

pixhawk[®] 4

为PX4开发的最先进的开发工具包[®]自动驾驶仪

产品特点

- 一个新的和小的形式因素
- 比以前的版本有更多的计算能力和2倍的内存
- 具有更高温度稳定性的新型传感器
- 集成式振动隔离装置
- 增加了易用性：预装了最新的PX4 (v1.8)
- 增加了端口，以便于更好的集成和扩展



产品说明

pixhawk[®] 4是成功的pixhawk飞行控制器家族的最新更新。它是与Holybro和PX4团队合作设计和开发的，经过优化以运行完整的无人机码堆栈，并预装了最新的PX4固件 (v1.8)。

它采用了意法半导体公司目前最先进的处理器技术[®]，来自博世的传感器技术[®]、发明意义[®]，以及一个NuttX实时操作系统，为控制任何自动驾驶汽车提供了令人难以置信的性能、灵活性和可靠性。

Pixhawk4的微控制器现在有一个2MB的闪存和512KB的内存。随着功率和RAM资源的增加，开发人员的开发工作可以更加高效和高效。更复杂的算法和模型可以在自动驾驶仪上实现。

高性能，低噪声的imu是设计为稳定应用。来自所有传感器的数据准备信号被路由到自动驾驶仪上单独的中断和计时器捕获针，允许传感器数据的精确时间戳。新设计的隔震装置使更准确的读数，使车辆达到更好的整体飞行性能。

两个外部SPI总线和六个相关的芯片选择线允许添加额外的传感器和SPI接口的有效负载。共有4条I2C总线，2条专用于外部使用，2条分组与串口为GPS/罗盘模块。

Pixhawk4自动驾驶仪开发工具包非常适合企业研究实验室、初创公司和学者（研究人员、教授、学生）的开发者。

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技术规范

- 主FMU处理器：STM32F765
 - 32位臂[®]Cortex[®]-M7, 216MHz, 2MB内存512KBRAM
- IO处理器：STM32F100
 - 32位臂[®]Cortex[®]-M3, 24MHz, 8KBSRAM
- 车载传感器
 - Accel/Gyro: ICM-20689
 - Accel/Gyro: BMI055
 - Mag: IST8310
 - 气压计: MS5611
- GPS: ubloxNeo-M8NGPS/格洛纳斯接收器; 集成磁强计 IST8310

界面

- 8-16PWM伺服输出 (8来自IO, 8来自FMU)
- 3在FMU上的专用PWM/捕获输入
- 专用CPPM记录/控制输入
- 专用收发输入, 用于转速/DSM和S。带有模拟/PWMRSSI输入的总线
- 专用S。总线伺服输出
- 5通用串口
 - 2个全流量控制
 - 1个单独的1.5A电流限制
- 3I2C端口
- 4SPI总线
 - 1内部高速SPI传感器总线与4个芯片选择和6个DRDYs
 - 1内部低噪声SPI总线专用于气压计与2个芯片选择, 无DRDYs
 - 1内部SPI总线专用于FRAM
 - 支持位于传感器模块上的专用SPI校准EEPROM
 - : 1个外部SPI总线
- 最多2个CAN总线为双CAN与串行ESC
 - 每个CANBus都有单独的静默控件或ESCRX-MUX控件
- 对2组电池的电压/电流的模拟输入
- : 2个附加的模拟输入

电气数据

电压等级:

- 电源模块输出: 4.9~5.5V
- 最大输入电压: 6V
- 最大电流感应: 120A
- USB电源输入: 4.75~5.25V
- 伺服轨道输入: 0~36V

机械数据

- 尺寸: 44x84x12毫米
- 重量: 15.8g

环境数据、质量和可靠性

- 操作温度: ~40~85C
- 存储温度: -40~85C
- CE
- FCC
- 符合RoHS标准 (无铅)

有关更多信息, 请访问:

