



THE 61508 ASSOCIATION  
Guidance in Compliance

# The IEC61508 Salesperson's hymn sheet

*A few key points for sales people promoting  
products & services for projects requiring  
compliance to the IEC61508 group of standards*

by the 61508 Association

**SAFETY INSTRUMENTED SYSTEMS  
are too important to leave to chance!**

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# Safety matters

Throughout the European Economic Area the IEC61508 group of standards has been designated as a European Norm

***EN 61508***

*throughout Europe*

In the USA the OSHA has defined the group of standards as GOOD PRACTICE

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# It's about managing risk not new widgets

## IEC 61508 is not the golden egg!

If you believe IEC 61508 is reason for duty holders to replace all their legacy field equipment & control systems. Think again!

IEC 61508 provides a framework to duty holders for identifying, determining and managing risk. The result may require a product or a service from a supplier.

It is not the justification you were striving to find to facilitate you meeting your sales target.

Be careful to remember your product is only needed because the duty holder cannot remove or reduce the potential hazard by any other method... you're the last element in the essential risk reduction.



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# For your client...

The client will have compared each risk to their corporate tolerable target value and assigned a Safety Integrity Level (“SIL”) for each risk that is too great. At this point risk reduction is not really an option – It is an essential.

If the SIL assessment says they need a SIL 1 safety loop then that means that without that one safety loop the actual risk of fatality\* is more than 10 times the wrong side of tolerable.

A SIL 2 loop means that without that one loop the actual risk of a fatal accident is more than 100 times the wrong side of tolerable

A SIL 3 ... actual risk is more than 1000 times the wrong side of tolerable without that safety loop being fully functional

A SIL 4 ... *it exists under the standard but we're not sure your customer would really want to admit that without that one safety loop they have a risk that large?*

\*That is if the SIL loop has been provided for protection of people.  
The SIL loop may have been provided for environmental or asset protection.



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# It's a culture not a certificate

The IEC 61508 group of standards requires your company, as a responsible supplier, to show evidence of “Functional Safety Management”

Certification of Functional Safety Management, or other appropriate proof, is the **FIRST** thing you should identify to any interested stakeholder, particularly a potential client.

Remember, certificates for products are **NOT** required under the standard! (although a purchaser, incorrectly, may consider them to be).

Don't make the mistake of offering equipment certificates (*the bit that **isn't** demanded*) - instead focus on providing evidence of Functional Safety Management (*the bit that **IS** demanded*).



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# Competence as a culture

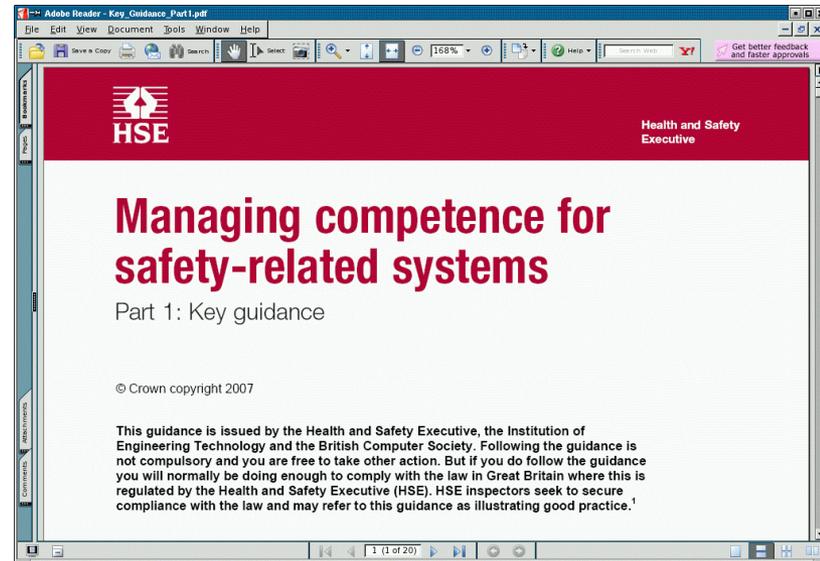
The IEC 61508 group of standards requires every supplier involved with safety critical projects to employ “Functional Safety Management”

Refer IEC 61508 Part 1 Clause 6....

