

**HIPOTRONICS** 

---

# Operating Instructions



**880PL-HD**

**800PL Series  
DC HIPOT Testers**

Version 1.4



## WARNING

**Before operating the instrument, be sure to read and fully understand the operating instructions. This system produces and measures hazardous voltages. It is the responsibility of the user to ensure that the system is operated in a safe manner.**



**This equipment contains exposed terminals carrying hazardous voltages. There are no user serviceable components in the unit. All repairs and upgrades that require the unit to be opened must be referred to HIPOTRONICS or one of their nominated agents.**

HIPOTRONICS and its sales partners refuse to accept any responsibility for consequential or direct damage to persons and/or goods due to the lack of observance of instructions contained herein or due to incorrect use of the equipment.

Further be aware that safety is the responsibility of the user!

Any correspondence regarding this instrument should include the exact type number, instrument serial number and firmware version number. With the exception of the firmware version number, this information can be found on the registration plate on the right panel of the instrument. The firmware version can be found in the bottom right corner of the settings window.

Unauthorized opening of the unit may damage the EMI protection of the system and will reduce its resistance to interference and transients. It may also cause the individual unit to be no longer compliant with the relevant EMC emission and susceptibility requirements. If the unit has been opened, the calibration will be rendered invalid and the warranty will be void.

### Note

HIPOTRONICS has a policy of continuing improvement on all their products. The design of this instrument will be subject to review and modification over its life. There may be small discrepancies between the manual and the operation of the instrument, particularly where software has been upgraded in the field.

HIPOTRONICS retains the right to modify the functionality, specification or operation of the instrument without prior notice.

© All rights reserved. No section of this manual may be reproduced in any form, mechanical or electronic without the prior written permission of HIPOTRONICS.

## Manual Conventions

In the manual, the following conventions are used:



Indicates a matter of note.

If it refers to a sequence of operations, failure to follow the instructions could result in errors in measurement.



Indicates hazards.

There is a risk of equipment damage or personal injury or death. Carefully read and follow the instructions. Be sure to follow any safety instructions given in addition to those for the site at which tests are being performed.

# Foreword

Welcome, new user of the “880PL-HD”. Thank you for placing your confidence in our product.

With the purchase of this measuring instrument you have opted for all the advantages that have built a world-wide reputation for a HIPOTRONICS instrument: robustness, performance and quality. As a result, this instrument provides a solution which achieves the optimal combination of traditional know-how and leading edge technology.

This operating manual is designed for completeness and easy location of the required information. Customers who already have experience with this kind of equipment will find this document to be of assistance as an extended help.

If you find a mistake or inconsistency in the operating manual then please feel free to inform our Customer Support department with your corrections so that other users may benefit.

# Contents

<b>1</b>	<b>Introduction</b>	<b>4</b>
1.0	Receiving Instructions .....	4
1.1	General .....	4
1.2	Scope of Supply .....	4
1.2.1	Standard Scope of Supply .....	4
1.3	Technical Data: 880PL-HD .....	5
1.3.1	General Specifications .....	5
1.3.2	Model Specifications .....	5
<b>2</b>	<b>Safety</b>	<b>6</b>
2.0	General .....	6
2.1	Essential Safety Recommendations .....	7
2.2	Summary.....	7
<b>3</b>	<b>Theory</b>	<b>8</b>
3.0	Introduction .....	8
3.1	Application .....	8
<b>4</b>	<b>880PL-HD Front Panel</b>	<b>9</b>
4.0	Interface Points-of-Interest.....	9
4.1	Glossary of Front Panel Symbols.....	10
<b>5</b>	<b>Connection and Setup</b>	<b>12</b>
5.0	Ground Connections .....	12
5.1	Testing Connections .....	12
5.1.1	INTERNAL SWITCH BETWEEN GROUND AND RETURN (GST) ..	12
5.1.2	INTERNAL SWITCH BETWEEN GROUND AND GUARD (UST) ..	15
<b>6</b>	<b>Software User Interface</b>	<b>18</b>
6.0	Main Menu .....	18
6.1	Test Modes .....	19
6.2	Reports Test Reports .....	23
6.3	Settings.....	26
6.4	HIPODirect.....	27
<b>7</b>	<b>Troubleshooting</b>	<b>28</b>
<b>8</b>	<b>Miscellaneous</b>	<b>30</b>
8.0	Care and Maintenance.....	30
8.0.1	Cleaning the Instrument .....	30
8.0.2	Instrument Calibration .....	30

8.1	Instrument Storage .....	30
8.2	Packing and Transport.....	30
8.3	Recycling .....	30
<b>9</b>	<b>Customer Support</b>	<b>31</b>
9.0	Declaration of Conformity.....	32
	Hipotronics, Inc. ....	32
9.1	Warranty .....	33

# 1 Introduction

---

## 1.0 Receiving Instructions

When received, any possible transport damage should be noted. A written record should be made of any damage. A suitable remark should be recorded on the delivery documents.

A claim for damage must be reported immediately to the transport company and to the Customer Support Department of HIPOTRONICS or the local agent. It is essential to retain the damaged packing material until the claim has been settled.

Check the contents of the shipment for completeness immediately after receipt (See chapter “Scope of Supply”). If the shipment is incomplete or damaged, then this must be reported immediately to the transport company and the Customer Support Department of HIPOTRONICS or the local agent. Repair or replacement of the instrument can then be organised immediately.

---

## 1.1 General

The 880PL-HD is a modern solution for testing the insulation strength of electrical apparatus for duty cycles up to 60 minutes. Outfitted with a state-of-the-art digital interface, and extensive safety features, this robust unit ensures simplistic operation, accurate results, and operator safety under all circumstances. It features the most accurate kilovoltmeter readings regardless of load current.

---

## 1.2 Scope of Supply

### 1.2.1 Standard Scope of Supply

The following items are supplied with the standard instrument:

Qty	Description
1	880PL-HD DC Hipot tester
1	U.S. Power cord
1	Ground Cable
1	Return Cable
1	Calibration Certificate
1	Manual (English)



---

## 1.3 Technical Data: 880PL-HD

### 1.3.1 General Specifications

Power Input	90 – 264VAC 50/60Hz
Operating Temperature	14 ... 122°F (-10 ... 50°C)
Storage Temperature	-4 ... 158°F (-20 ... 70°C)
Humidity	5 ... 95% R.H. non-condensing
ECCN #	3A992.A
HTS US Code	9030.39.0100

### 1.3.2 Model Specifications

Model #	880PL-HD	
Output Voltage (DC)	0 ... -80kV	(+ for /P)
Output Current	0 ... -10mA	(+ for /P)
Measurements	Resolution	Accuracy
Voltage	0.1kV	+/- 1.5% of Reading +/- 0.2% F.S.
Current	0.1uA	+/- 1.5% of Reading +/- 0.2% F.S.
Resistance	10kΩ	+/- 1.5% of Reading +/- 0.2% F.S.
Dimensions	19.45" x 13.7" x 20" 49.3cm x 34.8cm x 50.7cm	
Weight	78lbs	
Duty Cycle	1hr ON, 1hr OFF	

# 2 Safety



**Remember:  
Hazardous voltage can shock, burn or cause death !**



The unit should only be operated after carefully reading the user manual which is an integral part of the instrument.

HIPOTRONICS and its sales partners refuse to accept any responsibility for consequential or direct damage to persons and/or goods due to none observance of instructions contained herein or due to incorrect use of the equipment.

Further be aware that Safety is the responsibility of the user!

---

## 2.0 General

Safety is the most important aspect when working on or around high voltage electrical equipment.

Personnel whose working responsibilities involve testing and maintenance of the various types of high voltage equipment must have understood the safety rules written in this document and the associated safety practices specified by their company and government. Local and state safety procedures should also be consulted. Company, regional or national regulations must be fulfilled beyond HIPOTRONICS recommendations.

If the instrument is damaged or it is possible that damage has occurred, for example during transportation, do not apply any voltage. The instrument may only be used under dry operating conditions.

Do not open the unit; it contains no user replaceable parts.

People with heart pacemakers should not be near this system during operation.



Safety is the responsibility of the user. Always operate the equipment in accordance with the instructions, always paying full attention to local safety practices and procedures.



This equipment must be operated only by trained and competent personnel who are aware of the dangers and hazards involved in high voltage testing.

---

## 2.1 Essential Safety Recommendations



Before connecting the instrument ensure that the device-to-be tested is completely de-energized and isolated from both line and load. Every terminal should be checked and verified before connection of the instrument. Ground connections may be left in place.



Never operate the equipment in an explosive environment or where there are flammable gases or fumes



The instrument must always be grounded (i.e. a safety earth). It must never be operated in a non-grounded configuration as this may result in electrical shock to the user or damage to the instrument.

