

Triple Modular Redundant Controller

Benefits

Maximum Safety and Availability

- A Safety Integrity Level of 3 (SIL3) and fault tolerant
- Stable, predictable operation
- High capacity and high speed
- Easy to use and maintain
- High density I/O (up to 60 channels/module)

Hardware Voting Technology

- High test coverage of potential faults
- Tolerance to multiple failures
- No restrictions on time-to-repair
- Accurate fault identification
- Reduced operating system size and complexity

Comprehensive Programming Environment

- IEC 61131 programming environments in five languages
- Define up to 250 programs per project
- Offline simulation, Online debug

Communications Options

- Modbus TCP/IP, Modbus RTU and EtherNet/IP communications to Programmable Automation Controllers
- OPC DA (Data Access) & A&E (Alarm & Event) communications



Trusted System

The Trusted® solution features a Triple Modular Redundant (TMR) controller. It is designed to provide maximum safety and system availability. Trusted uses control to minimize system trips and provides high availability, fault tolerance and fail-safe features as part of its intrinsic, safety-related functionality. The architecture features:

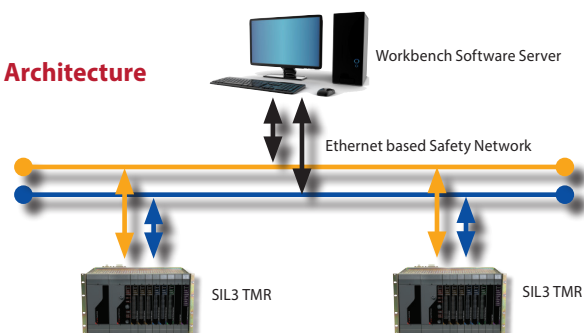
Trusted controller is a highly compact solution. It can hold up to 240 TMR I/O channels in a single Trusted controller chassis, including a spare processor, dual ethernet and multiple serial communications capability.

Trusted expander can connect up to 28 I/O expander chassis, totalling up to 128 I/O modules per system. The expander chassis may be located up to 5km away and are connected to the controller processor chassis by triplicated fiber optic links.

Trusted I/O modules are designed to meet the SIL 3 requirement, for both analog and digital signals. All models have full "stuck on / stuck off" signal testing and configurable line monitoring. Trusted offers a wide range of standard I/O module types including 120V AC and 125V DC inputs and outputs.

Modular power system can be powered directly from a single or dual conditioned 24V DC supply, or from AC power sources and redundant power feeds.

Trusted® Architecture



LISTEN.
THINK.
SOLVE.™

Trusted supports a number of I/O modules that meet special process control requirements

The Valve Test module

Partial stroke testing of critical valves is a crucial feature that meets the latest process safety standards. The Trusted system integrates automatic valve testing inside a TMR, TÜV approved SIL3 architecture, providing maximum safety and availability. With this package, you are able to periodically test the valve and actuator subsystem without shutting down your process.

The Zone Interface module

The Trusted Zone Interface helps reduce the complexity of a Fire & Gas system by integrating all functions into a single module. It can be used in combination with any other Trusted hardware. The 40-channel Zone Interface module provides:

- Fault tolerant monitoring of any 4-20mA gas detector, in addition to any low-voltage digital signal, with line monitoring. These include flame, smoke or heat detectors and manual alarm call points.
- Outputs for the control and alarm of hazards as well as the calibration of detectors.

TÜV Rhineland Certification	
IEC 61508	EN54
IEC 61511	EN298
NFPA 72	EN50156
NFPA 85	UL 508
NFPA 86	IEC61508 2010 Ed:2

The Speed Monitor module

Trusted offers a high integrity solution for the protection of gas/steam turbine acceleration and over-speed prevention. The module provides:

- Autonomous over-speed protection for up to three rotating machines. Each over-speed trip has three independent, fault tolerant speed inputs and a fault tolerant digital output.
- Speed inputs have a wide, dynamic range of 0.1 Hz to 30 kHz.
- Sequence-of-events reporting with a 1 ms resolution.

Typical Applications*	SIL Target	Demand
Emergency Shutdown (ESD)	2 & 3	Low / High
Fire and Gas (F&G)	2	Low
Turbo Machinery Control (TMC)	2	High
Burner Management Systems (BMS)	2	High
High Integrity Pressure System (HIPPS)	3	Low

* All safety applications are unique. We encourage you to speak with a Rockwell Automation Safety Consultant to be certain the correct SIS system is selected for your application.

Trusted Certification
UL listed for use in Class 1 Div 2 Groups A, B, C and D and EExnAL IIC T4: DEMKO 05 ATEX 136991X
Conforms to UL508
Certified to CSA C22.2 NO 14 and CSA C22.2 NO 142

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