

SIL2 electronic ESD system

The emergency shutdown (ESD) is the primary safety system in the event of an uncontrolled escape of hydrocarbons at surface. The ESD system controls the actuated flowline valve of the surface test tree and/or an additional inline valve installed upstream of the choke manifold. A shutdown is activated by either high or low pressure/level or push buttons located around the rig.

Different from the current conventional pneumatic system, the electrical system is more efficient and safer as it does not require the depressurisation of the pneumatic loop via pushbuttons and hi/lo pilots to activate the hydraulic system, enabling a shutdown. The Electronic system uses an electrical pulse which instantly activates the hydraulic system enabling a shutdown, drastically reducing the time of valve closure. Additionally the electronic system can be tied into the rigs own ESD/PSD systems and be easily expanded to include other sensors including high/low level and temperature sensors.

The activation system is SIL2 certified.



Features and benefits

- Industry recognised Siemens software – SIL2 certified
- System configuration for all well test designs
- Zone 1 touchscreen HMI for setup and visual status of sensors, valves and buttons
- Full history system alarm logs
- Modbus output to DAQ system
- Fully programmable, include valve closure delay, cause and effect chart

Applications

- Onshore and offshore oil and gas well testing and clean-up operations
- High pressure, high temperature operations
- High rate operations
- Deep water operations
- Extended well test operations.

Technical specifications

General	Hazardous area	Zone 1
	Lifting	DNV 2.7-1 integral frame
	Safety integrity level	SIL2 certified DNV
	Button and sensor cabling	Field wiring single pair using standard Bulgin connectors
	Dimensions	1385mm x 976mm x 800mm
	Weight	300kg
Inputs	Power	240v AC
	Sensors	10 x pressure (4-20mA) 4 x level/temperature (4-20mA)
	Buttons	16 maximum (4 loops of 4) (digital)
	Rig activation	Rig system to activate ESD system (digital)
Outputs	Solenoids	2 x hydraulic (digital) 2 x pneumatic (digital)
	Modbus DAQ	Data output to DAQ system
	Modbus Rig/3 rd party	ESD status output