

# iROS

**i**ntelligent **R**OLL **O**VER **S**WITCH

## FEATURES & SPECIFICATIONS

AS 2809 requires all dangerous good vehicles to be fitted with a rollover shutdown device. Apart from iROS all these devices are a mixture of crude assemblies using either ball bearings floating in oil or mercury switches to “determine” when a vehicle has rolled over.

The iROS concept was conceived in mid 2002 from dangerous goods industry operators demanding a more accurate, dependable and reliable roll over switch device for shutting down a vehicle that has been involved in a “rollover” at the same time offering increased safety to the vehicle and driver with less chance of an accidental shutdown.

iROS has been developed, tested refined for over 2 years by technical staff working in the heavy vehicle dangerous goods equipment industry as well as using consultant electronics engineers with expertise in automotive, military & aerospace applications.

iROS meets all the requirements for a roll over switch in AS2809 + MORE

iROS Standard features that are not available on other models of roll over switch

The heart of iROS sensor is a programmable microprocessor so the iROS can be “programmed” to do a lot more than just a normal Roll over Switch function of turning off the battery isolation switch after a roll over type accident.

iROS uses a 2-axis accelerometer (angle & G-force -sensing device) originally designed as part of a missile guidance system, the data from this sensor is processed by the “on board” microprocessor to determine when a rollover has occurred and the output should be switched. The output will only be switched if all of the criteria (angle & motion) are met and held for a set period.

Functions that are “standard” features of iROS that others cannot offer

iROS has an input for a “system test” button that when pushed & held for 5 seconds will “activate” the sensor to the “rollover point” causing the microprocessor to register a rollover and run through it’s shutdown cycle, thus tripping the battery isolation switch. There is therefore no requirement to periodically unbolt the sensor for a manual test.

iROS is programmed to carry out a separate system “self-test” (without shutdown) when the unit has registered stationary for a set period of time, because iROS self tests regularly you can be guaranteed it is operating correctly every day.

iROS has an output for a warning light (at isolation switch & or dash mounted) this light tells the driver that the iROS is operating correctly. Any fault including a faulty isolation switch connection or loose wiring will be obvious by an illuminating fault lamp.

iROS datalogs operating hours and isolations. This data can be downloaded for later diagnosis.

Sensing 2 axis's (vertical & horizontal) 50 times a second the microprocessor can compare the output data from these 2 axis and can differentiate between a corner or bump pulling the equivalent to 20 degrees in g force and the actual angle 20 degrees.

By filtering the data and processing in this way the iROS is programmed to only recognise actual angles when calculating for a rollover and the switching of the main output (to trip the battery isolation switch) and ignores bumps, corner g-forces ect.

An additional safety feature is that for the main output to trip the isolation switch the vehicle must be over 45 degrees angle and stationary.

With this software it is theoretically impossible for an iROS to shut down while the vehicle is travelling down the road

iROS switches the main output with a pulse. By switching the output in this way a faulty component or wiring cannot cause current back feed and potential electrical fire through the roll over switch.

All the outputs are also "fault current limited" to further avoid any potential for electrical fires through faulty wiring.

iROS is multivoltage 10-30 volts DC

iROS is completely solid state there are no moving parts or switch contacts to stick or wear out

iROS has built in EMF spike suppression

iROS carries Australian patent 2003100133