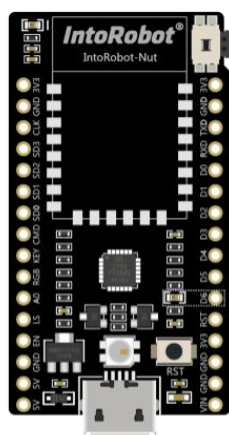


IntoRobot **Nut-S Datasheet**



Dexterous-Beautiful · Respect Innovation
Smart-Fast · Enjoy Passion

Disclaimer and copyright notice

Information in this document, including URL references, is subject to change without notice. This document is provided as is with no warranties whatsoever, including any warranty of merchantability, non-infringement, fitness for any particular purpose, or any warranty otherwise arising out of any proposal, specification or samples. All liability, including liability for infringement of any proprietary rights, relating to the use of information in this document is disclaimed. No licenses express or implied, by estoppel or otherwise, to any intellectual property rights are granted herein. The Wi-Fi Alliance Member logo is a trademark of the Wi-Fi Alliance. All trade names, trademarks and registered trademarks mentioned in this document are the property of their respective owners and are at this moment acknowledged.

Attention

Due to product upgrades or other reasons, the content of this manual is subject to changes. Shenzhen MOLMC Technology co., Ltd. keeps rights without any notices or warnings at the substance of this manual is subject to change reservations. This manual can only be taken as a guide. Shenzhen MOLMC Technology co., Ltd. makes every effort to provide accurate information in this manual, but it does not guarantee that there is no error. This manual contains all statements, information, and recommendations do not constitute any guarantee, express or implied.

Category

1 Overview5

2 Hardware Specification5

 2.1 Hardware Specification5

 2.2 Pin Description6

 2.3 Electrical Characteristics.....8

 2.3.1 Rating Values.....8

 2.3.2 Recommended Operating Conditions.....8

 2.3.3 I/O Port Characteristics.....8

3 Nut-S Dimensions.....9

 3.1 Board Dimensions9

Chart Category

Chart 1: Specification	5
Chart 2: Hardware Architecture	6
Chart 3: Pin Map (Compatible with IntoRobot-Nut)	6
Chart 4: Pin definition	6
Chart 5: Rating values	8
Chart 6: Recommended operating conditions	8
Chart 7: I/O port characteristics.....	8
Chart 8: Board dimensions.....	9

1 Overview

IntoRobot-Nut-S, a highly integrated shield with small size, is designed by MOLMC team. It supports many ESP-based modules, such as IntoRobot-ESP8266MOD, ESP7, ESP-07S, ESP8, ESP8S, ESP12, ESP12E, and ESP12F, etc. IntoRobot-Nut-S, combined with above ESP-based modules, IntoRobot Cloud and IntoRobot-App, can help you complete your innovations, especially to achieve many kinds of networked applications, for example, building automation, safe and smart home, remote agriculture, and telemedicine, etc.

CP2104, the serial chip with best compatibility and without need of driver, is integrated in IntoRobot-Nut-S; the chip supports Windows 7/8/10/Vista/XP/Server 2003/2000/ Windows CE ® 6.0,5.0 and 4.2. Furthermore, a tiny light sensor is also integrated in IntoRobot-Nut-S for debug usage or other applications.

2 Hardware Specification

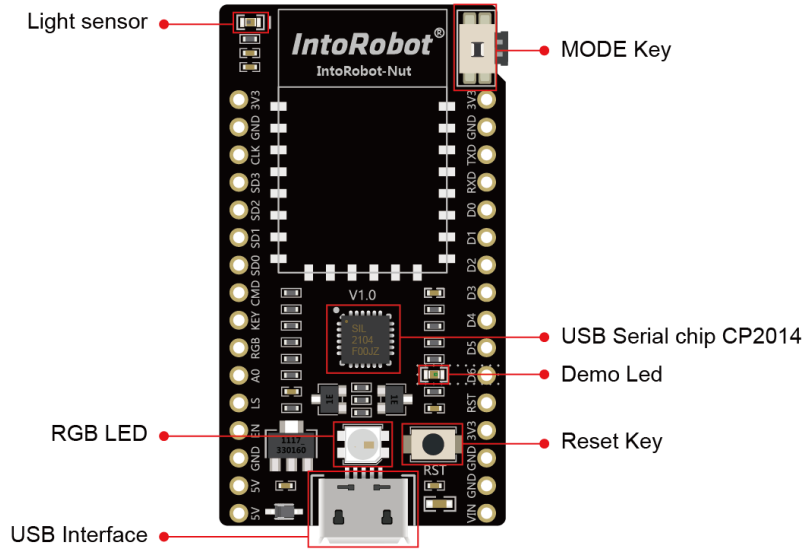
2.1 Hardware Specification

Chart 1: Specification

Product Name	IntoRobot -Nut-S
Cloud Service	IntoRobot-Cloud (http://www.intorobot.com)
Serial Chip	CP2104 USB transceiver Driver free for Windows7/8/10/XP/Vista/Server 2003/2000/Windows CE ® 6.0, 5.0 and 4.2
Supported Modules	IntoRobot ESP8266MOD, ESP7, ESP-07S, ESP8, ESP8S, ESP12, ESP12E, and ESP12F
Light Sensor (ALS-PT19)	ALS-PT19 light sensor Spectral range similar with human eye; Analog output, good linearity, and wide illumination range
DC Payload	3.3V and 5V total output current: 800mA

