

Key technology decisions for high-integrity protection logic systems

The available choice of technologies and vendors is large and confusing. The information here is intended to give a rough indication of the scale of choice available.

Available technologies for logic solvers

1. Microprocessor-based software systems
2. Field Programmable Gated Arrays (FPGAs)
3. Magnetic logic
4. Relay logic

No relay-logic system is currently offered – any requirement for these would necessitate a bespoke system. Yokogawa are the only company offering a magnetic logic product (to my knowledge).

Vendor selection criteria against obsolescence should include:

1. Vendor should offer through-life support
2. Vendor should offer backwards-compatible upgrades
3. The system design should facilitate mid-life renewal
4. Maintenance of vendor's skills and capabilities
5. The vendor-claimed Safety Integrity Levels (SILs) may need careful validation

Vendor selection for high-integrity logic solvers for use in nuclear RPS and ESFAS, or O&G ESD and F&G systems, etc
Potential products for short-listing include the following (alphabetical order). All are generally claimed to be SIL3-capable or better, and will generally offer 2oo4 logic:

- ABB System 800
- Areva/Siemens Teleperm XS
- Emerson DeltaV SIS
- Honeywell Safety Manager
- Invensys Tricon
- RADIY (FPGAs)
- Rockwell/ICS Triplex
- Rolls-Royce Spinline
- Schneider Modicon Quantum
- Westinghouse Common Q and CSI (CSI is FPGAs)
- Yokogawa ProSafe RS and SLS (SLS is magnetic logic)

Vendors change their brand names and products quite often – the names above are up-to-date so far as I know. This list is unlikely to be complete. Some of the products listed are only targeted at specific markets (e.g. nuclear or oil & gas, not both).