---

## 2.2 Summary

Note: Many accidents that happen around high voltage equipment involve personnel who are not familiar, or perhaps too familiar, with high voltage equipment. Staying alert and ever watchful requires constant training and awareness of the inherent hazards. The greatest hazard is the possibility of getting on a live circuit. To avoid this requires constant vigilance - for oneself and for one's fellow workers.

In addition to the obvious dangers, personnel should be alert to recognize subtle dangers as well. Therefore, **all terminals of a device under test, unless grounded, should be considered live while the test is in progress.**

**Remember: Safety, FIRST, LAST, and ALWAYS !**

# 3 Theory

---

## 3.0 Introduction

The 880PL-HD has a user tested and approved digital 7" color touchscreen display and now boasts a longer duty cycle with no voltage restrictions other than the maximum output. Users can now program hipot test sequences in automatic mode or simply control the test voltage using manual mode. It is also equipped with data acquisition software for exporting test results via USB 2.0. The 880PL-HD has extensive safety features, including external interlocks, built-in safety checks, visible and audible warning indicators, automatic output grounding, and an easily accessible emergency stop button to ensure operator safety under all circumstances.

---

## 3.1 Application

Medium-Voltage cable testing according to IEEE 400-1 and ANSI/NETA ATS, as well as ICEA S-94-649.

This robust design and construction is useful for testing high capacitive loads other Hipots can't such as large hydro-generators and motor windings.

Periodic Electrical Testing for Insulating Aerial Devices with a lower test electrode system (Category A and B) and without a lower test electrode system (Category C, D, and E) up to 46kV rating in accordance with ANSI A92.2-2015.

Periodic Electrical Testing for Insulating Aerial Ladders and Insulating Vertical Aerial Towers of rating 46kV and below according to ANSI 92.2-2015.

# 4 880PL-HD Front Panel

## 4.0 Interface Points-of-Interest



1– High Voltage Output

2– HV Return Input

3– Earth Ground Connection

4– Rotary Knob Manual Control

5– Emergency Stop

6 – On/Off Power Switch

7 – AC Power Input

8 – Warning Strobe Beacon Input









9 – External Interlock Input

10 – USB input

**Figure 1** *800PL-DC Front Panel*

---

## 4.1 Glossary of Front Panel Symbols




Symbol	Meaning	Symbol	Meaning
	Safety Beacon Port		Protective Earth Ground
	Ground		Push-to-Click Rotary Knob
	Guard		Return
	Interlock		USB

### External Interlock

The **External Interlock** input allows for an external interlock or "deadman" switch which will prevent High Voltage from turning on unless the interlock switch is closed. If this feature is not used, the provided interlock plug *must* be inserted into the provision in order for the unit to operate.

## Accessories

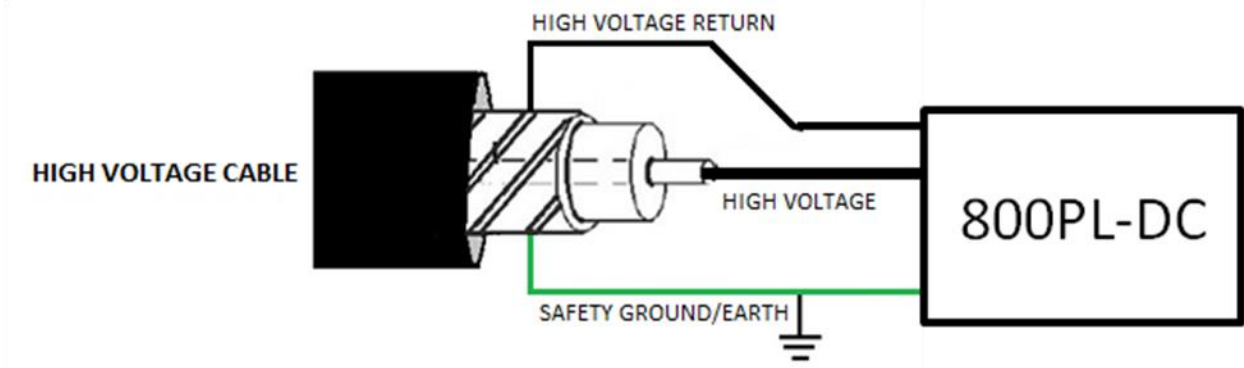
The following accessories are available for the 800PL-DC

Part Number	Description	Image
HH-FS	Foot-Operated Interlock Switch	
HH-SAFE	Safety Strobe Light with Magnetic Base	
HHDA13-280	Grounding Stick with 25ft braided lead, rated to 120kV	

