



## WiFi Kit 8

### Development Kit



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## Document version

Version	Time	Description
V1.0	2017-11-08	Documents creating
V1.0	2022-05-30	Document structure update



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# 1. Description

## 1.1 Overview

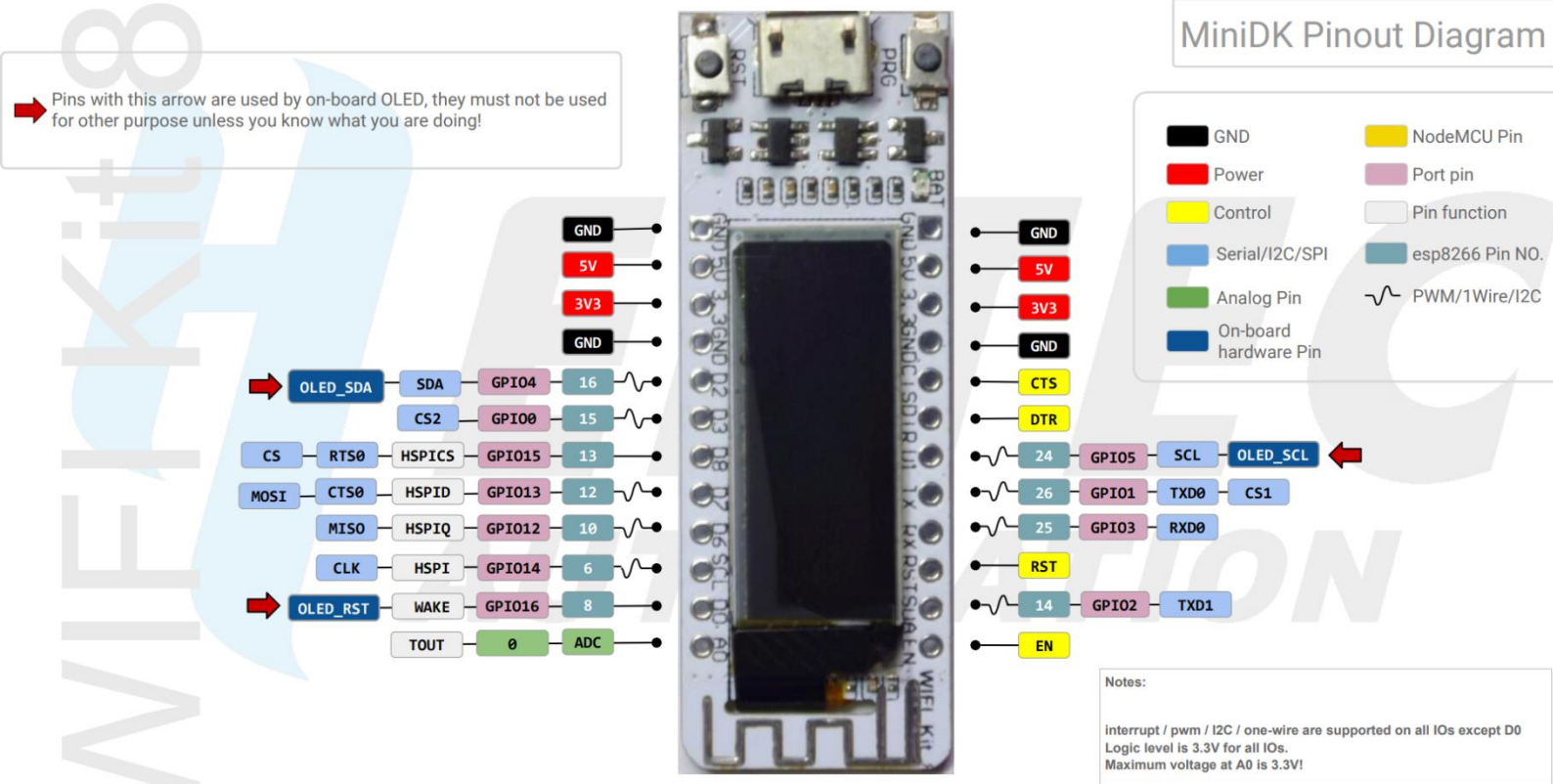
WiFi Kit 8 is a classic IoT dev-board designed & produced by Heltec Automation(TM), it's a highly integrated product based on ESP8266 (Wi-Fi), Li-Po battery management system, 0.91" OLED is also included. It's the best choice for smart cities, smart farms, smart homes, and IoT makers.

