PIXPILOT C3

用户手册 V 1

User Manual V 1

2023.11

mfe

欢迎使用PixPilot C3自动驾驶仪
Thanks for using the PixPilot C3 autopilot

简介 Introduction

PixPilot C3飞控系统是MFE团队在开源飞控FMU V3的基础上开发的一款小型轻量化飞控，具有稳定可靠、装机简洁、使用人性化的特点。

PixPilot C3 flight control system is a small and lightweight flight control developed by MFE team based on the open source flight control FMU V3, which is stable and reliable, simple to install and user-friendly.

飞控模块 Flight Control Module

PixPilot C3硬件接口可能存在与其它开源飞控接口定义不一致的问题。请仔细阅读接口定义的描述，可以自己改换线序匹配不同外设模块。

The PixPilot C3 hardware interface may not be consistent with other open source flight control interface definitions.
Please read the description of the interface definition carefully, you can change the wiring sequence to match different peripheral modules.

注意：箭头指向机头方向
attention: the arrow points to the nose
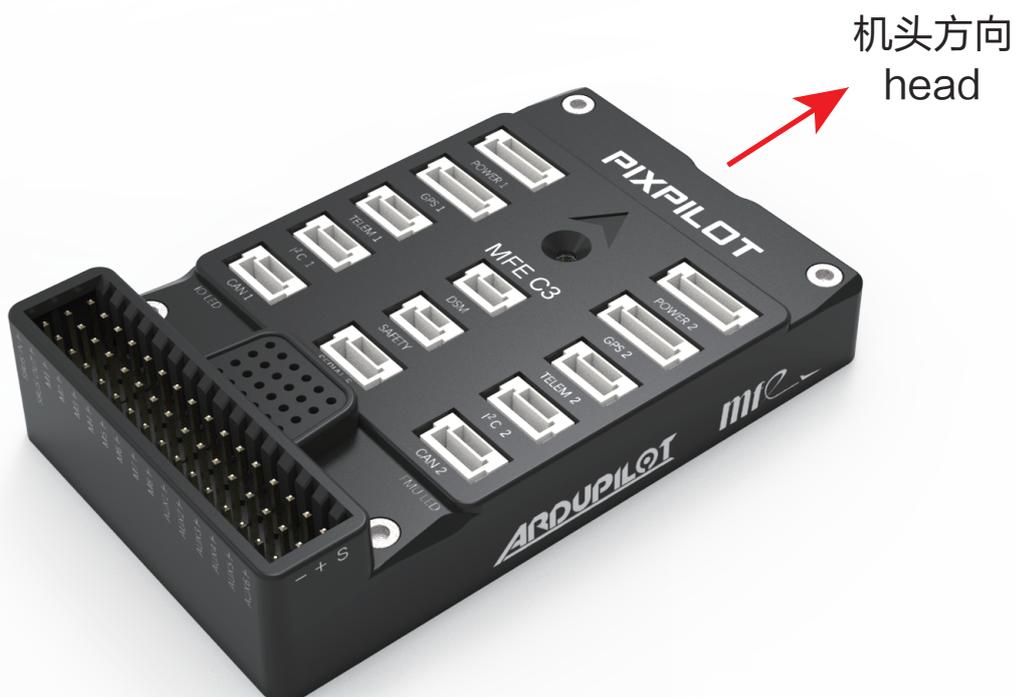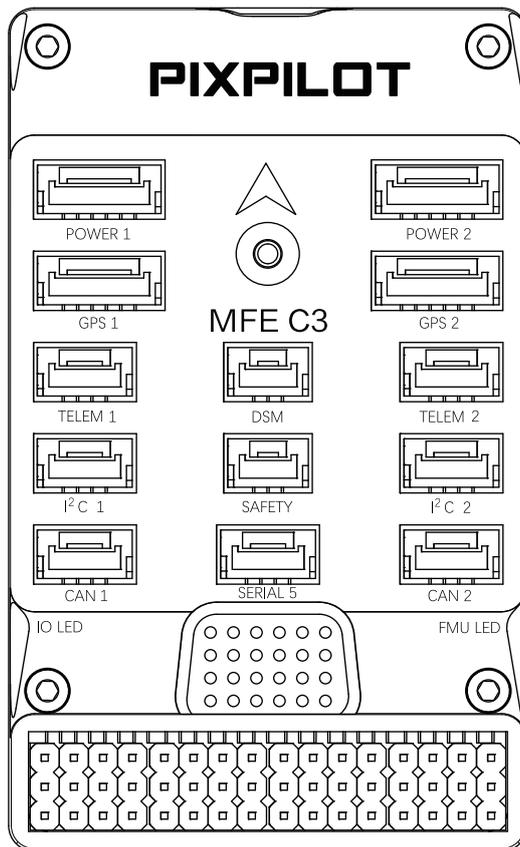
机头方向
head