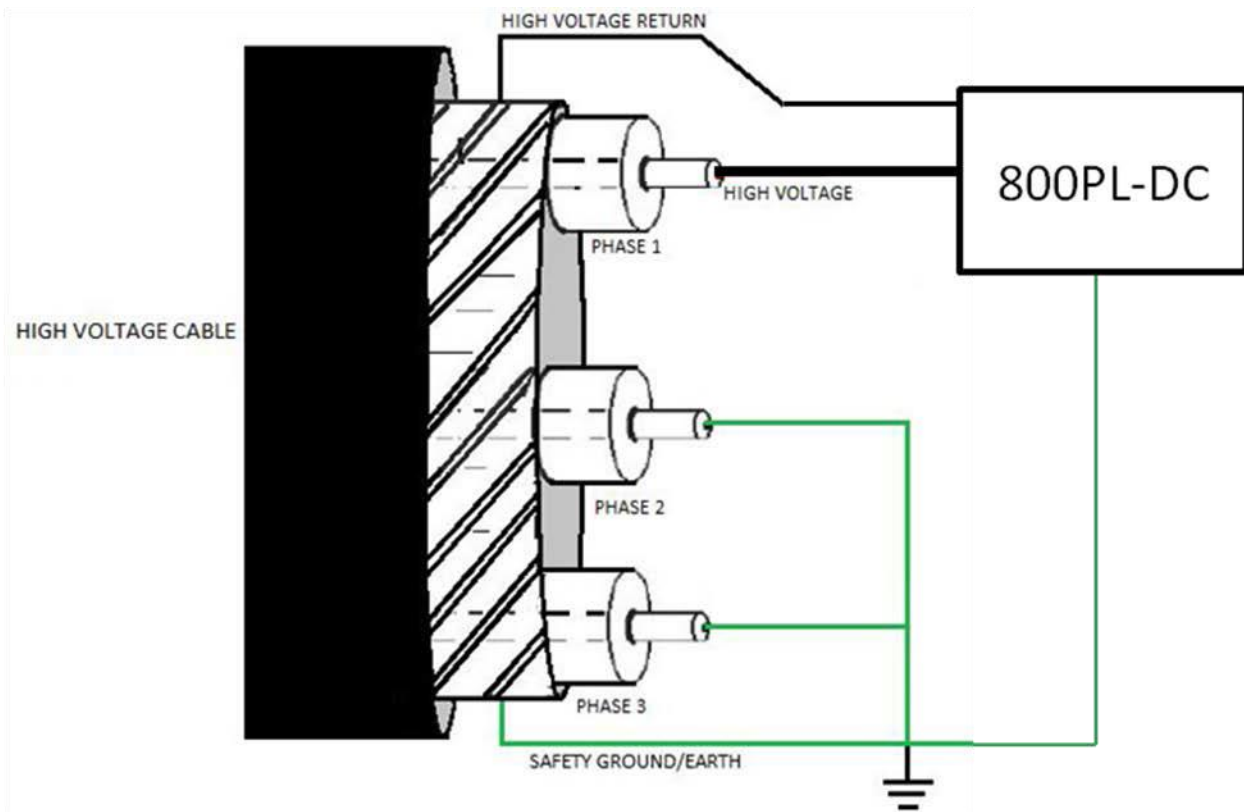




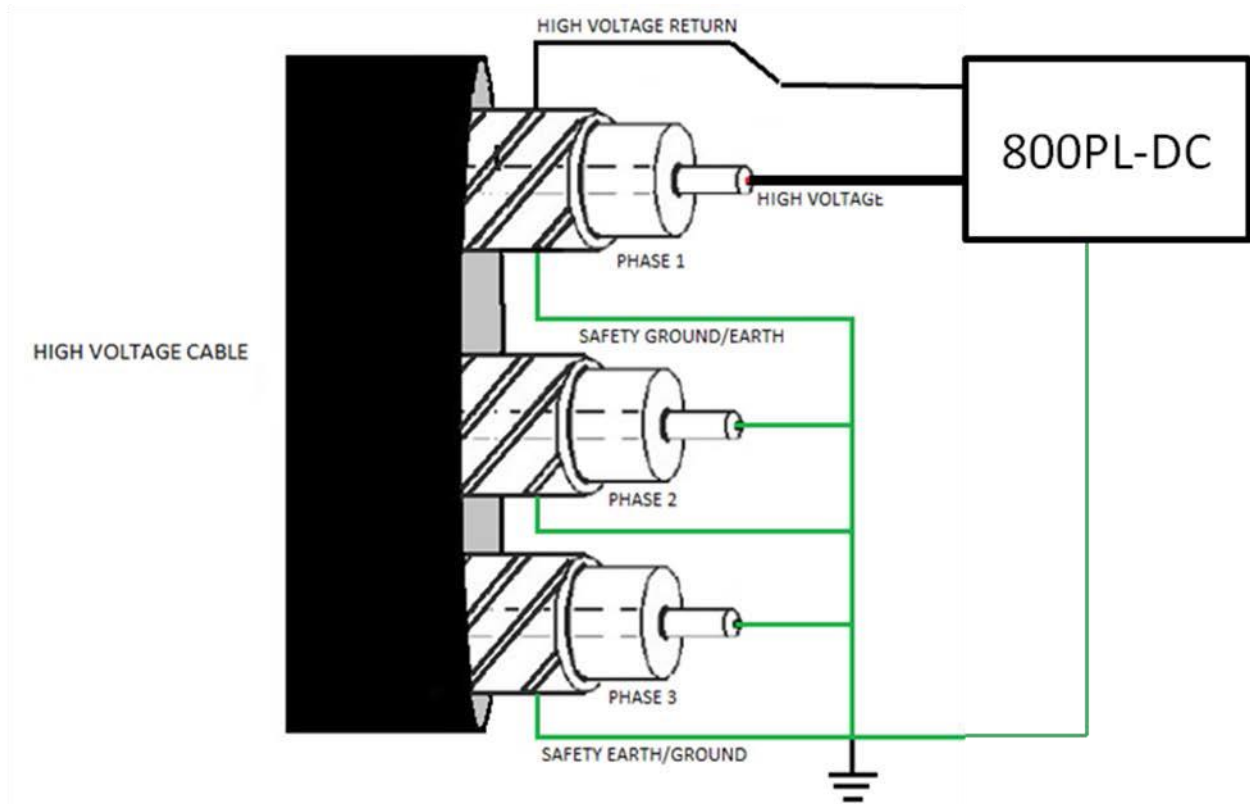
### Single Phase Cable:



### Grounded Multi-Conductor Cable (Individual Concentric Neutrals/Shields):



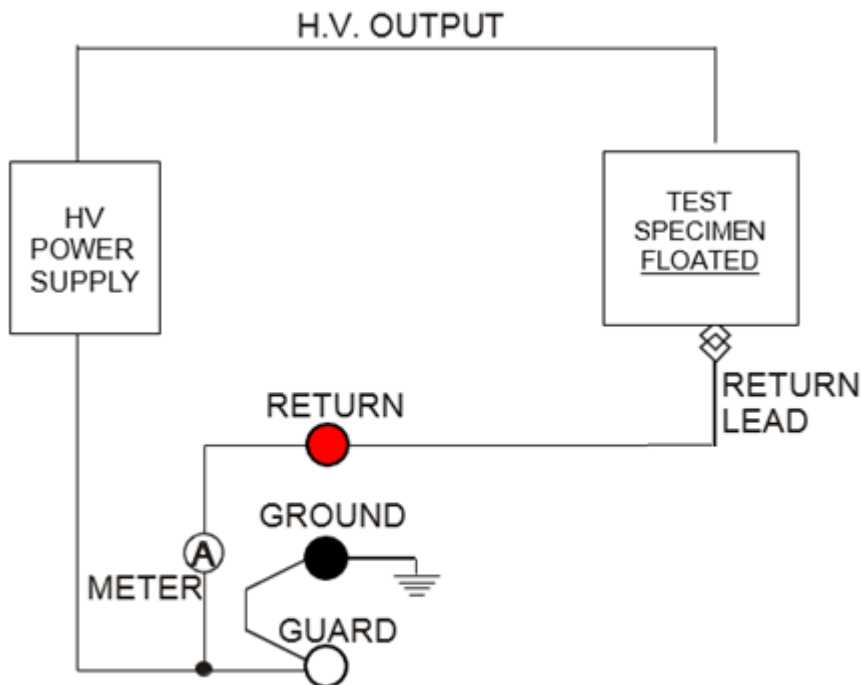
## Grounded Multi-Conductor Cable (Single Conductive Neutral/Shield):



### 5.1.2 INTERNAL SWITCH BETWEEN GROUND AND GUARD (UST)

The sole function of this mode of operation is to separate the paths of leakage currents. These leakage currents are *leakage to ground* and *leakage across the test specimen*. The leakage currents to **GROUND** are bypassed around the current meter, measuring only the specimen leakage current. The low side (**RETURN**) connection of the specimen must be "floated" (isolated from **GROUND**). This mode of operation should be used only when extremely sensitive measurements are desired.

This is typically used for discrete components or when leakage to **GROUND** is to be disregarded. For example, when testing a transformer for leakage (or resistance) between the secondary and the primary, the guarded return mode allows leakage to the core or frame to bypass the meter, thus reading only leakage between the two coils.

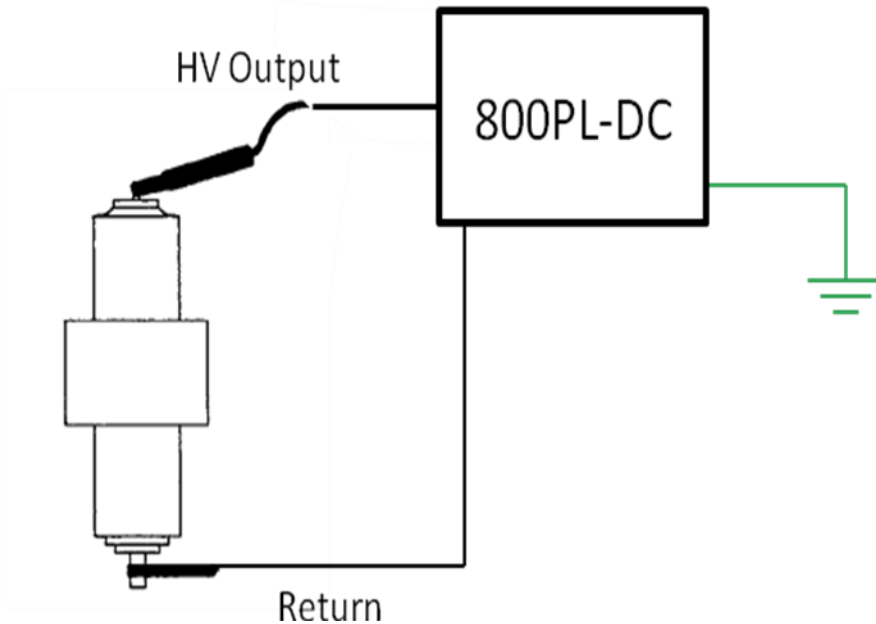


**Figure 4** Internal Link Connected Between Ground and Guard Post

*Note: This connection is internal; connecting additional leads to the ground port is not necessary and can invalidate test results.*

It is not possible to test installed cables in this mode of operation, as the cable shields are always grounded, making it impossible to see the leakage current.

## Vacuum Bottle



## Special Safety Instructions

Follow these safety procedures upon completion of testing.

### (a) Turn Off Procedure

(b) ***Warning!! Never press the HIGH VOLTAGE OFF pushbutton or turn off the main power switch immediately upon completion of a high voltage test. When stored energy is greater than 1 kilojoule, allow the energy to bleed down until the voltmeter reading is zero.***

### In Automatic Mode:

Note: upon completion of test, step 1 is automatically done for you.

1. Allow the unit to automatically bleed off the voltage from the device under test.
2. Completely discharge the cable through a resistive grounding (shorting) stick.
3. Attach a solid ground connection before touching the sample.

