

## **New Robust Wireless Operator P/B Station Eliminates Need for External Power & Cabling in Manufacturing Processes**

ZigBee-based wireless push button station removes requirement for physical data buses such as USB and Ethernet cables.

IDC's new ZB113 wireless push button station has been designed as a robust operator station typically for use in manufacturing processes, for parts calling, Andon paging, supervisor calling, forklift paging, alarms and many more. A programmable device, the ZB113 is battery powered and operates via wireless communication, removing the need for an external power supply or separate control cables. Its extremely low power consumption enables the unit to operate for years, without the need to replace batteries in most applications.

The latest addition to IDC's ZB ZigBee-based range of wireless products, the ZB113 integrates up to 4 pushbuttons in a wall-mounted, rugged IP54 enclosure. The device is programmable and connects to other ZB (ZigBee) devices, or to a central server using a ZB104/3 Gateway. An OPC interface is also available for connection to Programmable Logic Controllers and SCADA systems.

The ZB113 push button station uses the wireless ZigBee network, operating at 2.4GHz on a licence free IEEE 802.15.4 international standard. This allows the connection of hundreds of devices together in highly reliable, security-encrypted mesh networks using gateways, router and end devices (usually battery powered). As ZigBee is a full-blown telemetry system in its own right, the ZB113 is supported by a family of modules, including Ethernet and serial gateways, routers, logic and serial controllers, hand-held keypads, key fobs with touch-screen, and analogue general purpose modules, which are to be introduced shortly.

A complete system-on-a-chip, the ZB113 employs the latest industry standard 32 MHz 8-bit microcontroller and offers the user 8kB RAM, 128kB Flash, and optional SPI memory (up to 2Mbyte). The device uses bi-directional message routing between remote access points and centralised IT facilities, and is able to operate in electrically noisy industrial environments using low cost, low power robust networks.

In addition to its primary function, the ZB113 can also be used in conjunction with IDC's ZB111 barcode reader, ZB108 Microcontroller and software integration platform, providing a system that enables companies to track and manage manufacturing operations and parts flow.

The value of this system is amply illustrated in a situation where, for example, a stoppage occurs in the manufacturing process. The line operator depresses a push button on the ZB113 wireless push button station, which sends a message to the supervisor on the ZB111 LCD display, and drives a sounder on the device. The ZB108 also drives a multi-coloured beacon stack in the operational area, to indicate that the line has stopped. The supervisor acknowledges the alarm condition by pressing a button on the ZB111; this action also mutes the sounder.

At the operator station the supervisor scans the station barcode; this identifies him to the system and 'flags-up' that he is dealing with the problem. When the situation is resolved, an acknowledgement can be sent, either by using a separate button on the station, or via the scanner keypad.

IDC is supporting its ZigBee range of products with complementary software applications including "over-the-air" programming, data logging, remote control and position tracking. Importantly for users of the ZigBee range, IDC are not reliant on third-party software providers; hardware, application firmware, PC-based software and server applications are all designed in-house by IDC software engineers at the company's headquarters in Derby.

IDC Ltd

Intelligent Distributed Controls (IDC Ltd) is based in Derby. The company has a highly skilled team of dedicated hardware and software design, development and application engineers. These personnel have specialist application knowledge of control systems applied to logistics, warehouse distribution and manufacturing.

This applications experience has IDC enabled to develop key skills in real time control, RFID and wireless technology, and to develop niche products for these industries and related OEMs. IDC's customer base includes Toyota, Toys R Us, ASDA George, Smiths Aerospace, Astra Zeneca and Vestas Wind Systems A/S.

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