



Hazardous Location Switch Product Applications

Honeywell

This document may contain forward-looking business plans and proposals subject to modification based on many factors, including changing economic and business conditions. Unless otherwise noted, any such plans and proposals described herein are not final and may be modified or even abandoned at any time. No final decision will be taken with respect to such plans or proposals without prior satisfaction of any applicable requirements that the relevant company inform, consult or negotiate with employees or their representatives. Copyright © 2015 Honeywell International Inc. All Rights Reserved. CONFIDENTIAL.

Grain Slides



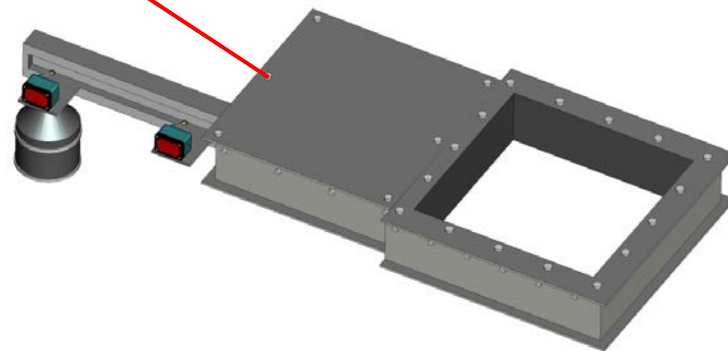
- Grain distribution silos take the raw grain and separate the material on conveyor belts before the items are deposited via the chutes.
- Only the appropriate silo required can be open, so these can be closed on demand to avoid cross contamination of material. The EX switch can detect the position of these hatches and the sealed nature of the switch eliminates any spark risk which may ignite the dust from the grain deposits.

- Switch is sealed to eliminate ignition risk
- Configurable actuator for application
- Can be mounted from four faces



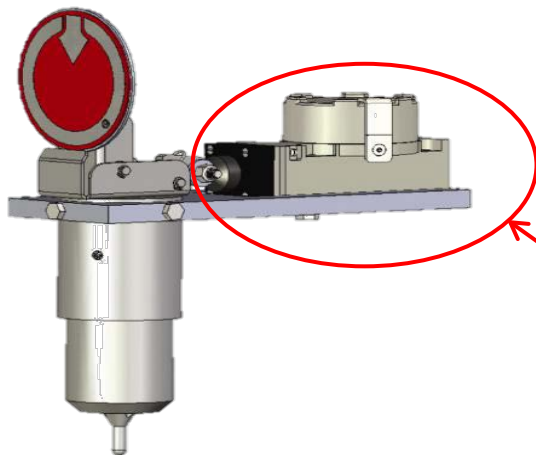
EX Series

- UL, CSA, ATEX, IEC Ex
- NEMA 1, 7, 9
- -40 °C to 71 °C [-40 °F to 160 °F]



Honeywell EX is the original Hazardous Area limit switch.

Pipeline Pig Indication



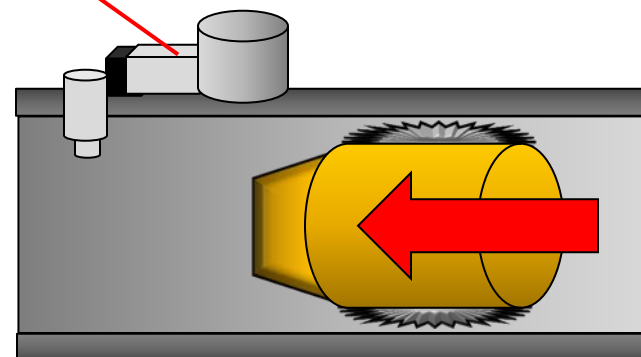
- In order to maintain sustainable flow of oils and fluids through pipelines, a pipeline 'pig' is fed through the channels. This can clear the pipes of any debris from brushes on the pig to eliminate blockages.
- This can be monitored by a BX switch that can be triggered as the pig passes. The BX is ATEX approved, so will not react with the flammable materials in the pipelines.

