

QUICK SETUP GUIDE

SECULIFE ES_{XTRA}
SECULIFE ES_{PRIME}



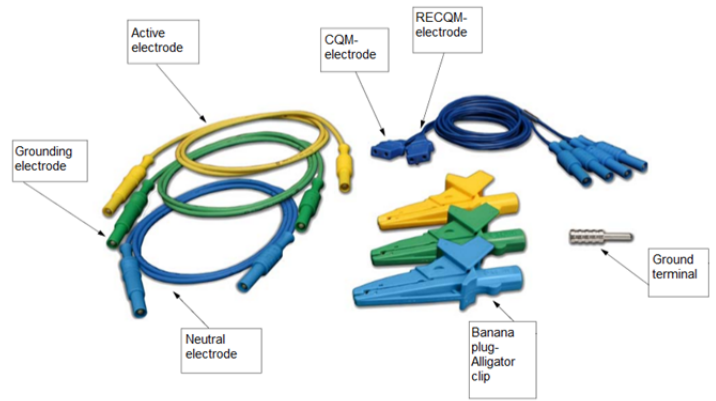
The SECULIFE ESXTRA electrosurgical analyzer is a high-accuracy absolute value high frequency voltmeter designed to be used in the calibration and routine performance verification of electrosurgical generators. It offers a higher degree of accuracy than previously attainable with conventional electrosurgical unit analyzer designs. The SECULIFE ESXTRA provides an advanced low reactance internal load bank with a range of 1 to 6400 ohms in 1 ohm increments. It is microprocessor based and utilizes a combination of unique hardware and software to provide accurate and reliable test results, even from “noisy” ESU Generator waveforms such as “Spray”. The DFA™ Technology utilized in the SECULIFE ESXTRA allows the system to aggressively digitize the complex RF waveforms produced by Electrosurgical Generators, analyzes each individual digital data point, and provides highly accurate measurement results.



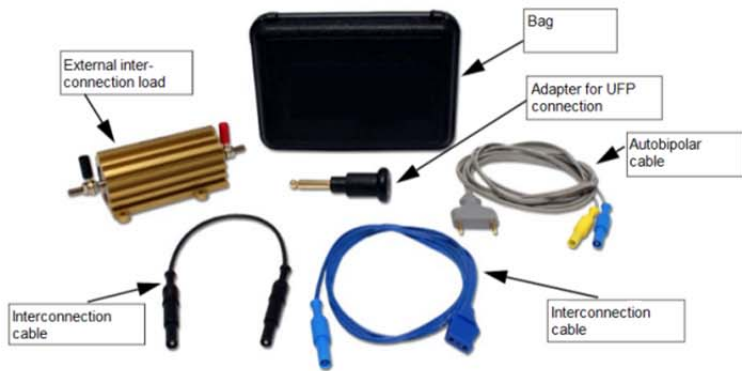
Your SECULIFE ES_{XTRA} will be delivered with:



Standart accessories, BC 20-00130



Optional accessory kit, BC 20-00131, Force Triad PM-accessory kit



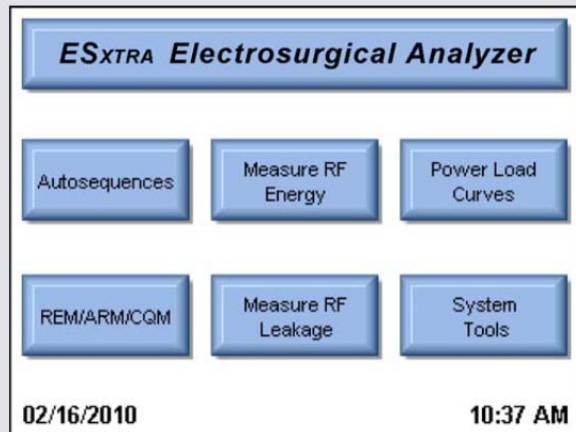
Footswitch simulator



Tissue reaction load

Main Screen

The SECULIFE ES_{XTRA} boots to the main screen by default. The power up screen can be changed in the System Setup screen. The main screen provides a quick way to select the desired operating mode.



Autosequences:

This mode provides for automated DUT testing. Autosequences can consist of any combination of user instructions.

