

CELESTE

DATASHEET

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GLOSSARY

ASSY	Assembly
CSP	CubeSat Space Protocol
DWG	Drawing
ICD	Interface Control Document
TTF	Time to first fix
PPS	Pulse Per Second
GPS	Global Positioning System
MMCX	Micro-Miniature Coaxial connector
RS485	Recommended Standard 485
CAN	Controller Area Network
UART	Universal Asynchronous Receiver-Transmitter
I2C	Inter-Integrated Circuit

1 PRODUCT OVERVIEW

Celeste GNSS receiver is a compact module for determination of satellite position using GNSS satellites from GPS, GLONASS, Galileo and BeiDou constellations. It can also provide precise timing signal via PPS output. Celeste is capable of tracking objects at velocities up to 10 km/s. The device supports the CubeSat Space Protocol (CSP).

Flight heritage on 10+ nanostellite missions (e.g. LASARsat, CroCube, GRBBeta, Planetum-1 and external customers) and launchers.

2 TECHNICAL SPECIFICATION

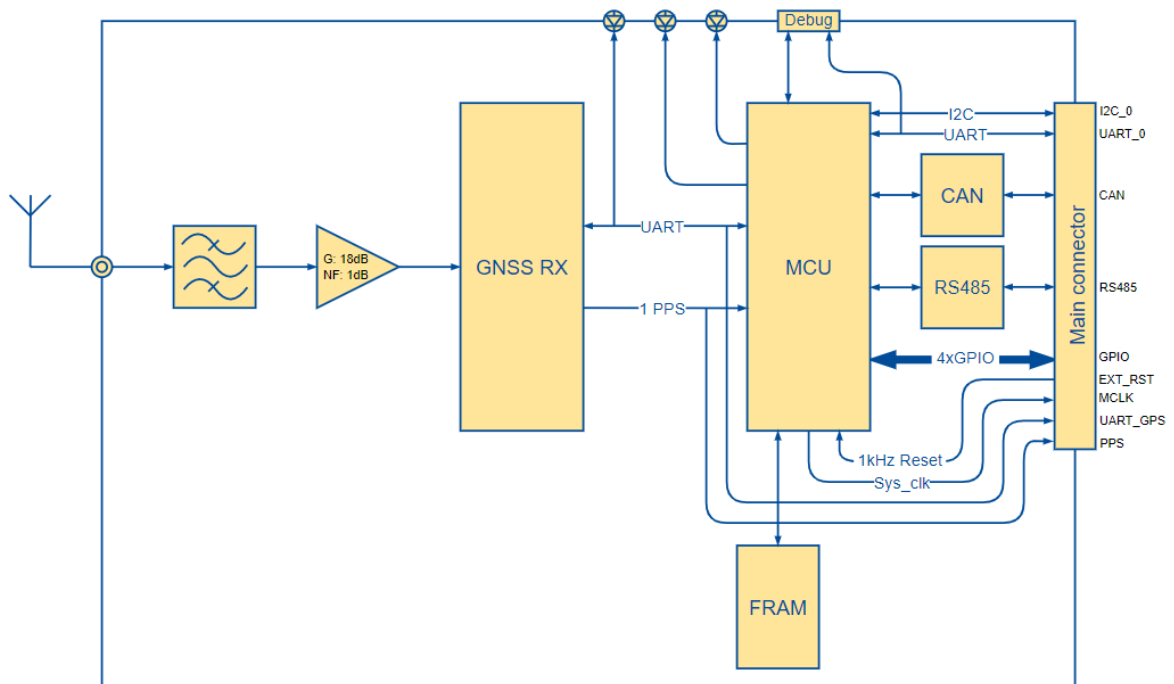


Figure 2-1: Celeste GNSS Receiver block diagram

Table 2-1: Technical specification

Parameter	Value	Unit
Operating Temperature	-40 +85	°C
Dimensions	67x42x7.5	mm
Power Supply	3.3, 5	V
Mass	25	g
Power Consumption - average	250	mW
Power Consumption - peak		mW
Startup time Hot/Warm/Cold	1/ 28/29	s
TTF	29	s
Cold start sensitivity	-148	dBm
Tracking sensitivity	-165	dBm

3 INTERFACES

3.1 ELECTRICAL

Connectors (incl. pin-outs), buses.

