# INP301x-EVB-A

## Talaria TWO™ Evaluation Kit

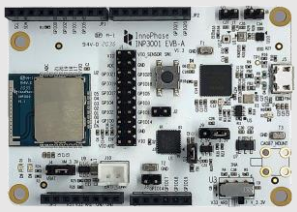
### Complete Solution for Evaluating the Performance and Capability of Talaria TWO Modules

INP3010 / INP3011 / INP3012 / INP3013 / INP3014 / INP3015

**The INP301x EVB-A evaluation kits are available for measuring the performance and capability of the Talaria TWO INP101x modules. The multi-protocol wireless modules use InnoPhase's award-winning Talaria TWO Multi-Protocol Platform with ultra-low power Wi-Fi plus BLE5 for wireless data transfer, an embedded Arm Cortex-M3 for system control and user applications plus advanced security elements for device safeguards.**

**The kits include an Arduino UNO format baseboard with an INP101x module attached. They can be used in stand-alone mode or with an Arduino UNO compatible MCU host board. All module GPIOs are accessible through an internal 20-pin header or the Arduino connectors. Power is supplied from USB, host Arduino board or battery connector. Environmental sensors for capturing temperature, humidity, pressure and light are included.**

**Ultra-Low Power Wireless Modules for Battery-Based IoT Designs**

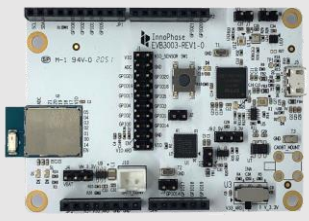


**INP3010**
(Includes INP1010 w/ PCB Antenna)

**INP3012**
(Includes INP1012 w/ RF Pad)

**INP3014**
(Includes INP1014 w/ PCB Antenna)

**INP3011**
(Includes INP1011 w/ U.FL Connector)



**INP3013**
(Includes INP1013 w/ Chip Antenna)

**INP3015**
(Includes INP1015 w/ U.FL Connector)



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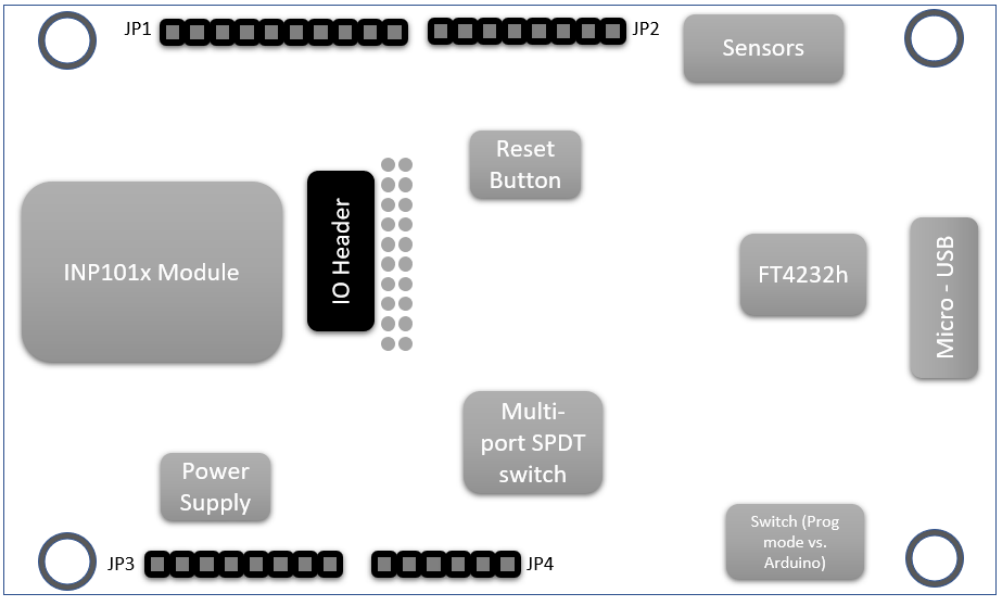
## INP301x Block Diagram




