

ConSpare

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DataSheet

ConSpare Silo Safety System

The ConSpare Silo Safety System has been designed to satisfy the demands of industry where silos are to be safely charged with material. It utilises a smart logic controller to monitor and control the filling process with LED neons indicating the status of the safety components.



The system has been designed to be easily customised to suit the configuration of any silo as the level of safety devices fitted onto a silo vary from site to site. It is generally accepted that the following components are mandatory:

- Silo Filter
- Silo High Level with failsafe signal
- Silo Fill pipe valve

With the option of the following components improving the integrity of the system:

- Extreme High Level with failsafe signal
- Pressure Relief Valve
- Digital Pressure Switch
- Fill pipe open / closed switch box
- Healthy signal from the filter

The ConSpare Silo Safety System facilitates all of the components detailed above.

The status of the components are indicated as follows, red = fault, flashing red = failsafe fault and green = open or on.

If a component is not fitted it can be easily removed from the system by additional links on the terminal block at the bottom of the panel.

When components are removed the respective LED neons will be de-energised.

Visit - www.conspare.com | Call +44 (0)1773 860796 | Email - sales@conspare.com

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ConSpare Silo Safety System Operating Procedure

1) To activate the panel the truck driver must press the alarm test button, which will energise the fault neons and the beacon / klaxon. Once the truck driver has checked the fault lights and beacon klaxon are operating correctly he/she can press the system start button. If the filter start button is not pressed within 15 minutes of the lamp test button being pressed the system will reset and the lamp test will have to be pressed before the filter can be started.

2) When the start button is pressed the system checks all of the safety sensor inputs to ensure everything is healthy before opening the fill pipe valve and starting the silo filter. When the system is operating the start system pushbutton will illuminate green.

3) If a high level is reached the warning beacon / klaxon will energise to alert the truck driver to stop filling, the indicator neon on the mimic will illuminate red and the fill pipe valve will close after 45 seconds. When the fill pipe closes after a high level it will not open again until the high level is lost. The red neon will remain illuminated until the high level is lost. The alarm beacon / klaxon can be cancelled at any time by pressing the alarm cancel button. If any of the following faults occur the fill pipe valve will close immediately and the alarm beacon / klaxon will energise:

- If the High Level failsafe signal is lost
- If the Extreme High Level input is lost
- If the Extreme High Level failsafe signal is lost
- If the Pressure Switch sensor activates
- If the Pressure Relief Valve lift switch operates

If any faults occur the status neon will illuminate red and remain energised until the alarm cancel button is pressed and the filter will run for a further 45 seconds.

If it is a failsafe fault the neon will flash red for 45 seconds unless alarm cancel is pressed. Then once the lamp test button is pressed the alarm light will re-energize.

4) When the truck driver has finished charging the silo he should press the stop button which will close the silo fill pipe valve and allow the filter to remain cleaning for 10 minutes. If the stop button is not pressed the system will automatically shutdown after 45 minutes.

Immediate System Shutdown

High level probes.

The SafePoint high level probes have a motor driven paddle extended 1 meter into the silo. The paddle shaft is fitted with a motion detector.

When the paddle comes into contact with cement it stops turning, the motor tries to turn against the paddle, activating a clutch fitted with monitoring switches to give a high level alarm signal.

If the coupling from the motor to the paddle shaft becomes disengaged the motion detector will indicate that the motor is turning and the paddle is not. The high level failsafe alarm will come on immediately and the system will shut down.

If the filter is blocked the silo will pressurize and the pressure switch will activate. If the pressure switch does not work then the PRV will lift. The proxy will activate and the system will shut down.

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