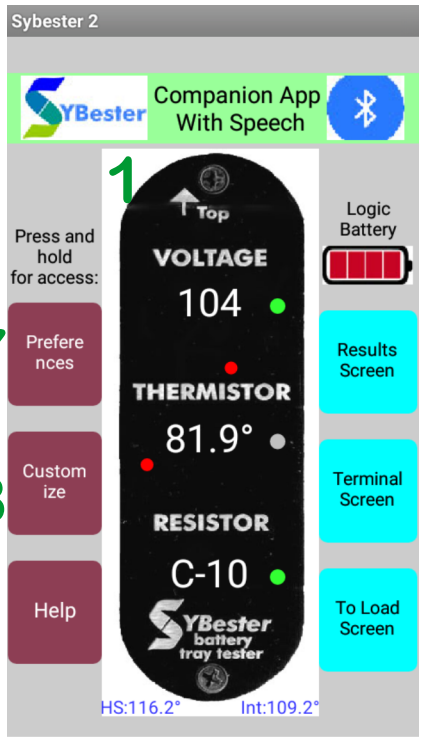


5 - Each test is time stamped and the voltage before and after the test is recorded. You can view and share the results of the tests with the Sybester App.

CAUTION: Do not load test any tray that is damaged or swollen. Do not test trays that are opened. Load testing will send a small and brief amount of load to the tray. Risk of exposition, sparking and shorting is possible.

Using the App..

the Main Screen

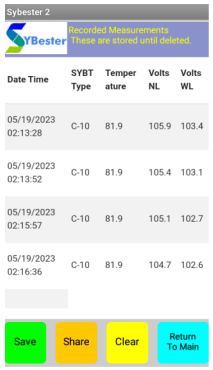


1 - Mimic Screen : Voltage, Resistor and Thermistor/VoltDrop readings mimic your paired Sybester.

2 - Bluetooth : Press to connect to your Sybester. Banner is green when connected.

3 - Logic battery : The battery life indicator of the Sybester's internal battery.

4 - Results Screen : Press to enter and view your Battery Tests. The timestamp, type temp, and voltage readings are shown.



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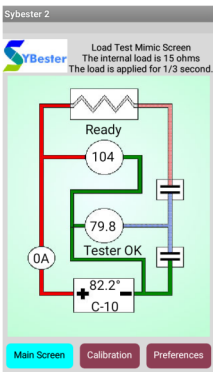
ADVANCED SCREENS FOR SPECIAL USE

5 - Terminal Screen : Press to enter the troubleshooting screen for Sybester issues.



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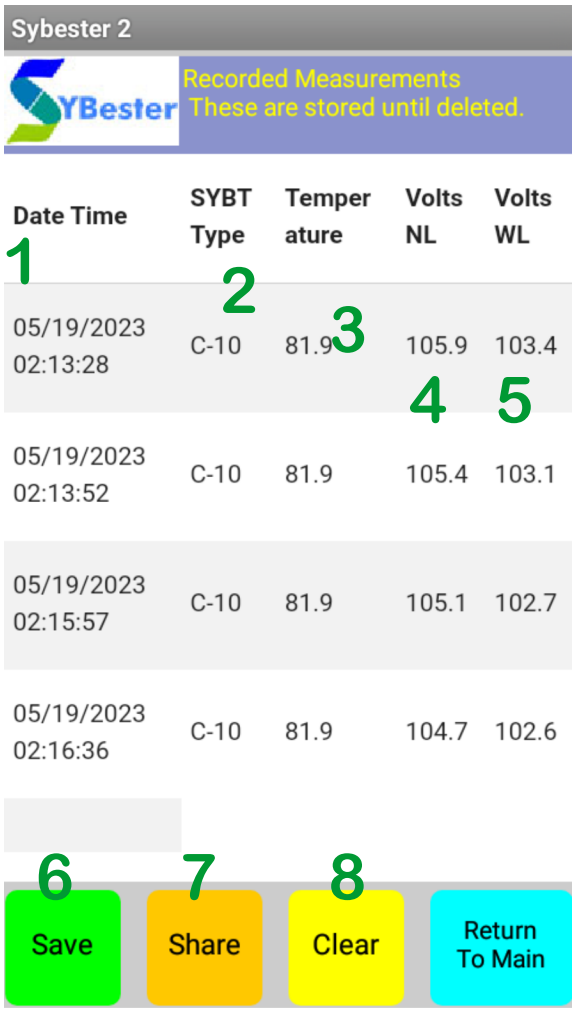
6 - Load Test Mimic Screen : Press to enter visualization of the test in real time.

7 - Preferences : Press and Hold to enter the App and Sybester tool settings.

8 - Customization : Press and Hold to enter and make adjustments to the App and tool. You can calibrate the unit here.

Using the App..

the Results Screen



1 - Date and Time of your test.

2 - The type of resistor value in the tray

3 - The internal temperature of the tray

4 - (NL) Starting Voltage before the load test

5 - (WL) Voltage after the load test. The difference between NL and WL is the voltage drop. A few volts is normal, but large drops should be a concern. Remember it is testing eight 12volt batteries, so a drop of 4 volts or 1/2volt per battery is not a concern

6 - (Save) Press Save once your test is done to keep the measurements.

