

# Height Limiting Systems

## 1HLI

### Standard Height Limiting System

Simple, accurate, cost effective height limiting system suitable for self-installation. 1HLI will protect workers from overhead danger when it is difficult to judge the actual height of the machine or the position of the booms from the cab.

### How 1HLI Works

The machine operator is able to define a pre-set limit of the machines boom on the 1HLI operator station, preventing movement of the boom outside of the pre-set limit. This entry level height limiting system monitors the angle of a single boom and provides a motion cut signal output when the angle is exceeded.

### 1HLI Specification

The 1HLI consists of a gravity referenced angle sensor mounted on the lifting boom and a display at the operator station.

Sensing the height using a gravity referenced angle sensor rather than a sensor referenced against the machine body, ensures that height limits are maintained accurately even when the machine is tilted when working on an incline.

1HLI contains a relay operated output which changes state on height limit, this output will drive a hydraulic solenoid valve to provide hydraulic motion cut on the lift circuit, or may also drive an external alarm or beacon.

## 1HLI Application

The 1HLI has been developed for use in the construction and utility maintenance industries for use on machines such as excavators, wheel and backhoe loaders, telehandlers and other articulated machines operating in restricted conditions.



## 1HLI-R

### Height Limiter for Rail

The 1HLI-R height limiter is a variant of the 1HLI height limiting system developed for the rail maintenance and renewal industry for road rail applications. Not all road rail vehicles (RRV's) will require the full SpaceGuard safety system but operations will still be vulnerable to the danger of live overhead wires and other hazards working in confined spaces. The 1HLI-R provides a simple and cost-effective solution, with all of the latest advances in rail safety included.

## How 1HLI-R Works

This road rail vehicle height limiting system monitors the angle of a single boom and provides a motion cut signal output when the angle is exceeded. HLI-R also utilises dual sensing where the system identifies any mismatch between the two sensors to increase the reliability and safety when working on rail.

## 1HLI-R Specification

- This dual sensing system uses both Direct Drive and Gravity Referenced Angle Sensors on the primary boom detecting boom position
- A mismatch between the two angle sensors causes an error state to be triggered
- Vehicle gradient is automatically compensated for
- Additional outputs will drive external status lamps to indicate the height limiter status externally
- Extra safety has been added through dual sensing of all motions

## 2HLE

### Advanced Dual Boom System

The 2HLE is a more sophisticated height limiting system designed to monitor and control the operating height of multi-boom equipment.

## 2HLE Specification

- Gravity referenced angle sensors are installed on each articulating boom and boom length
- Dimensions are programmed on install
- Multiple motion cuts are applied to prevent height limit infringements by any part of the articulating boom structure
- Boom movements away from the height limit are not affected
- Accurate radius value to bucket pin provided
- Dual sensing, Direct Drive sensors for applications requiring high performance levels (PL) or safety integrity levels (SIL)
- A rail variant, the **2HLE-R** is available for such high-performance applications for use on RRV's

## 2HLE Application

The 2HLE has been developed for use in the construction and utility maintenance industries for use on machines such as excavators, wheel and backhoe loaders, telehandlers and other articulated machines operating in restricted conditions.

