Bringing Insight into the Analysis of Relay Life-Test Failures.

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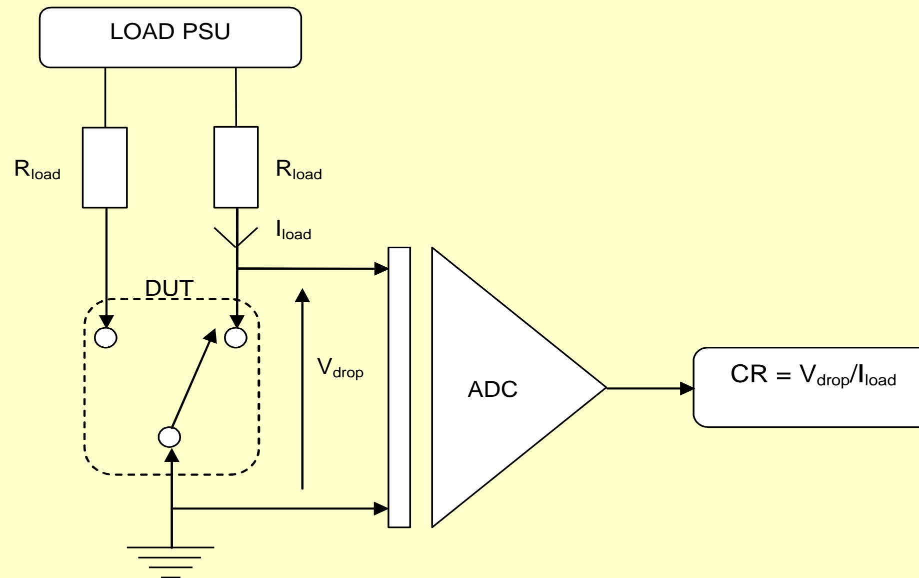
Life-Test Requirements

- To measure ‘contact resistance’ on a CLOSED contact.
- To confirm that at least 90/95% of the contact load voltage exists whilst the relay contact is OPEN.
- To perform measurements on a large number of contacts simultaneously at close to full relay device operating speeds.
- To isolate failure information and provide insight into the possible cause and progression of failures.

ART

Measuring Contact Resistance

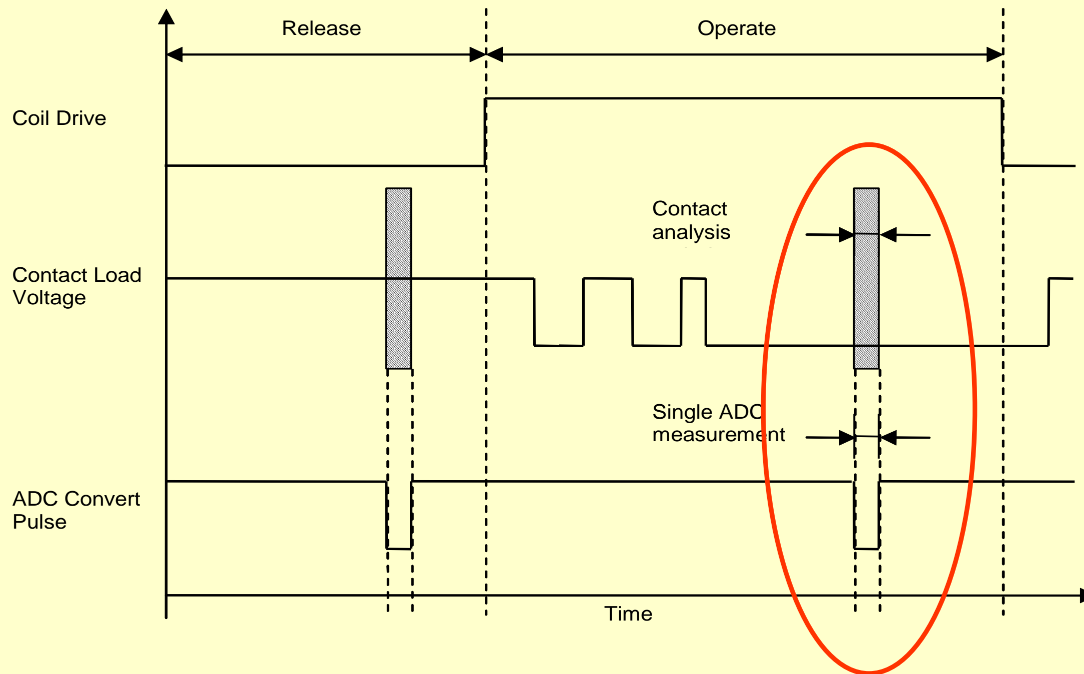
- CR measurements normally achieved using an analogue to digital converter (ADC)