## INP301x EVB-A Kit Contents

| Product | INP3010 | INP3011 | INP3012 | INP3013 | INP3014 | INP3015 |
|---|---|---|---|---|---|---|
| Baseboard | EVB-A Baseboard, Arduino UNO Compatible (75.0mm x 53.3mm x 10mm) | | | | | |
| Talaria TWO Module (Mounted on Baseboard) | INP1010 (w/ PCB Antenna) | INP1011 (w/U.FL Antenna Connector) | INP1012 (w/ RF Pad) | INP1013 (w/ Ceramic Chip Antenna) | INP1014 (w/ PCB Antenna) | INP1015 (w/U.FL Antenna Connector) |
| Environmental Sensors (Mounted on Baseboard) | Temperature & Humidity (Sensirion SHTC3)<br>Pressure (Bosch BMP388)<br>Light (TI OPT3002) | | | | | |
| USB Interface | USB2.0 | | | | | |
| USB Cable | Male USB A to Male USB Micro-B | | | | | |
| External Antenna | Not Included | Stub Antenna with Cable & U.FL Connector | Stub Antenna | Not Included | Not Included | Stub Antenna with Cable & U.FL Connector |
| Battery Holder | Dual "AA" Battery Holder with Wired Connector | | | | | |
| Accessories | 4x Stand-Offs and 4x Screw Nuts (Attached) | | | | | |
| Software | Available for Download at: https://innophaseiot.com/talaria-two-modules/ | | | | | |



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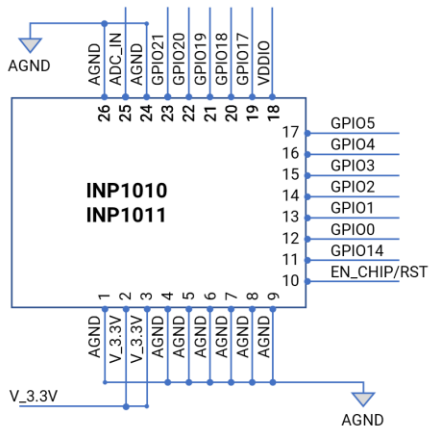
## INP1010/1011 Module Information




## INP1010/1011 Features

- **Fully Integrated Module Including All Required Clocks & Passives**
- **Agency and Standards Certifications**
- **Hostless Operation Using Internal Arm Cortex-M3, or Connect to a Host MCU Through UART/SPI Ports**
- **Eleven (11) Configurable GPIO Ports + Console Port (GPIO17)**
- **Ultra-Low Power Wi-Fi Connectivity**
- **BLE5.0 with Advanced Features**
- **Full SDK Environment for Application Development**
- **Arduino Compatible EVB Available for Evaluation**

## INP1010 & INP1011 Product Specifications

| | |
|---|---|
| Wi-Fi Technology | 802.11 b/g/n, up to MCS7 Single-stream (1x1) |
| Bluetooth Technology | BLE 5.0<br>w/ Advanced Features: 2Mbps PHY, LE Coding (Long-Range), Extended Advertising |
| Frequency Band | 2.4GHz |
| Application Processor | Arm Cortex-M3, 80MHz |
| Embedded Memory | 512KB SRAM, 2MB Flash |
| Host Interface Options | UART, SPI (slave) |
| Peripherals | GPIO, 10-bit SAR ADC, PWM, PDM, SPI (slave & master), UART JTAG, I2C, and I2S |
| Hardware Based Security | PUF (Physically Unclonable Function), Crypto Engines, Secure Boot |
| WiFi Active Mode Power/Performance (@ 3.3V) | TX Current Consumption/Output Power<br>802.11b DSSS 1 Mbps<br>178 mA (+17.5 dBm)<br>802.11g OFDM 54 Mbps<br>100 mA (+15.5 dBm)<br>802.11n OFDM 65 Mbps MCS7<br>81 mA (+12.5 dBm)<br>RX Current Consumption/Sensitivity<br>802.11b DSSS 1Mbps<br>31 mA (-96 dBm) |
| WiFi Power Save Mode 802.11b, 1 Mbps (Clean Environment, @ 3.3V) | 150 µA (DTIM = 3)<br>97 µA (DTIM = 5)<br>57 µA (DTIM = 10) |
| BLE Active Mode Consumption (@ 3.3V, 2Mbps) | 30 mA RX<br>27 mA TX (0dBm), 38mA TX (+10dBm) |
| Deep Sleep Mode (@ 3.3V) | 11-19µA (RTC, memory retained, depends on amount of memory retained) |
| Temperature Range | -40°C to +85°C |
| Antenna | INP1010: PCB Antenna INP1011: U.FL Connector |
| Packaging Information | 21.6mm x 19.1mm x 2.5mm (height includes shield, both INP1010 & INP1011)<br>26 Castellated Pins |



