ABRACON

Industrial Controls and Factory Automation Market

Forecasted to grow from $247 Bn in 2023 to $340 Bn in 2030. An average CAGR of 9.6% YoY.

Description

- Factory Automation is the next step in industrialization and a key part of the fourth industrial revolution (Industry 4.0).

- Robotics and manufacturing equipment are combined with sensors and a programmable Industrial Control System (ICS). These elements create "feedback loops" which enable the manufacturing processes to run automatically.

- After an initial investment the resulting benefits can include improved product quality, productivity, and lower unit production costs.

- The Industrial Control System (ICS) receives data from sensors which measure Process Variables (PVs). The values are compared with desired setpoints (SPs) then adjustments of the process controls are made using a robotic arm for example. There is usually a Human Machine interface (HMI) for manual changes to the process.

- Another important part of an ICS is the Industrial Gateway, these devices receive data from various sensors and then forward to another location for analysis which might be in the cloud. The data communication can be either "wired" e.g., using Ethernet, EtherCAT or PROFIBUS protocols or wirelessly. Industrial IoT is the name often given to this wireless communication.

- Forms of industrial control systems include SCADA, DCSs, and PLCs (Programmable Logic Controllers) with data communication protocols PROFIBUS, DNP3, Modbus, RS485, CAN, and DeviceNet.

- The PLCs consist of a CPU (Central Processing Unit), analog and digital I/O modules, and communications modules.

Drivers

Drivers of factory automation include:
- The need for increased production efficiency
- Improved product quality digitization in manufacturing
- Real time analytics
- Predictive maintenance.

Customer Challenges and Opportunities

- Robust communication datalinks are often highly critical so many ICSs use a "wired" data communication rather than a wireless system.
- The designer is likely to be very interested in robustness in the connections and the components in general.

Abracon Series to Consider for Factory Automation Market

ABRACON
Innovation For Tomorrow's Designs®

Description & Requirements	Timing Target Products	RF & Antenna Target Products	Inductor & Connectivity Target Products
CPU	ABM12 (MHz, crystal) ABS06, ABS07 (32.768kHz crystal)	N/A	N/A
DC-DC power	ABM8AIG (Auto, MHz, crystal) ASEAIG (Auto, MHz, osc)	N/A	AMPLA AMDLA ASPI-F ASPIAIG-F
EtherCAT/Ethernet	AX3 (ClearClock™, Ultra-low jitter Oscillator) ABS05W	N/A	ARJ-148 ARJ11C ARJM11 ALAN110001 ALAN210001 ALAN310001
Industrial Gateway/Firewall	AB0805 (RTC)	**Combo** AECW0801C03S (Puck, GNSS, LTE, WIFI) APAKN2504 (patch, 2.4GHz, GNSS) **ISM bands** ACAG1204 (chip, 915 MHz) ACR150413 (chip, 433/868/915 MHz) ACR200514 (chip, 433/450-470 MHz)	ARJM11C7 AMPLA AMDLA ASPI-F ASPIAIGF ALAN110001 ALAN210001 ALAN310001
HMI (Human Machine Interface)	ABM10W, ABM12W (MHz crystal) ABM8AIG (Auto, MHz crystal) ABS04W, ABS07 (32.768kHz, crystal) ASDDV (MHz, oscillator)	N/A	AIAP AMDLA3010S ARJ ARJ11G ARJE ARJM11C7 ARJM11D7 ARJP11C ASMPH ASPI ASPIAIG
SCU (Serial Control Unit)	ABM10, ABM11 (MHz crystal) ABS07 (32.768kHz, crystal)	N/A	AIMC AIML ASMPH ASMPL ASMPM
Controller (RTU, RTAC, or PLC)	ABM10, ABM11 (MHz crystal) ABS07 (32.768kHz, crystal)	N/A	AMPLA AMDLA
Industrial Robot Control	ABM10, ABM11 (MHz, crystal) ABS07 (32.768kHz, crystal)	N/A	AMPLA AMDLA ASPI-F ASPIAIG-F
Camera/image processing	ABS07 (32.768kHz, crystal) ABM10, ABM11 (MHz, crystal)	N/A	AIMC AIML ASMPH ASMPL ASMPM
Sensors (industrial)	ABS07 (32.768kHz, crystal) ABM10, ABM11 (MHz, crystal)	N/A	AIMC AIML ASMPH ASMPL ASMPM
Motor Controller	ABS07 (32.768kHz, crystal) ABM10, ABM11 (MHz, crystal)	N/A	AMPLA AMDLA ASPI-F ASPIAIG-F ASPIAIG-Q
Industrial Router	ABS07 (32.768kHz, crystal) ABM10, ABM11 (MHz, crystal)	**Combo** AEACBK110053-MLGW (screw mount, GNSS, cellular, LPWA, WIFI, Wi-Fi MIMO, ISM) AEACBK050048-MW2 (screw mount, WIFI/BT, WIFI, WIFI MIMO, BT/BLE/Zigbee, ISM)	ARJM11C7 AMPLA AMDLA ASPI-F ASPIAIGF ALAN110001 ALAN210001 ALAN310001

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Ripple Control	ABM10, ABM11 (MHz, crystal) ABS07 (32.768kHz, crystal)	N/A	ASPI
RTLS (UWB)	ABM10, ABM11 (MHz, crystal) ABS07 (32.768kHz, crystal)	ACG0301U (6.2-8.2 GHz), ACG0502U (3.7-4.2 GHz), ACG0806U (3.3-7.2 GHz)	ASMPH ASMPL ASMPM AIMC AIML AISC ATFC