(c) **In Manual Mode, Especially When Completing Tests of Large Capacitive Loads (e.g. power cables)**

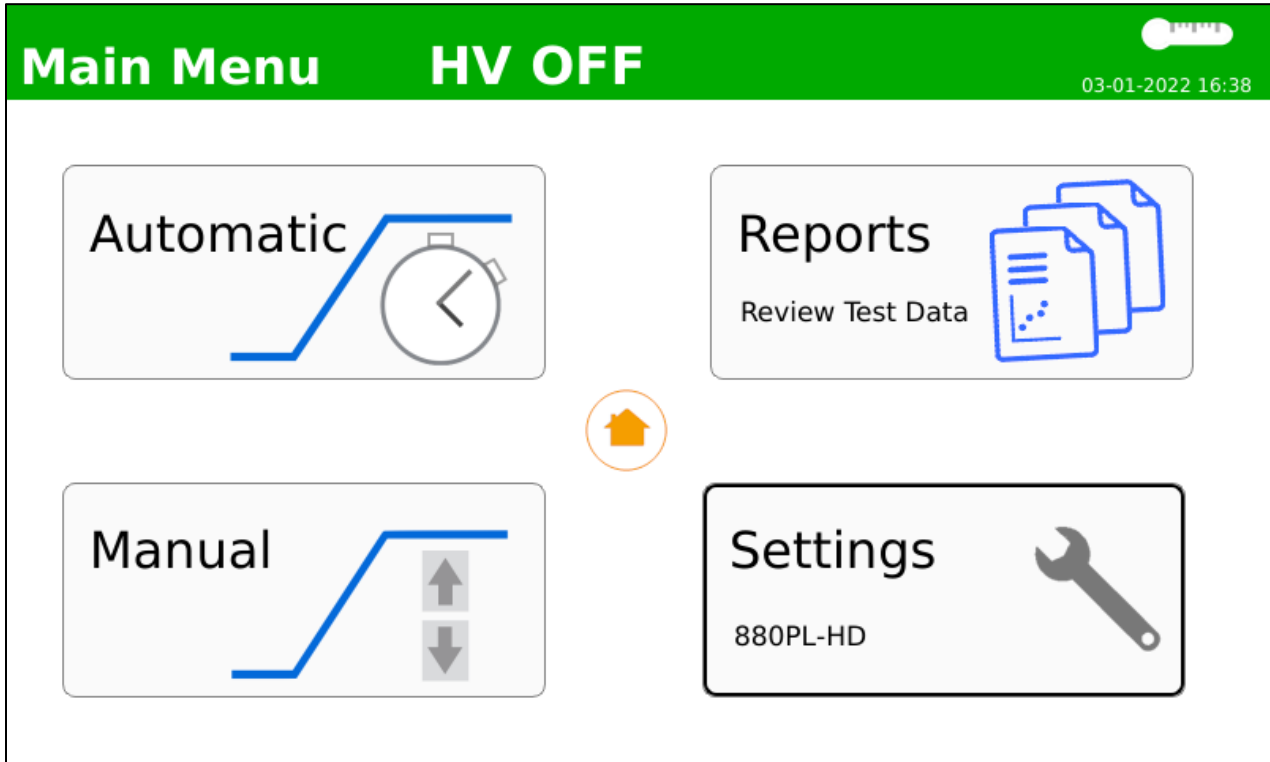
When completing a dc insulation test of large capacitive loads, the following steps are recommended for the protection of both the user and the equipment.

Note: upon completion of test, step 1 is automatically done for you.

1. Ramp voltage down to zero (0) and press STOP. (Note: current meter values may display as red-colored negatives; this is normal during this time.)
2. ***Secure a tested, hand-held, resistive grounding (shorting) stick.***
3. Using the hand-held grounding stick, bleed down the charged cable or other capacitive load. This eliminates the unnecessary discharge of a high capacitive cable back into the high voltage section of the 800PL unit when the **HIGH VOLTAGE OFF** pushbutton is pressed.
4. Place a solid earth connection before touching the sample.

# 6 Software User Interface

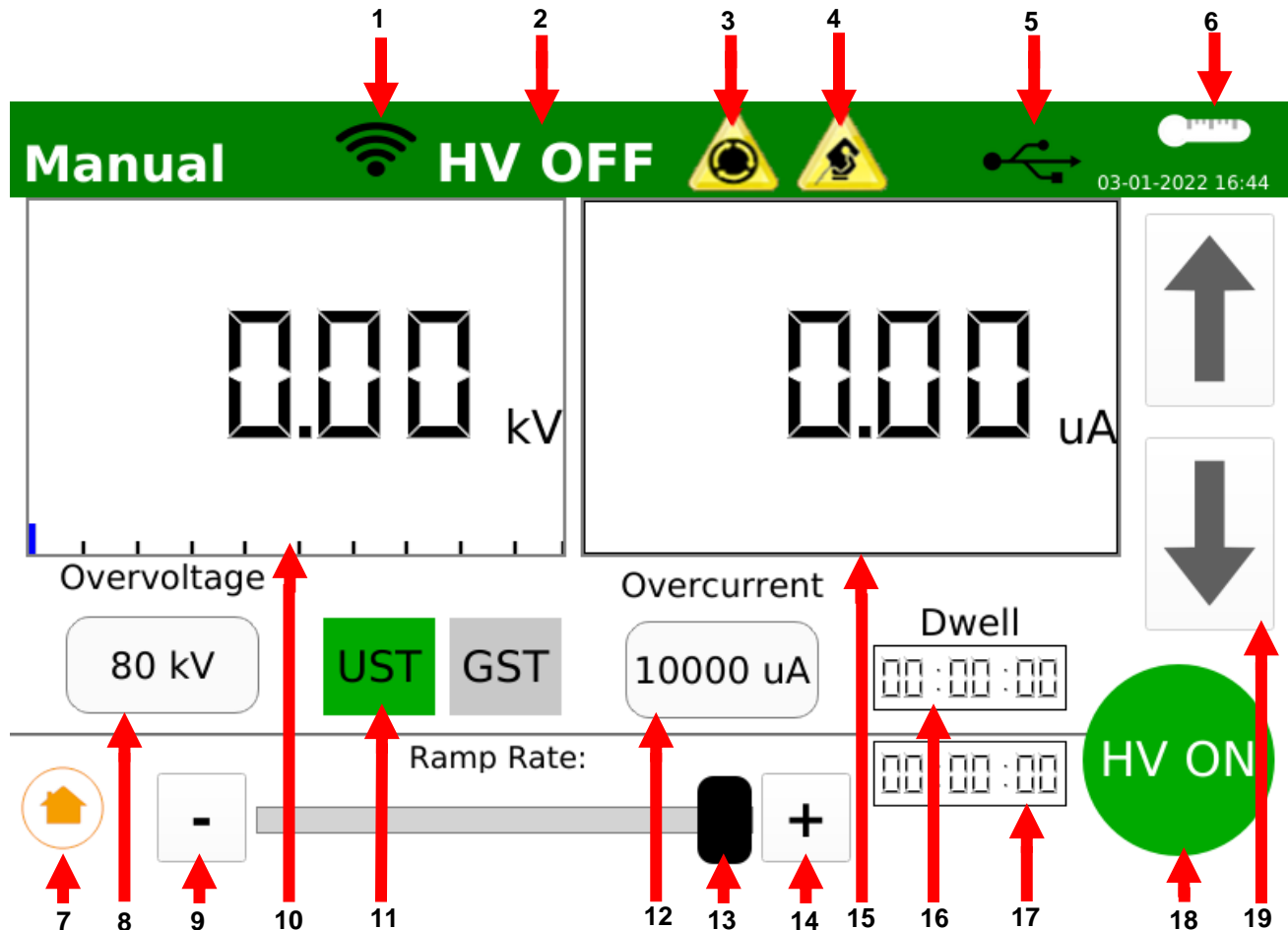
## 6.0 Main Menu



Upon booting up the unit, the screen will load to the Main Menu. You can select one of the two test modes, Automatic or Manual mode; or you can view previously saved Reports; or view/change any of the system Settings.