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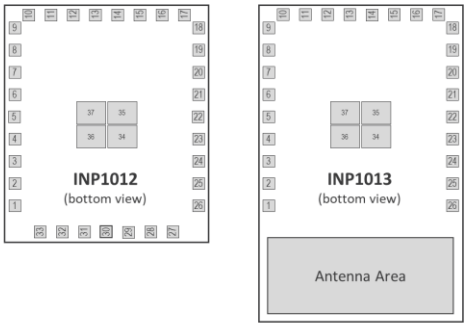
## INP1012/INP1013 Pin Diagram




| PIN TABLE | GND | GND (RF) | RFIO (Ant.) | V_3.3V | EN_CHIP | VDDIO | ADC_IN | GPIO14 | GPIO0 | GPIO1 | GPIO2 | GPIO3 | GPIO4 | GPIO5 | GPIO17 | GPIO18 | GPIO19 | GPIO20 | GPIO21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INP1012 | 1,4,5,6,7, 8,9,24,26, 34,35,36,37 | 27,28,29, 31,32,33 | 30 | 2,3 | 10 | 18 | 25 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 19 | 20 | 21 | 22 | 23 |
| INP1013 | | N/A | N/A | | | | | | | | | | | | | | | | |

## INP1012/1013 Features

- **Fully Integrated Module in a Smaller, More Compact Footprint**
- **Agency and Standards Certifications**
- **Hostless Operation Using Internal Arm Cortex-M3, or Connect to a Host MCU Through UART/SPI Ports**
- **Eleven (11) Configurable GPIO Ports + Console Port (GPIO17)**
- **Ultra-Low Power Wi-Fi Connectivity**
- **BLE5.0 with Advanced Features**
- **Full SDK Environment for Application Development**
- **Arduino Compatible EVB Available for Evaluation**

## INP1012 & INP1013 Product Specifications

| | |
|---|---|
| Wi-Fi Technology | 802.11 b/g/n, up to MCS7 Single-stream (1x1) |
| Bluetooth Technology | BLE 5.0<br>w/ Advanced Features: 2Mbps PHY, LE Coding (Long-Range), Extended Advertising |
| Frequency Band | 2.4GHz |
| Application Processor | Arm Cortex-M3, 80MHz |
| Embedded Memory | 512KB SRAM, 2MB Flash |
| Host Interface Options | UART, SPI (slave) |
| Peripherals | GPIO, 10-bit SAR ADC, PWM, PDM, SPI (slave & master), UART JTAG, I2C, and I2S |
| Hardware Based Security | PUF (Physically Unclonable Function), Crypto Engines, Secure Boot |
| WiFi Active Mode Power/Performance (@ 3.3V) | TX Current Consumption/Output Power<br>802.11b DSSS 1 Mbps<br>178 mA (+17.5 dBm)<br>802.11g OFDM 54 Mbps<br>100 mA (+15.5 dBm)<br>802.11n OFDM 65 Mbps MCS7<br>81 mA (+12.5 dBm)<br>RX Current Consumption/Sensitivity<br>802.11b DSSS 1Mbps<br>31 mA (-96 dBm) |
| WiFi Power Save Mode 802.11b, 1 Mbps (Clean Environment, @ 3.3V) | 150 µA (DTIM = 3)<br>97 µA (DTIM = 5)<br>57 µA (DTIM = 10) |
| BLE Active Mode Consumption (@ 3.3V, 2Mbps) | 30 mA RX<br>27 mA TX (0dBm), 38mA TX (+10dBm) |
| Deep Sleep Mode (@ 3.3V) | 11-19µA (RTC, memory retained, depends on amount of memory retained) |
| Temperature Range | -40°C to +85°C |
| Antenna | INP1012: RF Pad INP1013: Ceramic Chip-Antenna |
| Packaging Information | INP1012: 12.8mm x 15.0mm x 2.5mm (height includes shield)<br>INP1013: 12.8mm x 20.0mm x 2.5mm (shield height) / 3.1mm (antenna height) |



