

MORNSUN Outstanding Power Solutions for IoT Systems and Devices

IoT, or the Internet of Things, is the technology that has allowed everyday objects to connect to the Internet (and to each other) in order to send and receive information. IoT is what allows you to unlock your front door from your smartphone or adjust the temperature of your home from anywhere. We refer to these devices as "smart devices" (smart locks or smart thermostats) because their ability to send and receive data allows them to make intelligent decisions and be controlled without a physical presence.

The Growing IoT Industry

Experts predict that there will be 75.44 billion connected devices worldwide by 2025, and the impending introduction of 5G technology will no doubt further increase the demand for IoT-enabled devices. The IoT market itself, which includes hardware, systems integration, software, telecom and data services, is expected to reach \$520 billion in 2021, which is more than double the amount spent in 2016. According to Gartner, the sensor market is expected to continue evolving new technology and packaging, which will make it possible to find new applications for sensors.

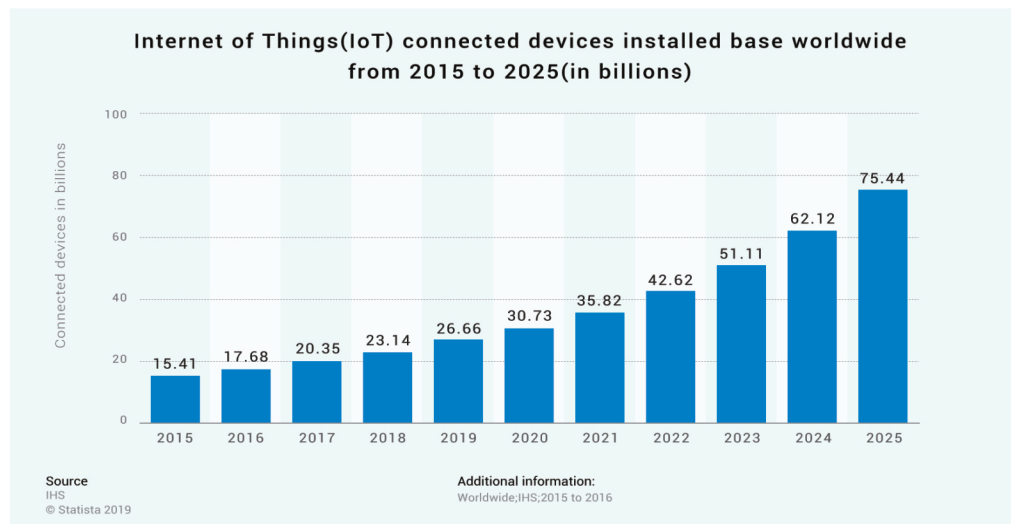


Figure 1. Internet of Things (IoT) connected devices installed base worldwide from 2015 to 2025 (in billions): Source - Statista

Powering IoT Applications

The sensors and other electronic components that comprise IoT devices all need the same thing: compact, efficient, and reliable power. All smart systems some form of power input, be it DC/DC converters or AC/DC converters, and there is

MORNSUN Outstanding Power Solutions for IoT Systems and Devices

also a requirement to provide a level of direct communication via RS232 / RS485 or CANBus. MORNSUN provides the power solutions that the growing IoT market demands, meeting all the key requirements listed above -- wide voltage ranges, isolation, accurate and stable DC voltage, and compact size. MORNSUN's extensive suite of over 50 different IoT-enabling power products that are appropriate for use in a wide variety of smart applications. The range of products include;

