IndustryWeek

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Suitability of Mobile Devices for Manufacturing

Industry Week Quiz Results Support Using Industrial-Ready Mobile Devices

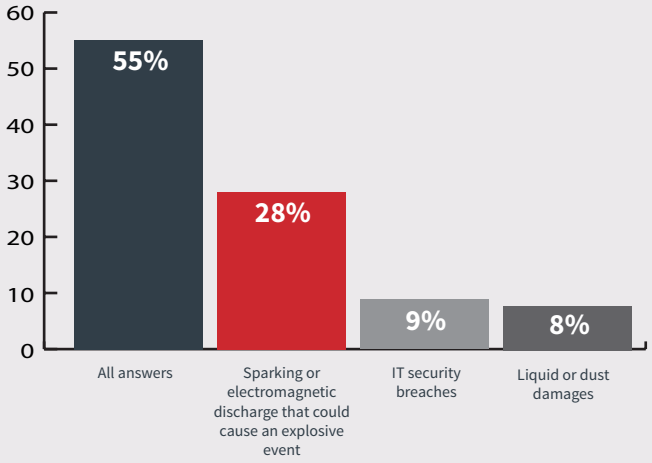
IndustryWeek recently published a quiz on the use of industrial mobile devices in manufacturing and industrial applications. The quiz, sponsored by Panasonic, asked questions about features that differentiate rugged, purpose-built mobile devices from consumer mobile devices. This article will present the quiz findings so that manufacturers can make a more informed choice when buying mobile devices for use in a shop floor or factory environment.

Consumer mobile devices such as cell phones and tablets are used by people around the globe to communicate with each other and stay "connected" to numerous personal and corporate information sources. While the features and price points of consumer mobile devices might make them attractive to manufacturing organizations, the question remains: are consumer devices robust and reliable enough for daily use in a manufacturing environment? The quiz questions probe the features that make purpose-built industrial mobile devices uniquely suited for use in a factory or shop floor environment.

These features include:

Conformance to MIL-STD-810G. Also known as Mil-Spec, this standard consists of a series of tests to determine how well specific technologies withstand hazards, such as drops, vibration, extremes of temperatures or altitude, and so on. Mil-Spec has been in use since 1962, when the U.S. Department of Defense developed the standard[1], but only 58% of quiz respondents correctly identified that the specification validates the ruggedness of a device. Given that mobile devices will be used in a wide variety of factory conditions, it makes sense to make Mil-Spec tested, rugged mobile devices a top criterion for device selection.

Figure 1 - Reader answers to the question: Mobile devices that conform to iSafe/ANSI 12.12.01 standards offer protection for which of the following risks?



Protection from Hazardous Conditions. Factory or shop floors can sometimes pose specific risks to electronic devices such as phones or tablets. Respondents were asked to identify what types of hazard the iSafe standard (ANSI 12.12.01) offers protection from (see Figure 1).

A majority of respondents (55%) thought that the iSafe standard offered protection from all of the hazards shown in the figure, while only 28% correctly identified the right answer (shown as a red bar). A lack of knowledge about this standard and how it applies to mobile devices could lead to operator injury, or even an explosion on the plant floor! The iSafe standard should be top of mind when considering mobile devices for the enterprise.

Ingress Point (IP) Ratings. IP ratings are an international standard used to indicate the degree to which an electronic device is protected against environmental factors. Respondents were asked to indicate whether higher IP ratings specify that devices are protected from such factors as dust, dirt, water or fire. Seventy-one percent of respondents correctly identified that higher IP ratings, or codes, certify that a device has been tested to withstand dirt, dust, and water exposure.

IP ratings offer an additional criterion for selecting mobile devices. For industrial plant or manufacturing environments, consider devices that have been tested and certified to meet an IP65 or higher rating. An IP65 rating certifies that a device is dust and water resistant, while IP68 certifies that a device can be submerged to a depth of five feet for up to 30 minutes without damage.

