Rigel Uni-Therm
Electrosurgical Analyser

Technical Data Sheet

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V 2.0

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Introducing the new high performance electrosurgical analyser with the emphasis on speed and ease of testing all modern day electrosurgical devices.

The new high power Rigel Uni-Therm accurately measures the performance of electrosurgical generators. Measurements include; high frequency leakage, high power current and power distribution and patient return plate alarm testing.

Boasting a full colour screen and providing easy navigation, the Rigel Uni-Therm is easy to operate straight out of the box. The large colour screen provides step by step guidance to ensure the correct connection to the device under test.

A high power, high resolution load bank enables performance testing up to 6A RMS with a duty cycle of 100% up to 60 seconds. This makes the Uni-Therm an extremely versatile test instrument for calibrating and performance testing of all high power electrosurgical instruments on the market.

The new Rigel Uni-Therm incorporates a range of custom settings that include a variety of test sequences and power distribution curves which make testing fast, easy and accurate.

Utilising the large full colour display, built-in memory and data management facilities, the Rigel Uni-Therm is the first fully stand-alone diathermy tester that can offer true user friendly operation and operator safety.

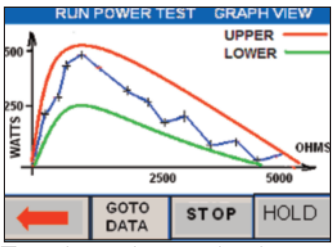
The large array of internal resistors, ranging from 0-5100Ω in 5Ω steps provide not only the most accurate and detailed power curves, the Rigel Uni-Therm also advocates safe working practise by providing all necessary resistors within the enclosure.

The return electrode monitoring test offers a unique isolated and electronically driven potentiometer to provide accurate and fast testing of alarms.

In addition, the Bluetooth-enabled technology allows the wireless connectivity of the tester with PCs and other accessory equipment for fast and convenient downloading of performance data and the uploading of manufacturers' power curves and manufacturer specific test programs.

Other special features of the Rigel Uni-Therm include in-built graphics to display connection diagrams, program settings, power curves, alarm settings, data management and data analyses.

Custom Test Settings



The unique colour user-interface provides both graphic as well as numeric representation of the test data.

Showing manufacturer specific curves and

Key features

- **Fully compliant with IEC 60601-2-2**
  One instrument for full compliance testing offering peace of mind
- **Accurate and safe**
  Utilising full 10kV isolation on all measuring systems
- **High power load bank**
  Measure up to 6 A RMS with duty-cycle up to 100% for 60 seconds
- **High frequency leakage**
  Easy to connect with onscreen help for each configuration
- **Power distribution curves**
  Variable load with full 10kV isoltion from 0 to 5100Ω in 5Ω steps – Accurate, fast, and flexible
- **Remote electrode monitoring testing**
  Using electronic potentiometer range upto 500Ω in 1Ω steps with high and low alarms
- **Stand-alone**
  Not relying on PC or laptop, direct print facility via Bluetooth
- **Automatic and manual test sequences**
  For fast and effective (repeat) testing
- **Stylish and rugged enclosure**
  Small footprint ideal for in-situ testing
- **Graphic colour user interface**
  For fast and easy navigation and connection to DUT
- **Future upgrade ready**
  Download future upgrades from the web into your tester
- **Prepared for PPM protocols**
  Configured for automatic performance testing of a variety of parameters