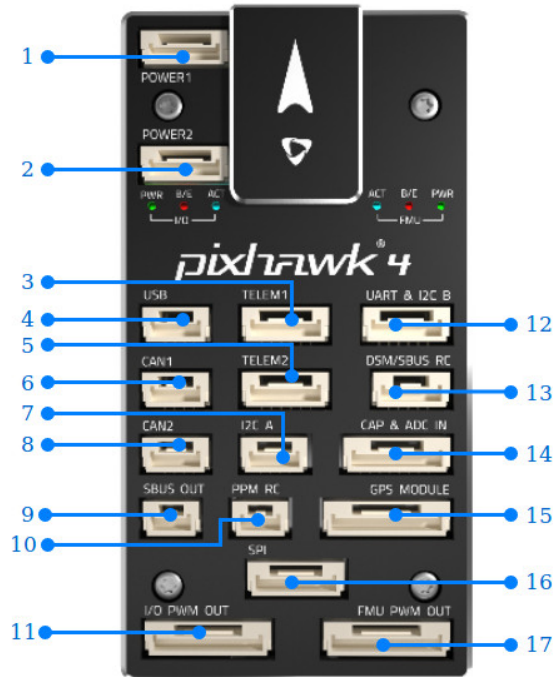
www.dronecode.org
www.pixhawk.org

法律通知:

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PiXhawk是LorenzMeier的注册商标。保留所有权利。

pixhawk4 接线图



1. Power module 1
2. Power module 2
3. Telemetry 1 (radio telemetry)
4. USB
5. Telemetry 2 (companion computer)
6. CAN1 (controller area network) bus
7. I²C (for I²C splitter to use additional sensors)
8. CAN2 (controller area network) bus
9. S.BUS out for S.Bus servos
10. Radio Control Receiver Input (PPM)
11. Main outputs (I/O PWM out)
12. UART and I2C (for additional GPS)
13. Radio Control Receiver Input (DSM/SBUS)
14. Input Capture and ADC IN
15. GPS module
16. SPI (serial peripheral interface) bus
17. AUX outputs (FMU PMU out)



1. Micro-USB Port
2. IO Reset button
3. SD card
4. FMU Reset button



USB port

Pin	Signal	Volt
1(red)	VBUS	+5V
2(black)	DM	+3.3V
3(black)	DP	+3.3V
4(black)	GND	GND

POWER1 POWER2 port

Pin	Signal	Volt
1(red)	VCC	+5V
2(black)	VCC	+5V
3(black)	CURRENT	+3.3V
4(black)	VOLTAGE	+3.3V
5(black)	GND	GND
6(black)	GND	GND

TELEM1, TELEM2 ports

Pin	Signal	Volt
1(red)	VCC	+5V
2(black)	TX(out)	+3.3V
3(black)	RX(in)	+3.3V
4(black)	CTS(in)	+3.3V
5(black)	RTS(out)	+3.3V
6(black)	GND	GND

UART & I2C B port

Pin	Signal	Volt
1(red)	VCC	+5V
2(black)	TX(out)	+3.3V
3(black)	RX(in)	+3.3V
4(black)	SCL2	+3.3V
5(black)	SDA2	+3.3V
6(black)	GND	GND

- A spare port for connecting sensors supporting serial communication or I2C e.g. a second GPS module can be connected here.
- 用于连接支持串行通信或I2C的传感器的备用端口，例如，可以在此处连接第二个GPS模块。

CAN1, CAN2 ports

Pin	Signal	Volt
1(red)	VCC	+5V
2(black)	CANH	+3.3V
3(black)	CANL	+3.3V
4(black)	GND	GND

DSM RC port

Pin	Signal	Volt
1(null)	VDD_5V_SBUS_RC	+5V
2(yellow)	SBUS *	+3.3V
3(null)	RSSI *	+3.3V
4(red)	VDD_3v3_SPEKTRUM	+3.3V
5(black)	GND	GND