Measure RF Energy:

This mode provides for RF measurements. The user can configure the desired RF measurement

Power Load Curves:

This mode provides for automated load curve testing of the DUT. Load curves can be configured for multiple load values and power levels.

REM/ARM/CQM:

This mode allows the user to test the REM/ARM/CQM function of the DUT.

Measure RF Leakage:

This mode provides for RF Leakage measurements. All switching for the leakage modes is performed by internal relays.

System Tools:

This mode provides for Configuration of the SECULIFE ES_{XTRA}.

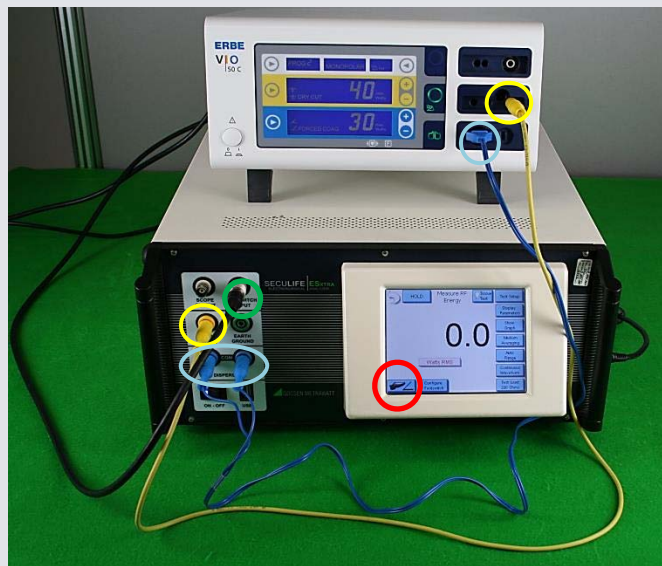
Verification of RF output power monopolar

1.) Connection of DUT and SECULIFE ES_{XTRA}

Establish a connection between DUT and SECULIFE ES_{XTRA} before performing a RF measurement. To this end, the monopolar socket of the DUT is connected with the yellow safety socket of SECULIFE ES_{XTRA} via a measurement cable (yellow marking). Connect the SECULIFE ES_{XTRA} function tester with the neutral port of the DUT via the blue cable (see blue marking).

2.) Select settings and perform measurements

The measuring parameters (e.g. resistance) can be configured at the display (black marking). After connecting the footswitch output with the footswitch input of the DUT, the DUT can be remote controlled (cable is optional). Measurements are launched by pressing the footswitch symbol (marked in red).



3.) Verification of RF power (monopolar)

The preset value of the DUT (in this case: 40 Watt) is compared with the display value of SECULIFE ES_{XTRA} (in this case: 37.1 Watt).



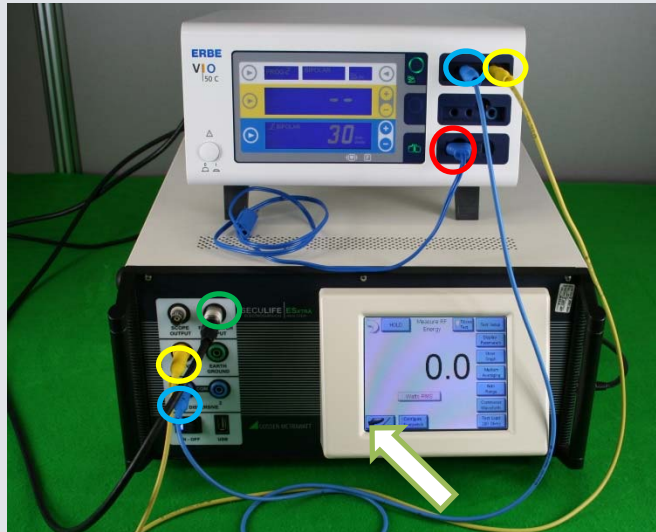
Detail: DUT display



Detail: SECULIFE ES_{XTRA}

Verification of RF output power bipolar

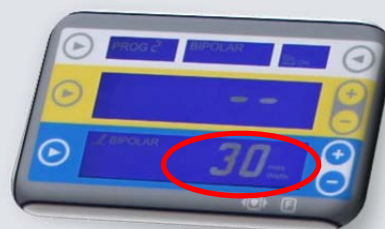
- 1.) Connection of SECULIFE ES_{XTRA} with DUT for establishing a connection, insert the yellow cable into the bipolar socket of the DUT and into the yellow safety socket of the SECULIFE ES_{XTRA} (marked in yellow). Furthermore, the blue cable must be plugged into the bipolar socket (in the middle) of the DUT and connected with SECULIFE ES_{XTRA} (left socket). A short circuit which deactivates the neutral electrode monitoring is triggered by means of the blue plug connector (marked in red).