... matching requirements appear in the sector specific standards (e.g.: IEC 61511 Part 1 Clause 5)

Regulators are increasingly demanding safety management be properly addressed (See the HSE guidance - “Managing Competence for Safety Related Systems” July 2007)

<http://www.hse.gov.uk/consult/condocs/competence.htm>





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# A “Certified Expert” (or similar) is an assurance not compliance

Even if you’re a certified functional safety engineer, this is NOT proof your company operates “Functional Safety Management”. But, it may provide an assurance your business is striving to understand the implications.

... For your company Functional Safety Management covers **EVERBODY** involved with a Safety Instrumented System.



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# The “certificate” is not the Holy Grail

Be careful to remember the IEC 61508 group of standards do NOT require certification for components. BUT, they do require proof of reliability and suitability for the application.

It is the report that your potential client needs. **The report should be freely available to those who request sight of it.**

The report...

- ...provides the component reliability data needed by the safety loop designer
- ...shows how the data was generated
- ... defines the limits of applicability for the data
- ... describes the restrictions and conditions of use



# No report – No sale

Without the report (and the essential reliability data that it provides) the engineering team CANNOT design the safety loop.

Consequently your claims & your certificate alone ...

... may be considered a waste of paper, because there is no reliability data or information describing the basis of the assessment.

... may lead to your product or service not being considered.

*In the terms of the standard a certificate without a report is a waste of paper*



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# Why the report is so important!

## **REMEMBER**

The safety loop designer **CANNOT** design the safety loop without the reliability data

The report should show the assumptions made and the basis of the reliability assessment as well as the scope

Your customer should be asking you for a report which shows the techniques of assessment and not just a bland statement that “it was assessed”. The techniques used are a real part of demonstrating that the reliability evidence is appropriate for the application



# Products don't have SILs!!

Any claim that a component is “SIL x” does NOT mean that it is suitable for use in a “SIL x” safety loop.

The SIL number does not apply to the components in isolation

The SIL rating applies to the whole loop and NOT just the individual components in the loop

The loop architecture also plays a part in the reliability required of an individual component

A “SIL 2 certified device” can't always be used in SIL 2 safety loops. It is not unusual to find that a SIL 2 loop has to comprise of predominantly “SIL 3 capable” components to achieve its SIL 2 risk reduction.



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# Every product used counts

Regardless of the product you're selling every component in the loop needs to provide sufficient reliability so that the loop achieves the required SIL

This means that the valve, pump or end device that takes the ultimate action to maintain safety is **INCLUDED**.

It is **NOT** enough to simply use a SIL certified PLC and connect all the loops into that.

It is **NOT** enough to get a SIL certified PLC and a certified transmitter and ignore the other parts of the safety loop



# Avoid & remain credible

Do not offer “Proven in use” or “Prior use” as evidence of a SIL rating claim

**ONLY the end user can offer a “Proven in use” or “Prior use” claim as evidence of suitability in a safety instrumented system** (and they need substantial valid evidence of previous use in the same application complete with failure records and safety management amongst other requirements)

It is unlikely a supplier will have the substantial evidence needed to satisfy even the basic requirements of a “Proven in use” or “Prior use” claim.

See the 61508 Association statement on “Proven in use” and “Prior use” claims



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# Beware of the Client's expectations...ignore them at your peril!

Your Client ...

- ...will request evidence of Functional Safety Management (meeting the requirements of IEC 61508 part 1 clause 6 or its matching requirements under the sector standards)
- ...will not accept the presence of an “expert” as proof of Functional Safety Management (there are no certified experts mentioned in the standard)
- ... will not buy your component without the report (or equivalent) giving the evidence of reliability and all the associated conditions even if you provide a certificate
- ... will reject product reliabilities based upon factory return data unless you can prove that the application is the same (*not just similar*) – See 61508 Association notes on Proven in use for further guidance
- ... understands SIL applies to the whole loop – NOT just to the product you're trying to sell.