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MRD5165 Eagle Kit &
Pixhawk Base differences

- Application Note

Revision History

Revision	Date	Description
1.0	Jan 12, 2024	Preliminary version

ABSTRACT

This document highlights the differences between the connectors/interfaces on the PixHawk Base and the MRD5615 Eagle – Kit.

Note: Information in this document is subject to change. Contact us for the most updated version of this document

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Abbreviations & Acronyms

Many acronyms and abbreviations are used throughout this manual. Use the table below to navigate unfamiliar terms used in this document.

Table 0-1: Abbreviations & Acronyms

Acronym	Definition
ADSB	Automatic Dependent Survielance Broadcast
FCU	Flight Control Unit
FMU	Flight Management Unit
GND	Ground (Electrical ground)
NC	No Connection
PPM	Pulse Position Modulation
P-Sense	Power Sense
RCIN	Radio control Input
SBUS	Serial Bus
SBUSo	Serial Bus Output

1. Introduction

This document illustrates the differences between the various connectors / signals on Eagle-Kit and the PC4 Base with respect the Flight Controller usage. The primary intent of this document is to highlight the differences enabling those familiar with Pixhawk - Base in a manner to ease the migration to Eagle-Kit.

2. Power Source and Battery monitoring

The FCU in the Eagle Kit is exclusively powered through the BATT-IN port (XT-30 connector), drawing power from a singular source. Avoid attempting to power the Eagle Kit through any other means. Connect BATT-IN to a 12-36V power supply or a 3-8s battery.

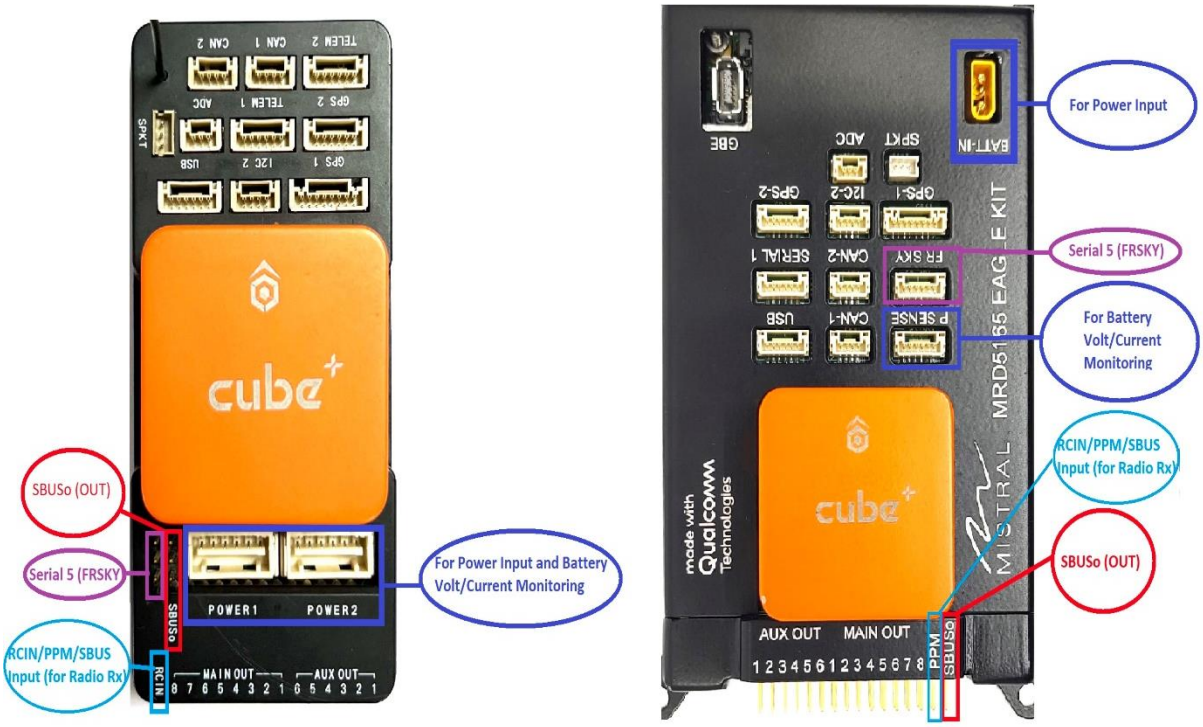

Figure 1: Pixhawk-Base & Eagle Kit power / telemetry interfaces

For battery monitoring and power sensing, the Eagle Kit provides a P Sense Port. This port facilitates the measurement of voltage and current for two different batteries simultaneously. Refer to the connections and schematic provided.

