

TILT SENSING REMAINS CRUCIAL FOR NEW ANSI A92 COMPLIANT EQUIPMENT

It's been almost three years since the updated suite of ANSI A92 standards went into effect for mobile elevating work platforms (CSA B354 in Canada). But even though they can no longer be viewed as "new," the industry is continuing to grapple with some of the long-tail impacts of the changes.

The regulations required MEWPs to contain active monitoring regarding tilt sensing and load sensing, in addition to updated railing guidelines and other requirements.

Mixed fleets will likely be standard for another decade or more. And while OEMs have implemented their solutions for tilt sensing and pressure/load sensing, improvement on those initial designs is needed.

Tilt Sensing Designs and Shortcomings

To meet the ANSI A92 guidelines, OEMs have integrated tilt sensors into their vehicle bus systems, triggering an interruption of operation when the tilt of the platform exceeds slope limits and safety is compromised.

While meeting the regulations, some of these sensor solutions face challenges. And when work interruptions are concerned, any issues with operator experience will create a significant long-term issue with equipment reputation.

Static tilt sensors have been integrated into both slab and some light rough terrain scissor lift models, but when they are unable to manage shock or vibration, software filters – which slow sensor response time – become more necessary. Dynamic inclinometers – generally combining a gyroscope and an accelerometer - are more popular with boom lifts, cranes, and some rough terrain scissor lifts.

Sensata's tilt sensing offering delivers a multiple angle, dual-axis position sensor which can provide either an analog or CANopen output, providing direct feedback into the platform control system. Motor controllers and electronic control units will continue to be integrated tighter and tighter as time goes on.

Pandora's Box of Operational Interruptions Remains Open

With the level of required sensing and operations interruption already in place, the potential for expanded regulations governing additional sensing and safety technologies remains.

Ultrasonic sensors for ceiling heights and/or radar and object detection technologies may be the next waves of technology to feed into these systems, requiring even wider use of the CAN bus to deliver holistic telematics and other data-driven solutions.

ANSI 92 REQUIREMENTS



Load Sensing – Machines must actively monitor full load and interrupt operations/alarm if overloaded.



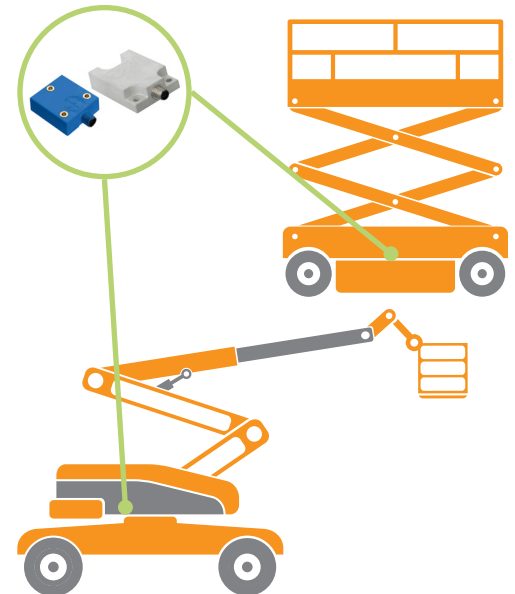
Tilt Sensing – Machines must have a tilt sensor and alarm/cutout to account for non-level terrain. Machines will not work out of slope.



Wind Force Requirements – Exterior-rated equipment must have lower capacities to account for potential wind impacts.



Railings and Entrance Gates – Railing height requirements have been raised for smaller scissor lifts, with foldable rails now permitted. Chains are no longer an option for entrance gates.



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