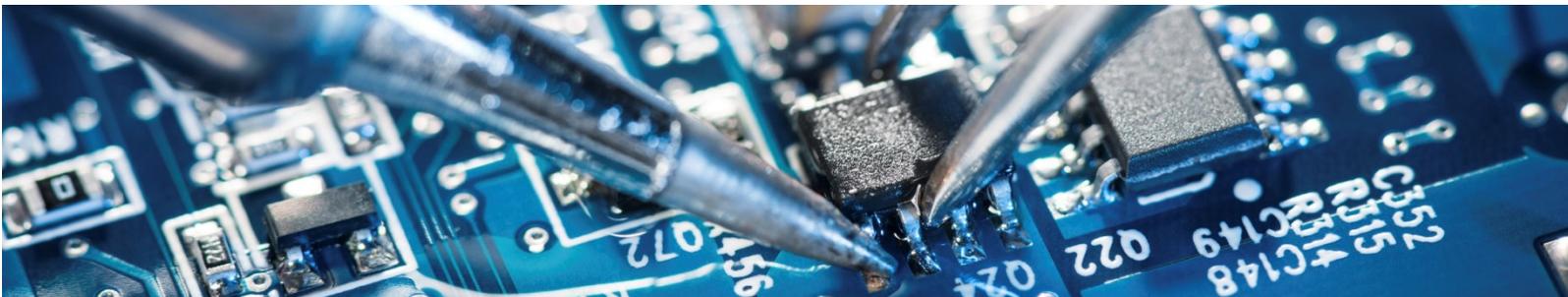


The rapid development of automation and distributed intelligence has led to an exponential increase in machinery, plants, devices and products in general with electronic or programmable electronic control systems, which are entrusted with **safety functions**.

When the functionality of an element within a system can jeopardise its safety, primary safety is no longer sufficient, its functional safety must be guaranteed. The topics covered by the IEC 61508

family of standards and those related to them (IEC 61800-5-2, EN 50495, etc.), constitute the state of the art and the normative reference for the design and management of safety systems in plants, with particular attention to programmable electrical, electronic and electronic systems and are widely used in **various industrial sectors** such as chemical, petrochemical, refining, nuclear, transport, electro-medical, industrial automation and automotive.

FUNCTIONAL SAFETY MANAGEMENT of MTIC Group is a **modular voluntary service** structured in **several stages** that was created to assist manufacturers who, in designing safe hardware and software, must implement specific techniques such as redundancy, diversity and **internal diagnostic tests** with the aim of increasing the robustness of the product against breakages, failures and software errors.



Step 1: INITIAL ASSESSMENT

On-site inspection of the system; system classification; identification of technical and regulatory requirements; analysis of the specifications of the performance requirements to be met; inspection of the technical documentation (data sheets of components, electrical diagrams, construction diagrams, etc.).

Step 2: GAP ANALYSIS

Definition of the technical regulations applicable to the system; qualitative and quantitative analysis of the system components (QFD - FMEA - FTA); analysis of the reliability and availability of the system components; preparation of the gap analysis report according to specific requirements previously defined; sharing of its contents.

Step 3: FOLLOW-UP

Control and verification of any changes made to the system by the customer; verification of changes in the technical documentation, with particular reference to the safety manual and the safety validation plan.

Step 4: SIL/PL ASSESSMENT

Safety inspection of the concept design; analysis of the safety functions; analysis of the safety requirements; hardware/software analysis; eventual test witnessing; evaluation of the SIL/PL that was achieved; software test (static analysis and module test); hardware/software integration test; carrying out of eventual type tests (mechanical and electrical).

Step 5: ASSESSMENT REPORT & SIL/PL ATTESTATION

Issue of the activity report and of the attestation of the SIL/PL level obtained for each safety function.