- Switch is sealed to eliminate ignition risk
- Aluminium or stainless steel housing options
- Optional gold contacts for low current use



BX2 Series

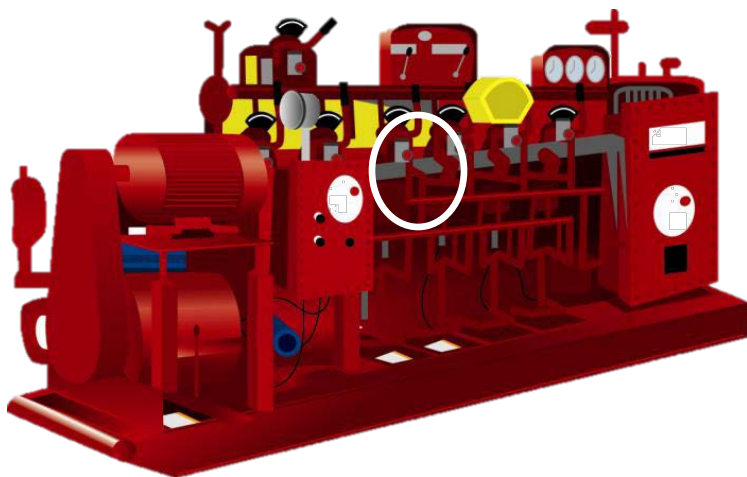
- Stainless steel housing (316L)
- UL, CSA, ATEX, IEC Ex, GOST-R
- NEMA 1, 3, 4, 6, 13; IP67
- -40 °C to 70 °C [-40 °F to 158 °F]



Cross section of pipeline – pig approaching trigger

BX switch has ATEX approval with configurable options.

Blow-out Prevention



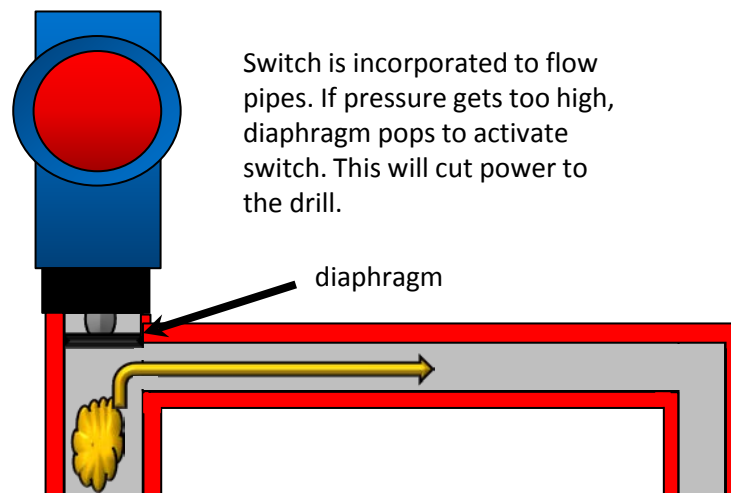
- Weather sealed for outdoor use
- Various actuator and circuitry options available
- Gold contact option available



LSX Series

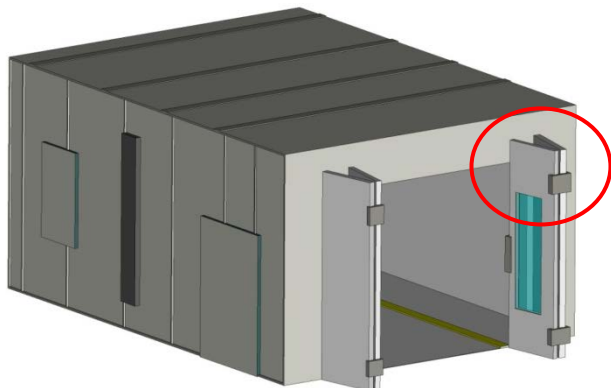
- UL, CSA
- NEMA 1, 3, 4, 6, 7, 9, 13; IP67
- -40 °C to 85 °C [-40 °F to 185 °F]

- Blow-out preventers and BOP control units are used to seal, control, and monitor erratic pressures and uncontrolled flow that occur during oil and gas drilling. They are critical for the safety of the crew, rig, environment, and to maintain the oil or gas well.
- If a disruption occurs, an emergency system can disconnect the rig from the well, automatically triggering a switch that closes the BOP and closes choke valves.



Honeywell LSX for extreme conditions.

