

RID current feature list:

FAA RID compliant / adaptable communications protocols

GNSS (GPS, GLO, GAL) plus WAAS

BLE 5.0 standard

Direct beacon, constantly broadcast telemetry:

Latitude

Longitude

Attitude

Altitude

Heading

Airspeed / Ground speed

3 axis accelerometer / G-meter

ELT

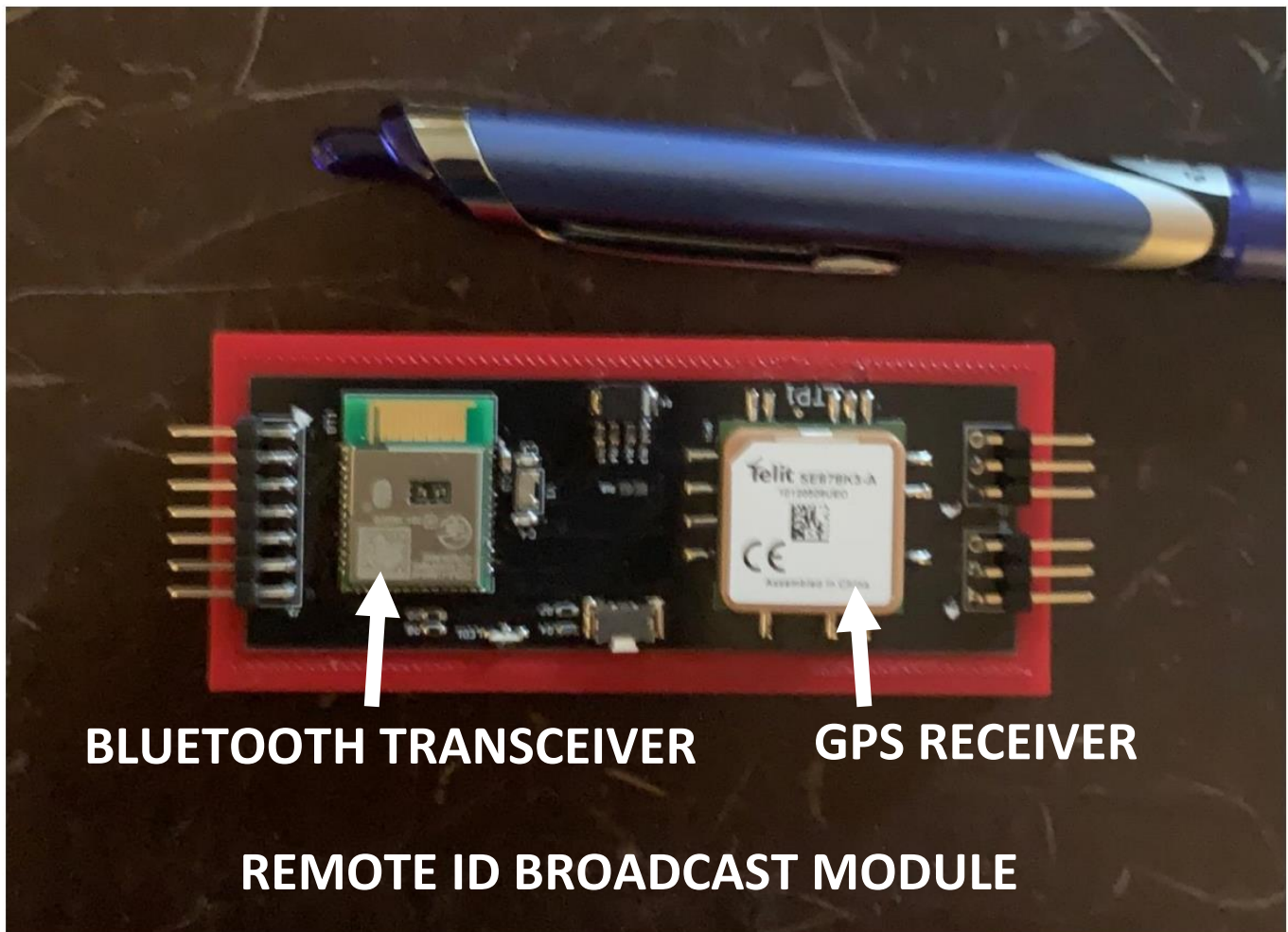
Data logging

Will talk to any cell phone / tablet

Range: 1,000 meters, (well beyond VLOS limits)

Size: 70 x 30 x 15mm (future 30% size reduction)

Weight: 2.8oz

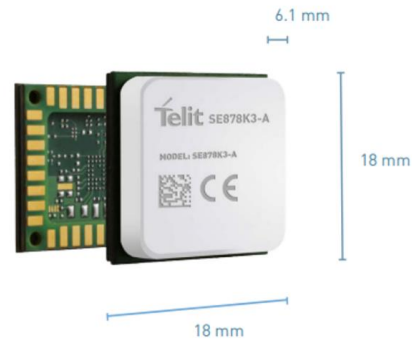


<https://www.digikey.com/en/products/detail/telit/SE878K3A232R001000/15213258?s=N4lgTCBcDaIMoFEAcB2JBpAzAWgllgF0BfIA>

