SECULIFE ESPro
Quick Setup Guide

The SECU**LIFE** ESᴘʀᴏ Electrosurgical Unit Analyzer is a high-accuracy True RMS RF Voltmeter designed to be used in the routine performance verification of Electrical Generators. The SECU**LIFE** ESᴘʀᴏ offers a higher degree of accuracy than previously attainable with conventional Electrosurgical Unit Analyzer designs. The SECU**LIFE** ESᴘʀᴏ has been designed to be used in conjunction with an external RF Current Transformer (Pearson Electronics Model 411 and 4100 recommended) and external precision load resistors (Vishay Dale NH-250 Precision 1% tolerance resistors recommended) to measure various parameters relating to the routine service of Electrosurgical Generators. The SECU**LIFE** ESᴘʀᴏ is microprocessor based and utilizes a combination of unique hardware and software to provide accurate and reliable test results.

SECULIFE ESᴘʀᴏ

RF Current Transformer (Donut) Input

Backlight LCD Graphical Display

Swivel and Locking Handle

10 Light Touch Keys for Selecting Parameters and Settings
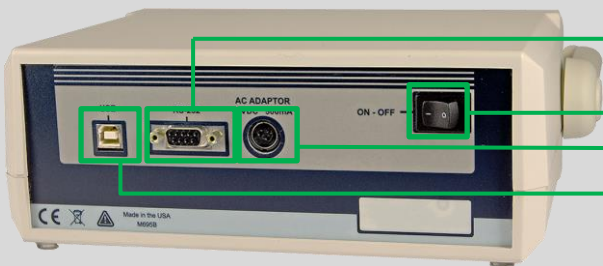
RS232 Connection

Power Switch

Power (Kycon)

USB

Overview & Components

Precision Load Resistance
5 Ω – 5000 Ω

Current Transformer
Ratio from 0.1:1 or 1.1

Setup Guide

Verification of RF Output Power (monopolar)

1.) Connection of SECU**LIFE** ESPRO with resistor, current transformer and DUT
  A connection between resistor, current transformer and DUT must be established before checking the RF output power (monopolar).
  The following cables must be connected to this end:
  - Connect the alligator clip (yellow) with the resistor, conduct it through the current transformer and plug it into the monopolar terminal of the DUT provide for this purpose (see yellow markings).
  - Insert the plug connector (blue) into the neutral electrode socket of the DUT. Establish a connection with the resistor by fixing two alligator at the resistor (see blue markings).
  - The current transformer is connected to the SECU**LIFE** ESPRO with a BNC measuring cable (black markings).
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2.) Function test
The RF output power is checked by comparing the value shown on the display of the DUT (here: 40 Watt) with the value issued by SECU**LIFE** ESPRO (here: 42.6 Watt).
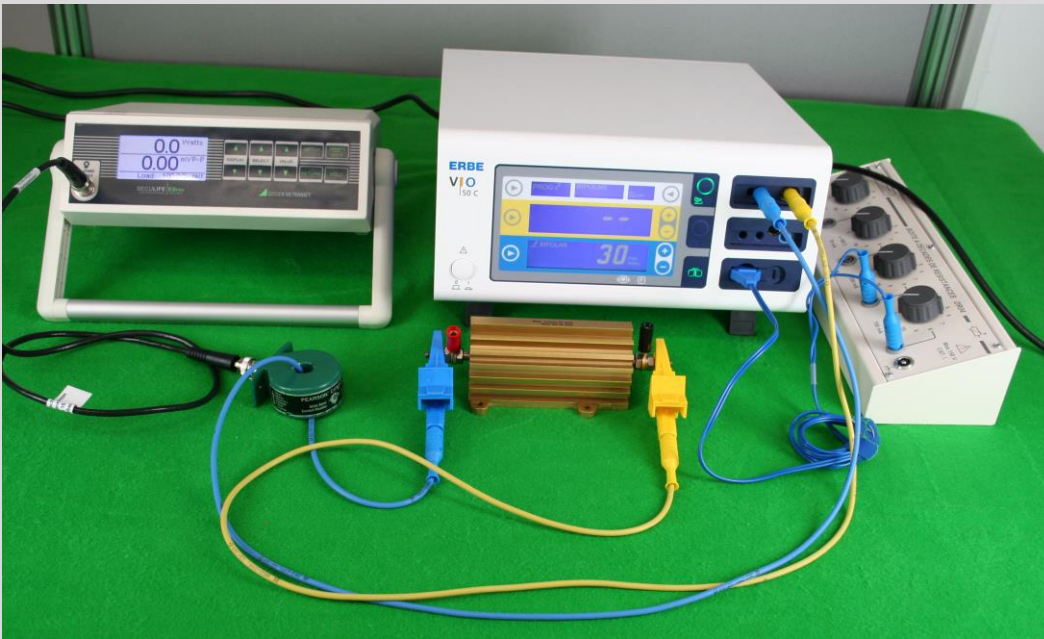

Excerpt: DUT display

Excerpt: SECU**LIFE** ESPRO display

Setup Guide

Verification of RF output power (bipolar)

1.) Connection of SECU**LIFE** ESPRO with DUT, resistor and current transformer

The following connections must be established before measuring the RF output power (bipolar).

- Connect the plug connector (blue) with the resistor, conduct it through the current transformer and plug it into the bipolar socket at the DUT
- Insert the yellow clamp cable into the bipolar socket at the DUT and connect it with the resistor.
- Establish a connection between the current transformer and SECU**LIFE** ESPRO via BNC cable.

