

## SMART INTERNET OF THINGS TECHNOLOGY FOR MACHINE CONDITION MONITORING

Monitoring the condensate conductivity on a boiler can indicate the presence of a cooling water leak long before hydrogen embrittlement of the boiler's furnace tubes causes it to fail. A current sensor on a power lead can reveal that a machine is beginning to draw more power, indicating that it is beginning to have problems. Measuring the temperature of a pump can allow an operator to shut it down before it is damaged by overheating. Monitoring and measuring very simple parameters in and around a valuable piece of equipment can prolong its useful life while simultaneously slashing maintenance costs and downtime.

Unfortunately, many machines need to do their jobs in locations that make wired data communications and AC power installations impractical. What's needed is a low-power wireless solution that can extend the network edge to include those locations while providing "five nines" uptime.

Based on the wireless IEEE 802.15.4e standard, a SmartMesh IP mesh network is an excellent choice, even in harsh, dynamically changing RF environments. SmartMesh IP mesh networks provide redundant routing to the network gateway, as every sensor node in a mesh network serves as a router. Each node can receive data from any other network node that is within range, and transmit data to any other network node that is within range. If one path to the network gateway fails, the network nodes will reroute through another.

Devices can transmit data over long distances by passing data through intermediate devices to reach more distant ones, and the network gateway doesn't need to be within range of every device on the network. This makes SmartMesh IP networks highly scalable.

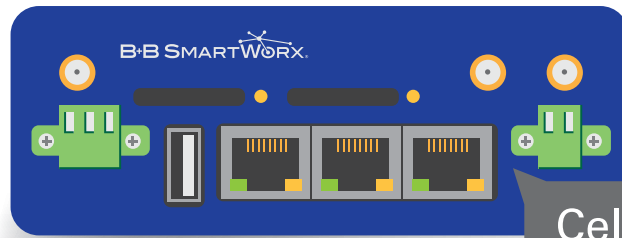
Full-featured network gateways can connect via wired connections or the cellular data networks, meaning that you can put them anywhere that you can get a cell phone signal.

Simple Internet of Things technologies like low power wireless mesh networking and cellular network gateways can pay immediate dividends by cutting your maintenance costs and increasing overall productivity.

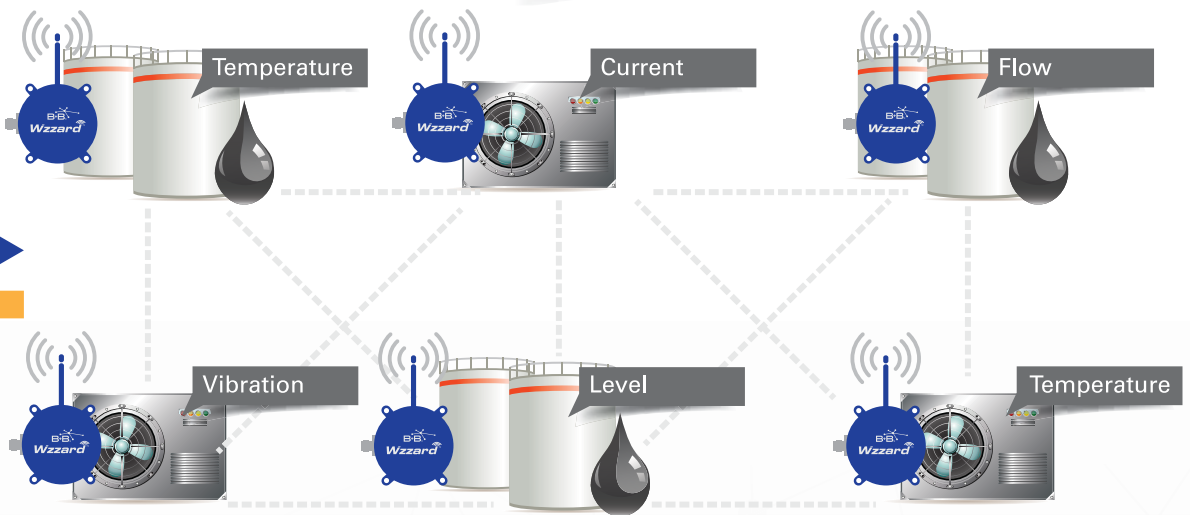


# SMART IoT TECHNOLOGY FOR MACHINE CONDITION MONITORING

**YOUR  
ANALYTICS  
APPLICATION**  
On your network, or as  
a cloud service.



Cellular/  
Ethernet Gateway



Wzzard™ Intelligent Edge Nodes/  
Wireless SmartMesh IP Sensor Network

**B+B SMARTWORX**

[www.bb-smartworx.com](http://www.bb-smartworx.com)

**World Headquarters**  
Ottawa, IL USA  
Ph: 1-815-433-5100  
Fax: 1-815-433-5109  
E: [orders@bb-smartworx.com](mailto:orders@bb-smartworx.com)

**EMEA Office**  
Oranmore, Co. Galway, Ireland  
Ph: +353 91 792444  
Fax: +353 91 792445  
E: [eSales@bb-smartworx.com](mailto:eSales@bb-smartworx.com)

**Conel s.r.o.**  
Usti, Czech Republic  
Ph: +420 465 521 020  
Fax: +420 464 647 299  
GSM: +420 603 872 287  
E: [sales@conel.cz](mailto:sales@conel.cz)

**California USA Office**  
Lake Forest, CA USA  
Ph: 1-949-465-3000  
Fax: 1-949-465-3020  
E: [orders@bb-smartworx.com](mailto:orders@bb-smartworx.com)