- 2.) Select settings and perform measurements
The measuring parameters can be set via the display. Measurements are launched by pressing the footswitch Symbol (green arrow). The black cable serves as an "automatic footswitch" which can be replaced by a manual footswitch.
- 3.) Verification RF power (bipolar)
The value of the DUT is (here: 30 watts) compared with the value of SECULIFE ES_{XTRA} (here: 28.3 Watt).



Detail: Display SECULIFE ES_{XTRA}



Detail: Display device

Verification RF – Leakage current

This operating mode provides for the measurement of RF leakage current. The user can configure the SECULIFE ES_{XTRA} for the requested RF leakage measurement which includes measurements of pulsed or continuous waveforms and load settings.

1.) Connection of DUT and SECULIFE ES_{XTRA}

For leakage current measurement, a connection must be established by means of a clamp cable. For this purpose, the alligator clip is clamped onto the equipotential bonding (at the back of the DUT housing) and connected with the safety socket at the front panel of the SECULIFE ES_{XTRA}.

2.) Select settings

Settings can be made at the display of the SECULIFE ES_{XTRA}. 4 modes are available for leakage current measurements.



3.) Verification of leakage current

The value shown at the display is compared with the limit values (refer to operating manual).



Figure: active output grounded, type CF 1a, e. g. bipolar



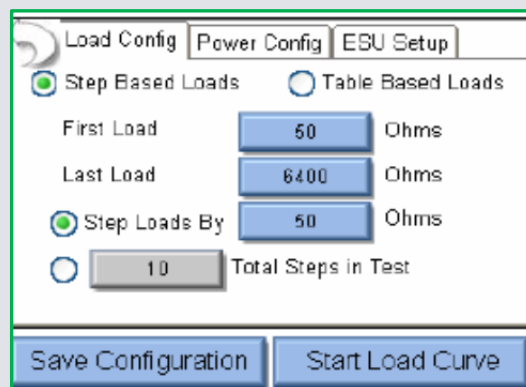
Figure: neutral electrode grounded, type CF 1b, e. g. monopolar

Output power as a function of load resistance

- 1.) Connection of SECULIFE ES_XTRA and DUT
The same connection as for measurement of RF output power (bipolar/monopolar) can be used.

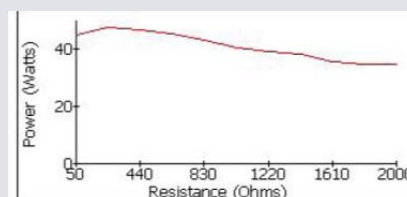


- 2.) Load curve configuration
The load curve menu allows for manual configuration of a load curve. The settings can be made under the respective tab at the top of the display. It is possible to configure loads, power settings and the ESU generator.



- 3.) Verification
For verification purposes, the issued load curve / measured values can be compared with the curves in the operating manual.

Measurements:	
Load	100W
50	45.2
245	47.9
440	46.7

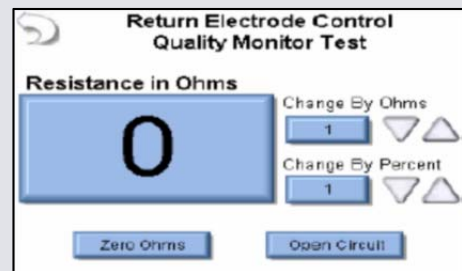


Verification of neutral electrode

This mode enables the user to test the REM/ARM/CQM functions of the DUT. The resistance can be set by entering either an absolute resistance value or a percentage value manually. This mode allows for running the CQM load in idle state.

1.) Connection

For testing the neutral electrode, it is only necessary to connect the blue cable with the neutral electrode socket of the DUT and with the blue sockets of the SECULIFE ES_{XTRA} (blue marking).



