ABRACON

Smart Farming & Agriculture Market

Market forecast to grow from $ 19.0Bn in 2023 to $ 39.0Bn in 2030. A CAGR of 11% year-on-year.

Description

- Smart Farming and Smart Agriculture is an innovative approach to farming practices. Technologies include a combination of sensors, cameras with artificial intelligence (AI), GNSS tracking, wireless connectivity (IoT), and robotics, to monitor, manage, and automate farming processes.
- The goal of Smart Farming is to enhance productivity while minimizing the use of resources. By collecting and analyzing real-time data from fields, crops, livestock, and weather conditions, farmers can make informed decisions and take precise actions to maximize yields, improve crop quality, and optimize resource utilization.
- Several wireless protocols are used for Smart Farming particularly LPWAN (such as LoRaWAN, Sigfox, M2M, and NB-IoT), cellular (3G/4G LTE), and RFID. Also, GNSS such as GPS for precision navigation.

Drivers

- Need for increased food production, reducing the use of pesticides, herbicides and fertilisers to be more resourceful and protect the local environment.

Customer Challenges & Opportunities

- Reliability in harsh weather conditions, dirt, and water.
- The puck and dome external IP67 combo antennas are ideal as they can be used for a combination of multi-GNSS/dual-band precision GPS, 5G / 4G LTE and LPWAN in a single ready-to-use unit.

Abracon Series to Consider for Smart Agriculture

ABRACON
Innovation For Tomorrow's Designs®

Description & Requirements	Frequency & Timing Control	RF & Antenna	Power & Magnetics
Combo antennas	TCXO ATX-12 (2.5 x 2.0mm)	Combo (GNSS + Cellular + Wi-Fi/BT/BLE/Zigbee) AEACBA059015-C3GSW (Puck) AEACBK046014-C2WG (Puck) AEACBK189085-MLWFGL5 (Dome) Combo (GPS + Cellular + NB-IoT/CAT-M) AEACBK050048-C2LG (Dome) Combo (GPS + Cellular + NB-IoT/CAT-M + Wi-Fi/BT/BLE/Zigbee) AEACBK110053-MLWG (Dome) AECR1808A12 (Dome) AECR1808A20 (Dome)	N/A
GNSS (GPS)	TCXO ATX-12 (2.5 x 2.0mm) MHz Crystal ABM12W (1.6 x 1.2mm) ABM11W (2.0 x 1.6mm)	Multi-GNSS AEACBA050018-SG3 (Puck) AEARBA048014-SG3 (Puck) AEACMK0660746-SG4 (Dome) Precision GNSS (L1 + L2 + L5) AEACBA050018-SG4L2L5 (Puck) AEAGMK148060-S1575 (Dome) AECC0502GB (Helical)	Mid-High-Power Inductors AMDLA (Molded Round Wire) AMPLA (Molded Round Wire) ASPIAIG-F (Molded Flat Wire) ASPIAIG-S (Wirewound Resin Shield)
Wireless communication (cellular 4G/5G)	TCXO ATX-12 (2.5 x 2.0mm)	4G LTE/5G AEMF3108X-F (Connector Mount) AECR1808X4 (Screw Mount) AEACCA115021-S698 (Blade) AECB1102X (Blade) 4G LTE/5G/5G MIMO AECR1808X4 (Screw Mount) 2G/3G AEACCA115021-S850 (Blade) APAMS-101 (Blade) APAMS-102 (Blade) APAMS-103 (Blade) APAMSTJ-138 (Blade)	RF Inductors AIMC (Ceramic Multilayer) ATFC (Thin Film Multilayer) AISC (RF Wirewound)
Microprocessor	Auto-grade MHz Crystal ABM10AIG (2.5 x 2.0mm) ABM11AIG (2.0 x 1.6mm)	N/A	N/A

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Description & Requirements	Frequency & Timing Control	RF & Antenna	Power & Magnetics
Power supply	N/A	N/A	Mid-High Power Inductors AMDLA (Molded Round Wire) AMPLA (Molded Round Wire) ASPIAIG-F (Molded Flat Wire) ASPIAIG-S (Wirewound Resin Shield) Low Power Inductors AOTA (Mini Molded) ASMPH (Metal Alloy Multilayer) ASMPM (Metal Alloy Multilayer
Cameras/imaging	ClearClock® (Ultra-Low-Jitter) AK2B (LVDS, Clock Oscillator) AK3B (LVDS, Clock Oscillator) Crystal 32.768kHz ABS07 (32.768kHz xtal) Crystal MHz ABM10 (MHz xtal, 2520) ABM11 (MHz xtal, 2016)	N/A	Mid-High Power Inductors AMDLA (Molded Round Wire) AMPLA (Molded Round Wire) ASPIAIG-F (Molded Flat Wire) ASPIAIG-S (Wirewound Resin Shield)