## 6.1 Test Modes

### Manual Mode Operation Interface with HV OFF



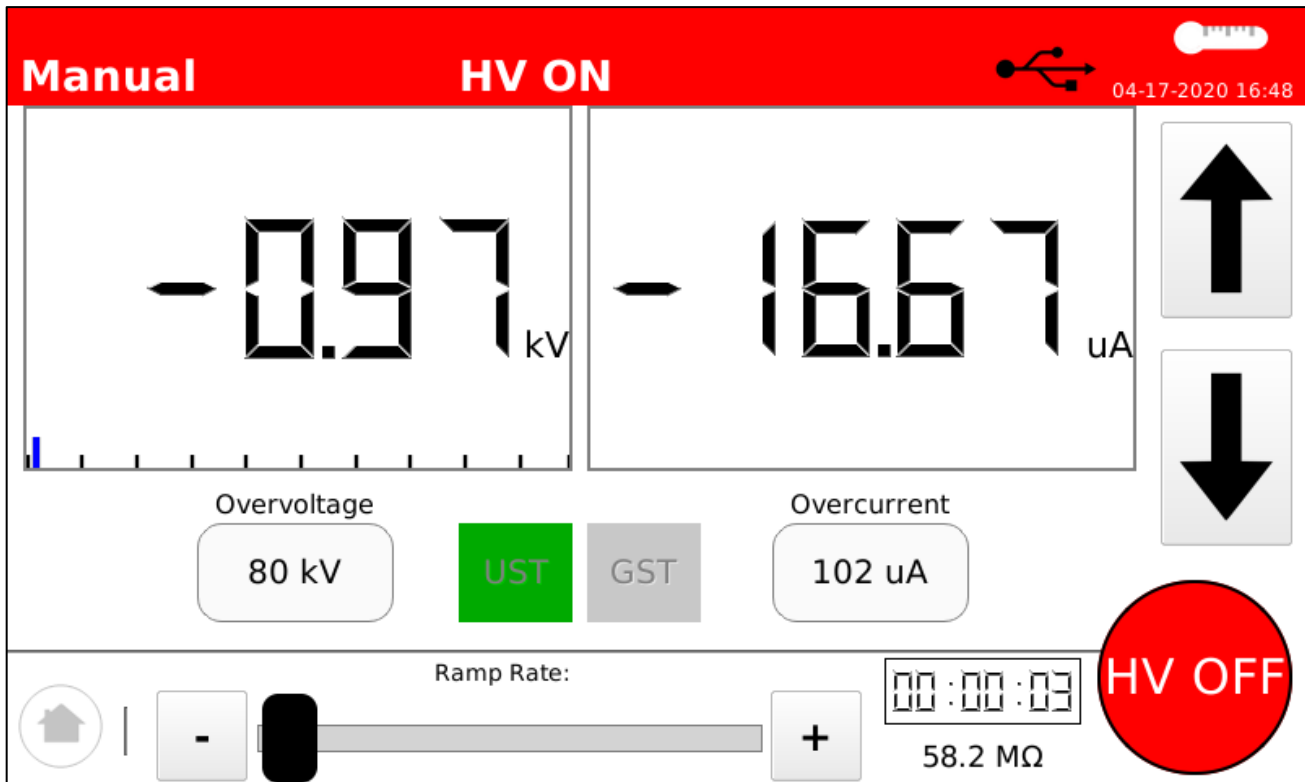
- 1 – WiFi Connected Indicator
- 2 – High Voltage Indicator
- 3 – Emergency Stop Engaged
- 4 – External Interlock Open
- 5 – USB Drive Detected
- 6 – Internal Temperature Monitor
- 7 – Return to Main Menu
- 8 – Overvoltage, Touch to Set
- 9 – Decrease Ramp Speed of Up/Down Buttons

- 10 – Volt Meter Display, Touch to Toggle Analog/Digital
- 11 – Ungrounded-Specimen or Grounded-Specimen Selection
- 12 – Overcurrent, Touch to Set
- 13 – Ramp Speed Slider
- 14 – Increase Ramp Speed of Raise/Lower Buttons
- 15 – Current Meter, Touch to Toggle Analog/Digital
- 16 – Dwell Time: Touch to Set, Enabled in Settings
- 17 – Elapsed Test Time Display
- 18 – HV Button, press to Start/Stop test
- 19 – Up/Down Buttons, touch to adjust HV in test

**Note, HV ON/OFF Button will be grayed out until E-Stop is OFF, Interlock Circuit is CLOSED, Power input is connected, and the Amplifier turns on.**

1. Before starting the test, confirm Ungrounded-Specimen-Test (UST) or Grounded-Specimen-Test (GST) Current Measurement Circuit option. If the test specimen's return is ungrounded, select UST, and refer to section 5.1.2. If the test specimen's return is grounded, select GST, and refer to section 5.1.1.

### 1. Example Operation Interface with High Voltage On



In the image above, the unit is in operation in Manual mode. The HV ON/OFF button is red, indicating the presence of high voltage. The test circuit mode, target voltage, and leakage current threshold are set and cannot be changed during operation. Meter displays can be toggled between analog and digital during testing. Resistance is calculated automatically.



## Operating the Equipment

### AUTOMATIC Test with Analog Meter Display

The screenshot shows the 'Automatic' test configuration screen. At the top, it displays 'Automatic' and 'HV OFF' in a green header. On the left, there are two control boxes: 'Overvoltage' set to 80.00 kV and 'Overcurrent' set to 10000 uA. Below these are 'UST' and 'GST' mode buttons. The main area contains a table with four test steps. Red arrows labeled 1, 2, and 3 point to the 'Ramp', 'V', and 'Dwell' columns respectively. Below the table are minus and plus buttons. At the bottom, there is a 'Preset' dropdown menu set to 'DEFAULT', a save icon, a timer display showing '00:00:00', and a large green 'HV ON' button. Red arrows labeled 4 and 5 point to the 'Preset' dropdown and the plus button respectively.

	Ramp	V	Dwell
1	1 kV/s	20 kV	00:10:00
2	2 kV/s	40 kV	00:01:00
3	3 kV/s	60 kV	00:01:00
4	3 kV/s	80 kV	00:00:00

- 1 – Ramp Rate, select cell to edit
- 2 – Target Voltage, select cell to edit
- 3 – Dwell Time, select cell to edit

- 4 – Preset, select to load/view/save
- 5 – Add or Remove steps

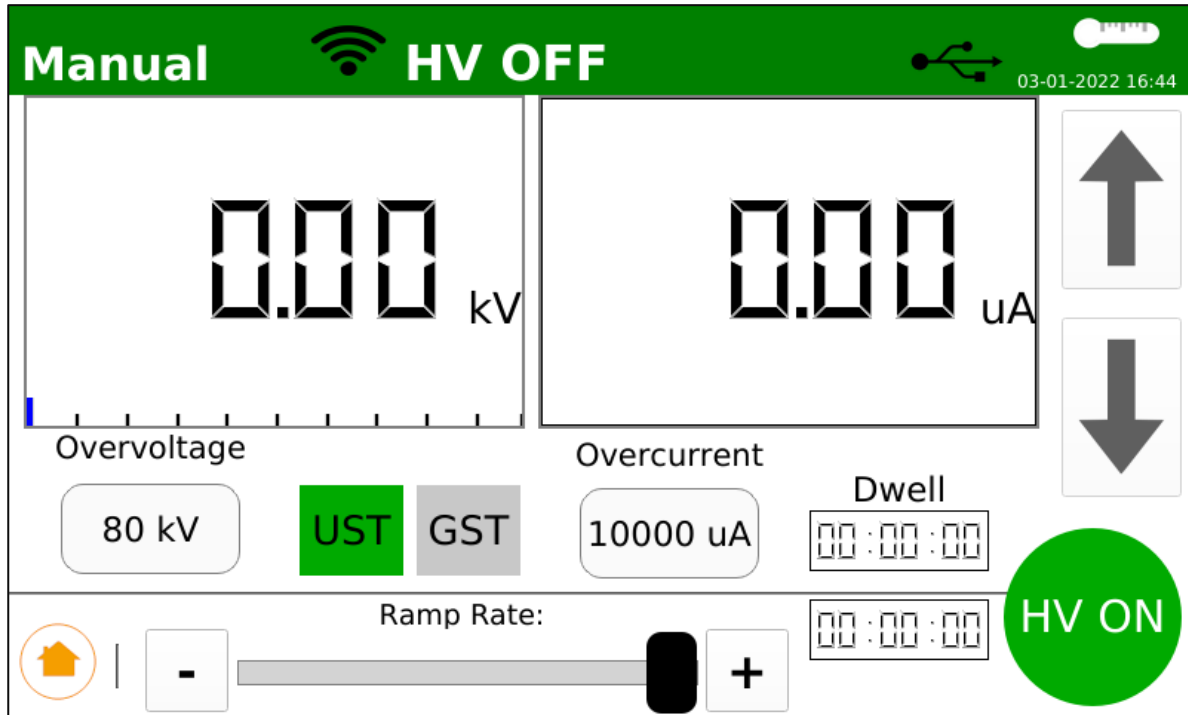
### Setting up an Automatic Test

1. Input Overvoltage and overcurrent level
2. Input Target Voltage: (0.1 → 80 kV)
3. Input Ramp Rate (0.1 → 3.0 kV per second)
4. Input Dwell Time (00:00 → 60:00 min)
5. Add/Remove additional steps in multi-step sequence
6. Confirm GST or UST mode
7. After all parameters are entered, Press HV ON to start High Voltage and begin Test

The Test will end when the Target Voltage is reached and the Dwell Time reaches 0:00 or when the Max Leakage current limit is reached.

To turn off High Voltage at any time, press STOP, engage the E-STOP, or open the Interlock Circuit.

## MANUAL Test with Digital Meter Display



### Setting up a Manual Test

1. Input Overvoltage (0.1 → 80kV)
2. Input Overcurrent (0.1 → 10,000 $\mu$ A or 0-10mA)
3. Confirm GST or UST mode
4. Press HV ON
5. Turn Rotary Knob or touch Up-Arrow button to activate and adjust High Voltage

To turn off High Voltage at any time, press STOP, engage the E-STOP, or open the Interlock Circuit .

