

GNSS Datasheet

Datasheet version v.3.0 2026-07-13

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Made in Lithuania



These L1/L5 dual-band GNSS receivers are designed and manufactured in Lithuania, using only Western components.

Safety Warnings

This equipment has been evaluated and classified in accordance with the safety requirements of **IEC 62368-1: Audio/Video, Information, and Communication Technology Equipment**.

- **Electrical Energy Source: ES1** The internal operating voltage (5V DC nominal) is classified as ES1. Under normal, abnormal, and single-fault conditions, the voltage levels remain within safe limits and do not pose a risk of electric shock to an **Ordinary Person**.

Caution

This equipment is intended for installation and use in a Restricted Access Area only. Service and operation are restricted to Skilled Persons as defined by IEC 62368-1.

Warning

All wiring must be secured such that the detachment of a conductor from its terminal cannot result in a reduction of clearances or creepage distances below the minimum requirements of IEC 62368-1. Use supplemental fixing, such as cable ties or heat-shrink tubing, near the terminal point to prevent wire movement in the event of terminal failure.

Warning

This component contains exposed high-energy circuits (PS3). To comply with IEC 62368-1, Annex P.2.2, the end-equipment enclosure must be designed to prevent the entry of foreign objects, such as metal debris, tools, or hardware. During installation, the Skilled Person must

ensure that no conductive materials can touch the component or its vicinity, as they may cause a catastrophic short circuit, fire, or explosion.

 Warning

This equipment is classified for use in a Pollution Degree 1 environment only. The installation must be designed to strictly prevent the ingress of dust, moisture, or conductive contaminants during its intended use. If the equipment is installed in an environment exceeding PD1, it must be housed in a permanently sealed or filtered enclosure that maintains an internal environment free of pollution throughout the product's life.

 Warning

This component is designed to be installed into end-equipment powered by PS3 energy source. To comply with IEC 62368-1, Clause 6.4, the end-equipment must provide a fire enclosure that prevents the spread of fire under single fault conditions. The installer must ensure that all materials within the potential fire spread zone meet the required flammability ratings (V-1 or better, or V-0 depending on proximity).>

 Warning

All internal and external wiring connected to this component must comply with IEC 62368-1, Clause 6.5. To prevent fire hazards under normal and fault conditions, conductors must be appropriately sized for the maximum available PS3 current and must be secured to prevent contact with hazardous parts or combustible materials in the event of a terminal loosening.

 Warning

To prevent the risk of fire under fault conditions, any additional equipment connected to this component must comply with IEC 62368-1. The Skilled Person must verify that the total power draw of all connected external loads does not exceed the rated output of the component. Furthermore, all interconnecting cables must be appropriately sized and rated for the maximum power available from the PS3 source to prevent ignition in the event of a short circuit.

 Caution

This component may contain metal edges, heat sinks, or mounting brackets that are sharp. To comply with IEC 62368-1, Clause 8.4, the Skilled Person must handle the component with care during installation and removal. Use appropriate Personal Protective Equipment (PPE) if

necessary, and ensure that the component is installed in a manner that does not expose sharp edges to other service areas within the end-equipment.

Warning

This component contains surfaces classified as TS3 (Thermal Energy Source Class 3) under IEC 62368-1. Surface temperatures may exceed safe limits for skin contact. This equipment must be installed in a Restricted Access Area. To prevent thermal burn injury, allow the equipment to cool for at least 5 minutes before touching or servicing. If immediate access is required, the Skilled Person MUST use appropriate heat-resistant Personal Protective Equipment (PPE).

Instructions for installation

This component must be mounted such that it is only accessible within a Restricted Access Area. To maintain compliance with Clause 9, the installer shall provide a physical barrier or distance that prevents an Ordinary Person from touching any surface of the component. A minimum clearance must be maintained from any ventilation openings in the end-equipment to prevent accidental contact (finger probe test). Alternatively an instructional safeguard shall be provided in accordance with Clause F.5 of IEC 62368-1.

Warning

To comply with IEC 62368-1, Annex M.6, the Skilled Person must ensure that the installation prevents accidental short-circuiting of the battery terminals or internal wiring. Failure to maintain proper separation and securing of conductors may lead to fire, explosion, or the release of toxic materials.