Note: The blue cable, which is plugged into the neutral electrode socket of the DUT on one end and into the decade resistor on the other end, is used for approaching the trigger point.

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2.) Function test
   Comparison of the value shown at the DUT display (here: 30 Watt) with the one issued by SECU**LIFE** ES_{PRO}
   (here: 30 Watt).

Excerpt: DUT display

Excerpt: SECU**LIFE** ES_{PRO} display

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Graph Mode

The GRAPH MODE allows the user to view the measured waveform in the display. The horizontal axis can be zoomed in to display higher frequency waveform components. The verticals axis is auto-scaling and cannot be adjusted. Any of the stored waveforms can be graphed. Additionally, if the unit is placed in the HOLD MODE, the user can adjust which portion of the waveform is being displayed.

WARNING: Due to the limited number of pixels in the display, this should not be used as a calibrated reference, rather as a quick check of the waveform being measured.

Use **GRAPH / SAVE** to enter the GRAPH MODE.

Use **RETURN** to exit the GRAPH MODE.
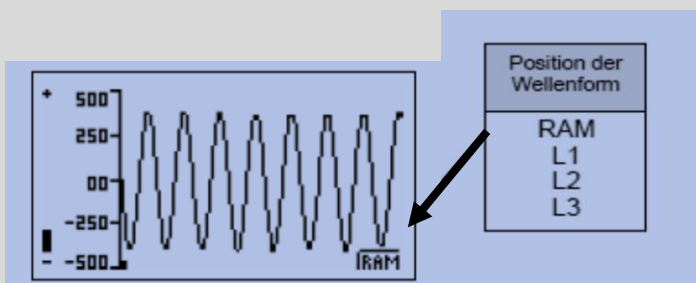
Use **SELECT** to select the waveform to be graphed, Ram or Location 1-3.

Setup Guide

Zooming

Use [DISPLAY ▲▼] to zoom the graph in and out.

The Zoom Indicator is a bar that moves along the left side of the Graph Screen to indicate the Zoom level shown in the current viewing window. It adjusts from Fully Out (-) to Fully In (+).
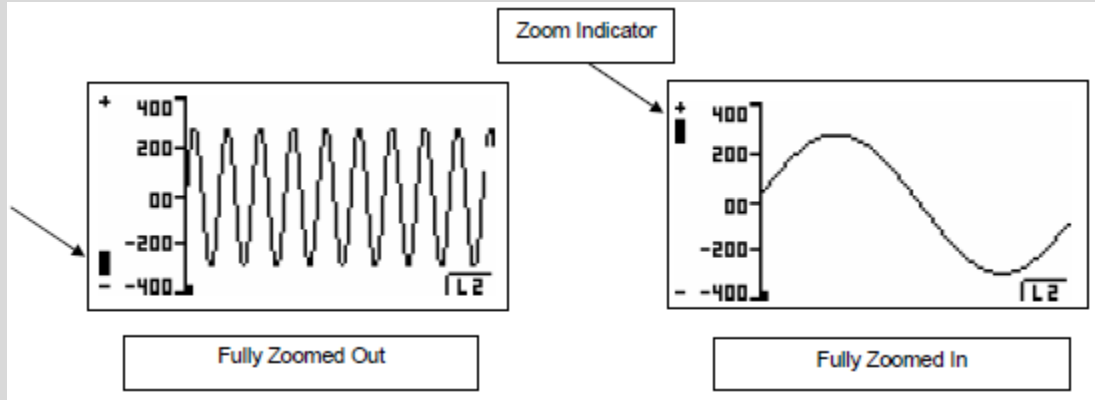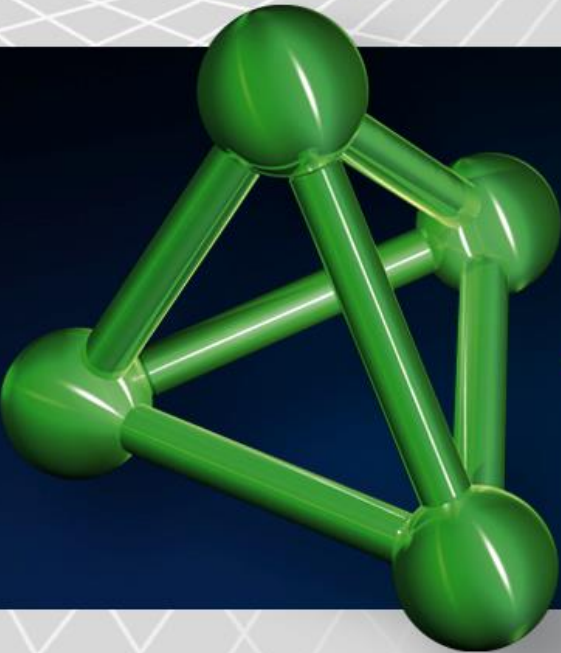

Saving

To save the displayed waveform, use [GRAPH SAVE] to enter the SAVE MODE.

Use [VALUE ▲▼] to select the desired storage location, then [GRAPH SAVE] to save the waveform, or [RETURN] can be pressed to cancel the save function. Once the save is complete, the newly saved waveform will be displayed.

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Error Messages

Several error messages are provided to indicate invalid operating conditions. Any values that are over range will be displayed as dashes.

Watts Calculation out of range

Peak Voltage Input Out of range

When the input voltage rises above the range that is measurable by the system, the "WARNING Input Overload" message will be shown.

Input Voltage Overload

WARNING: Although the input is protected from damage at these voltages, the user should immediately remove any input voltage when this message is shown.