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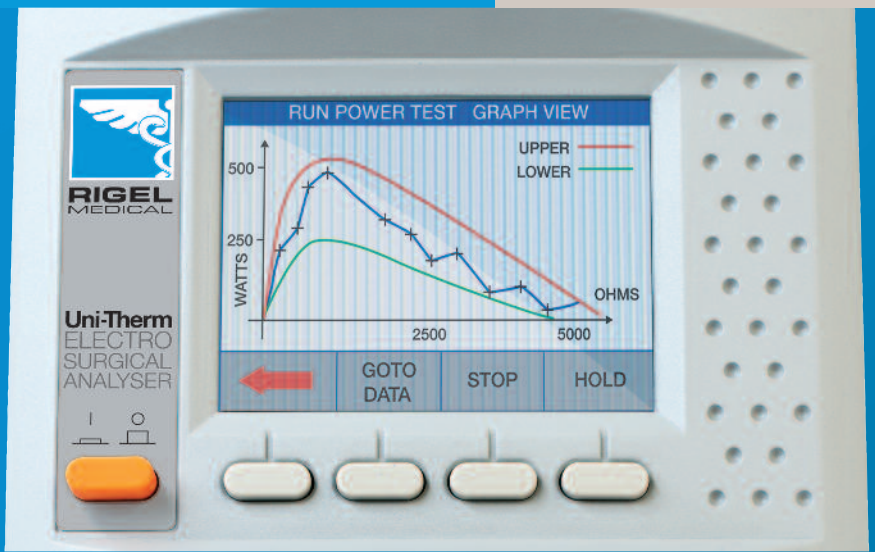
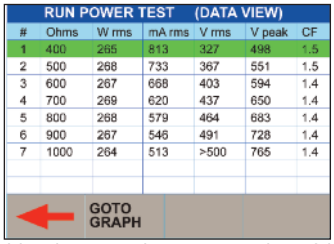
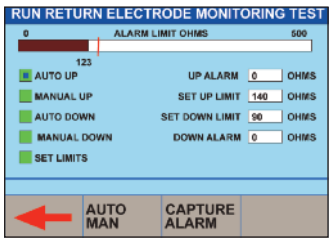


allowable tolerances, the large colour screen provides instant performance indication.
Use the graphic representation to quickly determine whether the test data meets the set criteria.



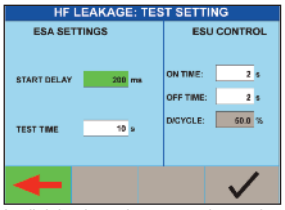
Use the numeric representation of the data to analyse parameters such as peak voltage, crest factor, power and current at each resistance point etc.

Remote Electrode Monitoring

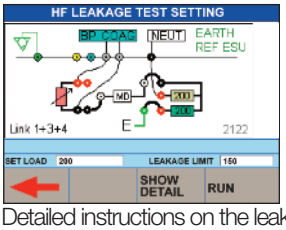


Use the rotary encoder to set high and low alarm points as well as controlling the potentiometer, scaling up or down in manual or automatic mode. Then, simply capture the alarm using the dedicated fast key on the screen. Data will be stored onboard for future traceability.

HF Leakage

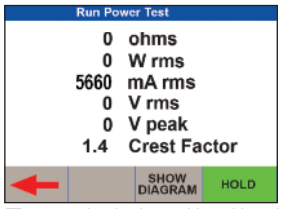


Individual settings can be selected using the simple configuration template. The settings are automatically translated into a detailed scheme as shown below;



Detailed instructions on the leakage path and connections between each setting are provided in a clear and colour coded overview.
Colour coded connections correspond to the matching connection on the tester.

High Power Load Bank



The newly designed load bank is capable of measuring currents up to 6 A RMS with a maximum duty cycle of up to 100% for 60 seconds. This ensures the Rigel Uni-Therm is compatible with all high power electrosurgical devices.

Applications

- Calibration of ESU's
- To verify the correct performance of Electrosurgical devices during:
  a. Routine testing
  b. Type testing
  c. Production line testing
- Unique training tool for testing on electrosurgical devices

What comes in the box?