ART

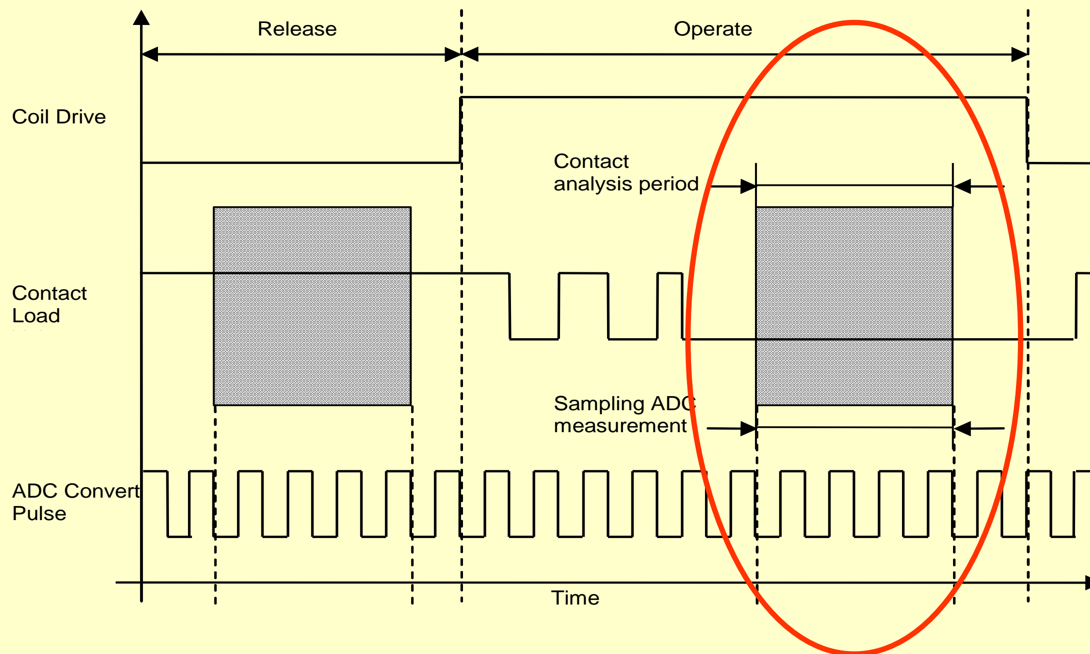
Traditional Contact Resistance Measurement

- Single Sample ADC Measurements



Bringing DSO techniques to life-testing

- Putting a digital storage oscilloscope behind each contact.



Reflex 50 Design Aims

- To provide the user with greater insight into contact activity.
- To provide complete flexibility in setting up a CR measurement.
- To push device switching speeds in excess of 1 KHz over a variety of loads.