Warning

This component must be protected by an appropriately rated overcurrent protective device in the end-equipment. To comply with IEC 62368-1, the Skilled Person must verify that the overcurrent protection is correctly coordinated with the battery's maximum discharge current and the ampacity of the interconnecting wiring. Failure to provide adequate protection may result in fire or explosion under fault conditions.

Absolute maximum ratings

Rating	Min	Max	Unit
Input voltage on power pins	-0.3	15	V
Input voltage on other pins	-0.3	3.3	V
Operating temperature	-40	85	°C

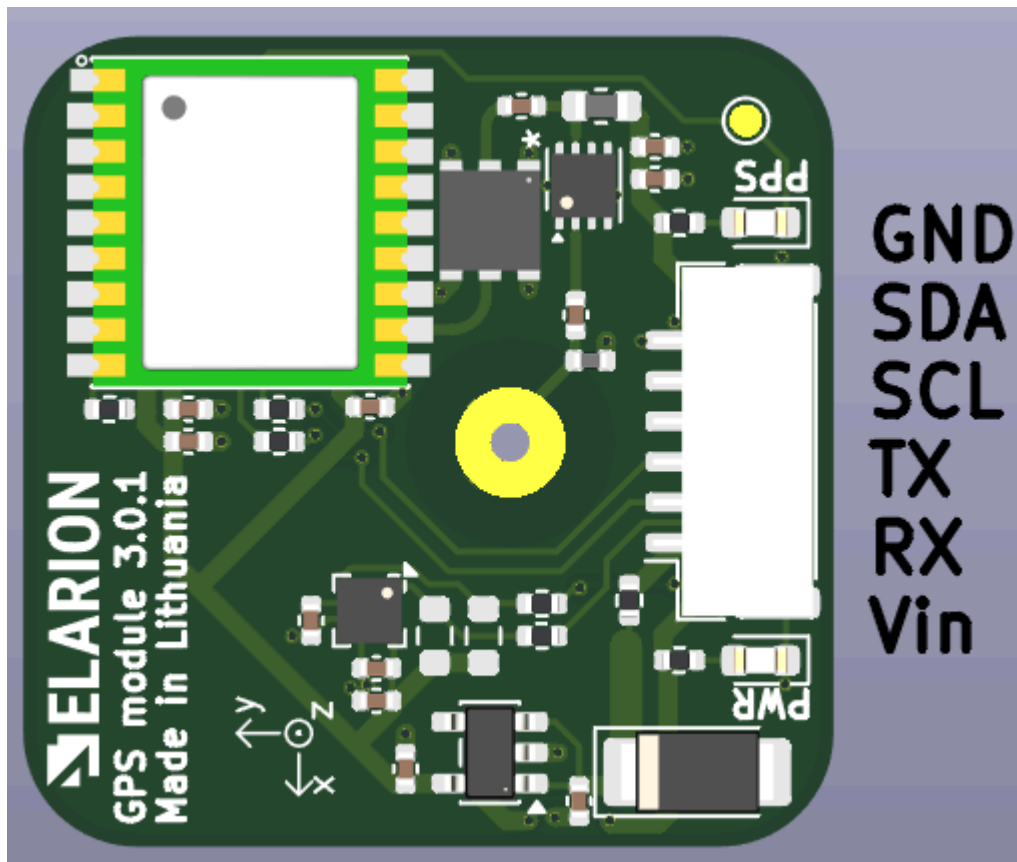
Recommended Operating Conditions

Rating	Value	Unit
Input voltage on power pins	4.5 - 5	V
Input voltage on other pins	3.3	V

Specifications

Rating	Value
Model	ELRNGPSV3
Version	3.0
Constellation support	PS, GLONASS, Galileo, BeiDou
Peak Antenna Gain (dBic)	5.2 @ 1561 MHz, 5.4 @ 1575 MHz, 5.6 @ 1602 MHz
Communication Interface	- UART - for GNSS - I2C - for magnetometer
Connector type	JST GH SM06B
Power consumption	0.1W max
Magnetometer	IIS2MDCTR
Dimensions	5.6 @ 1602 MHz 25x25x12 mm
Weight	19 g

