

## Surface Insulation Resistance Testing System



Introducing the next generation AutoSIR2+ system from Gen3

Measuring resistance changes derived through Electrochemical Migration (ECM)

The new AutoSIR2+ system represents a dramatic improvement over existing SIR test alternatives, and its shielded precision electronics allows state-of-the-art accuracy resistance measurements to be made up to  $10^{14} \Omega$ .

One AutoSIR2+ chassis can hold between 1 to 16 measurement cards and can monitor up to 256 x 2-point test patterns or 78 x 5-point test patterns, or 32 x 9-point test patterns at selectable intervals from minutes to days. Each channel is current limited (1 M $\Omega$ ), which encourages growth of dendrites for failure analysis. The frequent monitoring capability provides a full picture of the electrochemical reactions taking place on a circuit assembly, and provides early trend analysis enabling tests to be curtailed, thus saving considerable test time and money.

### Features:

Measurement Time:  
<10 seconds to scan, measure, and display all 256 channels

Applied Voltage:  
+1V to 1250V

Measurement Range:  
 $10^6 \Omega$  to  $10^{14} \Omega$

Measurement Method:  
Continuous on all selected channels

Measurement Test Intervals:  
Fully selectable from a minimum of 1 minute

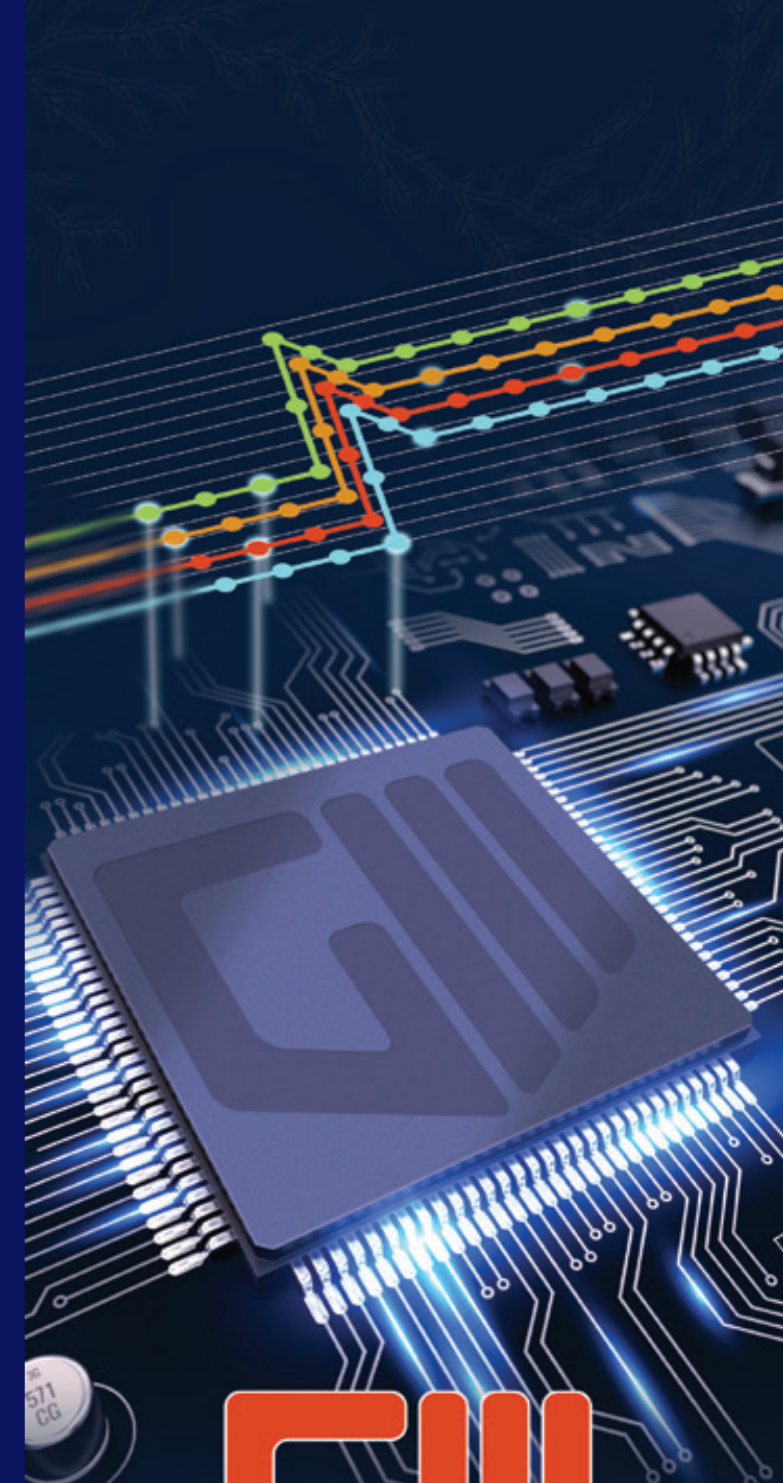
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E&OE



**GEN3**  
PRECISION AS STANDARD

**AutoSIR2+**  
Surface Insulation Resistance Testing System



## GEN3 – Continuing to set the standard

Aside from “conventional” SIR and CAF testing, industry trends impacting on reliability and testing announced in 2018 now demand:

**Automotive:** ISO PASS 19295:2016(E) Electric Vehicle developments.

- High Voltage – Low Current = 470V to 1,250V @ 10 to 50 Amp
- Low Voltage – High Current = 48V @ 300 to 1200 Amp

### Micro-electronic circuits

- Ultra Low Voltage / Current = < 2V with ultra- fine pitch ~50µm or less

To meet these demands requires far greater test flexibility with measurement capability to pA levels.