PIXPILOT

MFE C3

POWER 1
GPS 1
TELEM 1
DSM
TELEM 2
POWER 2
GPS 2
I²C 1
SAFETY
I²C 2
CAN 1
SERIAL 5
CAN 2

IO LED
FMU LED

POWER1

- 5V+
- 5V+
- CURRENT
- VOLTAGE
- GND
- GND

GPS 1

- 5V+
- TX3
- RX3
- SCL1
- SDA1
- GND

GPS 2

- 5V+
- TX4
- RX4
- SCL2
- SDA2
- GND

POWER2

- 5V+
- 5V+
- CURRENT
- VOLTAGE
- GND
- GND

TELEM1

- 5V+
- TX1
- RX1
- GND

I2C 1

- 5V+
- SCL1
- SDA1
- GND

I2C 2

- 5V+
- SCL2
- SDA2
- GND

TELEM2

- 5V+
- TX1
- RX1
- GND

CAN1

- 5V+
- H1
- L1
- GND

DSM

- 5V+
- DSM
- GND

SAFETY

- 5V+
- LED
- SAFETY

SERIAL5

- 5V+
- TX
- RX
- GND

CAN2

- 5V+
- H2
- L2
- GND

IO LED   FMU LED

S
+
-

SBUS IN | SBUS OUT | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | A 1 | A 2 | A 3 | A 4 | A 5 | A 6

