

NanoUtil FPP Top

Datasheet
Flight Preparation Panel for nano-satellites

Product name: NanoUtil FPP Top

Document No.: 1014885

Revision: 1.2

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Approval date: 2018

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2 Overview

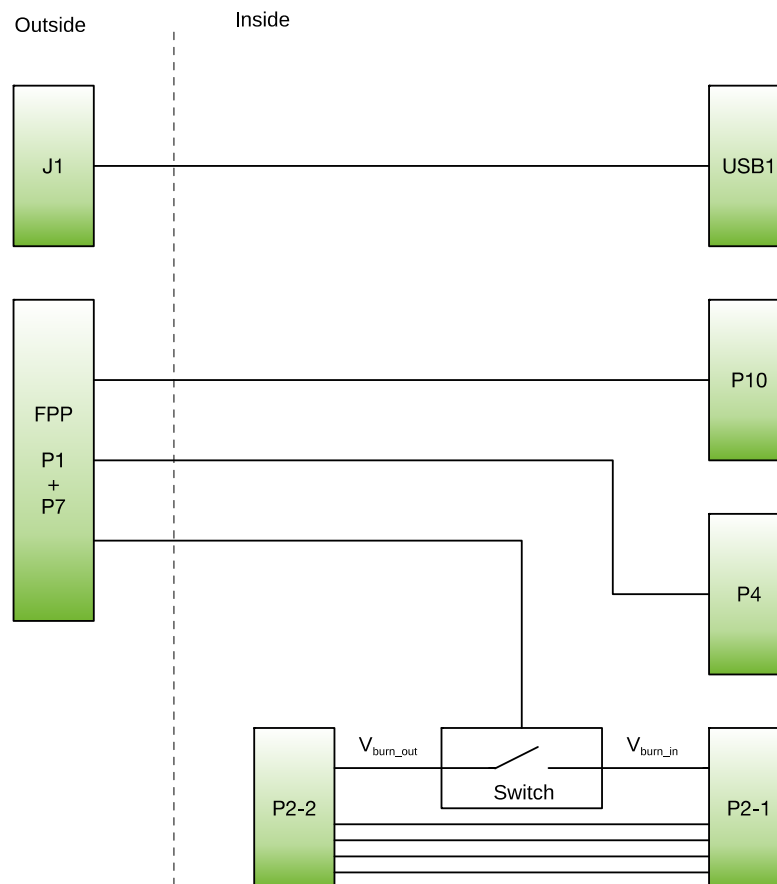
The NanoUtil FPP Top (FPP) is a Flight Preparation Panel for nano-satellites. The connectors on the top of the PCB can be reached from the outside of the satellite, and those on the bottom are used to connect to other subsystems inside the satellite.

The FPP is usually mounted just below a solar panel in the top or bottom of the satellite.

2.1 Highlighted Features

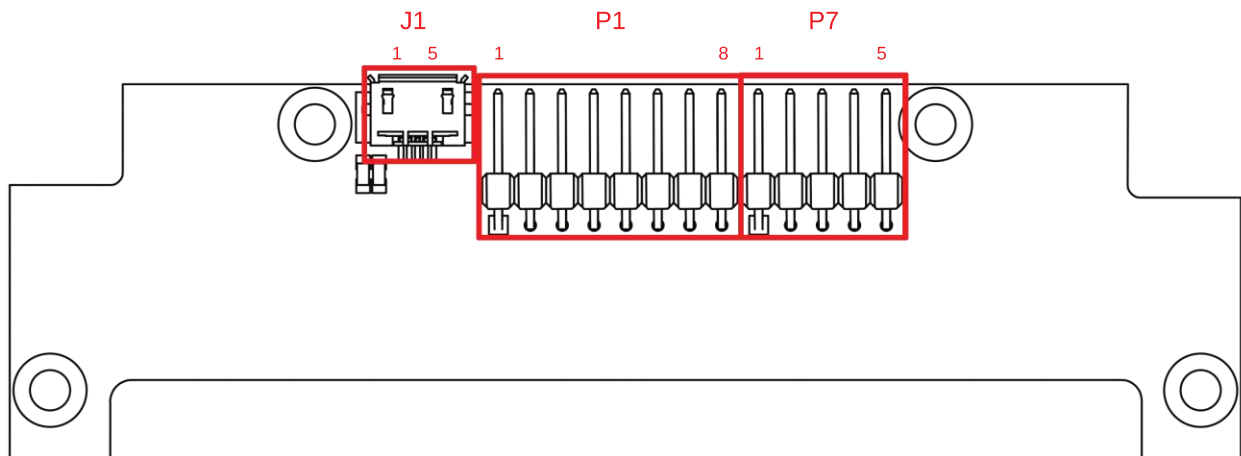
- Easy integration with other GomSpace products
- Flight Preparation Panel
 - USB interface^[1]
 - Remove Before Flight (RBF) pins
 - Satellite charging interface
 - Kill Switch on/off
- Fits stand PC104 size
- Dimensions: 98.0 mm x 98.0 mm x 8.5 mm
- Mass: 12 g
- PCB material: glass/polyimide
- IPC-A-610 Class 3 assembly