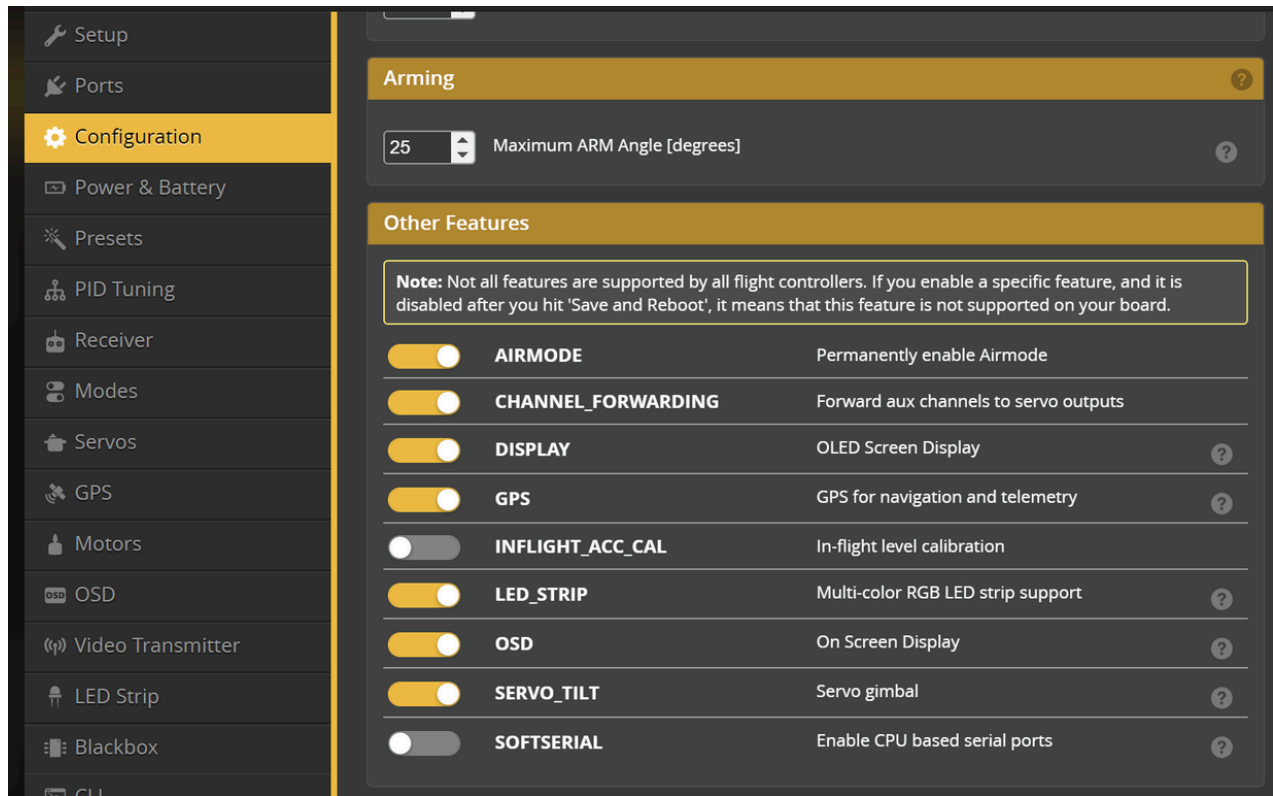
Pinout and magnetometer orientation



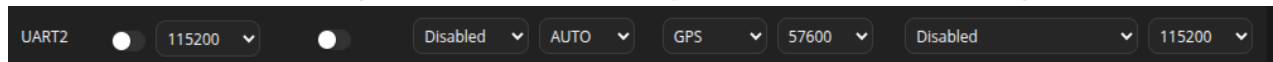
Pin	Function
1	Vin
2	RX
3	TX
4	SCL
5	SDA
6	GND

Setup instructions

1. Solder GNSS module to appropriate Flight Controller pads - RX/TX pins to chosen UART pins on FC, SCL/SDA to appropriate pins on Flight Controller.
2. Make sure GPS feature is enabled in Configuration tab:



3. Select GPS as a sensor input for the port to which you have soldered RX/TX pins



Mechanical