Paint Booth Doors



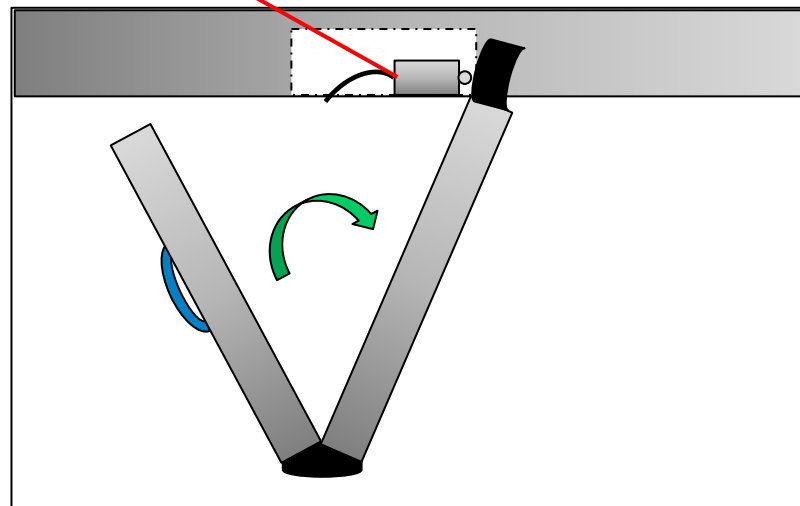
- Paint spray booths can be a combustible atmosphere due to the associated fumes. To ensure the environment remains safe, the spray machines can be isolated to make sure they cannot function if the doors are open.
- A heavy-duty LSX can be mounted into the door aperture to ensure safe operation.

- Weather sealed for indoor/outdoor use
- Various actuator and circuitry options available
- Gold contact option available



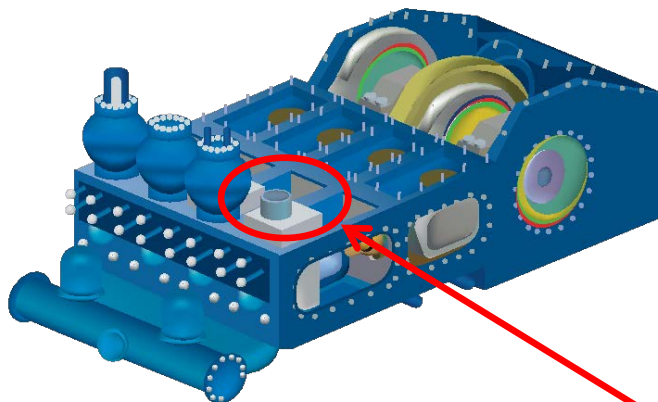
LSX Series

- UL, CSA
- NEMA 1, 3, 4, 6, 7, 9, 13; IP67
- -40 °C to 85 °C [-40 °F to 185 °F]



Honeywell LSX for extreme conditions.

Mud Pump Counter



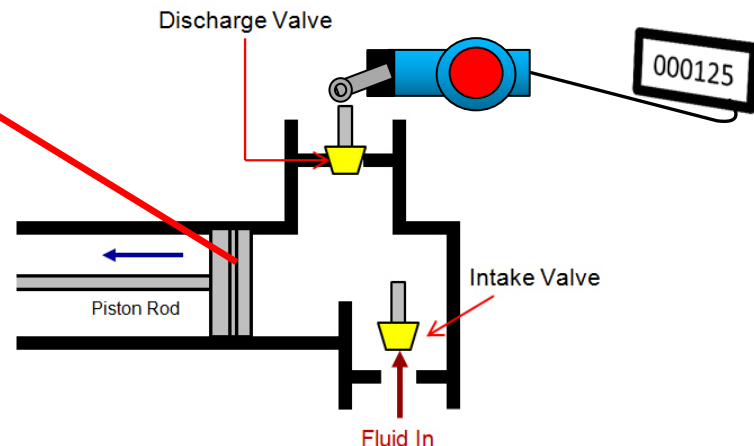
- Choice of actuator options
- Replicates mounting features of recognized HDLS series
- ATEX approved for combustible atmospheres



LSX Series

- UL, CSA
- NEMA 1, 3, 4, 6, 7, 9, 13; IP67
- -40 °C to 85 °C [-40 °F to 185 °F]

- Mud pumping is a technique used in drilling applications where fluid 'mud' is pumped round the cutting area to keep the areas wet and lubricated.
- To monitor the count and frequency of the actions, a hazardous location switch can be installed to allow electrical signal to detect each operation.



