



## Space Technology

AOCS-Components



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### **ARGO-L1 GNSS receiver unit**

Redundant COTS-based GPS receiver unit tailored for positioning and timing applications for LEO missions featuring:

- Configurable redundancy of dual receiver assembly
- Improved solution availability by dual independent passive receive antenna system with passive combination of RF signals
- Equipped with inrush current limitation and voltage/current monitoring
- FDIR capability for timely reaction to system failures
- Navigation firmware and tracking channels optimized to LEO missions
- Receiver warm startup mode to enable rapid time to first positioning fix

ARGO-L1 consists of a receiver unit box and accompanying LNAs and antennas. The box can be supplied in two possible mounting configurations.



Parameter	Data
<b>Performance:</b>	
Frequency	GPS L1 Band, C/A code
Number of correlator channels	12
Signal acquisition threshold	35 dB-Hz
Receiver startup mode TTFF	
warm start	< 3 min (90%)
cold start	< 15 min (90%)
Timing accuracy (1PPS signal)	< 0.1 us (1 sigma)
Navigation accuracy	
position	10 m (3D rms)
velocity	0.1 m/s (3D rms)
Update rate	1 Hz
<b>Mechanical:</b>	
Dimensions - receiver unit box	
Configuration 1	130.0 x 216.6 x 34.4 mm <sup>3</sup>
Configuration 2	51.0 x 216.6 x 109.4 mm <sup>3</sup>
Dimensions - receive antenna	
Diameter	88.9 mm
Height (incl. connector)	28.7 mm
RF signal LNA	44 x 27 x 10.5 mm <sup>3</sup>
Mass (2x antennas and 2x LNAs)	
Configuration 1&2	< 1200 g
<b>Electrical:</b>	
Power supply voltage	18 V to 36 V
Power consumption	
stand alone single receiver	2.2 W <sup>a</sup>
single receiver with 2x LNAs	2.4 W <sup>b</sup>
<b>Data Interfaces:</b>	
I/O data bus	CAN 2.0 and RS422 (others on request)
<b>General:</b>	
Operation temperature range	
Receiver and LNA	-20°C to +60°C
Antenna	-55°C to +85°C
Non-operation temperature range	
Receiver and LNA	-30°C to +70°C
Design lifetime	7 years in LEO
Storage time	3 years
Total ionization dose	> 20 krad <sup>c</sup>

a) using 120 Ohm termination resistor

b) LNA powered by unit input power stage via a coaxial cable

c) in LEO missions utilizing aluminum shield thickness of 2 mm

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