- 1 x I2C
- 1 x RS485
- 1 x CAN
- 2 x UART (1 x Command Line Interface, 1 x Direct access to GNSS receiver)
- PPS output
- System clock output
- External reset input
- MMCX antenna connector – cable **not** included

3.1.1 MAIN CONNECTORS

Celeste GNSS Receiver is capable of communicating through CubeSat Space Protocol (CSP) implemented on I2C, RS485 and CAN interfaces. The pinout of the main connector is in Figure 2 Celeste connector description.

Celeste module also supports direct communication with the GNSS module over UART_GPS.

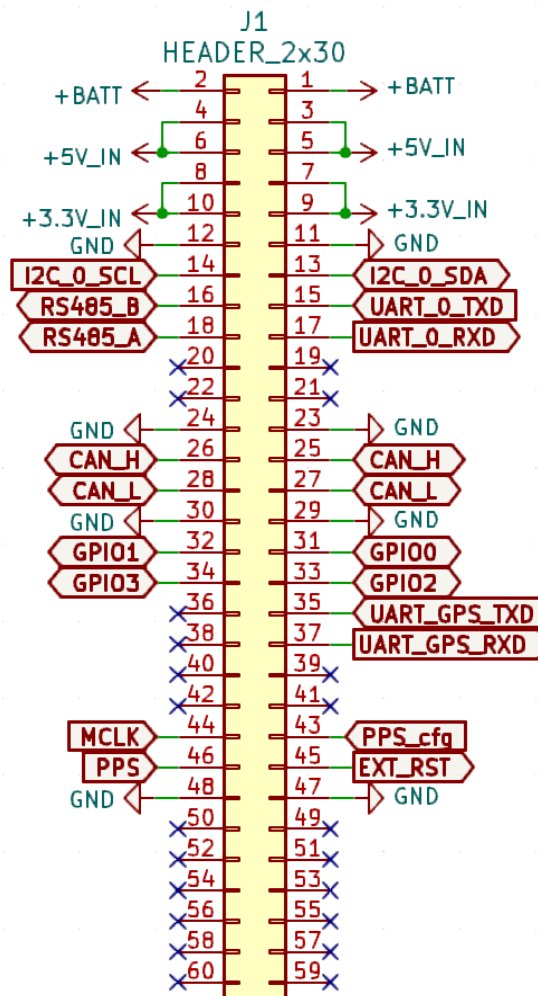


Figure 2 Celeste connector description

Table 2 Main connector type

	Connector type
On module	Molex SlimStack 55650-0688
Mates with (motherboard)	Molex SlimStack 54363-0689

3.2 SOFTWARE

CSP compatibility.

```
> test Hello world! This is a test 54321
args:Hello world! This is a test 54321
Error (123)
- Cubesat Space Protocol
- Command line interface
```