内存卡槽

TF Card

USB

USB接口
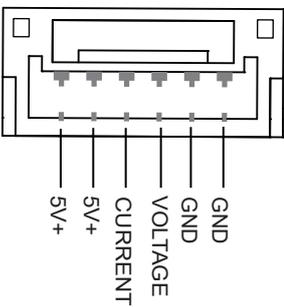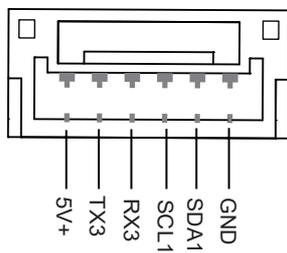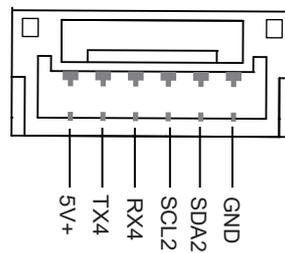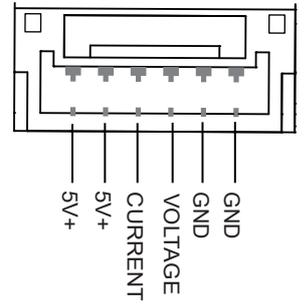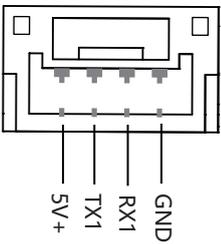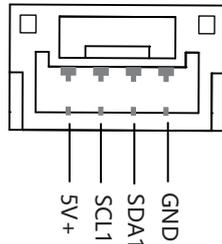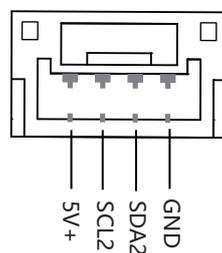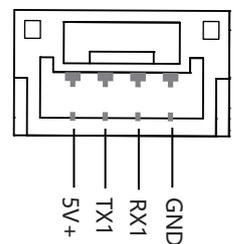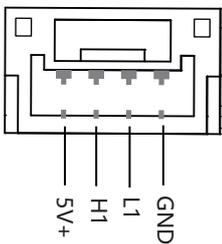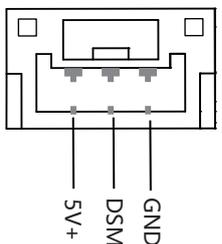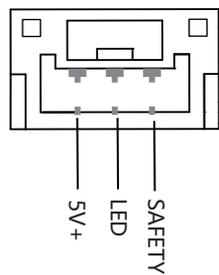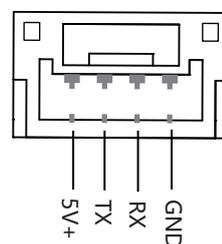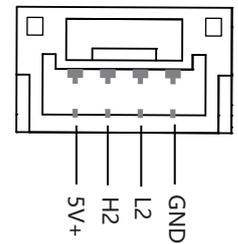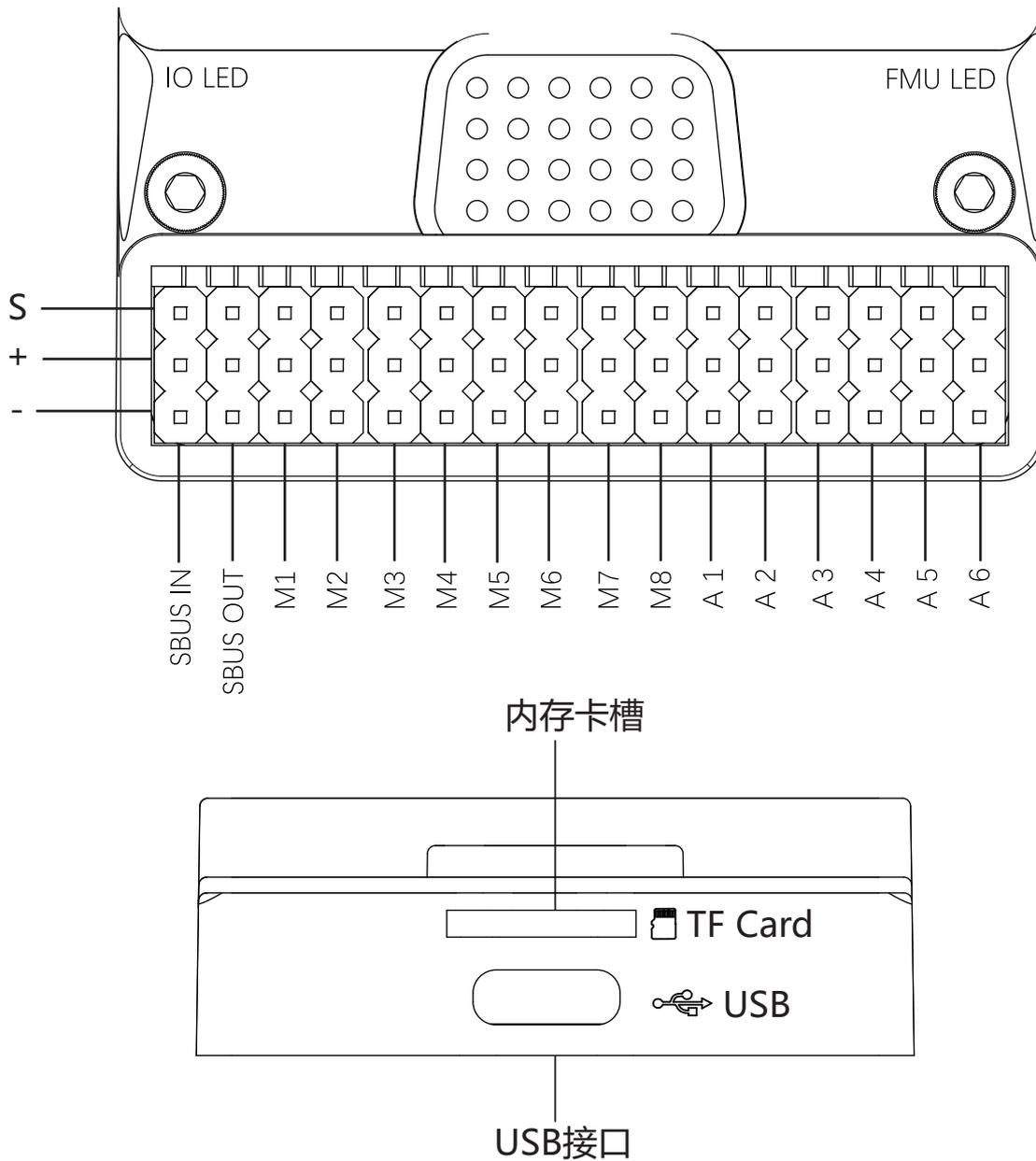
指示灯说明 Indicator Description