2.) Verification

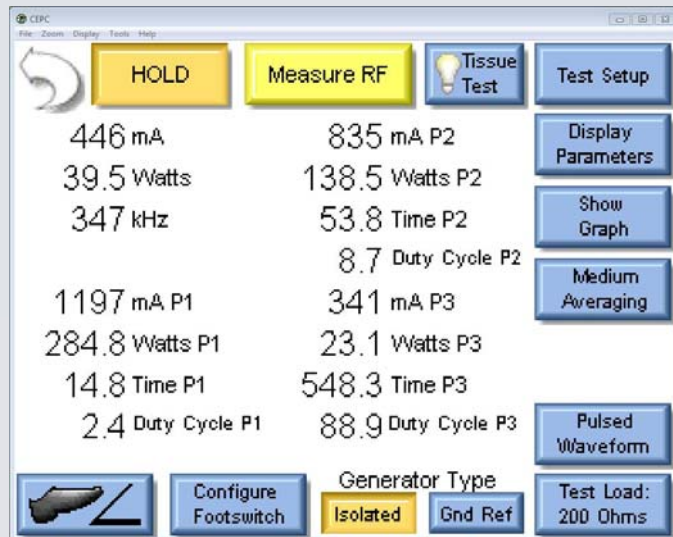
The easiest way to check whether the resistance has been set at too high a level is to check the neutral electrode pilot lamp. This pilot lamp helps to approach the trigger point (the value is frequently indicated in the manufacturer service manual).



Detail: DUT display

Feature of the SECULIFE ES_{PRIME}: Possible figure of waveforms

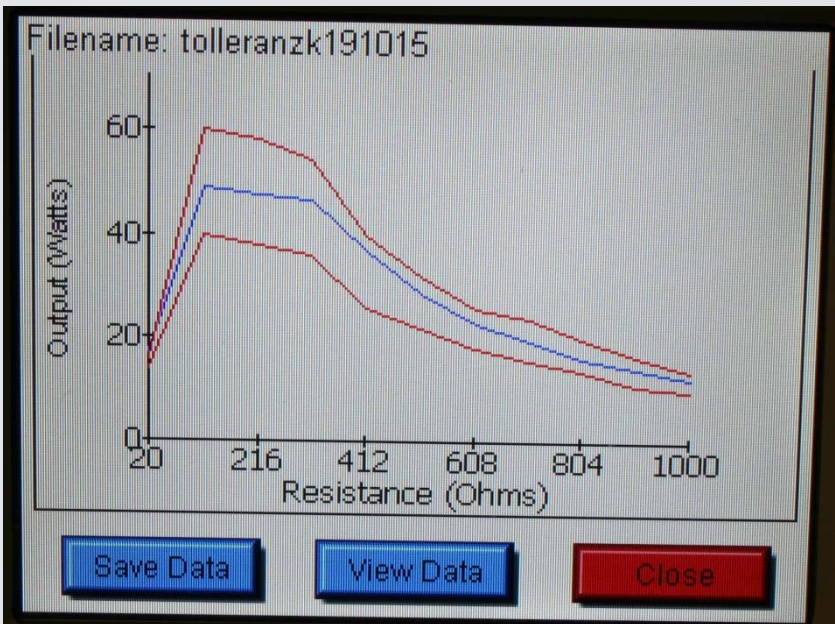
On the display of the SECULIFE ES_{PRIME} you can define different curve shapes. An example of such a waveform is displayed in the following figures:



Setting on the SECULIFE ES_{PRIME}



Waveform on SECULIFE ES_{PRIME}, Oscilloscope pulse 1 data



Filename: t

Load	50W	Low	High
20	17.5	14	16
118	48.9	40	60
216	47.6	38	58
314	46.5	36	54
412	36.7	26	40
510	28.8	22	32
608	23.1	18	26
706	19.5	16	24
804	16.3	14	20

Output (Watts)

Save Data View Data Close

Up Power Meter DUT Limits

Load	Target	Low	High
50			
100			
150			
200			
250			
300			
350			

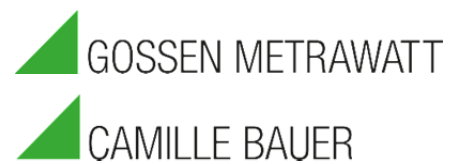
Limit Tolerance 5%

Auto-Fill

Save Configuration Start Load Curve

Tolerance curve of the SECULIFE ES_{XT}RA

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