Other Factors to Consider

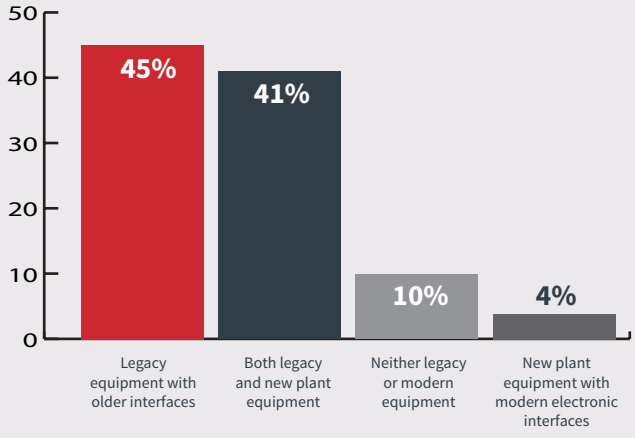
In addition to conforming to government or industry standards, choose devices that meet the higher connectivity and usability needed in a manufacturing environment, and which offer a lower total cost of ownership.

Connecting to manufacturing systems. Respondents were asked to identify what situations in a manufacturing environment would require the use of serial (RS-232) ports. As Figure 2 shows, 45% of the respondents correctly answered that serial ports were required for connecting to legacy systems with that type of interface. Surprisingly, 41% of respondents thought that serial ports would be useful for both legacy and modern systems.

In fact, mobile devices often need to be equipped with several ports, ranging from USB to Ethernet and RS-232 ports to accommodate a variety of legacy and modern systems. By way of comparison, consumer devices usually have one USB port, used to charge the device, and are generally more difficult to connect to industrial systems.

Suitability of device camera. Respondents were asked whether a standard mobile device camera would meet the requirements for factory scanning operations in an industrial plant. Seventy-seven percent of the respondents answered correctly that a standard device camera would not be adequate for this purpose. Modern plant operations not only include barcode scanning, but also reading multiple types of electronic information, such as RFID tags or information from IoT devices. Consumer or traditional mobile devices simply aren't designed for these kinds of tasks. Efficient electronic data capture scanning demands mobile devices that are built for this purpose.

Figure 2 - Reader answers to the question: Which situation would require the need for serial ports (RS-232) on mobile devices in industrial environments?



Understanding the total costs of mobile devices. Respondents were asked to identify the average total cost per incident to repair a handheld device, based on a recent IDC survey.[2] The following table shows how respondents answered. Only 14% of respondents selected the correct answer, $3,087. Remember this number includes not only the cost of repairing, or more likely, replacing the device, but also less obvious costs, such as employee downtime, lost productivity, and interrupting or lengthening production schedules. Rugged mobile devices offer significantly lower failure rates than consumer devices. Fewer failures means less downtime which leads to a lower total cost of ownership.

How respondents answered the question: According to a recent IDC survey, the average total cost per incident, to repair a handheld device is:

Average Cost	Percentage
$536	26%
$1,452	2%
$2,450	18%
$3,087 *	14%

*correct answer

Making an Informed Decision

The Industry Week quiz highlights the importance of understanding standards and the other factors described in this article before buying or replacing mobile devices for industrial applications. Rugged mobile devices are purpose-built for manufacturing with the reliability and durability that makes them a better financial investment than traditional mobile devices. In addition to understanding device features and specifications, you should consider the reputation of the device manufacturer as a supplier to the industry. Panasonic's rugged mobile devices are designed and built for use in industrial, manufacturing and field-based jobs and offer an exceptionally low failure rate, plus the quality, reliability, durability, and features that enable them to be an integral part of any plant or shop floor operation.

1 In 1962, the U.S. Department of Defense (DoD) developed a series of tests, called MIL-STD-810G specifications (Mil-Spec), used to validate the level of ruggedization in a piece of technology.

2 "Pay Now, Save Later: The Business Case for Rugged Devices" IDC (November 2016).

http://info.panasonic.com/rs/400-JUK-127/images/IDC-report_pay-now-save-later_the-business-case-for-rugged-devices.pdf

Checklist:

How to Choose the Right Device for Manufacturing

- ☐ Conformance with MIL-STD-810G to ensure ruggedness under harsh conditions.
- ☐ Conformance with the iSafe/ANSI standards for protection against sparking or electromagnetic discharge.
- ☐ High Ingress Point (IP) Ratings to ensure protection at the appropriate level against environmental factors.
- ☐ Ability to connect to all types of systems, including RS-232 ports for legacy systems, serial ports for modern systems, and USB ports.
- ☐ Multiple electronic data capture capabilities, including barcode scanner, RFID and digital camera.