## Bespoke Software

Simultaneously run 3 different voltages directly from the unit.

The user can select 3 from the following: 0V; 3.3V; 5V; 10V; 12.5V; 15V; ±50V, ±100V.

As an example, and based upon our standard 16 channel measurement boards, this would permit an AutoSIR 2+ 256 or AutoCAF 2+ 256, to employ 144 channels split as 48 channels at 15V; 48 channels at 50V and 48 channels at 100V running simultaneously. The remaining 112 channels could, via an external power supply, run other voltages >100V simultaneously. With this configuration, coupled with the CLR HV BRIDGE, up to 1250V simultaneous testing can be achieved.

## The AutoSIR2+ continues to feature:

- No switching: When the measurement and test bias are the same, no switching takes place as the voltages are continuously applied
- Fast data acquisition: Measurement per channel is less than 15milliseconds
- Flexibility: Capable of testing to all existing test specifications IPC - IEC - JNC and other user specifications
- Future-proofed design
- Adaptable and flexible software operating with Windows 10 and above
- A measurement range of  $10^6$  to  $10^{14}$   $\Omega$  @100V remains at the heart of the systems

Each measurement channel is current limited (1 M $\Omega$ ), ensuring that Electrochemical Reactions (Dendrites) are preserved for subsequent failure analysis. The frequent monitoring capability provides a full picture of the electrochemical reactions taking place on a circuit assembly, and provides early trend analysis enabling tests to be curtailed, thus saving considerable test time and money.

This latest instrument design minimises channel-to-channel leakage. This is important because, the extremely low levels of current involved in SIR & CAF measurement means that any stray currents (including electromagnetic noise or leakage between wire insulations) can significantly affect measurement accuracy.

Independent temperature-humidity monitoring records the environmental conditions next to the coupon under test, as the data is gathered, for more accurate data analysis.

AutoSIR2+ is available with 64, 128 or 256 channel configurations.

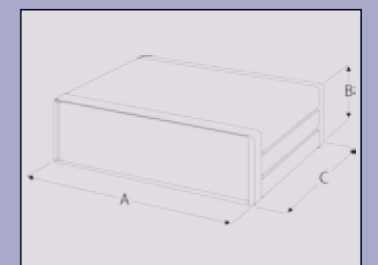
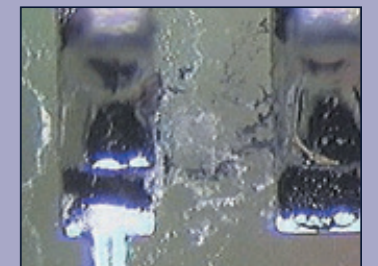
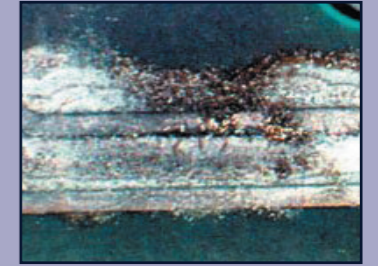
Gen3 offer test racks as optional accessories that are able to test coupons from all standards requirements. We are also able to build custom test racks that can fit your own test coupons.



AutoSIR 2+ with optional test rack

## Specifications

Applied Voltage	+1V to 1250V External Presets: 0V; 3.3V; 5V; 10V; 12.5V; 15V; ±50V, ±100V
Number of Channels	64 or 128 or 256
Measurable Range of Insulation Resistance	$10^6$ to $10^{14}$ $\Omega$
Internal Bias Voltage	AutoSIR 2+ has Built-in Bias Power Supply equipped with: 0V; 3.3V; 5V; 10V; 12.5V; 15V; ±50V, ±100V
External Bias Voltage	1V to 100V Free selection External 1V to 1250V
Maximum Test Duration	Unlimited
Measurement Method	Continuous on all selected channels
Measurement Test Intervals	Fully selectable from minimum of 1 minute
Measurement Time	<15ms/channel
Current Measuring Cable	Fully shielded
Alarms	Low resistance Test Running Bias Voltage Out of Range / Failure Temperature Humidity out of range
Data Collection	Sampling Time, Elapsed Time, Resistance, Current, Applied Voltage, Temperature, Humidity
Applicable OS	Windows 10 and above
Power Source	110V / 230V Switchable mains single phase
Dimensions	[A] 515mm (20½") [B] 170mm (6½") [C] 390mm (15")
Weight	10.5 kgs (37 lbs)



\* Testing at higher voltages than the machine can provide requires the use of an external power supply that is NOT part of our scope of supply.