**Note: When performing withstand tests on cable or capacitive loads, Manual mode is recommended. At the conclusion of the test, ramp the voltage back down to Zero before pressing STOP.**

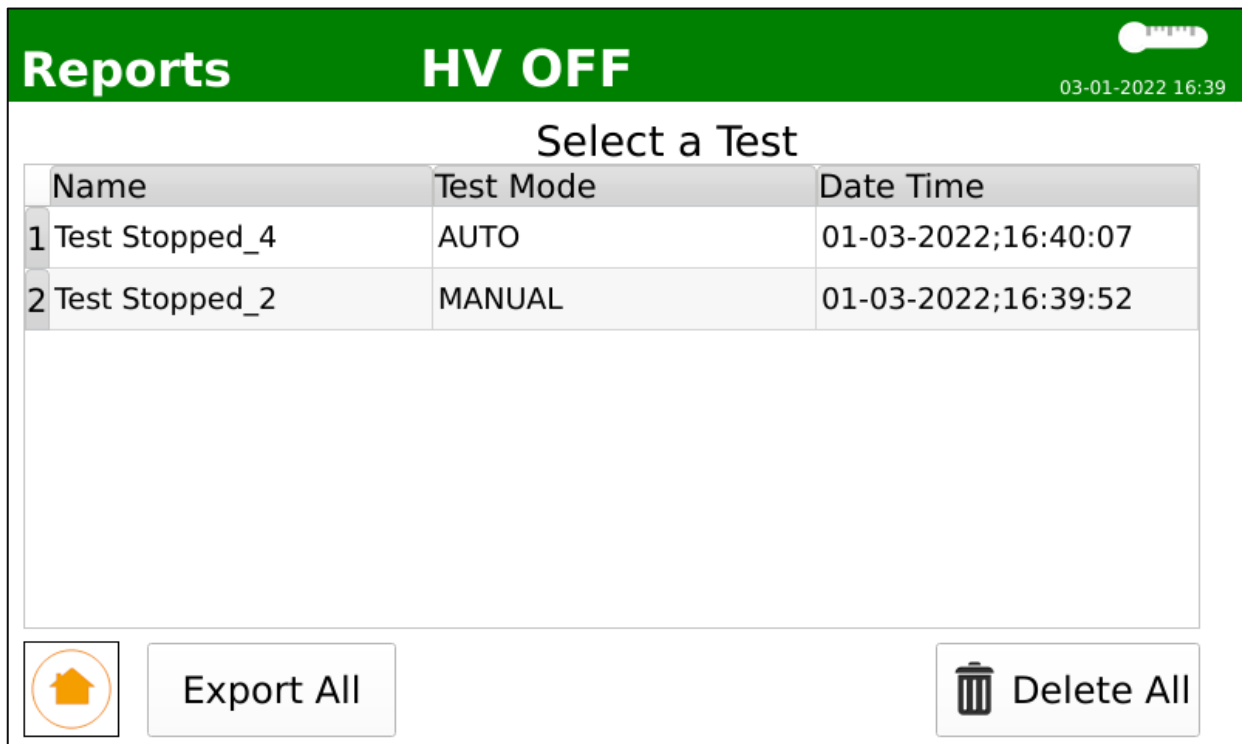
## 6.2 Reports **Test Reports**

### (d) Accessing Test Reports

Test reports can be accessed from the main menu by touching the 'Reports' button from the main menu

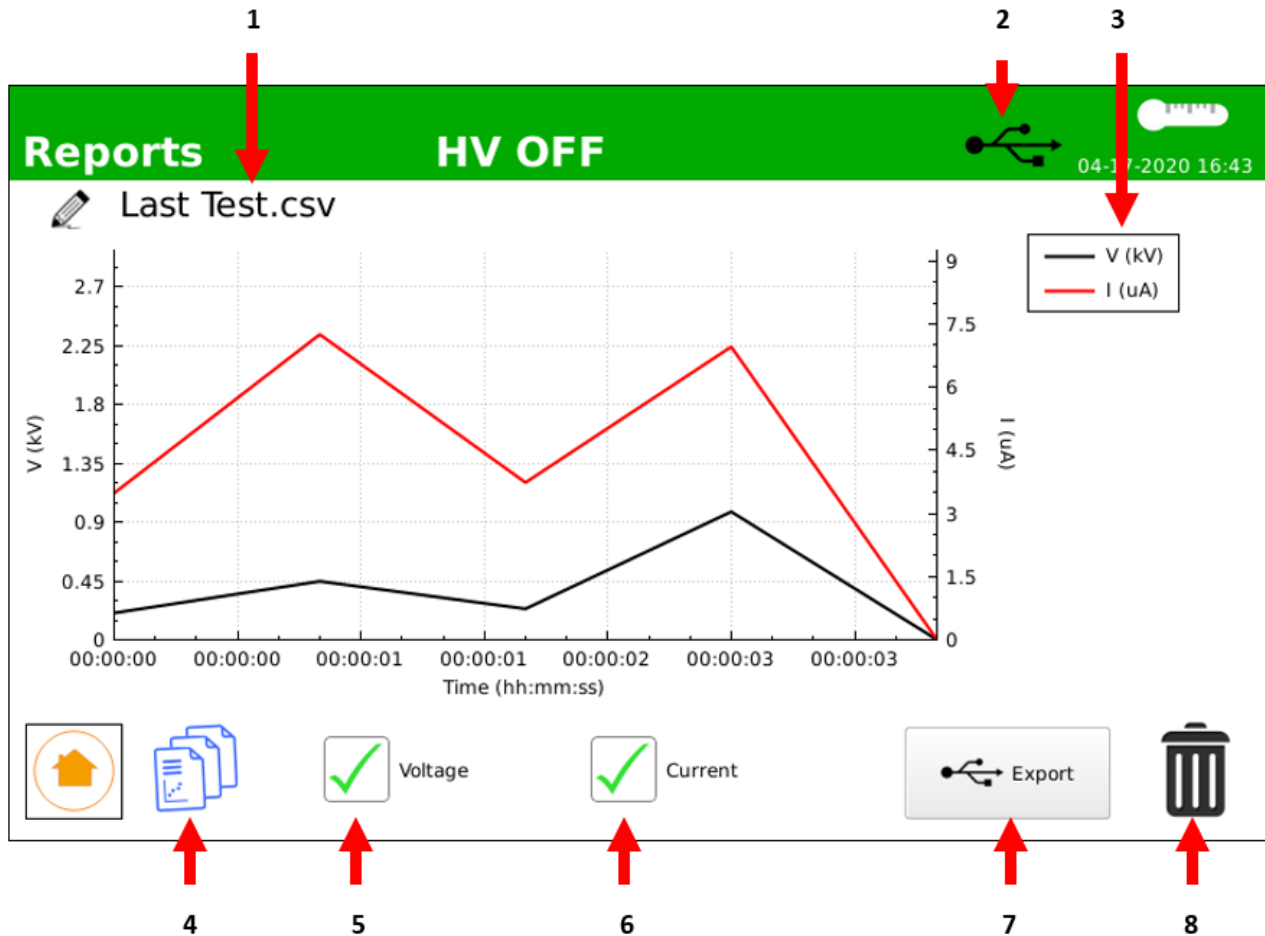


### (e) Reports Menu

A screenshot of a software interface. At the top is a green header bar with "Reports" on the left, "HV OFF" in the center, and a battery icon on the right. Below the header, the text "03-01-2022 16:39" is displayed. The main area is titled "Select a Test" and contains a table with three columns: "Name", "Test Mode", and "Date Time". The table has two rows of data. Below the table, there are three buttons: a home icon button, an "Export All" button, and a "Delete All" button with a trash can icon.

	Name	Test Mode	Date Time
1	Test Stopped_4	AUTO	01-03-2022;16:40:07
2	Test Stopped_2	MANUAL	01-03-2022;16:39:52

Test reports are organized by time, with the most recent at the top. From this menu, the user can select a test report, scroll down, or return to the main menu. Options may be selected by touch or the rotary knob.