7 - (Share) Press Share to send the data to a previously paired phone, tablet, or PC via Bluetooth.

8 - (Clear) Once you have verified the share was successful, or no longer need the data. Pressing clear will remove ALL test data.

More Help Available at
www.SymmTools.com

You got problems...

Troubleshooting

The Sybester is constantly evolving product based on feedback from our customers. We encourage you to contact us with any problems or issues.

THE UNIT WONT LIGHT UP
Solution: The Sybester is powered by the battery tray AND a set of AAA batteries. Multimeter the tray and make sure its above 20volts, before replacing the AAA batts

VOLTAGE DROP VALUES FOR SAME TRAY ARE DIFFERENT AFTER EACH TEST
Solution: This is normal. Every load/discharge causes the batteries to react different. That is why its best to test all the trays, just once and in the most consistent conditions.

I CANT CONNECT THE BLUETOOTH FEATURE
Solution: Ugg. Bluetooth and phones are very temperamental. 90% of the problems are related to the phone. Check Permissions and Settings. If not contact us for another phone.

THE THERMISTER SCREEN SAYS "HOT"
Solution: This is a thermal protection feature. Just wait for the unit to cool down before continuing.

Warranty

Term: We offer a 12month warranty on all SYBester units unless expressly specified elsewhere. Our warranty policy begins at the delivery date or pickup date.

Initiation: Call or Email GreenLightUPS with a warranty claim request. Within 1 business day our technical team will contact you to review the situation. The GreenLightUPS warranty requires you to perform basic testing and troubleshooting with our technical team prior to replacement.

Resolution: We exclusively decide whether to a) replace the unit or components, or b) have the unit returned to us for repair.

GREENLIGHTUPS, INC.
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You got questions...

FAQS

How should I use the Sybester?
At our shop, we use it as quick tool to check the state of any battery tray. The Sybester tells us, if the batteries are charged, which battery / resistor class its case is set to, and whether the Thermistor needs to be changed.
In new installations in the field, we use it to test new battery trays to make sure they weren't discharged or shorted in shipping.
For Preventive Maintenance visits, we use it to check the health of batteries and look for tray abnormalities.

Will the Sybester damage, drain, discharge or short my batteries?
No, when properly used, the Sybester simply mimics the actions of a multi meter and collects the data available without disrupting the load.

Will the Sybester work on other Symmetra battery trays?
No, the Sybester works on the SYBTU1-PLP and SYBTU2-PLP batteries. Caution: The outlet on the SYBT5 is very similar, but will NOT read the voltage or do the test.

The battery Voltage Drop is 3.5volts. Does that mean the batteries are good?
Yes, All batteries will drop in voltage during a test. Since there are 8 batteries inside each tray, a 3.5 volt drop is less than a volt per battery.

What is the Thermistor Value?
The Thermistor value is the measurement of the internal temperature-sensitive resistor. Over time, this value will change based on charging and heat. Lower values suggest the battery tray has had an elevated temperature at some point.

What is the Resistor Value?
Since APC uses different internal batteries for the SYBTU1-PLP depending on production needs, they encode each tray with a set of resistors specific for the batteries. V66, C10, etc. These codes represent the resistor value inside the tray. It is critical to match like resistor values in each row of the battery cabinet.

Who Invented the Sybester?
The Sybester battery tester was developed by Robert Furmanak, the head engineer at GreenLightUPS, originally to help us rebuild PLP battery trays. GreenLightUPS, since 1981, has a long history of developing solutions to save our customers money and service our customer's needs. Feel free to contact us about our other Symmetra innovations.

Notices

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Specifications

SYBester is a field data collection tool and should NOT be used in place of other instruments for accurate readings.

MEASUREMENTS:
Source: Measured from the output connector at the end of the string of eight batteries in the SYBTUx-PLP battery tray.
DC Voltage of Tray
Accuracy: + / - 3% Volts **Range:** 20 - 120vdc **Sampling Rate:** 1 value / second
Thermistor Value
Accuracy: + / - 3% Ohms **Range:** 0 - 40000 ohms
Resistor Value for Battery Class
Accuracy: + / - 3% Ohms **Range:** 0 - 40000 ohms
Limitation: Measurement values may vary with actual designed resistance of each battery class. Match the value with the best known battery class.
Load Test
Capacity: 3amps via resistors

PHYSICAL:
PHYSICAL PROPERTIES
Length x Width x Height: 6.2" x 3.3 x 2.0" Weight: 10 oz

FEATURES
Connection: 7 pin Powerpole(R) connection
Display: Seven Segment LCD screen
Power Requirement: Either 20vdc from battery tray or (4) AAA Batteries
Operating Temperature: 60-90 degrees F
Storage Temperature: 20-120 degrees F
Materials: PVC type housing, Acrylic Cover
Sybester App: Available for download at www.SymmTools.com