Hazardous location version of the heavy duty limit switch for high impact applications

Valve Position Monitoring



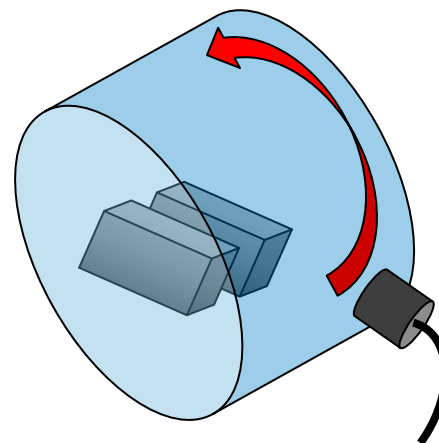
- Aluminium or bronze housing available
- Choice of product length
- ATEX approved for combustible atmospheres



CX Series

- ATEX, UL, CSA, IEC Ex
- IP66/67
- -20 °C to 85 °C [-4 °F to 185 °F]

- To allow the mechanical position of an industrial valve to be monitored by an electrical output, the CX series can be mounted into flow conduits.
- The sealed hazardous location product contains banks of large basic switches which are triggered sequentially by the rotational movement of the valve handle.



CX series allows safe monitoring for pipelines

Secure Gate Position



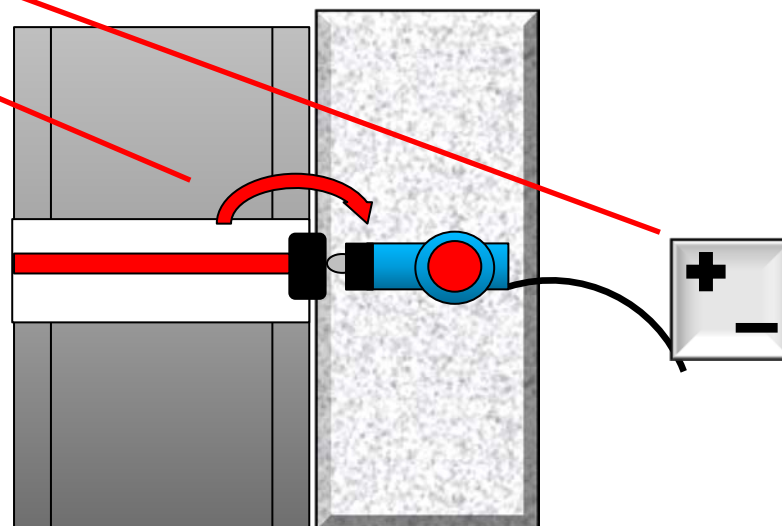
- Refineries and processing plants can be subject to fumes which may be combustible. These are often secure areas which still require a reliable means of security and signalling.
- The hazardous location switches can act as triggers for the electrical network upon area being entered, without causing a spark risk in the area.

- Durable housing for exposure and impact
- Choice of actuators and circuitry
- Weather sealed for outdoor use



LSX Series

- UL, CSA
- NEMA 1, 3, 4, 6, 7, 9, 13; IP67
- -40 °C to 85 °C [-40 °F to 185 °F]



Hazardous location version of the heavy duty limit switch for high impact applications

Wireless Safety Shower



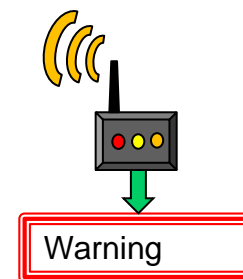
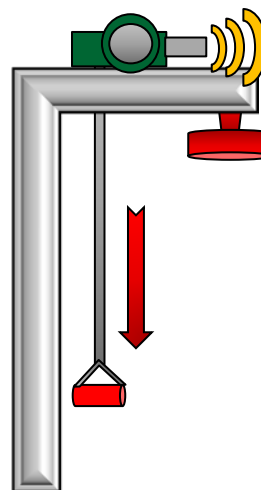
- Wireless with hazardous certification
- Easy for retrofit consideration



WBX Series

- cULus, CE, ATEX, IEC Ex
- NEMA 1, 3, 4, 13; IP67 (self-certified)
- -40 °C to 70 °C [-40 °F to 158 °F]

- As part of the safety protocols, the need to alert the response teams can be vital in preventing injury.
- A wireless WBX switch can be installed to safety showers that are already installed with minimal retrofit interruption. The switch can be mounted externally to the apparatus and signal sent wirelessly to site-safety indicators when shower is activated.