- Connect SBUS or DSM/Spektrum receiver's signal wire connect here.
- Sends the RC signal strength info to autopilot.
- 将SBU或DSM/Spektrum接收器的信号线连接到此处。
- 向自动驾驶仪发送RC信号强度信息。

SBUS RC port

Pin	Signal	Volt
1(red)	VDD_5V_SBUS_RC	+5V
2(yellow)	SBUS	+3.3V
3(null)	RSSI	+3.3V
4(null)	VDD_3V3_SPEKTRUM	+3.3V
5(black)	GND	GND

I2C A port

Pin	Signal	Volt
1(red)	VCC	+5V
2(black)	SCL4	+3.3V
3(black)	SDA4	+3.3V
4(black)	GND	GND

CAP & ADC IN port

Pin	Signal	Volt
1(red)	VCC	+5V
2 black)	FMU_CAP1	+3.3V
3(black)	FMU_CAP2	+3.3V
4(black)	FMU_CAP3	+3.3V
5(black)	TIM5_SPARE_4	+3.3V
6(black)	ADC1_SPARE_1	+3.3V*
7(black)	ADC1_SPARE_2	+6.6V*
8(black)	GND	GND

- WARNING: Sensors connected to this pin should not send a signal exceeding this voltage!
- 警告：连接到此引脚的传感器不应发送超过此电压的信号！

SBUS OUTport

Pin	Signal	Volt
1(red)		
2(yellow)	SBUS_OUT	+3.3V
3(black)	GND	GND

PPM RC port

Pin	Signal	Volt
1(red)	VCC	+5V
2(yellow)	PPM	+3.3V
3(black)	GND	GND

GPS MODULE port

Pin	Signal	Volt
1(red)	VCC	+5V
2 black)	TX(out)	+3.3V
3(black)	RX(in)	+3.3V
4(black)	SCL1	+3.3V
5(black)	SDA1	+3.3V
6(black)	SAFETY_SWITCH	+3.3V
7(black)	SAFETY_SWITCH_LED	+3.3V
8(black)	VDD_3V3	+3.3V
9(black)	BUZZER-	0V/5V
10(black)	GND	GND

SPI port

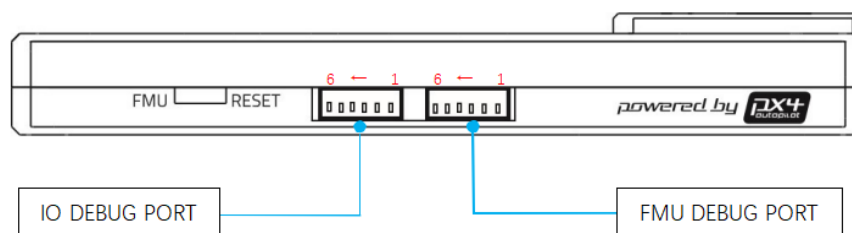
Pin	Signal	Volt
1(red)	VCC	+5V
2 (black)	SCK	+3.3V
3(black)	MISO	+3.3V
4(black)	MOSI	+3.3V
5(black)	CS1	+3.3V
6(black)	CS2	+3.3V
7(black)	GND	GND

I/O PWM OUT port

Pin	Signal	Volt
1(red)	VDD_SERVO	
2 black)	IO_CH1	+3.3V
3(black)	IO_CH2	+3.3V
4(black)	IO_CH3	+3.3V
5(black)	IO_CH4	+3.3V
6(black)	IO_CH5	+3.3V
7(black)	IO_CH6	+3.3V
8(black)	IO_CH7	+3.3V
9(black)	IO_CH8	+3.3V
10(black)	GND	GND

FMU PWM OUT port

Pin	Signal	Volt
1(red)	VDD_SERVO	
2 black)	FMU_CH1	+3.3V
3(black)	FMU_CH2	+3.3V
4(black)	FMU_CH3	+3.3V
5(black)	FMU_CH4	+3.3V
6(black)	FMU_CH5	+3.3V
7(black)	FMU_CH6	+3.3V
8(black)	FMU_CH7	+3.3V
9(black)	FMU_CH8	+3.3V
10(black)	GND	GND



