



- ▶ **Suitable for IEEE 802.15.4, Jenie/JenNet wireless network applications**
- ▶ **Incorporates JN5148-001-M04 High Power ZigBee PRO Module**
- ▶ **Ethernet Port for IPv4 Internet connectivity**
- ▶ **Develop Ethernet & Internet-enabled applications**
- ▶ **Expansion Port for additional IO**
- ▶ **Compatible with AP-114 Interface for JTAG debug**

## OVERVIEW

The Atomic AP-300 IEEE 802.15.4 Wireless Gateway offers a ready-made solution for developing IEEE 802.15.4, ZigBee or Jenie/JenNet wireless network applications with IPv4 connectivity. It provides an interface between a standard Ethernet LAN system and an IEEE 802.15.4-based wireless network.

The AP-300 incorporates a Jennic JN5148-001-M04 High Power ZigBee PRO wireless microcontroller module and features an Ethernet port for IPv4 connectivity, allowing connection to a local hard-wired computer network and/or the Internet. All RF layout and decoupling issues are handled by the design of the Jennic module.

Whilst the AP-300 is a fully working solution, providing a low-cost JenNet IP Gateway (see Jennic Application Note JN-AN-1151) it is also configurable according to the Jennic JN-RM-2059 reference manual.

The unit provides a stable hardware environment allowing designers to rapidly develop and test both Ethernet and Internet-enabled applications based around the Jennic JN5148 wireless microcontroller.

The AP-300 also supports an IP gateway to the Jennic Intelligent Lighting and Active-RFID solutions.

## HARDWARE OVERVIEW

- Incorporates JN5148-001-M04 High Power ZigBee PRO Module
- Ethernet port for connection to other devices via IPv4
- JTAG interface for software verification using an Atomic AP-114 Programming System
- Expansion port for additional sensors or outputs
- Mini-USB interface for program downloads running the Jennic JN51xx Flash Programmer utility
- External 5V 10W power supply
- 2.4GHz RF antenna
- Four LEDs indicating Power, Ethernet, WiFi and Alarm

## FEATURES

### ▶ Jennic JN5148-001-M04 module

The AP-300 is fitted with a Jennic JN5148-001-M04 High Power Module. This module incorporates an antenna connector, power amplifier and LNA for extended range (up to 4km). The module can run networking stacks such as Jenie/JenNet as well as customer applications.

### ▶ JTAG Interface

The JTAG interface connects to the Jennic microcontroller through UART1 and can be used for software verification. The interface is compatible with the Atomic Programming AP-114 ISP/JTAG Programmer system.

Buy online at

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### ► USB Interface

The USB interface provides an interface between the data connections of the USB port and the standard UART connections for UART0 of the Jennic microcontroller. It can be used to program the microcontroller from a PC running the Jennic JN51xx Flash Programmer utility. A standard USB-A to USB mini-B cable is provided.

Full details on the FTDI device driver and configuration can be found in the Jennic JN-RM-2059 reference manual.

### ► Power Supply

An external power supply (supplied) can be used to power the AP-300 Wireless Gateway to drive the high powered Jennic module. The advantage of this is that ultra-low powered sensors can then be used in remote points across the 802.15.4 network

**NOTE:** When connected to a PC via the USB port, the unit will run without the need of the External Power Supply

### ► Ethernet Port

A standard RJ45 port is provided which connects to an internal stand-alone Ethernet controller, which, in turn interfaces with the microcontroller's SPI Interface, enabling IPv4 connectivity between the microcontroller and the outside world.

The RJ45 port should be connected directly to your Network hub/switch using the supplied CAT5e cable

### ► Expansion Port

A 10-way expansion port is provided for additional sensors or outputs

### ► Indicator LEDs

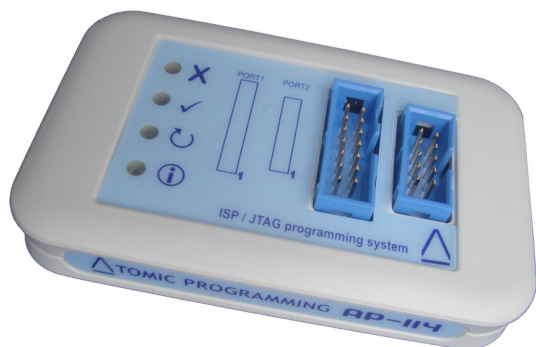
Whilst it is possible to configure the LEDs on the unit, by default they are set to indicate Power, Ethernet connection, 802.15.4 Wireless connection and Alarm.

## ADDITIONAL FEATURES

### ► JTAG Debug via AP-114 Programming System

The AP-114 ISP/JTAG Programming System can be used to debug and configure the AP-300 Wireless network.

This also offers In-system (ISP) and Stand-alone programming support for the JN5148 flash devices.



### ► Purchase an AP-114/AP-300 Kit

Additional savings can be made when purchasing an AP-114 ISP/JTAG Programming System with your AP-300

### ► Product Development

Atomic Programming have already developed additional software (available under license) to support

- Encryption (both Wireless and Ethernet)
- DHCP support
- Additional Ports can be opened that allow applications to retrieve data directly from the Gateway application solution. Sample applications (VB.NET and C#.NET) available.

This allows the AP-300 to be incorporated into your system with no further software development required. We also offer design services for both software and hardware development.

## SPECIFICATION

### Physical Specifications

- Dimensions: 120 x 75 x 25 mm (4.75" x 3" x 1")
- Weight: 400g (14oz)

### Included Accessories

- RF Antenna aerial
- USB-A to USB mini-B and Cat5e Patch Cables
- 10W 5V DC power supply
- Software CD

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