2.2 Block Diagram



3 Hardware Layout

3.1 Connector Location Top



3.1.1 J1 – Standard Micro USB

Micro USB Type AB. AMP 1981584-1 USB Connector.

3.1.2 P1 – Flight Preparation Panel Pins

2.54 mm Header

Pin	Description
1	GND
2	UHF_ARM
3	GND
4	RBF
5	GND
6	Kill Switch Reset
7	GND
8	Kill Switch 1

Use 2.54 mm female jumpers.

Antenna Release

With a pin in UHF_ARM the antenna cannot be released.

RBF - Remove Before Flight

The RBF is connected to the EPS RBF and by shorting it to ground ensures that the satellite cannot be switched on.

Kill Switch

There are two kill switch pins. By shorting Kill Switch 1 to ground the satellite will turn on. By shorting Kill Switch Reset it will turn off.

3.1.3 P7 - Flight Preparation Panel Pins

2.54 mm Header

Pin	Description
1	USB5Vin
2	EPS_CHARGE
3	EPS_CHARGE_STATE
4	GND
5	PV to P10 pin 1

Use 2.54 mm female jumpers.

Charge

The satellite can be charged through the EPS_CHARGE (5V) or by inserting a USB cable and inserting a jumper over the USB5Vin and the EPS_CHARGE input.

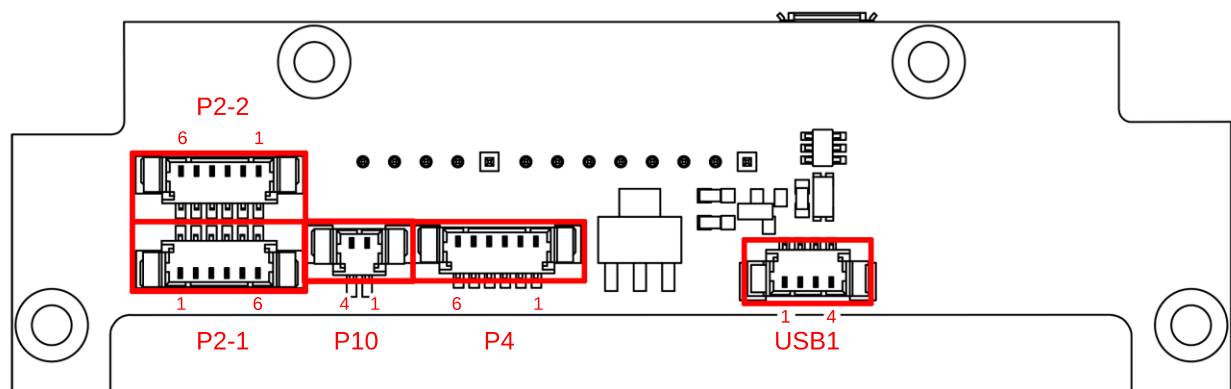
Battery Voltage

The battery voltage can be measured through the EPS_CHARGE_STATE pin.

PV

Can be used to attached simulated solar panel to power supply.

3.2 Connector Location Bottom



3.2.1 P2-1 – Connect to Interstages

PicoBlade 1.25 mm Pitch. Straight. Molex 53398-0671.

Pin	Description
1	GSSB_SDA
2	GSSB_SCL
3	GSSB_VCC
4	GND
5	GSSB_VCC2
6	BURN_IN

3.2.2 P2-2 - Connect to Interstages

PicoBlade 1.25 mm Pitch. Straight. Molex 53398-0671.

Pin	Description
1	BURN_OUT
2	GSSB_VCC2
3	GND
4	GSSB_VCC
5	GSSB_SCL
6	GSSB_SDA

3.2.3 P4 – Connect to EPS

PicoBlade 1.25 mm Pitch. Straight. Molex 53398-0671.

Pin	Description
1	GND
2	RBF
3	KS1
4	KS_RST
5	EPS_CHARGE_STATE
6	EPS_CHARGE

3.2.4 P10 – PV Connect

PicoBlade 1.25 mm Pitch. Straight. Molex 53398-0471.

