



Coker Drum Switching and De-Heading



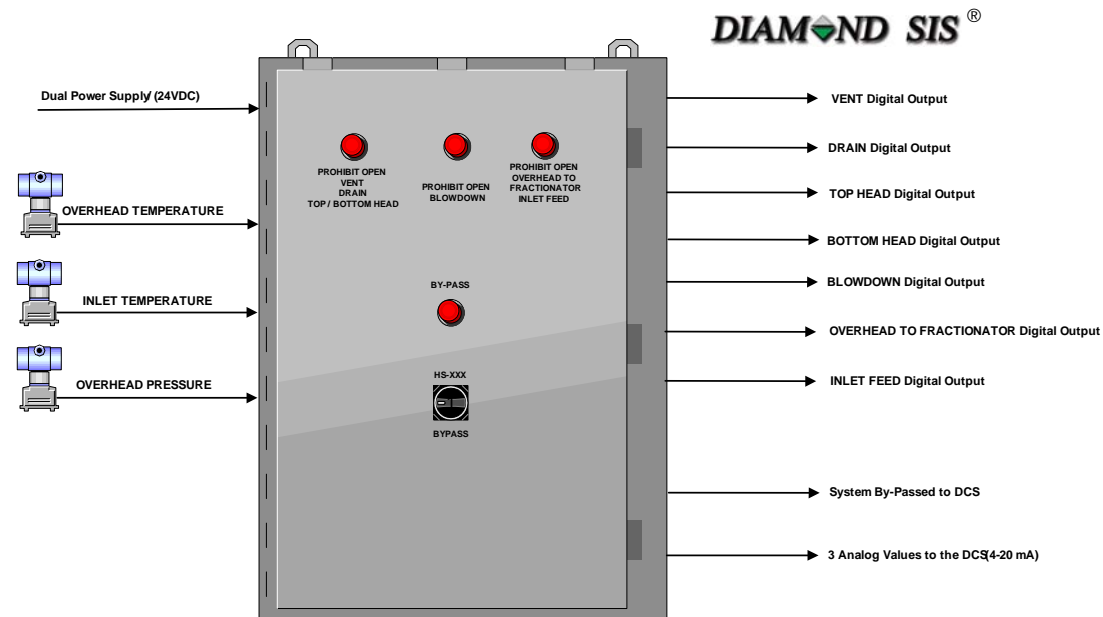
Coker drum switching and de-heading poses challenges to safe and reliable operation of the Coker Unit. Safety issues are generally related to release of hydrocarbons to the atmosphere by either opening in an in-service drum and allowing hydrocarbons to enter an open drum. End users have often struggled with identifying the necessary Safety Instrumented Functions (SIF) to prevent these loss of containment events. Preventing these events by implementing the SIF's in the valve control system PLC means the system is classified as a Safety Instrumented System (SIS) requiring that it be implemented in a safety rated PLC. The **DIAMOND SIS®** Coker Drum Switching and De-Heading is a standalone SIS logic solver designed to receive key process variables that are used to determine when the drum is in-service or open. When preset conditions are not met the **DIAMOND SIS®** outputs prevent the opening of selected valves. Process inputs to the system are overhead pressure, overhead temperature and inlet temperature and outputs from the system are supplied to prevent opening of the vent, drain, top/bottom head, blowdown, overhead to fractionator and inlet feed.



- This design greatly simplifies the SIS and allows the valve control system to be implemented in a non- safety rated PLC.
- Each Coker drum is monitored and protected by a stand alone safety system.
- The failure, maintenance or testing of any one safety system does not affect the operation of the other drums.

The **DIAMOND-SIS®** is a low-cost, stand-alone, non-PE logic solver (*suitable for up to SIL 3*). Rated for -30C to +75C and constructed using Class I Div II components the **DIAMOND-SIS®** can be installed in the harshest process units near the equipment under control. Field installation of the logic solver reduces implementation costs by 50% compared to safety-PLCs.

DIAMOND-SIS® receives analog inputs for each process variable and has adjustable trip points. Further, the number of inputs and voting architecture, 1oo1, 1oo2, 2oo2 or 2oo3, can be adjusted for each process variable to meet any SIL or reliability requirement. The **DIAMOND-SIS®** Coker Drum Solution is flexible and can be customized for your specific application.



THE LOW COST ALTERNATIVE TO SAFETY PLC'S

DIAMOND SIS®

KEY FEATURES

- 2003 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

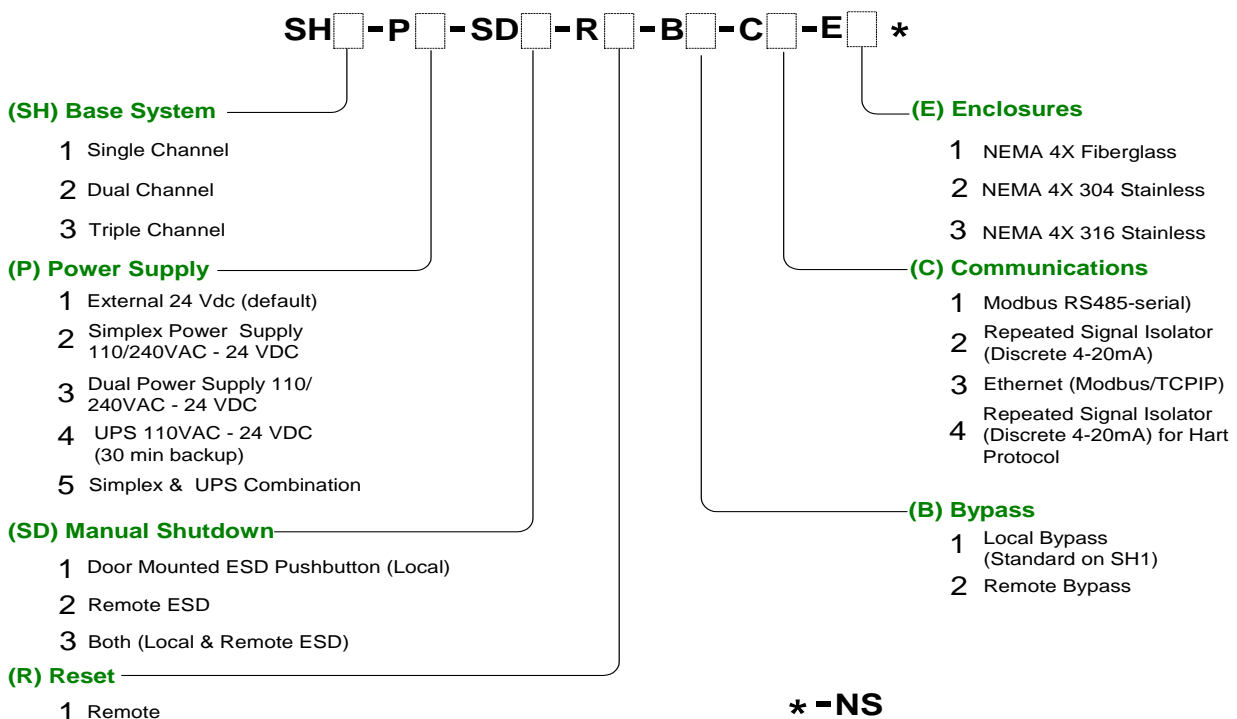
SPECIFICATIONS

- 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



*** -NS**

Systems which include non-standard options.