- 1 – Name of Saved Test Report, click to edit
- 2 – USB Drive Detected, if shown
- 3 – Graph Legend

- 4 – Return to Reports List
- 5 – Voltage Display, press to toggle
- 6 – Current Display, press to toggle
- 7 – Export Report to USB Drive, if detected
- 8 – Delete test report

### (f) Exporting Test Reports

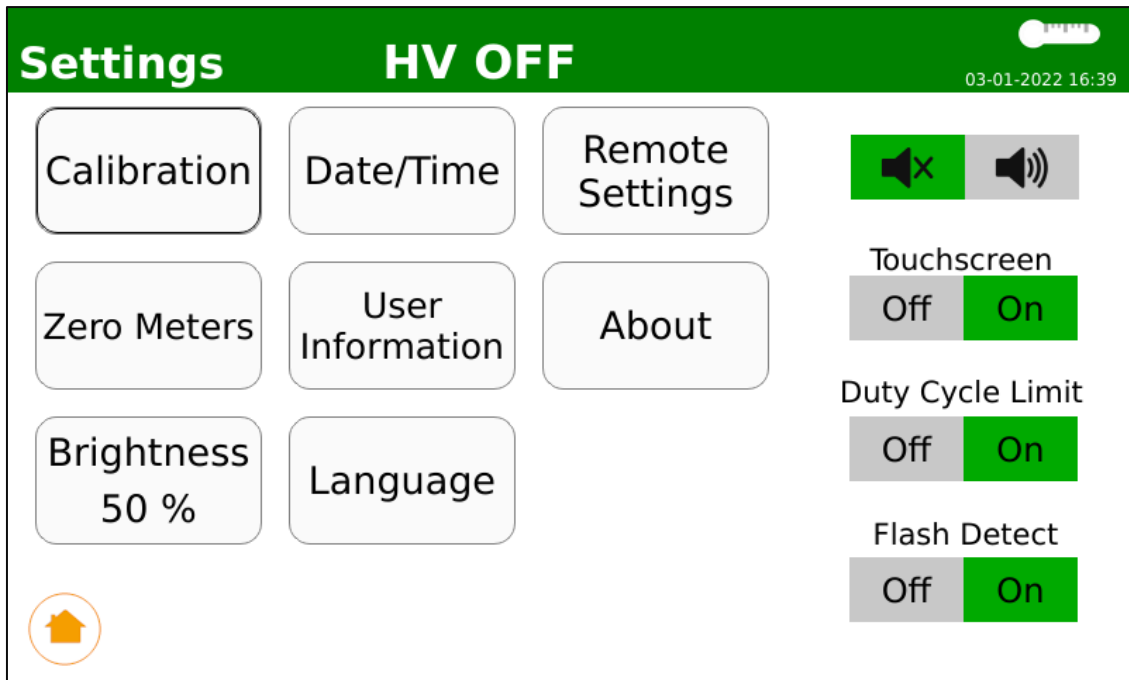
To export test reports, insert a portable USB drive formatted to FAT32. If the USB drive is detected, the USB symbol will display in the top bar. From the test report screen, touch the 'Export' button, which will be active only if a USB drive is detected. A message should appear to confirm successful transfer. The files transferred will be an image of the graph (in .png format) as well as the raw data used to calculate (in .csv format).

## (g) Applications and Recommended Connections to Select Devices Under Test

### (h) Insulation Resistance Measurement

- The 800PL series calculates Insulation Resistance (IR) during Automatic and Manual mode operation (See Page 9, Item 13).
- IR measurement range is 10 kΩ...40 GΩ
- Depending on the duration of the test the system will calculate the following:
  - **Dielectric Absorption Ratio(DAR):**
    - This is the Result of IR of 60 seconds divided by IR of 30 seconds. **Note:** resistance timer starts after target voltage is reached.
    - $R_{60s} / R_{30s}$
  - **Polarization Index(PI):**
    - This is the Result of IR of 600 seconds(10 minutes) divided by IR of 60 seconds(1 minute). **Note:** resistance timer starts after target voltage is reached.
    - $R_{600s} / R_{60s}$  (or  $R_{10min} / R_{1min}$ )

## 6.3 Settings



**Calibration:** To proceed to the Calibration menu, a prompt will appear for a passcode. Please contact Hipotronics for this information.

**Zero Meters:** Tare the voltage and current meters. Please make sure nothing is connected to the output cable and return port when this button is pressed.

**Brightness:** Adjust the screen brightness level

**Date/Time:** Edit the system date and time

**User Information:** Enter any identifier information for this particular unit

**Language:** Select the system display language

**Remote Settings:** Configure the WiFi-Direct settings to connect to HIPODirect

**About:** Unit Specific Information

**Buzzer Audio:** Select to disable/enable the internal buzzer which will beep while High Voltage is on.

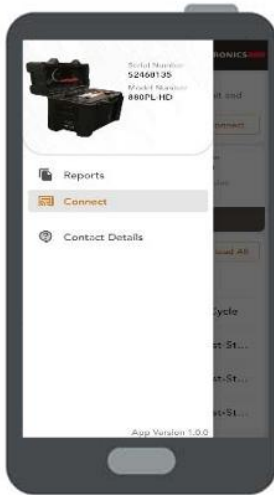
**Touchscreen:** Select to disable/enable the touchscreen. If disabled, the unit will only be operable via the encoder knob.

**Duty Cycle Limit:** Select to enable the feature that automatically ends a test once the rated duty cycle limit has been reached. It is highly recommended that this feature remains on for the protection and longevity of the unit.

**Flash Detect:** Select to enable the feature that automatically ends a test once a flashover or DUT failure is detected. It is highly recommended that this feature remains enabled for the protection and longevity of the unit.

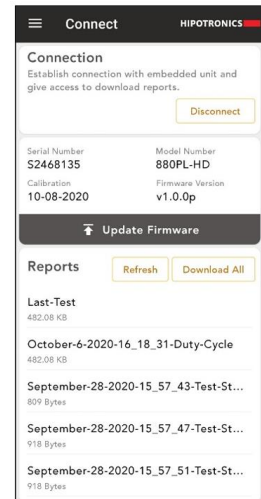
## 6.4 HIPODirect

HIPODirect is HIPOTRONICS software app solution to wirelessly connect a mobile device to WiFi-direct capable products. Once connected the software can show product details, as well as view and download test reports. Once downloaded, the test reports can be easily shared in CSV format via e-mail or by uploading them to any cloud service. HIPODirect is also capable of downloading and installing the latest firmware available on any Hipotronics products connected via the software app.



### FEATURES

- Friendly and intuitive user interface
- Share test reports in CSV format via e-mail or by uploading them to an online cloud
- View test report details right on the app! Max voltage, max current, elapsed time, voltage and current graphs
- Update Hipotronics equipment to the latest firmware available




Download the free mobile app today, available on Google Play Store or Apple App Store





Contact HIPOTRONICS sales for information about the HIPODirect+ Premium software for additional enhanced features

# 7 Troubleshooting

ISSUE	CAUSE	SOLUTION
Unit does not power on	1. No Input power	<ol style="list-style-type: none"> <li>1. Verify that input power is on.</li> <li>2. Verfiy power cord is connected to input source and 800PL-HD</li> <li>3. Power switch is in the ON position.</li> <li>4. Check fuse ( 250VAC, 10A)</li> <li>5. Consult factory</li> </ol>
Touchscreen unresponsive	<ol style="list-style-type: none"> <li>1. Touch screen disabled in "Settings"</li> <li>2. Screen damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Use rotary knob (See page 3, note 12) to navigate to "Settings", enable touch toggle</li> <li>2. Consult factory</li> </ol>
Screen too dim	1. Brightness level low	1. Navigate to "Settings". Select " Brightness". Adjust brightness as desired with rotary knob or touch control.
Cannot initiate high voltage ( "Start" button is gray)	<ol style="list-style-type: none"> <li>1. System is intializing</li> <li>2. Interlocks are open</li> </ol>	<ol style="list-style-type: none"> <li>1. If just booted up or interlocks released, wait about 5 seconds</li> <li>2. Twist E-stop clockwise</li> <li>3. Insert interlock plug in External Interlock Input (See page 3, note 10.)</li> <li>4. If applicable, press and hold hand-switch or foot-switch.</li> </ol>
No high voltage output (Automatic Mode)	<ol style="list-style-type: none"> <li>1. System in self-protect mode.</li> <li>2. High voltage power supply damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Power off 800PL-HD, wait 2 minutes, and turn power on.</li> <li>2. Consult factory.</li> </ol>
No high voltage output (Manual Mode)	<ol style="list-style-type: none"> <li>1. User input required for this mode</li> <li>2. System in self-protect mode.</li> <li>3. High voltage power supply damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the rotary knob or press up arrow. (See page 9, note 15.)</li> <li>2. Power off 800PL-HD, wait 2 minutes, and turn power on.</li> <li>3. Consult factory.</li> </ol>
	1. System Overheated	1. Wait for the system to cool down, and then try to start a test again.