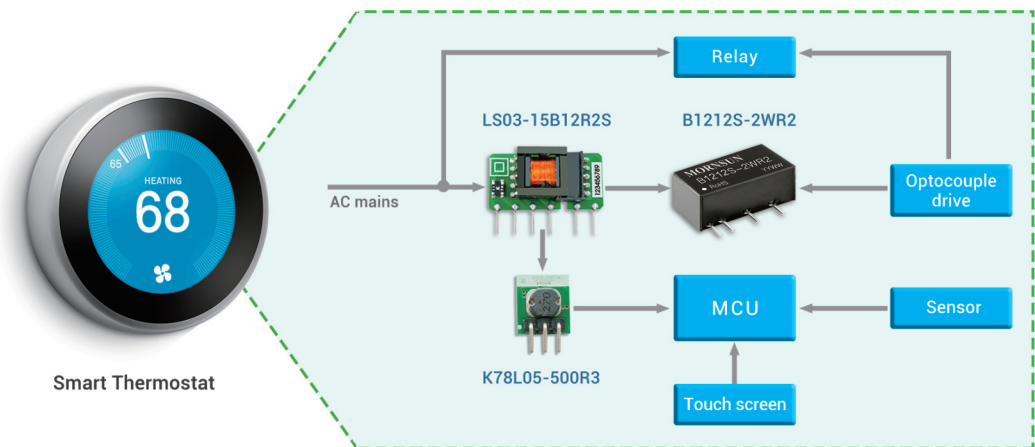
- AC DC solutions from 1W to 60W
- DC DC converters from 200mW to 250W
- Isolation levels from 1000V to 6000V
- RS232/RS485/CANBus controllers

Some typical applications of the integration of all these products can be found below.

Smart Thermostat

A smart thermostat is one of the most common IoT-enabled devices in today's interconnected homes. This device needs power: low cost, compact size, high density, and a very low input current. Not every power supply is suitable for a smart thermostat application. However, MORNSUN has a one-stop solution for this application. The 3W LS03-15B12R2S (dimension: 35x18x11mm) is an ideal AC/DC Converter to provide a DC bus which can then power an optocoupler drive via a B1212S-2WR2 2W isolated high-density DC/DC converter. The same AC/DC converter also powers the system microcontroller through a high-efficiency K78L05-500R3 DC/DC converter that includes output short-circuit protection and a no-load input current as low as 0.2mA.

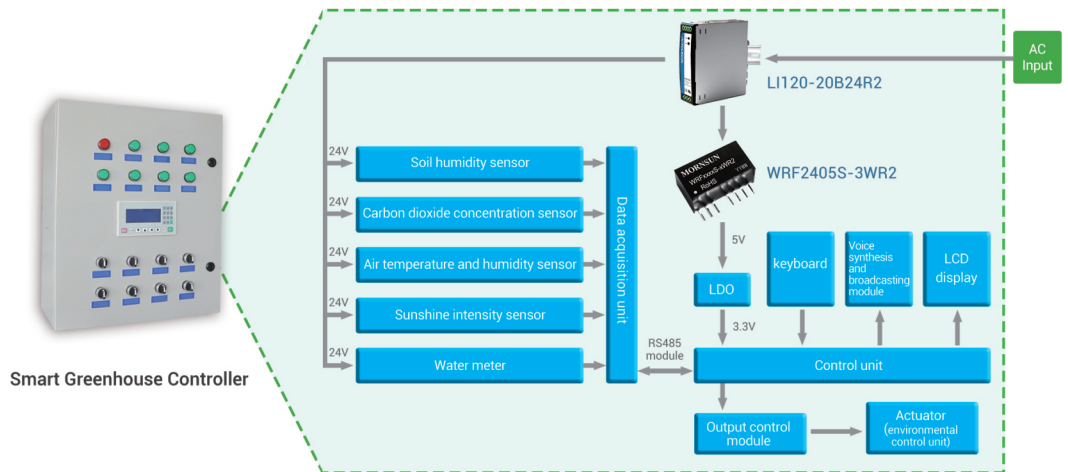
Figure 2. HVAC system



Smart Greenhouse Controller

Agriculture is another early adopter of IoT smart technology. A typical example of a smart agricultural farming is a greenhouse controller. The system needs to be able to power a variety of actuators for the control of temperature, moisture, light intensity (shade) and pesticides depending on the inputs from a variety of sensors. These actuators and sensors typically run off as 24V DC supply, but the primary power source is a mains AC supply. The LI120-20B24R2 AC/DC Din Rail converter provides a 24V DC bus for use by the sensors and actuators. The WRF2405S-3WR2 is 3W DC/DC converter, providing 3kV DC isolation with self-recovering short circuit protection, and supplies 5V for the main control unit and display.

Figure 3. Agricultural greenhouse controller



MORNSUN is Your IoT Power Solution Expert

The demand for IoT devices is growing, and so is the demand for efficient, compact, and economical power solutions that support a wide voltage range. At MORNSUN, we not only offer a large portfolio of products to meet your IoT power needs, but many of these products can be customized for your designs. Contact us today and find out how we can help bring your smart designs to life.