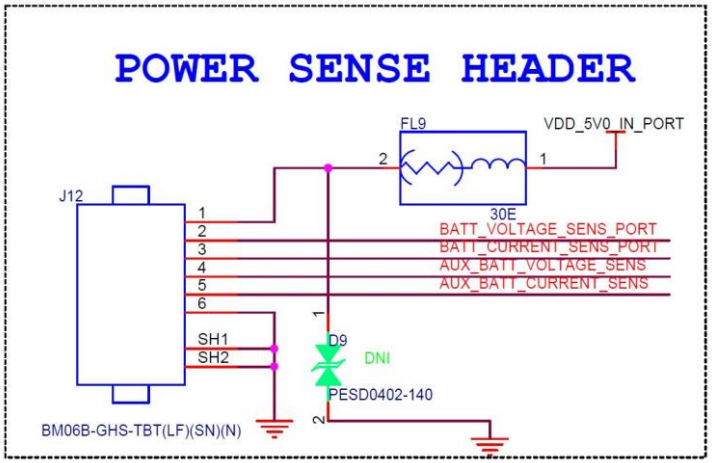

Figure 2: Reference connections for Battery monitoring

Sample Connections with Power Brick Module are as shown in the picture below

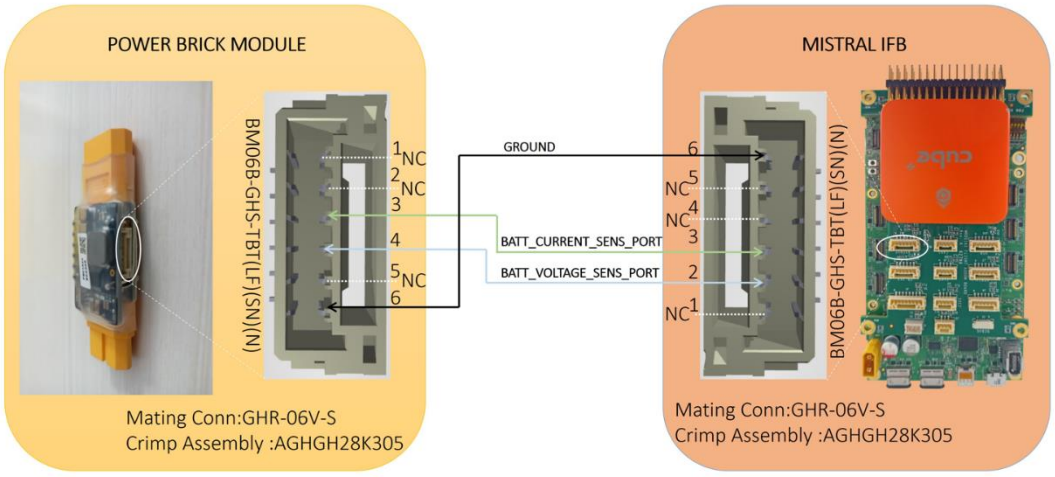

Figure 3: Example of connection with Power Brick Module

3. Servo Rail

While the functionality of the Servo Rail in the Eagle Kit mirrors that of the Cube Orange FCU, there are slight differences in pin placement. Follow the below guidelines.

1. In the Eagle Kit from left to right, AUX Out 1-6 Pins are followed by MAIN Out 1-8 Pins, PPM, and SBUSo Ports

2. The PPM port in the Eagle Kit corresponds to the RCIN Port of the Cube Orange Flight Controller and is located at the second position from the right on the Servo Rail. It is used to connect any PPM or SBUS-supported radio receivers.

3. SBUSo or SBUS Output is the rightmost pin in the Servo Rail of the Eagle Kit, like the SBUSo Port on the Cube Orange Flight Controller.

Note: unlike the Cube Orange FCU, AUX Out and MAIN out Pins in the Servo Rail of the Eagle Kit do not have any power input or output. However, the PPM and SBUSo ports provide a 5V power output for connecting external devices.

GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	
+5V	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
RCIN/ PPM/ SBUS IN	MAIN OUT 8	MAIN OUT 7	MAIN OUT 6	MAIN OUT 5	MAIN OUT 4	MAIN OUT 3	MAIN OUT 2	MAIN OUT 1	AUX OUT 6	AUX OUT 5	AUX OUT 4	AUX OUT 3	AUX OUT 2	AUX OUT 1	

GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND
NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	+5V	+5V
AUX OUT 1	AUX OUT 2	AUX OUT 3	AUX OUT 4	AUX OUT 5	AUX OUT 6	MAIN OUT 1	MAIN OUT 2	MAIN OUT 3	MAIN OUT 4	MAIN OUT 5	MAIN OUT 6	MAIN OUT 7	MAIN OUT 8	RCIN/ PPM/ SBUS IN	SBUS OUT

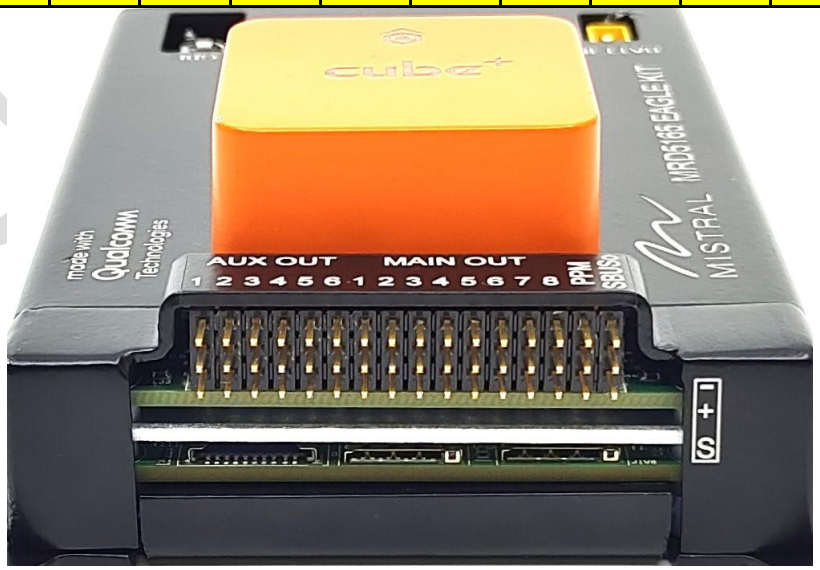

Figure 4: Servo pins comparison between Eagle Kit & Pixhawk Base

4. Other Interfaces

4.1. Telem2 / Serial 2 Port

The Telem2 port is not externally available in the Eagle Kit as it is used for interfacing with the onboard companion computer (RB5).

4.2. FRSKY Port

FRSKY is combination of Serial 5 (Tx/Rx) and FMU Debug lines and its schematic is shown in the diagram below:

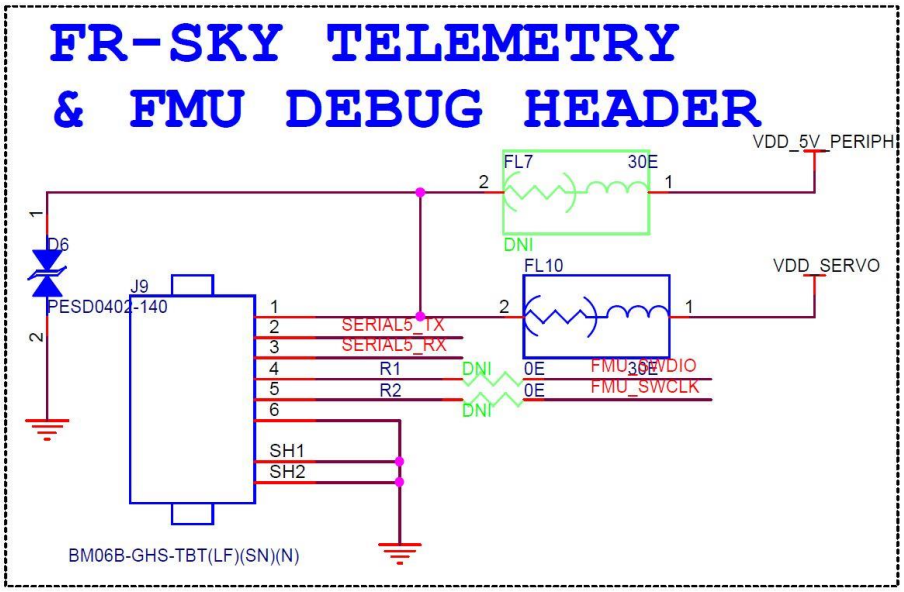

Figure 5: FRSKY & FMU Debug lines reference connections

4.3. ADSB Setup

ADSB Support is not provided on Eagle Kit.

5. Additional Assistance

Please contact our support team for further assistance :

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Email : mrd5165support@mistralsolutions.com
Web : https://mistralsolutions.com/MRD5165

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