## 1.2 Product features

- Microprocessor: [ESP8266](#);
- Micro USB interface with a complete voltage regulator, ESD protection, short circuit protection, RF shielding, and other protection measures;
- Onboard SH1.25-2 battery interface, integrated lithium battery management system (charge and discharge management, overcharge protection, battery power detection, USB / battery power automatic switching);
- Onboard 2.4GHz (for Wi-Fi) PCB antenna;
- Onboard 0.91-inch 128\*32 dot matrix OLED display, which can be used to display debugging information, battery power and other information;
- Integrated [CP2104](#) USB to serial port chip, convenient for program downloading, debugging information printing;
- Compatible with the [Arduino development environment](#).

## 2. Pin Definition

### 2.1 Pin assignment



### 2.2 Pin description

#### Header P1

Table 2-2-1 Pin description

No.	Name	Type	Function
1	GND	P	Ground.
2	5V	P	5V Input/Output.
3	3V3	P	3.3V Input/Output.
4	GND	P	Ground.
5	GPIO4	I/O	GPIO4, SDA, OLED_SDA.
6	GPIO0	I/O	GPIO0, SPI_CS2.
7	GPIO15	I	GPIO15, HSPI_CS, UART0_RTS.
8	GPIO13	I/O	GPIO13, HSPI_MOSI, UART0_CTS.

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9	GPIO12	I/O	GPIO12, HSPI_MISO.
10	GPIO14	I/O	GPIO14, HSPI_CLK.
11	GPIO16	I/O	GPIO16, WAKE.
12	ADC	I/O	ADC_IN, TOUT.

## Header P2

Table 2-2-2 Pin description

No.	Name	Type	Function
1	GND	P	Ground.
2	5V	P	5V Input/Output.
3	3V3	P	3.3V Input/Output.
4	GND	I/O	Ground.
5	CTS	I/O	USB_to_UART CTS.
6	DTR	I/O	USB_to_UART DTR.
7	GPIO5	I/O	GPIO5, SCL, OLED_SCL.
8	GPIO1	I/O	GPIO1, UART_TX, SPI_CS1.
9	GPIO3	I/O	GPIO3, UART_RX.
10	RST	I/O	RESET.
11	GPIO2	I/O	GPIO2, UART1_TX.
12	EN	I/O	Chip enable.



### 3. Specifications

#### 3.1 General specifications

Table 3-1: General specifications

Parameters	Description
Master Chip	ESP8266 (160MHz Tensilica L06)
USB to Serial Chip	CP2104
Wi-Fi	802.11 n support (2.4 GHz), up to 72.2 Mbps
Display Size	0.91-inch OLED
Hardware Resource	UART x 2; SPI x 2; I2C x 1; I2S x 1; 10-bits ADC inputx 1; GPIO x 17
Memory	4MB(32M-bits) SPI FLASH; 520KB internal SRAM
Interface	Micro USB x 1; 12 x 2.54 pin x 2
Battery	3.7VLithium(SH1.25 x 2 socket)
Operating temperature	-20 ~ 70 °C
Dimensions	50.9 x 18.2 x 8 mm

#### 3.2 Power supply

Except when USB or 5V Pin is connected separately, lithium battery can be connected to charge it. In other cases, only a single power supply can be connected.

Table 3-2: Power supply

Power supply mode	Minimum	Typical	Maximum	Company
USB powered (≥500mA)	4.7	5	6	V
Lithium battery(≥250mA)	3.3	3.7	4.2	V





5V pin( $\geq 500\text{mA}$ )	4.7	5	6	V
3V3 pin( $\geq 150\text{mA}$ )	2.7	3.3	3.5	V

### 3.3 Power output

Table 3-3: Power output

Output Pin	Minimum	Typical	Maximum	Company
3.3V Pin			500	mA
5V Pin (USB Powered only)		Equal to the input current		

