Safety Requirements Specification:

1. Design Architecture
   1. Process Information & Process conditions
      1. Detailed Description of Processes
      2. Process Hazard Report
         1. Hazard Frequencies
         2. Hazard Consequences
   2. Required Safety Instrumented Systems (Full System SIS)
      1. Target SIL for entire system
   3. Required Safety Instrumented Functions (Each Individual SIF)
   4. SIS
      1. Every Measurement Circuit
      2. Inputs
      3. Outputs
      4. Complete info (measurement range… etc)
2. Reliability (Nuisance Trip Rate)
   1. Common cause failures prevalent in system?
      1. Possibilities for common cause failures
   2. Define a maximum Nuisance trip rate
3. Support Systems
4. Installation, testing and maintenance
5. Hardware Specifications
6. Software Development , Security
7. HMI

LEGEND:

* Green highlighted text = MSR is compliant = YES
* Sensors / Field Devices (field devices = outputs from relays – Banshee / solenoid / etc.)
* FPL Programmable components and subsystems (Controller)

Hardware selected basis of prior use? HOW? Sensors / Field Devices & Controller

* Evidence / report based
  + Consideration of manufacturer’s quality
  + Consideration of Management and configuration management systems
  + Adequate identification and specification of the components or subsystems
  + Demonstration of the performance of the components or subsystems in similar operating profiles and physical environments
  + The volume of the operating experience

What kind of hardware can be used in a SIS? Sensors / Field Devices & Controller

* Subsystems consisting of hardware which is selected on the basis of prior use (WE KNOW ITS GOOD THEREFORE WE CAN USE IT) ( YES )
* Must be IEC 61508-2 & IEC 61508-3 SIL software standard compliant
* The device allows only Measuring range and process related parameters only (zero/gain/adjustment of output) ( YES )
* Adjustment of process related parameters of the device protected ( Password) ( YES )
* The function has SIL requirement less than 4 ( YES )

Specific Requirements for GC-06 controller to be used as a SIL2 device:

* Including above
  + Manufacturer hardware and embedded software documentation
  + If applicable appropriate application language and tool selection (PG2 Tool)
    - Language application doesn’t apply to GC-06 as most of the language is pretty easy to figure out and has been programmed to be easy to navigate and figure out the information that the LCD is attempting to convey to the customer.