WBX is hazardous location-compatible wireless package

Level Switches Application Summary

Application

Float-level switches measure a single-point level inside a tank to prevent over- and under-filling. Many companies are using switches as a primary or secondary, redundant-level means of measurement.

Honeywell Switches

MICRO SWITCH™ hazardous area switches

Function of Switch

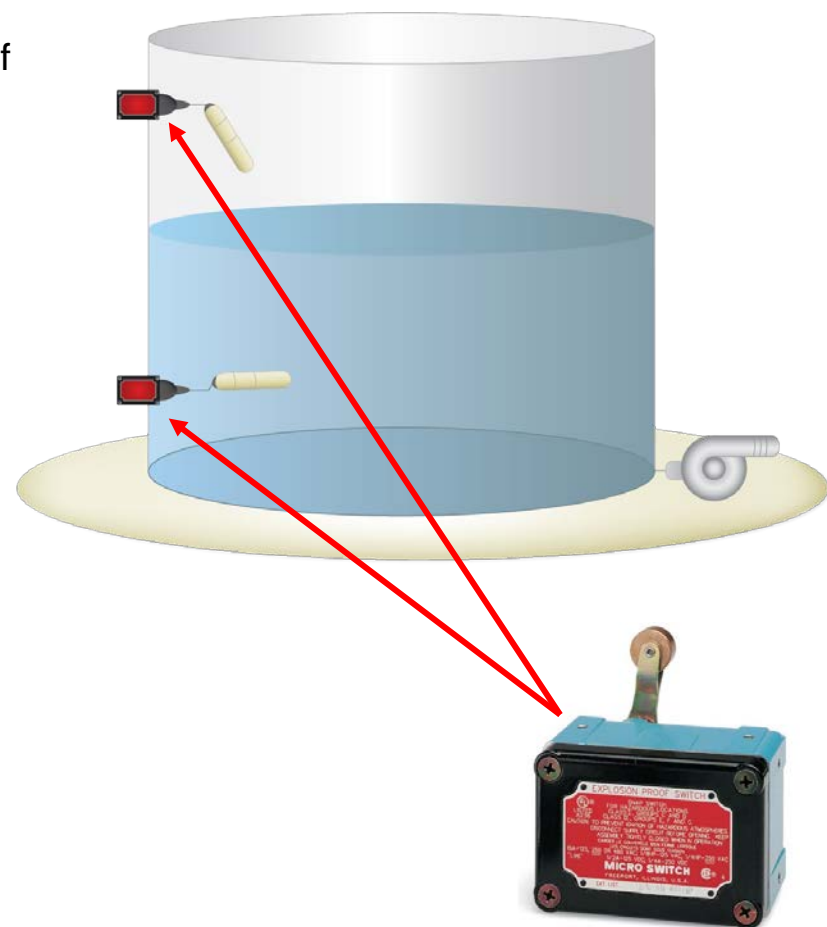
The switch transmits an electrical signal to a controller when the float changes position. If the tank is over-filled, the company faces clean-up costs, material loss, and possible agency fines. If the tank is under-filled, damage to the pump may occur.