### 3.4 Power characteristics

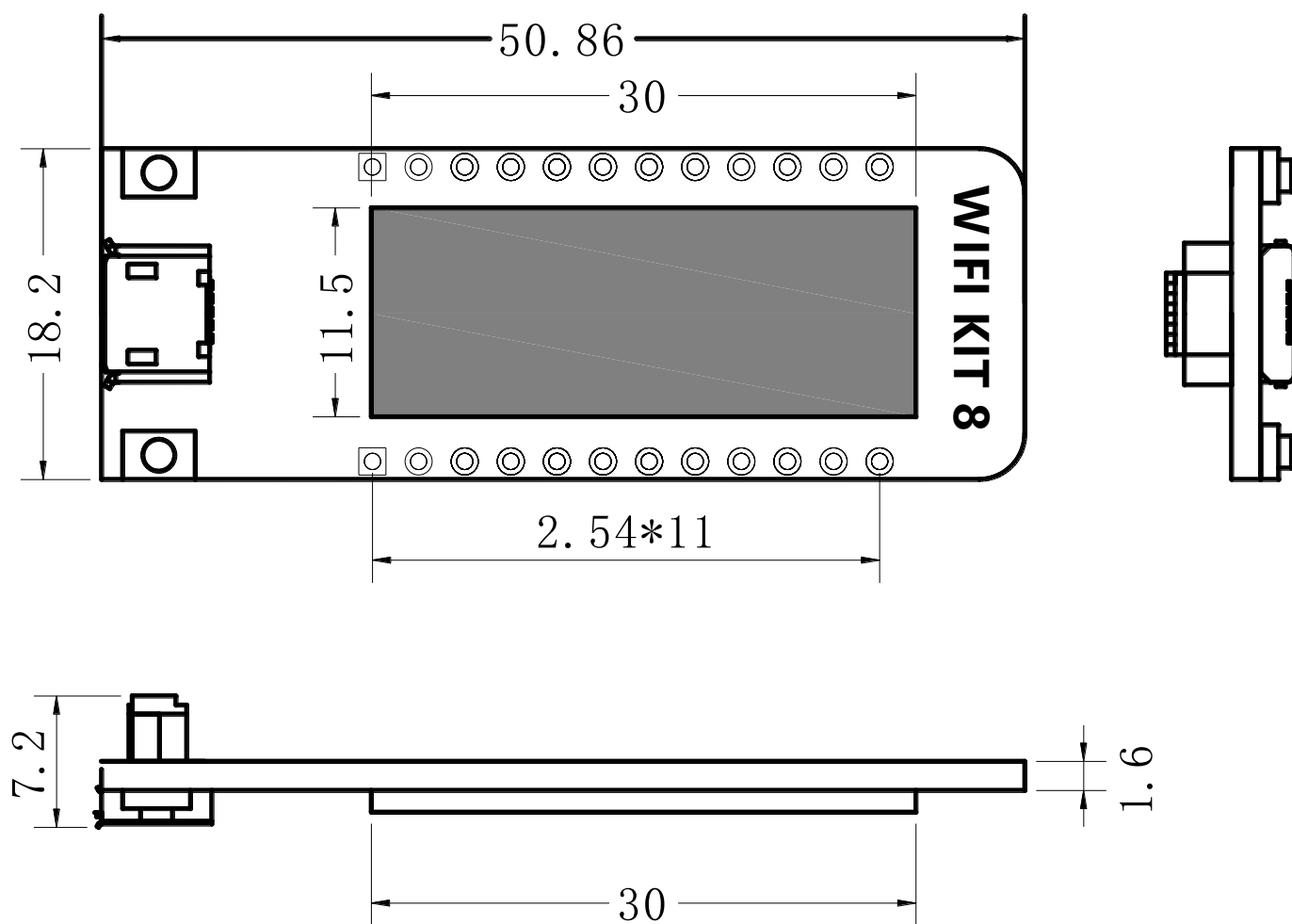
Table 3-4: Power characteristics

Mode	Min.	Typical	Max.	Company
WiFi Scan		115		mA
WiFi AP		135		mA



## 4. Hardware resource

### 4.1 Physical dimensions





## 5. Resource

### 5.1 Relevant Resource

- [Pin map](#)
- [Schematic diagram](#)
- [Downloadable resource](#)

### 5.2 Contact Information

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