2.2 Pin Description

Chart 2: Hardware Architecture



9 Groups GPIO、 1 Group AD、 4 Groups PWM、 1 Group serial ports 、
1 Group I2C、 2 Groups I2S、 1 Group SPI

Chart 3: Pin Map (Compatible with IntoRobot-Nut)

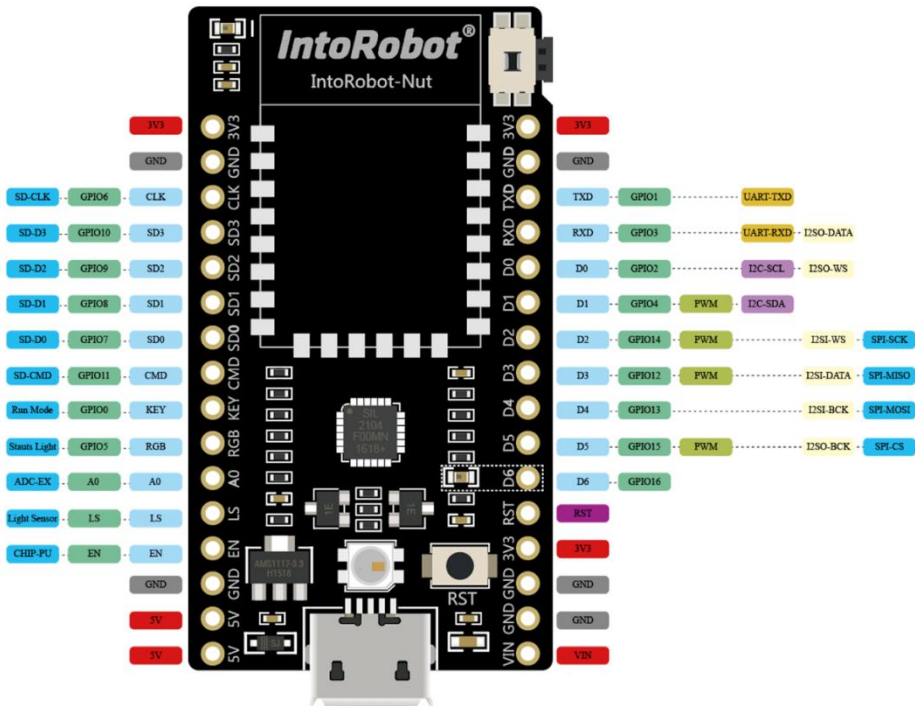


Chart 4: Pin definition

Index	Pin name	Description
1	3V3	3.3V output
2	GND	GND
3	CLK	ESP8266 external SPI FLASH CLK Clock signal (esp8266 module)
4	SD3	ESP8266 external SPI FLASH SD3 data signal (esp8266 module)
5	SD2	ESP8266 external SPI FLASH SD2 data signal (esp8266 module)
6	SD1	ESP8266 external SPI FLASH SD1 data signal (esp8266 module)
7	SD0	ESP8266 external SPI FLASH SD0 data signal (esp8266 module)
8	CMD	ESP8266 external SPI FLASH chip selection (esp8266 module)
9	KEY	GPIO0, connected to Mode Key (esp8266 module)
10	RGB	Connect to RGB led signal (esp8266 module)
11	A0	A/D Input voltage range: 0 ~ 3V , 1:3 partial voltage to ESP8266 Range: 0 ~ 1024
12	LS	Light sensor
13	EN	Chip enable pin. HIGH active (esp8266 module)
14	GND	GND
15	5V	5V output
16	5V	5V output
17	VIN	Power input (4.75V-5.25V)
18	GND	GND
19	GND	GND
20	3V3	3.3V output
21	RST	Reset signal (esp8266 module)
22	D6	GPIO16 (esp8266 module)
23	D5	GPIO15 (esp8266 module)
24	D4	GPIO13 (esp8266 module)
25	D3	GPIO12 (esp8266 module)
26	D2	GPIO14 (esp8266 module)
27	D1	GPIO4 (esp8266 module)
28	D0	GPIO2 (esp8266 module)
29	RXD	GPIO3 (esp8266 module)
30	TXD	GPIO1 (esp8266 module)
31	GND	GND
32	3V3	3.3V Output

2.3 Electrical Characteristics

2.3.1 Rating Values

Chart 5: Rating values

Symbol	Condition	Min	Typ	Max	Unit
Output current	3.3V and 5V total output current	-	-	800	mA
Supply Voltage	I _{OUT} =300mA	4.5	5	6	V
	I _{OUT} =600mA	4.5	5	5.5	V

2.3.2 Recommended Operating Conditions

Chart 6: Recommended operating conditions

Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature	-	-40	20	85	°C
Storage Temperature	-	-40	20	125	°C

2.3.3 I/O Port Characteristics

Chart 7: I/O port characteristics

Parameter	Symbol	Min	Max	Unit
Input Low Voltage	V _{IL}	-0.3	0.25V _{DD}	V
Input High Voltage	V _{IH}	0.75V _{DD}	V _{DD} +0.3	V
Output Low Voltage	V _{OL}	-	0.1V _{DD}	V
Output High Voltage	V _{OH}	0.8V _{DD}	-	V

Note: Test conditions: V_{DD} = 3.3V, Temperature = 20 °C.

3 Nut-S Dimensions

3.1 Board Dimensions

Chart 8: Board dimensions

Unit: mm