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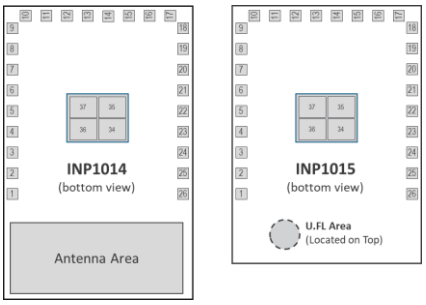
## INP1014/INP1015 Pin Diagram




| PIN TABLE | GND | GND (RF) | RFIO (Ant.) | V_3.3V | EN_CHIP | VDDIO | ADC_IN | GPIO14 | GPIO0 | GPIO1 | GPIO2 | GPIO3 | GPIO4 | GPIO5 | GPIO17 | GPIO18 | GPIO19 | GPIO20 | GPIO21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INP1014 | 1,4,5,6,7, 8,9,24,26, 34,35,36,37 | N/A | N/A | 2,3 | 10 | 18 | 25 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 19 | 20 | 21 | 22 | 23 |
| INP1015 | | N/A | N/A | | | | | | | | | | | | | | | | |

## INP1014/1015 Features

- **Fully Integrated Module in a Smaller, More Compact Footprint**
- **Agency and Standards Certifications**
- **Hostless Operation Using Internal Arm Cortex-M3, or Connect to a Host MCU Through UART/SPI Ports**
- **Eleven (11) Configurable GPIO Ports + Console Port (GPIO17)**
- **Ultra-Low Power Wi-Fi Connectivity**
- **BLE5.0 with Advanced Features**
- **Full SDK Environment for Application Development**
- **Arduino Compatible EVB Available for Evaluation**

## INP1014 & INP1015 Product Specifications

| | |
|---|---|
| Wi-Fi Technology | 802.11 b/g/n, up to MCS7 Single-stream (1x1) |
| Bluetooth Technology | BLE 5.0<br>w/ Advanced Features: 2Mbps PHY, LE Coding (Long-Range), Extended Advertising |
| Frequency Band | 2.4GHz |
| Application Processor | Arm Cortex-M3, 80MHz |
| Embedded Memory | 512KB SRAM, 2MB Flash |
| Host Interface Options | UART, SPI (slave) |
| Peripherals | GPIO, 10-bit SAR ADC, PWM, PDM, SPI (slave & master), UART JTAG, I2C, and I2S |
| Hardware Based Security | PUF (Physically Unclonable Function), Crypto Engines, Secure Boot |
| WiFi Active Mode Power/Performance (@ 3.3V) | TX Current Consumption/Output Power<br>802.11b DSSS 1 Mbps<br>178 mA (+17.5 dBm)<br>802.11g OFDM 54 Mbps<br>100 mA (+15.5 dBm)<br>802.11n OFDM 65 Mbps MCS7<br>81 mA (+12.5 dBm)<br>RX Current Consumption/Sensitivity<br>802.11b DSSS 1Mbps<br>31 mA (-96 dBm) |
| WiFi Power Save Mode 802.11b, 1 Mbps (Clean Environment, @ 3.3V) | 150 µA (DTIM = 3)<br>97 µA (DTIM = 5)<br>57 µA (DTIM = 10) |
| BLE Active Mode Consumption (@ 3.3V, 2Mbps) | 30 mA RX<br>27 mA TX (0dBm), 38mA TX (+10dBm) |
| Deep Sleep Mode (@ 3.3V) | 11-19µA (RTC, memory retained, depends on amount of memory retained) |
| Temperature Range | -40°C to +85°C |
| Antenna | INP1014: PCB Antenna INP1015: U.FL Antenna Connector |
| Packaging Information | INP1014: 12.8mm x 20.0mm x 2.5mm (height includes shield)<br>INP1015: 12.8mm x 17.0mm x 2.5mm (height includes shield) |



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