Competition

Pre-packaged switch manufacturers, pneumatics, continuous level measurement technologies

Value Proposition

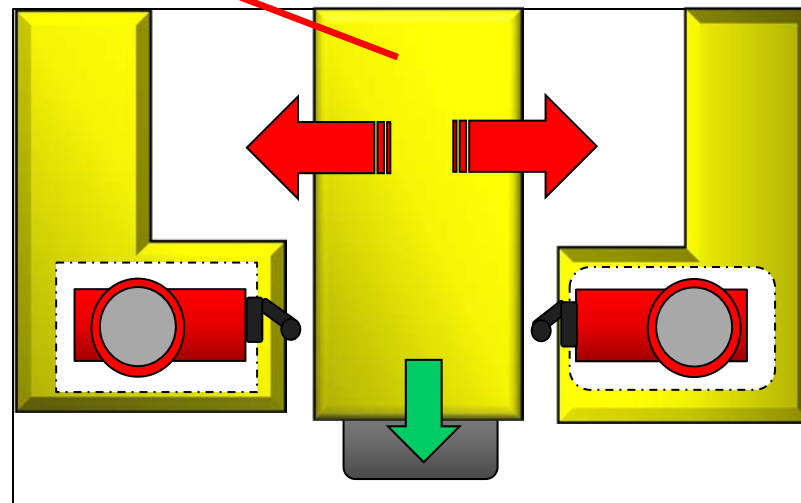
Honeywell's hazardous area switches provide an electrical signal when over-filled and under-filled to reduce spillage, EPA fines, and pump burnout costs unlike legacy pneumatic controllers.



Drilling Rig Stability



- To allow safe functionality for drilling rigs, the full system must be under control. Working with the rigs, there is potential for drift in the initial stages.
- By installing the GSX inside the safety arms, if there is too much lateral drift, the power driving the drill down will be cut to allow the rig to be repositioned.



GSX Series

- cULus, ATEX, IEC Ex
- IP67; NEMA 1, 4, 6, 7, 9, 12 13
- -40 °C to 70 °C [-40 °F to 158 °F]

GSX improves safety with positive break feature.

Dust Extraction



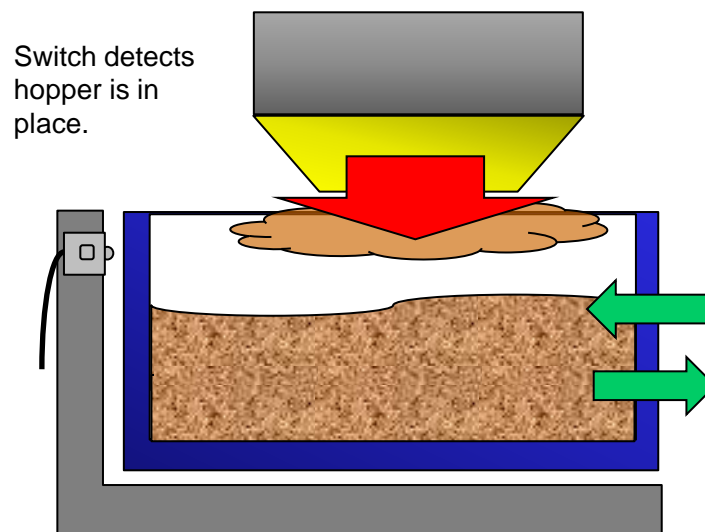
- Durable housing for exposure and impact
- Choice of actuators and circuitry
- Weather sealed for outdoor use



LSX Series

- UL, CSA
- NEMA 1, 3, 4, 6, 7, 9, 13; IP67
- -40 °C to 85 °C [-40 °F to 185 °F]

- To allow a clean environment, industrial systems can use air filtration systems to vacuum out the airborne material.
- Media such as sawdust, cement or grain can have a high combustion threat. The collection hoppers and access panels could use compact limit switches to ensure everything is in place without creating a spark potential.



LSX is rugged and versatile to work in many safety control systems.

Wood/Biomass Pellet Production



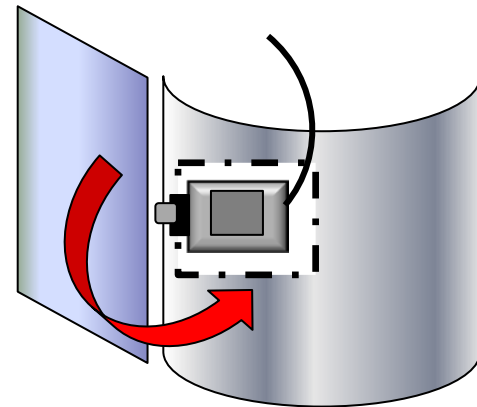
- Durable housing for exposure and impact
- Choice of actuators and circuitry
- Weather sealed for outdoor use



LSX Series

- UL, CSA
- NEMA 1, 3, 4, 6, 7, 9, 13; IP67
- -40 °C to 85 °C [-40 °F to 185 °F]

- Due to the moving machinery used in pellet processing, electrical control systems must be used to make sure all guards and precautions are in place.
- As the wood is ground and compressed, a high volume of dust is generated, so any electrical control system must be guaranteed not to produce any sparks which may create an ignition scenario.