- Mains lead
- Instruction manual
- Application disc
- Bluetooth USB adaptor
- Calibration certificate

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SPECIFICATIONS

Power measurement	True RMS value of applied waveform
Power rating	0 - 500W (RMS)
Duty cycle	100% up to 60 seconds
Load bank	0 - 5115Ω
Resolution	5Ω
Accuracy	(1W + 5% of value)
Voltage (peak)	0 - 10kV (Peak) - Closed load only
Accuracy	±10% of value. Measurement is taken between the active and dispersive electrodes with closed load only.
Voltage	0 - 700V (RMS)
Accuracy	(2V + 2% of value)
Current	0 - 6000mA (RMS)
Accuracy	±10mA or 2% of value
Crest factor	1.4 - 20 (Vpeak / V RMS) The higher of the two peak voltage measurements is used for calculation

RMS Bandwidth

Instrumentation only	30 Hz to 10 MHz (-3 dB)
With loads:	30 Hz to 2.5 MHz (-3 dB)
Variable loads	0 - 5115Ω, steps @ 5Ω (1023 steps)
Accuracy	1% of R
Load array	Ceramic resistors (Non inductive)
Measurement delay	Foot switch delay selectable between 200 - 5000ms (10mSec resolution)

RF Leakage (High Frequency Leakage)

Active	From active part to earth
Passive	From plate - receptacle - to earth
Load	Variable see power measurement Fixed 2 x 200Ω

Return Electrode Monitoring

Range	1- 475Ω, steps @ 1Ω steps Motor driven potentiometer
Alarm register	High and low, manual confirmation
Ranging	Manual or automatic

Output Connectors

Remote foot switch control (CUT)	2 x 4mm - yellow, single relay contact
Remote foot switch control (COAG)	2 x 4mm - blue, single relay contact
High Frequency leakage and power measurements	Through 4mm sockets
USB	PC download / Future PC software
Oscilloscope output	5V/A, 100mA RF current minimum input

Biomed testing on the move.

Rigel's Med-eKit can include the following:

288 Electrical Safety Analyser
- Light, hand-held, battery operation
- Conform IEC 62353 / 60601/ VDE 0751 / NFPA-99 / AS-NZS 3551
- Memory for up to 10,000 devices
- Bluetooth communication
- Full, semi automatic & manual tests

BP-SIM NIBP Simulator
- Light, hand-held, battery operation
- Adult & paediatric NIBP simulations
- Manufacturer specific O-curves
- Overpressure and leak test
- Memory for up to 10,000 devices

SP-SIM SpO2 Simulator
- Light, hand-held, battery operation
- Tests probe and monitor all at once
- User configurable simulations
- Manufacturer R-curves
- Memory for up to 10,000 devices

As well as:
- Patient Simulator
- Flow Analyser
- Defib Analyser
- Printer
- Barcode Scanner
- Asset Management Software
- Non-Rigel Test Equipment

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Isolation	10kV Isolation between measurement device and enclosure
Low Frequency Filter	100 Hz filter to avoid low-frequency disturbance or interference

Storage and Recall

Memory	Approx 5,000 records
Output	CSV and SSS format

General Specifications

Dimensions	370 X 300 X 204mm
Weight	10 kg
Operating temperature	15 ˚C to 35 ˚C
Storage temperature	0 ˚C to 50 ˚C
Mains power	120/230 VAC +10%; 48 to 66 Hz, 35 VA

Part number: 398A910

Also available

Other extras

- Med-eBase asset management software
- Barcode scanner
- Test lead set
- Protective travel case (by peli case)
- USB Keyboard

From Rigel Medical

- Rigel 266 Plus Manual Safety Analyser
- Rigel 277 Plus Automatic Safety Analyser
- Rigel 288 Hand-held Safety Analyser
- Rigel 601 Checkbox
- Rigel UNI-SIM Vital Signs Simulator
- Rigel BP-SIM NIBP Simulator
- Rigel SP-SIM SpO2 Simulator
- Rigel 333 Patient Simulator
- Rigel Uni-Pulse Defibrillator Tester
- Rigel Multi-Flo Infusion Pump Tester
- Med-eBase – Software Application

From the Seaward Group

- Portable Appliance Testers
- IEC Lead Tester
- Insulation Resistance Testers
- RCD Testers
- Earth Loop Impedance Testers
- Installation Testers
- Multimeters
- Current Clamps
- Hipot Testers
- Earthbond Testers
- Micro Ohmmeters

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