IO DEBUG PORT

Pin	Signal	Volt
1(red)	VT	+3.3V
2(black)	TX	+3.3V
3(black)	NC	
4(black)	SWDIO	+3.3V
5(black)	SWCLK	+3.3V
6(black)	GND	GND

FMU DEBUG port

Pin	Signal	Volt
1(red)	VT	+3.3V
2(black)	TX	+3.3V
3(black)	RX	+3.3V
4(black)	SWDIO	+3.3V
5(black)	SWCLK	+3.3V
6(black)	GND	GND



Descriptions:

We empoldered this new GPS for you to work with PIXHAWK4. It has UBLOX M8N module on it, as well as IST8310 compass and tri-colored LED indicator. Also the Safety switch on it will make the connection more convenient and simple.

This module ships with a baud rate of 38400 5Hz

描述:

我们开发了新的全球定位系统，让你可以使用PIXHAWK4。它上面有UBLOX M8N模块，如图所示以及IST8310指南针和三色LED指示灯。此外，它上的安全开关将使连接更加方便和简单。

该模块的波特率为38400 5Hz。

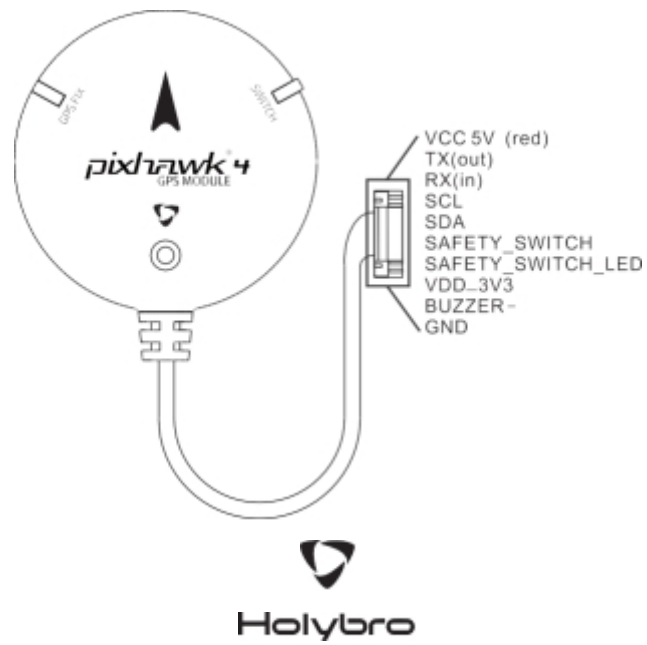
Features and Specifications: (功能和规格)

- Ublox Neo-M8N module Ublox (Neo-M8N模块)
- Industry leading -167 dBm navigation sensitivity (行业领先-167 dBm导航灵敏度)
- Cold starts: 26s (冷启动: 26秒)
- LNA MAX2659ELT+ (LNA MAX2659ELT+)
- 25 x 25 x 4 mm ceramic patch antenna (25 x 25 x 4毫米陶瓷贴片天线)
- Rechargeable Farah capacitance (可充电法拉电容)
- Low noise 3.3V regulator (低噪声3.3V稳压器)
- Fix indicator LEDs (固定指示灯LED)
- Protective case (保护壳)
- 26cm Pixhawk4 compatible 10-pin cable included (26cm Pixhawk4兼容10针电缆)
- Diameter 50mm total size, 32 grams with case (直径50毫米总尺寸32克带外壳)

Package Included: (套餐包括)

- NEO-M8 with compass module *1 (NEO-M8带指南针模块 *1)
- 'X' type folding pedestal mount *1 ("X"型折叠底座安装 *1)
- Carbon rod 70mm & 140mm *1 (碳棒70mm和140mm *1)

****GPS Pin Map****



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