Hazardous switch could be used to detect that all features are in desired position before power is applied.

LSX is rugged and versatile to work in many safety control systems.

Hazardous Safety Zones



- Cable pull for large safe zone
- Positive break contacts
- Approved for hazardous areas

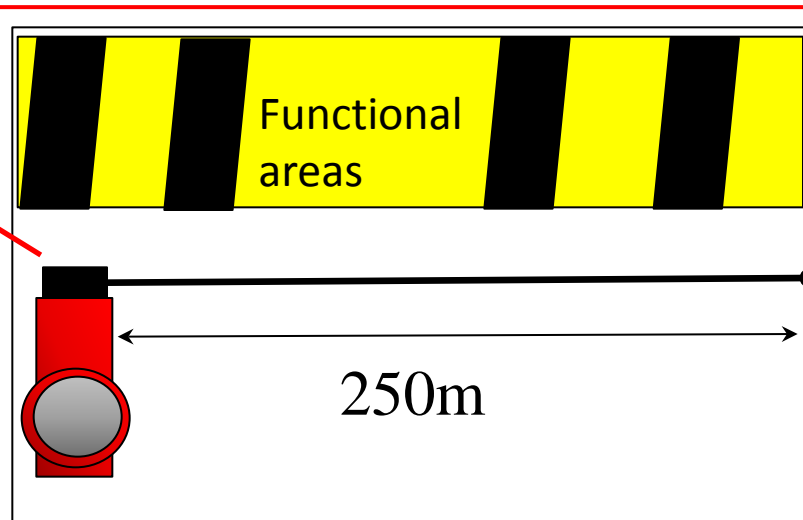


CLSX Series

- UL, CSA
- NEMA 1, 3, 4, 6, 7, 9, 12, 13
- -20 °C to 75 °C [-4 °F to 167 °F]

- Hazardous working environments can have multiple areas of operation, working simultaneously, any of which may pose a potential hazard.
- To promote a safe working area, a hazardous cable pull switch act as a power isolation product.

Working on the same basis as an emergency stop button, one switch can provide 250 meters coverage. Anyone pulling the cable can cut power to the full zone.



CLSX to allow safe working environments.

Fire Protection Equipment



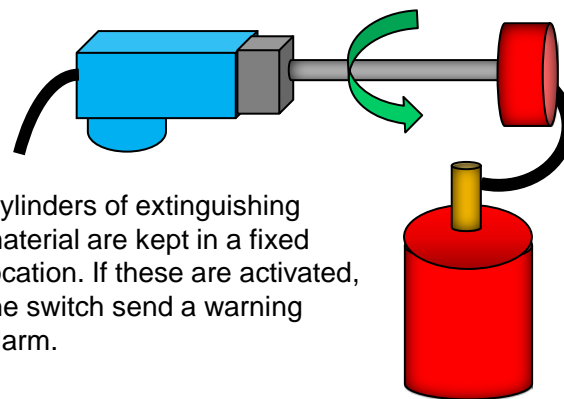
- Switch is sealed to eliminate spark potential
- Choice of actuator to fit trigger system
- Optional gold contacts for low current use



LSX Series

- UL, CSA
- NEMA 1, 3, 4, 6, 7, 9, 13; IP67
- -40 °C to 85 °C [-40 °F to 185 °F]

- Fire prevention systems can have the feature to have pressurised materials stored locally. This can be in either foam, or water depending on the environment.
- To ensure functionality, a LSX switch can be incorporated to each cylinder to send a signal is the valve has been actuated. With the sensitivity of the environment, since the LSX will not pose a spark risk, it is safe addition to the detection system.



Cylinders of extinguishing material are kept in a fixed location. If these are activated, the switch send a warning alarm.

Honeywell LSX for safe functionality in high risk areas.