

RELIABLE SENSING UNDER CONSTANT IMPACT

When Reliability Takes a Hit





The Challenge:

A manufacturer of handheld scanning equipment needed a sensing solution capable of reliably detecting when a device was docked and operating in hands-free mode.

The challenge wasn't the sensing function itself.

The challenge was the environment.

Handheld devices are routinely subjected to:

- Drops
- Shock loads
- Continuous handling
- Mechanical vibration
- Wide operating temperatures

These conditions can shift activation points, degrade performance, or cause failures in sensing technologies that are sensitive to shock and vibration.



The Solution

Standex Detect evaluated the application and implemented a reed sensing solution designed to maintain reliable operation despite frequent impacts and repeated mechanical stress.

To validate performance, sensors were tested in actual handheld equipment and repeatedly dropped from approximately four feet in all six orientations across a range of operating temperatures.

Unlike competing technologies evaluated during testing, the Standex solution demonstrated reliable performance without significant changes to operating characteristics.



Figure 1. Hand-held scanner dropped in 6 axis during shock testing.



The Outcome

The customer gained a sensing solution capable of maintaining consistent operation despite the shock and vibration associated with everyday use.

The result was:

- Improved reliability
- Consistent sensing performance
- Reduced risk of field failures
- Better user experience
- Greater confidence in long-term operation



Key Takeaway:

A sensor that performs well in a laboratory isn't necessarily the best choice for a high-shock, high-vibration environment. Reliable operation starts with selecting a sensing solution designed for the realities of the application.



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