



XBEE SX MODULE FOR PRECISION AGRICULTURE

Highly Reliable 900 MHz Embedded RF Module for Today's Advanced Farming Equipment Manufacturers

XBee® SX 1-Watt 900 MHz RF modules are the “muscle modules” of the XBee ecosystem, providing a combination of reliability and redundancy for OEMs building low-power, mission-critical wireless devices deployed in Precision Agriculture applications.

The Challenging World of Agriculture

Today's farmers contend with a range of challenging – and rapidly changing – environments while trying to optimize their crop yields. Accurately accounting for variability in soil, weather, crop conditions and other important data points has become easier with the advent of new automated machines and sensor networks. Pivot irrigation systems, seed planters, fertilizing systems and harvesting systems have all advanced greatly over the last 20 years.

Aiming to boost crop yields and cut costs, farmers are using these highly sophisticated systems to factor in soil conditions, weather forecasts and growth stages to refine their operations, translating into less waste, bigger harvests and healthier margins.



Digi XCTU includes all of the tools a developer needs to quickly get up and running with XBee SX.



XBee SX:
Powerful, Reliable, Secure

- ✓ Adjustable output power up to 1-Watt achieves 65 mile range with high gain antenna
- ✓ DigiMesh™ networking topology for redundancy and reliability
- ✓ 256-bit AES encryption for secure data communications
- ✓ XBee SMT form factor saves valuable PCB space
- ✓ Fully certified for use in unlicensed 900 MHz band



To get the most from their crops, fields, labor and equipment, farmers need real-time data, often from miles away. Below are some of the objectives they aim to achieve.

EQUIPMENT RELIABILITY AND LONGEVITY

In pouring rain, baking sun and bitter cold, those sophisticated M2M sensors and other equipment must be carefully managed and maintained. Equipment manufacturers want to enable farmers to efficiently manage those devices. How can you let them know about outages, failures and unplanned maintenance requirements? How long can that equipment reliably operate in such harsh environments?

GREATER AUTOMATION

Guidance and auto-steering systems reduce costly and wasteful application overlaps. Plus, soil, temperature, humidity, wind and crop conditions can help farmers with customized applications and crop treatments. Sensors can provide accurate data capture. But can your equipment transmit that data across long distances, through obstacles and in noisy RF environments?

TIMELINESS

A pop-up thunderstorm might make it unwise to start a scheduled irrigation cycle 20 minutes from now. Your equipment needs the connectivity to let farmers know – right now – what’s happening in their fields and make the right adjustments.

OPERATIONAL EFFICIENCY

Farmers strive to protect profit margins that are under constant pressure. That means they need real-time information on what’s happening on every lot and in every field – to optimize their growing season and prevent equipment failures. How can your equipment be more efficient and lower operating costs?

XBee SX: A Highly Reliable 900 MHz Embedded RF Module for Today’s Ag Systems OEMs

With RF line-of-sight ranges up to 65 miles and strong interference blocking, XBee SX modules are ideal for Ag applications requiring the combination of range, redundancy and data reliability. These 1-Watt 900 MHz RF modules utilize the DigiMesh networking protocol, featuring redundant mesh network operation and support for low-power sleeping nodes.

XBee SX modules can be configured easily using Digi’s free XCTU software or via Digi’s simplified AT or API command sets. They are pre-certified for use in multiple countries and include integrated antennas, removing the burden of RF development/support costs and enabling fast time to market for OEM designs. The modules provide secure, reliable delivery of critical data between devices with 256-bit AES encryption, on a small XBee surface-mount form factor.

For more information on how Digi XBee SX modules can bring powerful, reliable connectivity to your assets, visit www.digi.com.

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