已解锁 Unlocked	绿灯常亮 The green light is always on	GPS 3D 定位 GPS 3D positioning
	蓝灯常亮 The blue light is always on	GPS 未定位 GPS not positioning
未解锁 Not unlocked	黄灯慢闪 The yellow light flashes slowly	飞控故障 Flight control failure
	绿灯慢闪 The green light flashes slowly	GPS 已固定 GPS fixed
	蓝灯慢闪 The blue light flashes slowly	GPS 未定位 GPS not located

POS1模块 POS1 Module

1
POS
M8N IST8310

5V+
RX
TX
SCL
SDA
GND

PMU模块 PMU Module

5V+
5V+
CURRENT
VOLTAGE
GND
GND

电池端
Battery end

PMU

设备端
Equipment end

INPUT
RED +

OUTPUT
+ RED

电源方向
Power direction
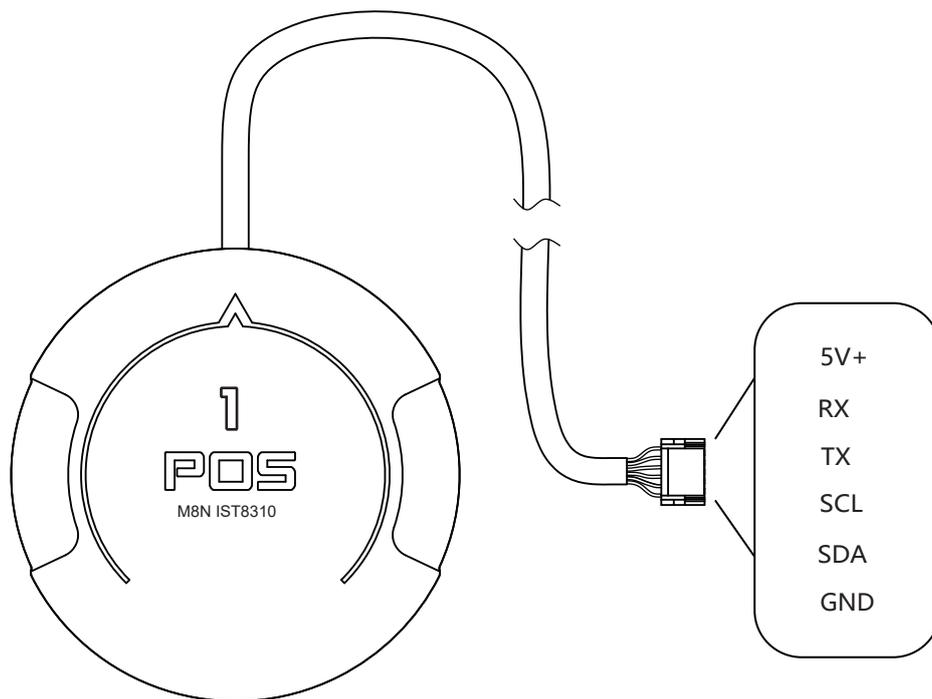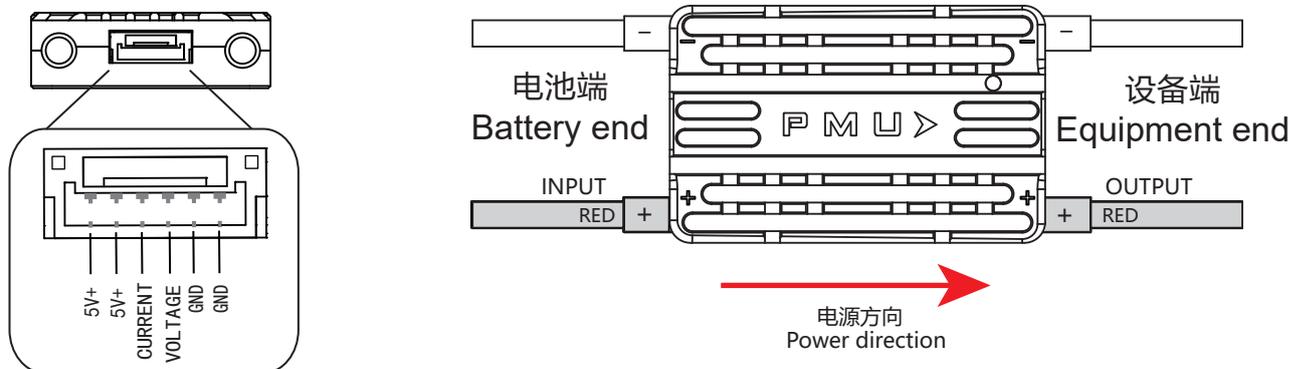
规格参数 Specification Parameters

