

RIGEL 601

Calibration Checkbox



The Rigel 601 Checkbox is a compact and affordable solution to determine the correct reading of most modern Electrical Medical Safety Analysers irrespective of Make or Brand.

The Rigel 601 checkbox accurately replicates the leakage characteristics of equipment designed to IEC 60601-1 providing up to 11 patient connections. With the ability to generate both AC and DC leakage currents as well as offering dedicated F-type circuitry, the Rigel 601 is able to provide calibrated values for Earth Leakage, Enclosure Leakage, Patient Leakage and Patient Leakage Mains on Applied Parts.

In addition, the Rigel 601 is able to provide a series of highly accurate resistance values to check the linearity of the Earth Bond and Insulation measuring circuits.

Separate PASS and FAIL limits are provided for B/BF and CF equipment as per IEC 60601-1 to offer a wide range of test points to enable to determine the linearity of your safety analyser. See Table T1 for further details on individual values.

With the use of high precision resistors, the Rigel 601 has a recommended calibration interval of 36 months, providing a stable and accurate reference for all IEC 60601-1 safety analysers for years to come.

Key Features

■ Accurate Leakage Reference

For Earth, Enclosure, Patient and Patient F-type leakage measurement

■ Separate AC & DC Simulation

To test both the AC and DC measuring circuits as per IEC 60601-1 requirements

■ Accurate Earthbond Reference

@ 0.05 ohms, 0.10 ohms and 0.20 ohms

■ Accurate Insulation Test points

@ 2 Mohms and 20 Mohms

■ PASS / FAIL simulation -

Provide easy means of running automatic tests or simulate equipment failure

■ B / BF & CF simulation

Allow for widest range of test values

■ 11 Patient Connections

Provide an easy and fast way of testing all patient connections

■ Voltage Terminals

For accurate leakage current calculations

■ 3 Year Calibration Interval

Ensures a traceable and repeatable reference

Applications

- Check the validity of your Safety Analyser's Calibration
- Make sure your Safety Analyser provides correct readings
- Eliminate faults in Safety Analysers
- Ensure traceability of measurements
- Helps determining the calibration interval for Safety Analysers
- Can provide a Calibration reference as part of internal calibration procedures.



Web: www.rigelmedical.com Email: sales@rigelmedical.com

Rigel Medical

Bracken Hill,
South West Industrial Estate,
Peterlee, SR8 2SW, England
Tel: +44 (0) 191 5878730
Fax: +44 (0) 191 5860227

Calibration valid or not?

Calibration of electronic instrumentation can often be considered a 'snap shot' of the instrument's performance during the verification and adjustment procedures. Most instrument manufacturers can therefore only recommend a calibration interval in which the instrument, under normal use, is expected to perform within the specification provided.

Test frequency and aging of components are common factors that could affect instrument's performance at any time. Calibration is therefore only a guarantee of the safety analyser's performance at the time of calibration. When safety analyser's are found outside their specification, it is not only important to correct the instrument's error but more importantly to question the number of tests being carried out with a tester outside specification.

Better be Safe than Sorry?

To quickly verify the calibration of medical electrical safety analysers, Rigel Medical has introduced the Rigel 601 calibration checkbox.

IEC 60601-1 Test Limits

External earth reference terminal to metal accessible parts	< 0.1 ohms
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Earth pin on power cord to metal accessible parts	< 0.2 ohms
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	Type B	Type BF	Type CF
Leakage Current Type	NC	NC	NC
Earth Leakage (General)	0.5mA	0.5mA	0.5mA
Enclosure Leakage	0.1mA	0.1mA	0.1mA
Patient Leakage (dc)	0.01mA	0.01mA	0.01mA
Patient Leakage (ac)	0.1mA	0.1mA	0.01mA
Patient Leakage (F-Type)	NA	5mA	0.05mA

Table T1

Rigel 601 Design Philosophy

The Design Philosophy behind the Rigel 601 Checkbox was to provide an affordable, simple and accurate means of proving the functionality of most common Electrical Medical Safety Analysers without depending on its regular calibration intervals.

By carefully choosing the components and by using an internal Isolation Transformer, the Rigel 601 is able to produce stable, accurate and repeatable leakage values at any mains voltage. By reducing the number of active circuitry to an absolute minimum, the Rigel 601 Checkbox is guaranteed to maintain its accuracy for at least 36 months during normal intended use.

Also Available from Rigel Medical:

- Rigel 266 Plus Manual Safety Analyser
- Rigel 277 Plus Automatic Safety Analyser
- Rigel 288 Plus Hand-held Safety Analyser
- Rigel 311 NIBP Simulator
- Rigel 322 SPO2 Simulator
- Rigel 333 Patient Simulator
- Rigel 344 Defibrillator Tester
- Rigel 355 Ventilator Tester
- MediGuard – Software Application

Also Available 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 Ohm meters

To find out more about these products, please;

email sales@rigelmedical.com,

call +44(0)191 5878730 or visit

www.rigelmedical.com



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RIGEL 601 PLUS SPECIFICATIONS

Earth Bond

Test Points	0.05 Ohm
	0.10 Ohm
	0.20 Ohm
Accuracy	+/- 2%, nominal value, factory calibrated
Maximum Test Current	25 A
Maximum Test Duration	30 seconds @ 25A

Insulation

Test Points	2M Ohm
	20M Ohm
Accuracy	1%, nominal value, factory calibrated

Leakage

	Earth Leakage
	Enclosure Leakage
	Patient Leakage
PASS Value	85% of IEC 60601 test limit
FAIL Value	115% of IEC 60601 test limit
	See Table T1 for values
Accuracy	0.5%, factory calibrated

F-type Leakage

PASS value	25µA
FAIL value	2.5mA
Accuracy	Nominal value,

General

Weight	3.2 kg
Size	250 x 140 x 200mm
Calibration Interval	36 months
Warranty	12 months

Operating Conditions

Temperature	15-30°C
Humidity	0-98% RH Non condensating

Note - The Rigel 601 Instruction Manual offers a complete table of individual leakage values at incoming mains potential between 207 up to 253 Volts. The internal Isolation Transformer will ensure maximum voltage between Live and Earth, as per IEC 60601-1 requirements. Dedicated voltage terminals on the front panel provides easy means of measuring the correct mains voltage to help calculate the expected leakage values

Benefits

Minimise the risk of invalid test results by ensuring correct operation of your safety analyser.

Improve your Quality Process by regular inspection of your safety analyser(s)

Save valuable down time of test equipment by providing in-house check facility.

Determine appropriate calibration intervals.

Rigel 601 includes:

Certificate of calibration
Function earth cable + clip
Instruction Manual
Carrying strap

How to Order

UK version	348A910
Schuko version	348A913
US version	348A912

Other variants available upon request

Accessories:

Set of 4 mm test leads (11)
Multimeter CM800R
Set of Applied Part Adaptors (11)
UKAS Calibration Certificate

Shipping Information:

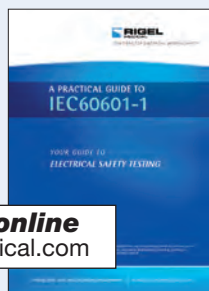
Packaging	Corrugated cardboard box
Weight	4.5 Kg
Size	350 * 280 * 190 mm

Related Interest

Rigel 266+ Manual Safety Analyser
Rigel 277+ Automatic Safety Analyser
CM800R Digital Multimeter
IEC 60601-1 Practical Guide



Available online
www.rigelmedical.com



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