Quad Plus®

Industrial Machine Safety Consulting

Risk Assessment

Prevent future problems with a safety review that can be performed before upgrades, for new line installations, before retrofits, or after accidents. We will work closely with the customer to create a list of hazards to be remedied in order to reduce risk to operators.

Risk Mitigation

We will work with you to develop a specific plan for your automatic protection systems to minimize the risk of likely human errors, hardware failures, and environmental and operational stresses. While, also ensuring, that productivity is not negatively impacted by safety.

Safety Validation

After commissioning, we perform testing and validation audits including sign off and lockdown of safety PLCs to prevent unauthorized programming changes, ensuring that the machine continues to run in a safe manner.

Why Quad Plus?

With every operation, safety is always the top priority. Go beyond OSHA requirements for risk mitigation to ensure that your workers are protected while they're on the job. The Quad Plus comprehensive safety team has the industry experience and expertise to assess your risks, and solve safety issues efficiently. Once your operation is optimized, we're here to support your system should any problems arise.

Risk Assessment

We will collaborate with you to form a Peer Risk Assessment Team. This group, including equipment operators, is established to provide a multi-disciplinary team that can review each potential hazard from several angles and will assign a required Safety Integrity Level (SIL) to score each of these areas so that the risks can be correctly mitigated. The result is solutions that work for you and your team; we strive to ensure that safety never negatively impacts productivity. This Peer Risk Assessment Team will compile a document that will serve as a roadmap for the rest of the Risk Mitigation process.

Risk Mitigation

Quad Plus will work with you and your team to develop a specific action plan to minimize operator safety risks for you and your team. We will create hazard maps to identify areas of concern, create risk mitigation strategies for each identified hazard, and assist in developing muting zones to aid in increasing productivity. We then generate truth tables and functional descriptions to clearly define the intended functionality of each piece of safety hardware, which will help the project integrator with correctly programming the safety PLC to ensure that the safety hardware is both programmed and utilized properly. Proper use of engineered control solutions can even allow for the replacement of LOTO procedures with muting zones, allowing a more streamlined workflow in addition to increased safety. The system performance and specific safety strategies are then approved by you, the client.

Safety Validation

Our team will travel to the production line and perform a step-by-step validation of hardware and functional safety to ensure that they match exactly with the intended performance decided upon during the Risk Mitigation process. This involves physically testing machine state and ensuring that the expected outcomes are observed. If not, the process is started over until all points pass validation. AOPDs (active optoelectronic protective devices), such as safety light curtains, will be individually validated, all emergency stop functions will be checked, and a final peer review will be conducted to provide proof of consensus from all involved parties.