

# Wireless Module iWEM-1000

## Ultra Low Power Wireless Embedded Module



- Wi-Fi, 802.11b/g PHY/MAC at up to 54Mbps
- Interface to your favorite microcontroller using only 3 wires
- Flexible antenna choice: Integrated-on-board, UFL and SMA
- General sensor interface for monitoring push buttons, temperature, motion, and acceleration
- 11 GPIOs (GPIO 2-9, and 12-14) for general use
- Easy battery operation. On-chip power regulators and power management circuits
- Pre-installed Atech WiFi Thin-Client application firmware provides complete networking functionality
- Infrastructure and Ad-Hoc mode support
- Open, WEP-40, WEP-128, WPA-PSK, WPA2-PSK Security TCP/IP, DHCP, UDP, DNS, ARP, ICMP
- Simple ASCII Command set to configure the module
- Over the air TFTP firmware upgrade
- Sleep mode support

### Introduction

The iWEM-1000 series is an ultra low power consumption WiFi module with lightning fast boot-up/connection feature designed for industrial application. It is the key product to complete last mile M2M wireless connectivity.

iWEM-1000 series WiFi modules are fully integrated WiFi solutions in a compact IC-style SMT packaging. The module allows engineers to make any product having WiFi connectivity without RF experience and without months of hardware as well as software development time. The only hardware requirement for

the host system to add WiFi connectivity is a simple 3-wire UART interface that is the common interface most micro-controllers have.

The iWEM-1000 has been designed from inception to maximize battery life and achieves ultra low-power consumption. The power conservation architecture operates in two modes: an active mode and a sleep mode. The active mode consumes 30-200mA depending on TX data density. The sleep mode consumes less 0.5mA. The user can maximize the battery life by keeping the iWEM-1000 in sleep mode most of time and only waking it up when needed.

### Applications

- Industrial and Home Automation
- Wireless Sensing/Control, Wireless Smart Meter
- Cable replacement
- Asset Tracking
- MCU interface connectivity
- Security
- Battery operated devices
- Smart Power Grid
- "Green industry"

### Specifications

#### WIRELESS LAN

**Standards :** 802.11b/g  
**RF Modulation :** DSSS, OFDM  
**Operating Channels :** 1-14 (Central frequency)  
**Security :** WEP, WPA-PSK, WPA2-PSK  
**Transmission Rates :**  
 802.11b: 1, 2, 5.5, 11Mbps  
 802.11g: 6, 12, 24, 36, 54Mbps  
**TX Transmit Power :**  
 802.11b: 14dbm  
 802.11g: 12dbm  
**RX Sensitivity :** -85dBm

#### PROTOCOL SUPPORT

**Network Protocols :**  
 TCP/IP, DHCP, UDP, DNS, ARP, ICMP

#### INTERFACE

**Antenna :**  
 Embedded Chip antenna or antenna connector

#### Console / Data Port :

UART, 2400 to 115200baud  
 Escape Characters " +++ " to get in console mode

#### POWER REQUIREMENTS

**Input Voltage :** 2.4 to 3.7VDC  
**Power Current :**  
 Active: 30mA to 200mA  
 Sleep: < 0.5mA

#### PHYSICAL CHARACTERISTICS

**Package :** Stamp type SMT package  
**Weight :** 5g  
**Dimensions :**  
 32 x 19.5x 2.5 mm (iWEM-1000)  
 32 x 19.5x 6.3 mm (iWEM-1001)  
 32 x 19.5x 3.75 mm (iWEM-1002)

#### ENVIRONMENTAL LIMITS

**Operating Temperature :** -30 °C ~ 75 °C  
**Storage Temperature :** -40 °C ~ 85 °C  
**Ambient Relative Humidity :** 0 to 95%; non-condensing

**Digital Inputs/Output :**

11 GPIOs, Sensor Interface

**System Status Indicators :**

GPIO 12 for TCP connection

GPIO 13 for WiFi AP association

**Connectors for External Antenna :**

UFL or SMA connector

**REGULATORY APPROVALS**

**Safety Regulation :** CE/FCC

**WARRANTY**

**Warranty Period :** 12 months

**Ordering**

**AVAILABLE MODELS**

**iWEM-1000 :** Wireless Embedded Module w/ U.FL Connector

**iWEM-1001 :** Wireless Embedded Module w/ SMA Connector

**iWEM-1002 :** Wireless Embedded Module w/ Embedded Chip Antenna **(To Be Released)**

**iWEM-1000-EVB :** Evaluated Board for iWEM-1000 series