## Test Mode Display Prompts

MESSAGE	CAUSE	ACTION
TEST STOPPED	<ol style="list-style-type: none"> <li>"Stop" button pressed.</li> <li>Rotary knob pressed while "Stop" button is highlighted.</li> </ol>	<ol style="list-style-type: none"> <li>Press "Start" button only once to initiate test.</li> <li>Press Rotary knob only once to initiate test.</li> </ol>
HV OFF	<ol style="list-style-type: none"> <li>System in self-protect mode.</li> <li>High voltage power supply damaged.</li> </ol>	<ol style="list-style-type: none"> <li>Power off 800PL-HD, wait 2 minutes, and turn power on.</li> <li>Consult factory.</li> </ol>
DUT BREAKDOWN	<ol style="list-style-type: none"> <li>Arc flash across insulation detected.</li> </ol>	<ol style="list-style-type: none"> <li>Press OK or Save Report.</li> <li>Repeat test as desired.</li> </ol>
NO OUTPUT VOLTAGE DETECTED	<ol style="list-style-type: none"> <li>Ramping up high voltage on the unit but, no feedback voltage monitoring is detected</li> </ol>	<ol style="list-style-type: none"> <li>Check to make sure all the connections are correct.</li> <li>Consult factory.</li> </ol>
MAX LEAKAGE CURRENT EXCEEDED	<ol style="list-style-type: none"> <li>Measured leakage current exceeded the maximum limit set by the user.</li> </ol>	<ol style="list-style-type: none"> <li>Press OK or Save Report.</li> <li>Repeat test as desired.</li> </ol>
E-STOP PRESSED	<ol style="list-style-type: none"> <li>E-STOP button engaged.</li> <li></li> </ol>	<ol style="list-style-type: none"> <li>Press OK or Save Report.</li> <li>Twist E-stop clockwise to release/disengage.</li> </ol>
INTERLOCK REMOVED	<ol style="list-style-type: none"> <li>External interlock removed.</li> <li></li> </ol>	<ol style="list-style-type: none"> <li>Insert interlock plug in External Interlock Input.</li> <li>If applicable, press and hold hand-switch or foot-switch.</li> </ol>
TEST PASSED	<ol style="list-style-type: none"> <li>Test completed; DUT meets input criteria.</li> </ol>	<ol style="list-style-type: none"> <li>Press OK or Save Report.</li> </ol>

# 8 Miscellaneous

---

## 8.0 Care and Maintenance

### 8.0.1 Cleaning the Instrument

The instrument should be cleaned with a lint free cloth, slightly moistened using mild household cleanser, alcohol or spirits. Caustic cleansers and solvents (Trio, Chlorothene, etc.) should definitely be avoided. The test chamber should be cleaned very often to ensure accurate results and no interferences to the test specimen or high voltage fields.

### 8.0.2 Instrument Calibration

When delivered new from the factory, the instrument is calibrated in accordance with the calibration report provided. An annual calibration of the instrument is recommended.

As the calibration process is fairly extensive, the instrument is recommended to be calibrated annually and, if necessary, adjusted at HIPOTRONICS's factory. An updated calibration report will then be issued.

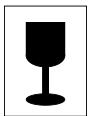
---

## 8.1 Instrument Storage

If the instrument is to remain unused for any length of time, it is recommended to protect this high precision instrument from moisture and accumulation of dust and dirt with a suitable covering. See the storage ratings for temperature and humidity in the technical specifications section.

---

## 8.2 Packing and Transport



The packing of the 880PL-HD instrument provides satisfactory protection for normal transport conditions. Nevertheless, care should be taken when transporting the instrument. If return of the instrument is necessary, and the original packing crate is no longer available, then packing of an equivalent standard or better should be used.

Whenever possible protect the instrument from mechanical damage during transport with padding. Mark the container with the pictogram symbols "Fragile" and "Protect from moisture".

---

## 8.3 Recycling

When the instrument reaches the end of its working life it can, if required, be disassembled and recycled. No special instructions are necessary for dismantling.

The instrument is constructed of metal parts (mostly aluminum) and synthetic materials. The various component parts can be separated and recycled, or disposed of in accordance with the associated local rules and regulations.

# 9 Customer Support

All error messages appear on the display of the 880PL-HD instrument. If persistent problems or faulty operation should occur then please contact the Customer Support Department of HIPOTRONICS or your local agent.

The Customer Support Department can be reached at the following address:

HIPOTRONICS  
Customer Service  
1650 Route 22  
Brewster, NY 10509

Tel: +1 (845) 279-3644

E-mail: [service@Hipotronics.com](mailto:service@Hipotronics.com)



We prefer contact via email. Then the case is documented and traceable. Also, the time zone problems and occupied telephones do not occur.



Complete information describing the problem clearly helps us to help you:

Failure description

Used settings

DUT type

Firmware Version

Serial Number

Printouts, Pictures



Software Version & Serial No. can be found in "Settings"

---

## 9.0 Declaration of Conformity

### Hipotronics, Inc.

1650 Route 22 North  
PO Box 414  
Brewster, NY 10509  
USA

Declared, under his own responsibility, that the below mentioned product complies with the requirements of the listed standards or other normative documents.

**So, the product complies with the requirements of the EMC directive 2014/30/EU and the low voltage directive 2014/35/EU.**

Product: **880PL-HD**

Description: The 880PL-HD is a modern solution for testing the insulation strength of electrical apparatus for duty cycles up to 60 minutes.

Standards: EN 61010-1: 2017  
EN 61326-1: 2006

Michael Carson  
Product Development Engineering Manager  
Hipotronics, Inc.  
1650 Route 22 North  
USA

Brewster, June 10<sup>th</sup>, 2019



(Signature)

---

## 9.1 Warranty

HIPOTRONICS, INC. warrants to the original purchaser of any new merchandise that the merchandise is free from defects in materials and workmanship under normal use and service for a period of one (1) year from the date of shipment. The obligation of Hipotronics, Inc. under this warranty is limited, in its exclusive option, to repair, replace or issue credit for parts or materials which prove to be defective, and is subject to Purchaser's compliance with the Hipotronics, Inc. Warranty Claim Procedure as set forth below. The happening of any one or more of the following events will serve to void this warranty and any defect or damage resulting therefrom is specifically excluded from Warranty coverage:

- (a) defects due to accident, negligence, alteration, modification, faulty installation, abuse or misuse by Purchaser or Purchaser's agents or employees.
- (b) attempted or actual dismantling, disassembling, service or repair by any person, firm or corporation not specifically authorized in writing by Hipotronics, Inc.
- (c) defects caused by or due to handling by carrier or incurred during shipment, transshipment or other move.

This Warranty covers only those parts and/or materials deemed by Hipotronics, Inc. to be defective within the meaning of this Warranty. The liability of Hipotronics, Inc. shall be limited to the repair, replacement or issuance of credit for parts deemed defective within the meaning of this Warranty. Costs incurred by purchaser for labor or other expenses incidental to the inspection, repair, replacement or issuance of credit for such parts and/or materials shall be the sole responsibility of purchaser. This Warranty shall not apply to any accessories, parts or materials not manufactured or supplied by Hipotronics, Inc. and if, in the sole discretion of Hipotronics, Inc., Purchaser's claim relates to any materials of a component part, or of the manufacturer of a device of which the defective part is a component, Hipotronics, Inc. reserves the right to disclaim liability under this Warranty and to direct that the Purchaser deal directly with such supplier or manufacturer. Hipotronics, Inc. agrees to assist the purchaser in processing or settling any such claim without prejudicing its position as to liability purchaser in processing or settling any such claim without prejudicing its position as to liability.

### **Warranty Claim Procedure**

Compliance with the following Warranty Claim Procedure is a condition precedent to the obligation of Hipotronics, Inc. under this Warranty.

- (a) Purchaser must notify Hipotronics, Inc. in writing by certified or registered mail, of the defect claimed within twelve (12) months after the date of original shipment. Said notice shall describe in detail the defect, the defective part and the alleged cause of the defect.
- (b) At the exclusive option of Hipotronics, Inc., Purchaser shall dismantle or disassemble at Purchaser's cost and expense and shall ship the defective part or material, prepaid, to Hipotronics, Inc., Brewster, New York 10509, for inspection, or permit an authorized service representative of Hipotronics, Inc. to inspect the defective part or material at the Purchaser's premises. Purchaser shall provide facilities for, and at Purchaser's cost and expense, dismantle, disassemble, or otherwise make accessible the subject part or material whether or not same is a component of, or installed in, a device other than that manufactured or supplied by Hipotronics, Inc. If disclosure shows that the defect is not one for which Hipotronics, Inc. is liable, the Purchaser agrees to reimburse Hipotronics, Inc. for all expense incurred.
- (c) Upon receipt of the defective part or material, or after access to same, Hipotronics, Inc. shall inspect the part or material to determine the validity of Purchaser's claim.

The validity of any Warranty Claim, Purchaser's compliance with Hipotronics, Inc. Warranty Claim Procedure, the obligation to either repair, replace or issue credit, or direct the purchaser to deal directly with a manufacturer or supplier are to be determined solely and exclusively by Hipotronics, Inc. any determination so made shall be final and binding.

**THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED ON THE PART OF HIPOTRONICS, INC., INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE AND CONSEQUENTIAL DAMAGES ARISING FROM ANY BREACH THEREOF AND HIPOTRONICS, INC. NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON, FIRM OR CORPORATION TO ASSUME ANY LIABILITY OR OBLIGATION IN CONNECTION WITH THIS SALE ON ITS BEHALF AND PURCHASER ACKNOWLEDGES THAT NO REPRESENTATIONS EXCEPT THOSE MADE HEREIN HAVE BEEN MADE TO PURCHASER.**