Pin	Description
1	PV from P7 pin 5
2	GND

3.2.5 USB1 – Connect to PC

PicoBlade 1.25 mm Pitch. Straight. Molex 53398-0471.

Pin	Description
1	GND
2	USB5Vin
3	Din_N
4	Din_P

4 Absolute Maximum Ratings

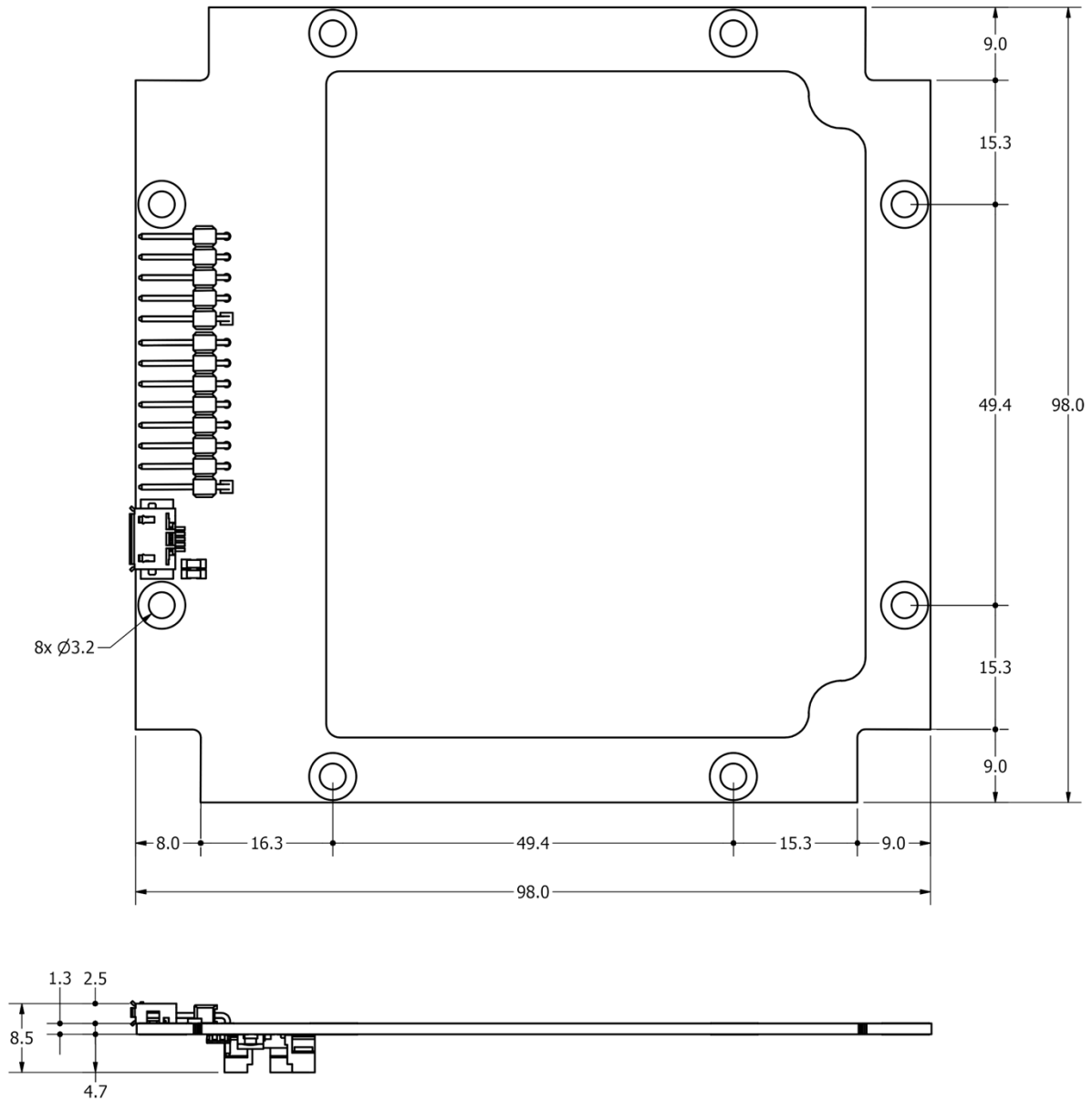
Stresses above those listed under Absolute Maximum Rating may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may effect the reliability.

Parameter	Description	Min	Typ.	Max	Unit
T _{op}	Operational temperature range	-40		85	°C
T _{st}	Storage temperature range	-40		85	°C

5 Mechanical Drawing

Mass is 12 g.

All dimension in mm.



6 Disclaimer

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