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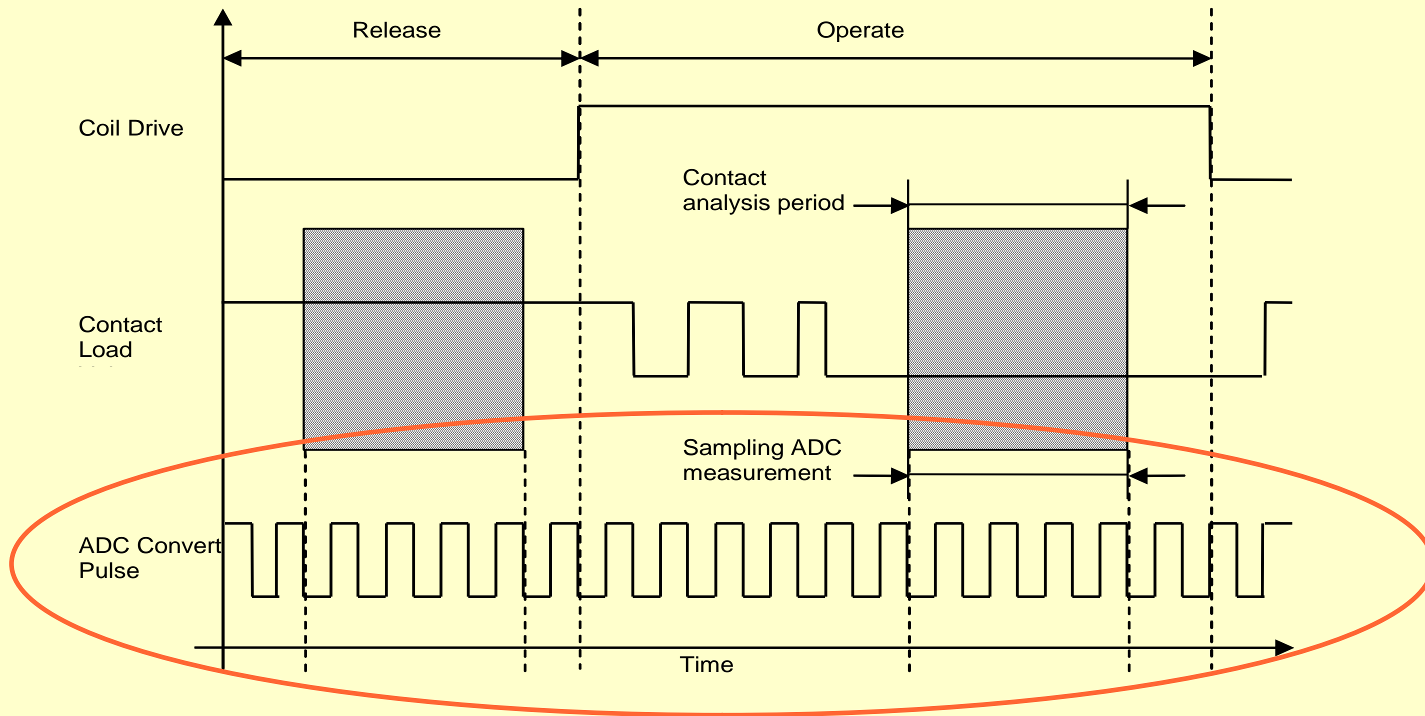
Continuous sampling (DSO) retains the greatest information



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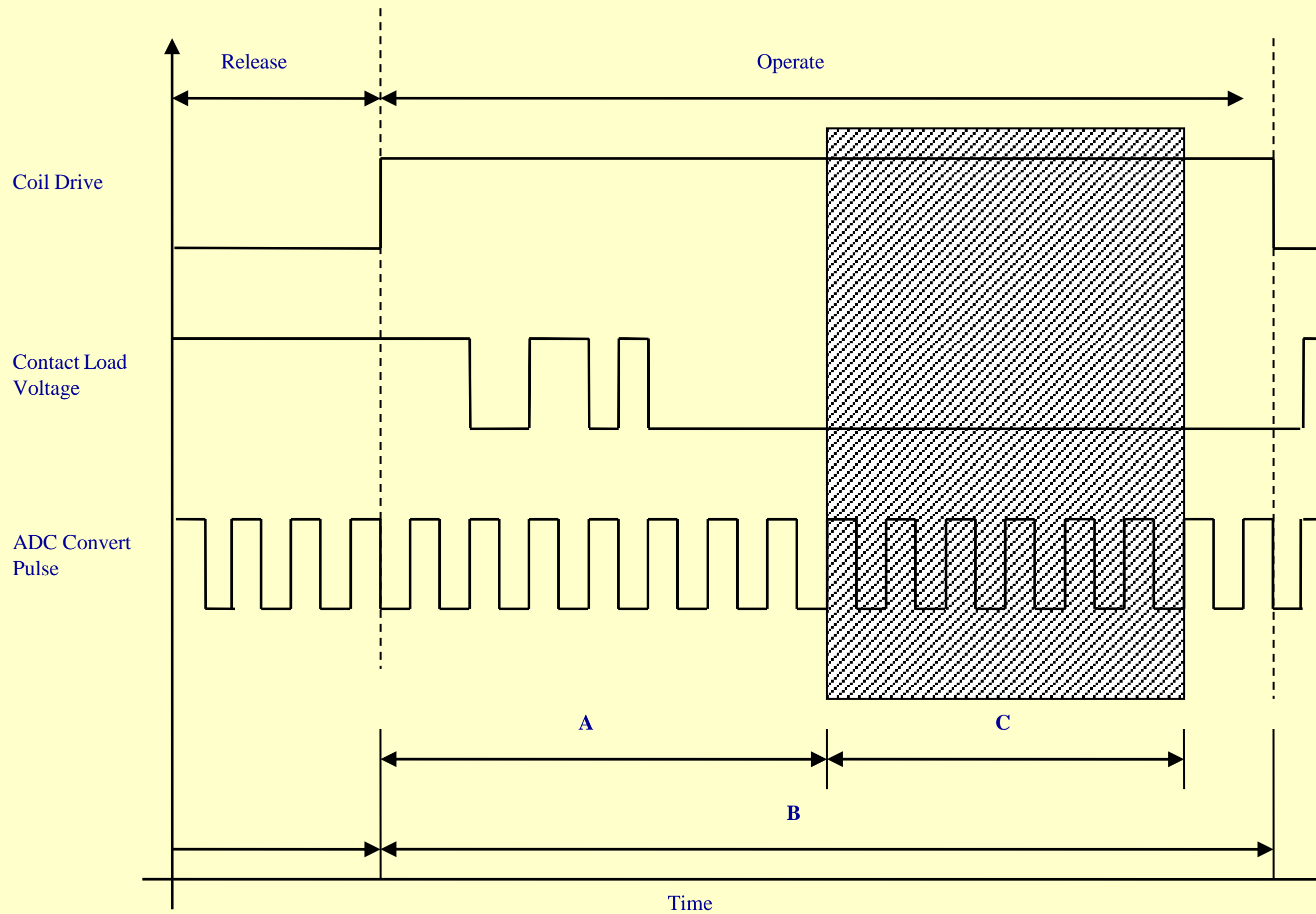
Complete flexibility in setting up a CR measurement