3.3 MECHANICAL

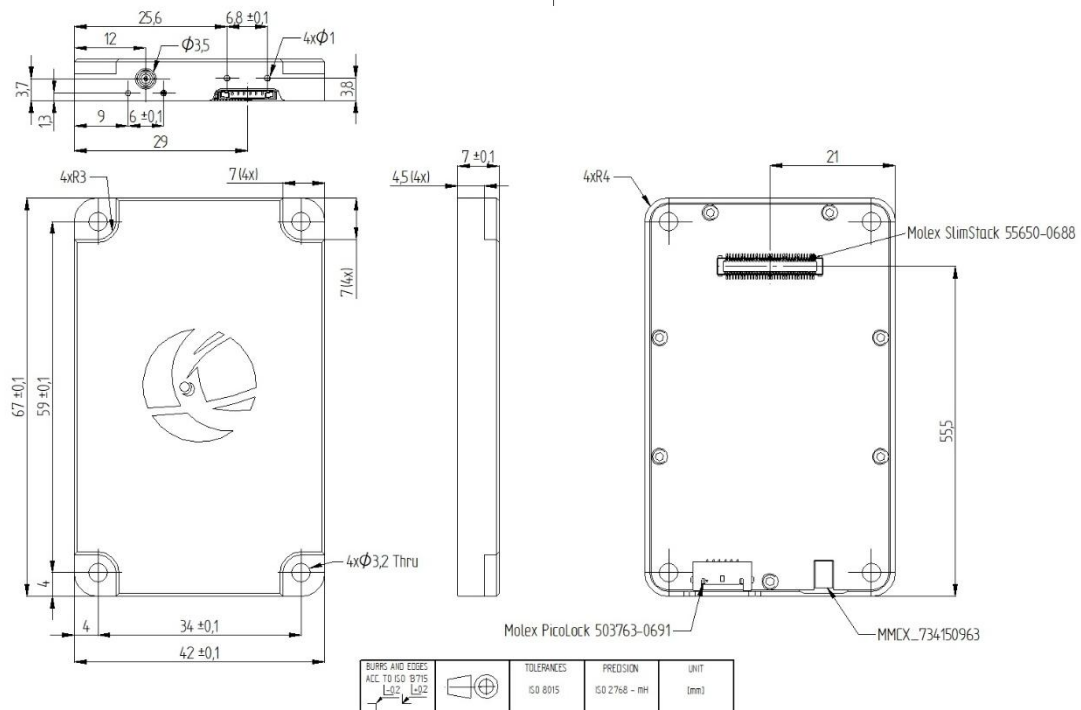


Figure 3-3 Mechanical Interface of Eddie OBC module

It is recommended to mount the module using four ISO 14579 M3x6 socket head hexalobular TX titanium grade 5 screws against 2.1 mm M3 spacers on the motherboard.

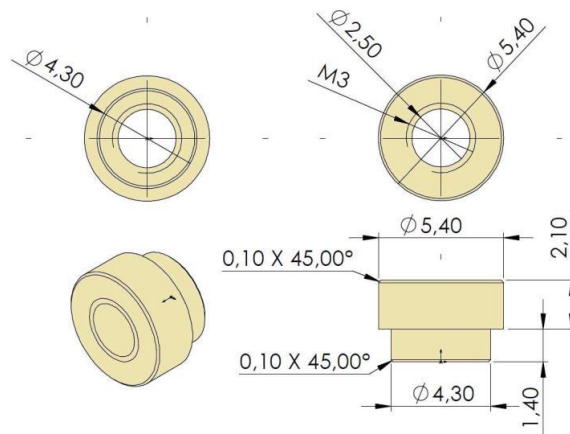


Figure 3-4 Recommended Mounting Spacer (brass)

4 DELIVERABLES

Table 4-1: Deliverables

Type	Item	Note
Interface	Celeste extension board with standoffs	
Mechanical Part	Aluminium cover	
Wiring	Debug cable	503764-0601 ~15cm terminated to female 2.54mm header
Documentation	Interface Control Document	
Support	Engineering support: 1 hour	

5 RELATED PRODUCTS

- [ZENITH The GNSS Active Antenna](#)
- [LODESTONE](#)
- [LODESTONE NEO](#)
- [1-16U CubeSat Platforms / Complete Mission](#)

6 DISCLAIMER

Spacemanic shall not be liable for any damages, losses, delays, or other consequences arising from improper use, unauthorized modifications, or incompatibility of the product with other systems, even in cases where these products are deployed in demanding environments such as satellite or space applications. The product is designed for specific use according to the technical specifications outlined in the official documentation, and the company is not responsible for any issues arising from usage beyond this scope.

The company is also not liable for damages caused by external factors that cannot be predicted or controlled, including but not limited to infrastructure failures, space conditions (e.g., radiation, microgravity), natural disasters, human error, unauthorized third-party interference, or unplanned changes in regulatory or legal requirements.

By using the product, the user acknowledges awareness of the risks associated with its use in satellite and space applications and accepts full responsibility for the correct deployment and use of the product.