



## High Integrity Protection Systems (HIPS)



API 521 and Code Case 2211 of ASME Section VIII, Division 1 and 2 allow the use of a Safety Instrumented System (SIS) in lieu of a pressure relief device, as long as the SIS **meets or exceeds** the protection provided by the pressure relief device. As SIS, their design must follow the international standard IEC 61511. These systems are often called high integrity protection systems, because the SIS must achieve high safety availability. In most cases, the logic solver must be IEC 61508 compliant to Safety Integrity Level (SIL) 3.

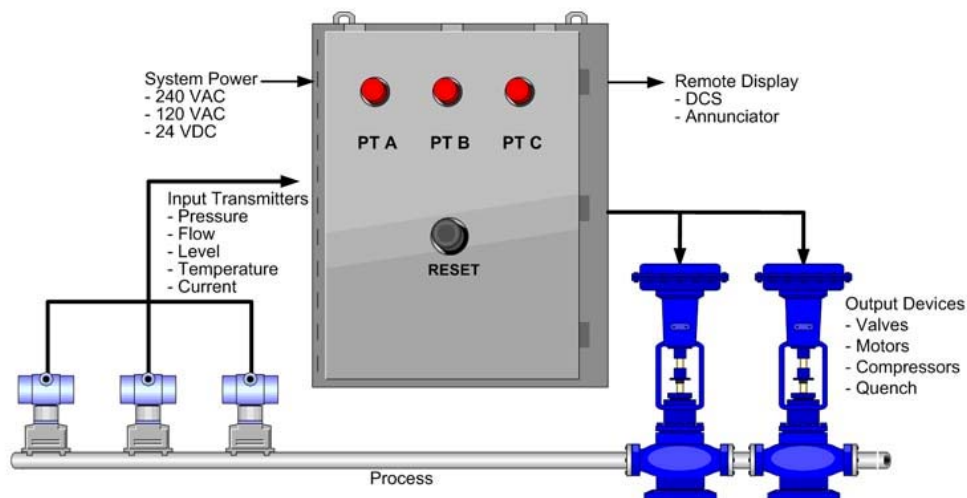
The **DIAMOND-SIS®** is designed as a low-cost, stand-alone, non-PE logic solver certified as fit for use in HIPS applications up to SIL 3. The 2oo3 voting assembly provides the end user with a fault tolerant logic solver that is physically and functionally independent from the process control and safety instrumented system. This complete independence mimics that of traditional relief systems, where the failure of one relief valve does not disable any other relief valve. By eliminating the common cause associated multiple HIPS implemented in one safety PLC, the random and systematic failures are significantly reduced.



Each channel receives an analog or digital process signal. Two field-adjustable setpoints allow shutdown to be executed for high and low process signals. Serial or hardwired communications are used to remotely display process variables and system alarms. With its 5 Amp output rating, the system can de-energize multiple final elements, including motor control circuits and/or solenoid operated valves. Manual reset, local or remote, ensures controlled process re-start after shutdown. Manual ESD, using a local or remote emergency shutdown button, can be supplied. System power is 24VDC, 110VAC, and 240VAC and the **DIAMOND-SIS®** can be provided with redundant power supplies and/or UPS.

The **DIAMOND-SIS®** is rated for -30C to +75C and constructed using Class I Div II components. Field installation in the harshest process units near the equipment under control is possible, reducing the implementation costs typically associated with HIPS using safety PLCs.

With 2oo3 voting architecture, on-line diagnostics and testing facilities, **DIAMOND-SIS®** meets the fault tolerance and PFDavg requirements of any HIPS application. The **DIAMOND-SIS®** is also reliable, and, with its on-line diagnostic and repair capabilities, easily exceeds the performance of traditional relief valves.



THE LOW COST ALTERNATIVE TO SAFETY PLC'S

## KEY FEATURES

- 2oo3 version is certified to IEC 61508 SIL 3 in SH3 configuration
- High reliability
- Proven technology
- Rugged design
- Field mountable
- On-line testable & repairable
- Remote process variable & system status monitoring
- No programming
- Low installed cost alternative to a Safety PLC

## SPECIFICATIONS

- Supply Power: User specified, 24VDC/110VAC/240VAC
- Input: 4-20 mA DC or discreet (dry contact)
- Output: 5 Amp resistive dry contact
- Accuracy: 1% of span
- Temperature: -40 to +80°C Storage / -30 to +75°C Operating
- Environment: All internal components rated Class I Div II Groups A/B/C/D
- Enclosure: NEMA 4X – choice of materials

## ENGINEERING/DOCUMENTATION OPTIONS

Safety requirements specification for complete instrumented loop, including SIL Verification

## ORDERING SELECTION