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How we push up device switching speeds.

- Transfer time critical functions from software into hardware.
- Provide hardware with the computational power of a dedicated processor.
- Prevent data collation from interrupting time critical measurement procedures

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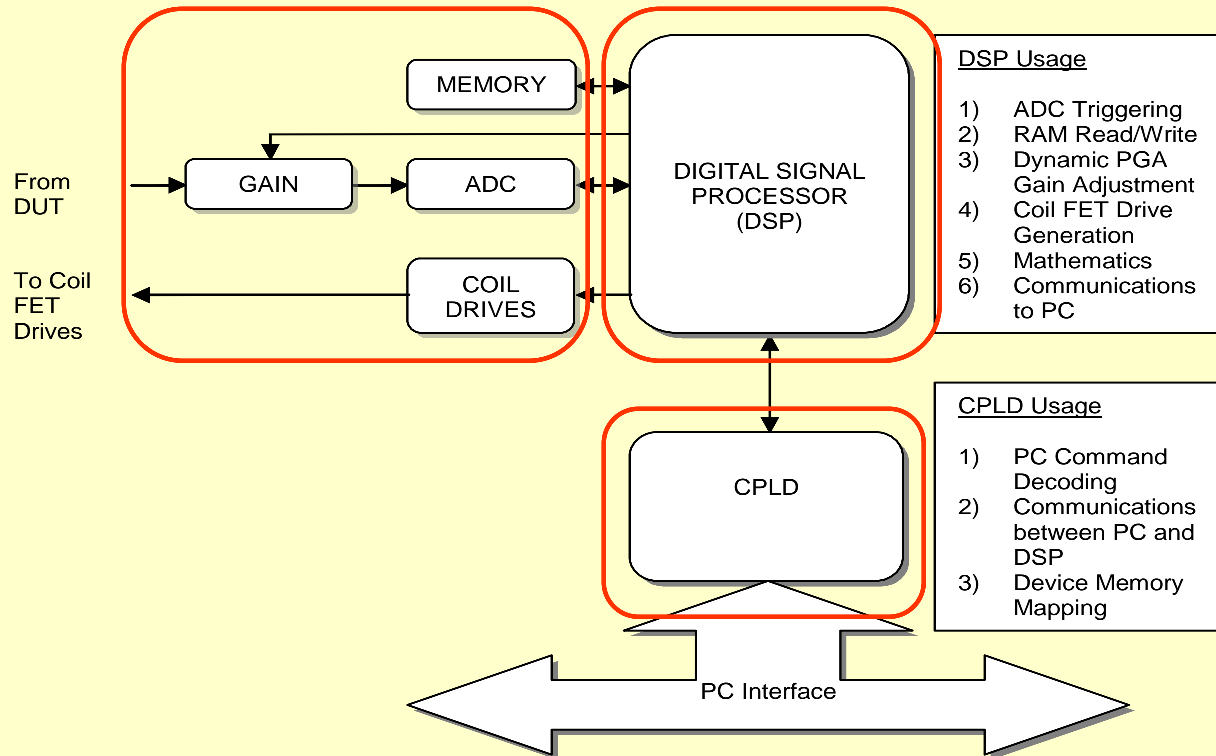
Measurement architecture behind each contact



