



SPACEMANIC

# Celeste

## The GNSS receiver

SM-GNSS-MSP430-SKTRQ

Multi-GNSS receiver module suitable for nano-satellite position acquisition and determination

### FEATURES

- Plug&Play Design
- Compatible with Spacemanic cubesat standard
- Compatible with CubeSat components from other vendors
- External reset
- Robust design
- GPS/Glonass/Beidou (Galileo in progress)
- Cubesat Space Protocol compatible
- Works directly with active or passive antenna

### PRODUCT PROPERTIES

- Operating temperature: -40 °C to +85 °C
- Power Supply: 3.3V, 5V
- 67x42 mm size module compatible with Spacemanic motherboard (PC/104 form factor)
- Mass: 25g
- Power consumption:  $\pm 100$ mW average

### FUNCTIONAL CHARACTERISTICS

- Maximum velocity 10km/s
- -148dBm cold start sensitivity
- -165dBm tracking sensitivity
- 29 second cold start TTFF
- 1 second hot start
- 2.5m accuracy



### INTERFACES

- 1 x I2C
- 1 x RS485
- 2 x UART
- 1x CAN
- PPS output
- System clock output
- External reset input
- JTAG on separated connector
- SSMCX antenna connector
- Debug LEDs

### SOFTWARE

- Cubesat Space Protocol / I2C communication
- Full compilation of drivers for OBC

### TESTING & HERITAGE

- Based on Flight Heritage Hardware
- Successful vibration & heated vacuum tests
- Radiation tests (TID @ 20 krad, SEE @ 60 MeV)