硬件配置 (Hardware configuration)	
主处理器 Main processor	STM32F427(32 Bit Arm Cortex-M4 180Mhz 2M Flash 256K RAM)
协处理器 Coprocessor	STM32F103(32 Bit Arm Cortex-M3 72Mhz 64K Flash 20K RAM)
传感器 Sensor	ICM-42688-P X2（加速度+陀螺仪）　　　（Acceleration and Gyro） BMP388 X 2（气压计）　　　　　　　　（Barometer）

	基本参数 (Basic parameters)	
	UART	5
	I2C	2
	CAN	2
	PWM	8+6
	PPM/SBUS-IN	1
飞 控 Flight control	SBUS-OUT	1
	DSM-in	1
	Power	2
	USB-Type-C	1
	TF-卡槽 TF-card slot	1
	外壳材质 Shell material	工程塑料　Engineering plastics
	工作温度 Operating temperature	-10 ℃~55℃
	尺寸 Size	74X45X16 (mm)
	重量 Weight	37g
	硬件配置 (Hardware configuration)	
	GPS	U-blox M8N
	磁罗盘 （Magnetic compass）	IST8310
	参数性能 (Parametric performance)	
	定位精度 Positioning accuracy	2.5m
	更新频率 Update frequency	10hz（Max）
	冷启动 Cold sart	26S
	热启动 Hot start	1S
POS1	追踪灵敏度 Tracking sensitivity	-167dBm
	磁罗盘精度 Magnetic compass accuracy	±1度（±1 degrees）
	磁罗盘分辨率 Magnetic compass resolution	0.3uT/LSB
	基本参数 (Basic parameters)	
	工作电压 Operating voltage	5V
	工作温度 Operating temperature	(-10 ℃~70℃)
	尺寸 Size	模块 module：60x60x17(mm) 线 wire：300 mm
	重量 weight	35g

	工作电压 Operating voltage	12 V－60 V（3S－12S电池）（3S－12S battery）
	工作电流 Working current	0-80 A
	电压精度 Voltage accuracy	±0.1 V
	电流精度 Current accuracy	±0.2 A
	电压分压比 Voltage divider ratio	18
PMU	电压A/V比 Voltage A/V ratio	24
	稳压输出 Regulated output	5.3V/5A
	工作温度 Operating temperature	-20～+100℃
	接口 Interface	IN/OUT：AWG 12　Power:SM06B-GHS-TB
	尺寸 Size	模块 module：50x32x10(mm) 线 wire：220 mm
	重量 Weight	65g

配件清单 Accessories list

配　件（Accessories）	数　量（Quantity）
PixPilot C 3飞控模块（ PixPilot C3 Flight control module）	1
4Pin线材（4Pin Wire Material）	2
6Pin线材（6Pin Wire Material）	2
TYPE-C数据线 （TYPE-C Data cable）	1
安全开关（Safety switch ）	1
32G TF卡（32G TF Card）	1
3M双面胶 （3M Double-sided tape）	2

技术支持 Technical Support

访问下面链接获取详细的安装、调试、试飞技术支持。Visit the link below for detailed installation, commissioning and flight test technical support.
https://doc.makeflyeasy.com

免责声明 Disclaimers

PixPilot C3是一款开源飞控系统，任何理由引起直接、间接衍生性意外伤害造成的后果，厂家不承担任何责任，禁止用于军事用途。

PixPilot C3 is an open source flight control system. The manufacturer will not bear any responsibility for the consequences of direct and indirect derivative accidental injuries for any reason, and it is prohibited to use it for military purposes.

注意事项 Matters Needing Attention

请遵守当地法规，不要在禁飞区内飞行。请确保飞行器飞行时远离人群及危险物品，切勿在饮酒，疲劳或精神不佳状况下进行任何飞行器操作。

Please observe local regulations and do not fly in the no fly zone. Please ensure that the aircraft flies away from people and dangerous goods. Do not operate the aircraft under the condition of drinking, fatigue or poor spirit.