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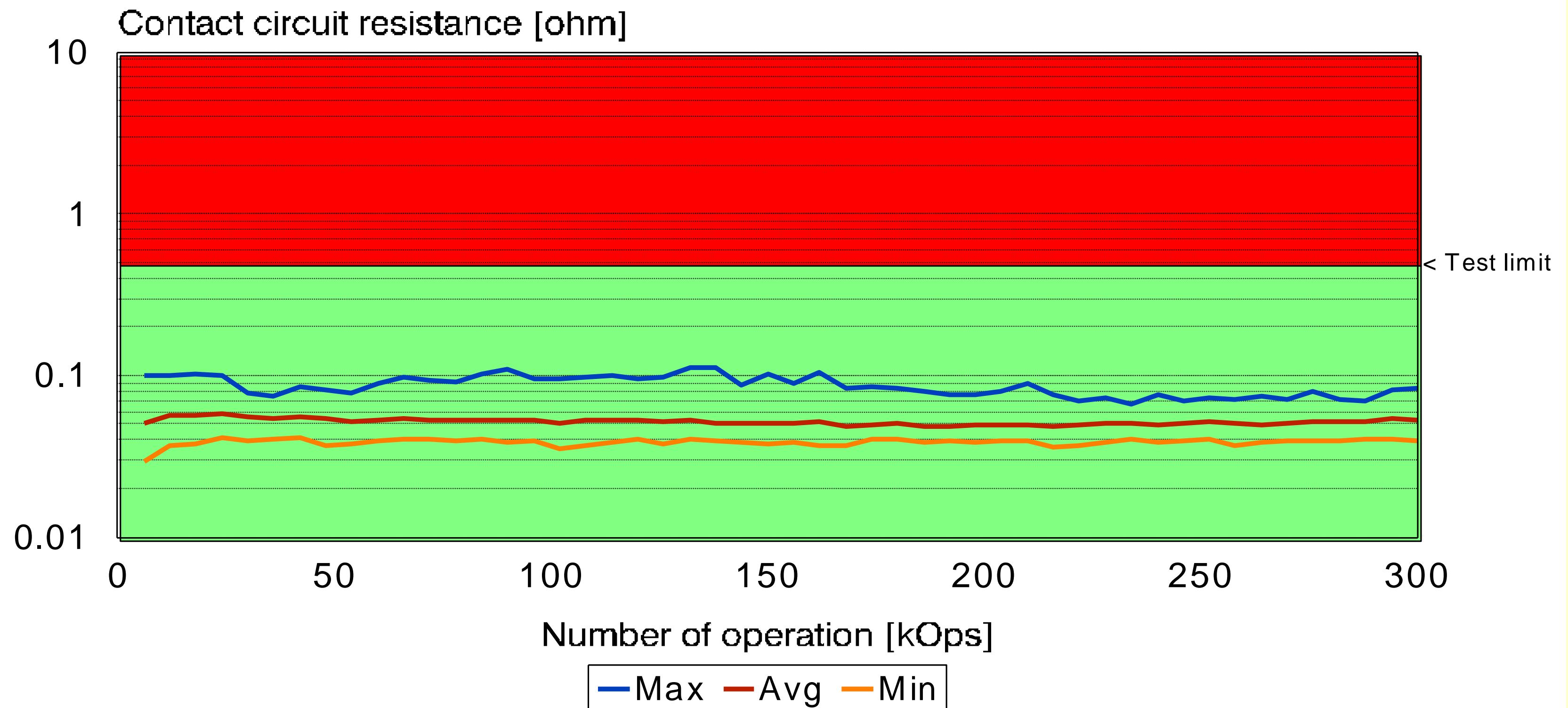
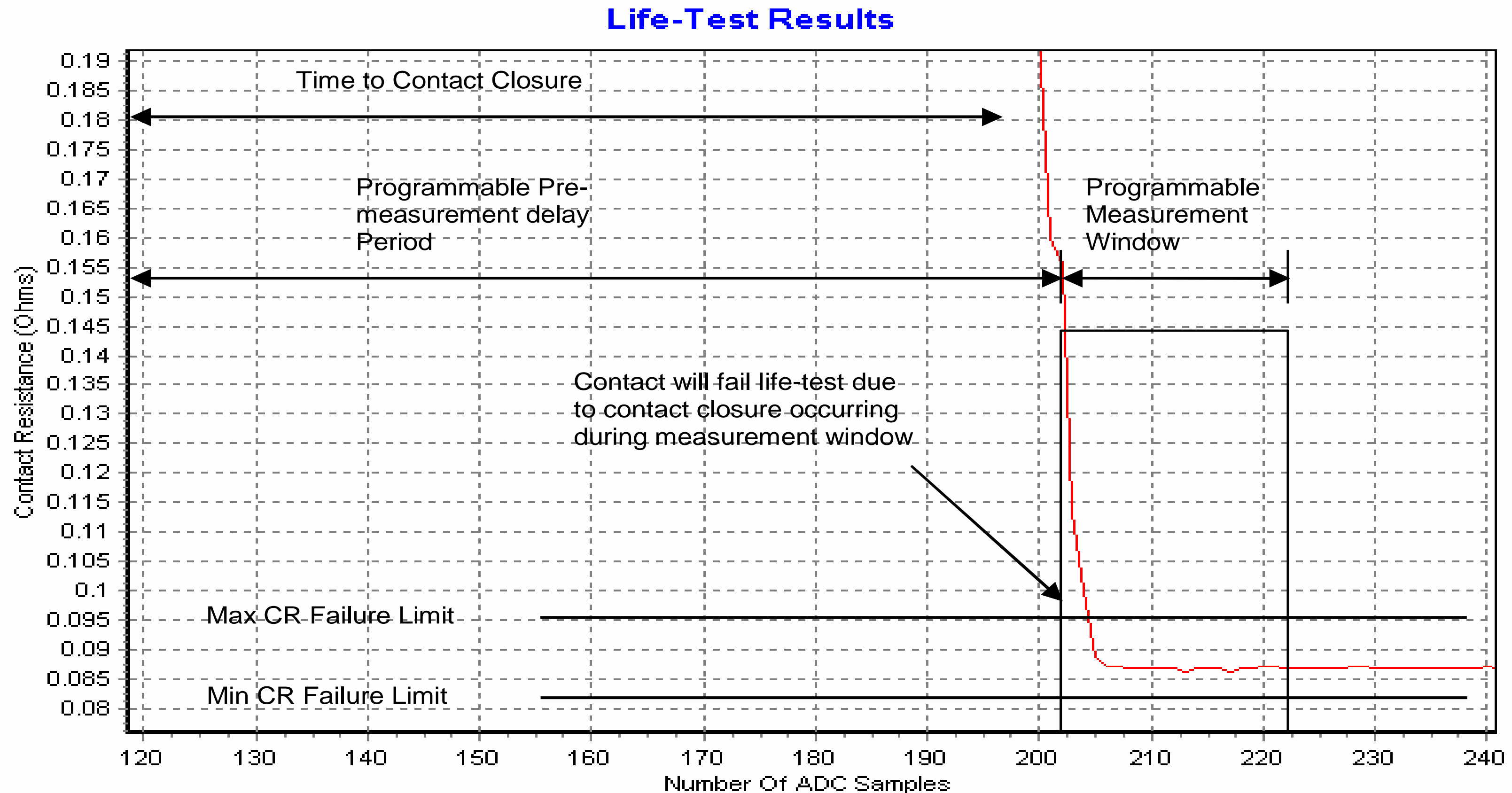
Traditional results show only CR



With DSO we can separate timing and CR failures



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Conclusion

- The DSO solution separates timing and CR failures – a massive improvement in contact insight.
- The dedicated DSP processor behind each contact gives dramatic speed improvement.
- The above two techniques combine to permit complete flexibility in programming the CR test environment.