

Smart Meters and Utilities

Smart Metering Market forecasted to grow from \$21.4 Bn in 2023 to \$36 Bn by 2028. ACAGR of 8.1%.



Description

- Smart Meters are the latest generation of metering which can track usage in real-time. The most common Smart Meter is for electricity followed by gas and water.
- These meters have an embedded microprocessor in the design (hence “smart”) to monitor usage and communicate the information wirelessly to the utility company periodically enabling the utility company to monitor energy usage patterns and then adjust the supply and costs. This is known as a “variable tariff”.
- Domestic Smart Meters often wirelessly communicate with a separate display unit or smart device called an “In-Home-Display (IHD)”, with Zigbee being typically used.
- Zigbee operates in the Sub-GHz and 2.4GHz ISM band.
- The user can then view energy usage live and monitor ongoing costs.
- Industrial Smart Meters function in the same way.

Drivers

- The growing adoption of variable renewable energy sources is creating the need to balance supply and demand.
- Global Smart Meters deployment programs.

Customer Challenges & Opportunities

- System complexity from multiple connected devices.
- Internet connection for cloud storage and cloud storage of data presents the need for Wi-Fi or cellular connectivity.
- Abracon has one of the industry’s broadest range of Antennas

Description & Requirements	Frequency & Timing Control	RF & Antenna	Power & Magnetics
Microprocessor (MCU) with LCD controller	<u>MHz Crystals</u> ABM8 (3.2 x 2.5mm) ABM10 (2.5 x 2.0mm) ABM11 (2.0 x 1.6mm)	N/A	N/A
Sleep function	<u>32.768kHz Crystals</u> ABS06 (2.0 x 1.2mm) ABS05 (1.6 x 1.0mm)	N/A	N/A
Bluetooth/Zigbee (868, 915 and 2.4GHz)	<u>MHz Crystals</u> ABM12 (1.6 x 1.2mm) ABM11 (2.0 x 1.6mm) ABM10 (2.5 x 2.0mm)	<u>Sub-GHz, 2.4GHz</u> ACAR3005-C2WB (chip) ACAG0301-2450-T (chip)	N/A
Wi-Fi (2.5GHz, 5GHz)	<u>MHz Crystals</u> ABM12 (1.6 x 1.2mm) ABM11 (2.0 x 1.6mm) ABM10 (2.5 x 2.0mm)	<u>2.4/5.5GHz</u> <u>WiFi/BT/Zigbee</u> ACAR0301-SW2	N/A
Power Supply (DC/DC)	N/A	N/A	<u>Low Power Inductors</u> ASPI-0504 (SMD power inductor) AIAP (epoxy coated inductor)
Control IO, speakers, displays, USB, serial comm port, CT/PT inputs	<u>MHz Crystals</u> ABM12 (1.6 x 1.2mm) ABM11 (2.0 x 1.6mm) ABM10 (2.5 x 2.0mm)	N/A	<u>Mid-High Power</u> AMDLA (Molded Round Wire) AMPLA (Molded Round Wire)
Small displays, lower power controls	<u>MHz Crystals</u> ABM8 (3.2 x 2.5mm) ABM10 (2.5 x 2.0mm) ABM11 (2.0 x 1.6mm)	N/A	<u>Power Inductors</u> ASMPH (SMD Chip) ASMPL (SMD Low Profile) ASMPM (High Power Chip Inductor) AMELA (Molded Inductor)
Ethernet Connectivity	<u>MHz Crystals</u> ABM8 (3.2 x 2.5mm) ABM10 (2.5 x 2.0mm) ABM11 (2.0 x 1.6mm)	N/A	<u>RJ45</u> ARJM11 (Through-hole) <u>LAN Transformers</u> ALAN110001 (POE 10/100/1G) ALAN210001 (POE+ 10/100/1G) ALAN310001 (POE++ 10/100/1G)