<https://www.digikey.com/en/products/detail/dialog-semiconductor-gmbh/DA14531MOD-00F01002/11685947>



SE878K3-A



Product Features

- 32-pad QFN package with embedded SMT antenna
- Embedded 17x 17 mm SMT antenna
- Frequency Bands: GPS L1, GLONASS L1, QZSS L1, Galileo E1 and Beidou B1
- Standards: EMEA
- Jamming rejection
- Additional LNA + SAW filter
- A-GPS: ephemeris file injection
- EGNOS, WAAS, GAGAN and MSAS capability embedded with correction of positional errors due to ionospheric and orbital disturbances
- Internal RF switch for external antenna support

Environmental

- Dimensions: 18 x 18 x 6.1 mm
- Weight: <2 g
- Temperature range:
 - Operating temperature: -40 to +85°C
 - Storage temperature: -40 to +85°C

Interfaces

- UART
- I2C
- SPI
- PPS for precise timing

Approvals

- RoHS compliant
- RED

Electrical & Sensitivity

- Current consumption
 - Low power tracking: 34mW
 - Full power tracking: 75mW (G+G)
 - Full power acquisition: 93mW (G+G)
- Sensitivity
 - Acquisition: -148 dBm
 - Navigation: -163 dBm
 - Tracking: -165 dBm
- Power supply
 - Range from 3 up to 4.3v
- Positional accuracy [CEP50]:
 - Autonomous Positional Error = 2.5m

- Time to first fix (90% @ -130 dBm)
 - Host start: 1 s
 - Cold start: < 35 s

Product Description

The Jupiter SE878K3-A GNSS antenna module is a complete multi-constellation GNSS receiver featuring a high sensitivity 17 x 17 mm patch antenna, SAW filter, additional LNA, flash memory, GNSS core, RTC and TCXO. The SE878K3-A uses Telit's "cavity like" PCB package with an optimized RF path supporting standard SMT mounting without constraining the host PCB, minimizing the antenna detuning.

The SE878K3-A support GPS, QZSS and GLONASS, Beidou and it is Galileo ready. The SE878K3-A is capable to track GPS + GLONASS (or Beidou) and Galileo constellations simultaneously, providing the positioning data through standard UART and I2C.

The Jupiter SE878K3-A supports either autonomous than server based A-GPS. Its onboard A-GPS software engine is able to locally predict ephemeris up to three days in advance and store this data in the memory.

Easing the development process for designers with little or no RF experience, the SE878K3-A is compliant with regulatory and industry standards specifications. Additionally, it supports the usage of an external antenna through an embedded RF switch. This feature is particularly useful in applications such as personal trackers and alarms in which the main antenna is the external one and the internal antenna is used as backup when the external is broken or compromised.

The SE878K3-A is designed to Telematics, Tracking & Trace and Alarm applications.

SE878K3A232R001000

Digi-Key Part Number: 943-SE878K3A232R001000TR-ND - Tape & Reel (TR)
943-SE878K3A232R001000CT-ND - Cut Tape (CT)

Manufacturer: **Telit**

Manufacturer Product Number: SE878K3A232R001000

Description: SE878K3-A MODULE V13-2.3.2-N96

Manufacturer Standard Lead Time: 30 Weeks

Detailed Description: series RF Receiver Galileo, GLONASS, GNSS, GPS -165dBm 9.6kbps --

Customer Reference:

Datasheet: [Datasheet](#)

6,236 In Stock

Can ship immediately

QUANTITY

Invalid Quantity

All prices are in USD

Tape & Reel (TR)

QTY	UNIT PRICE	EXT PRICE
<input type="text" value="300"/>	\$11.26500	\$3,379.50

GPS, GNSS RECEIVER \$11.26



All Products



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0 item(s)

Products Manufacturers Resources

Product Index > RF/IF and RFID > RF Transceiver Modules and Modems > Dialog Semiconductor GmbH DA14531MOD-00F01002

Dark Mode Share

This part can be programmed by Digi-Key; for details please contact our custom department at 1-800-344-4539 x55725 or custom.orders@digikey.com



Image shown is a representation only. Exact specifications should be obtained from the product data sheet.

DA14531MOD-00F01002

Digi-Key Part Number 1695-DA14531MOD-00F01002TR-ND - Tape & Reel (TR)
1695-DA14531MOD-00F01002CT-ND - Cut Tape (CT)
1695-DA14531MOD-00F01002DKR-ND - Digi-Reel®

Manufacturer Dialog Semiconductor GmbH

Manufacturer Product Number DA14531MOD-00F01002

Description BLUETOOTH LOW ENERGY 5.1 MODULE

Detailed Description Bluetooth Bluetooth v5.1 Transceiver Module 2.4GHz ~ 2.4835GHz Integrated, Trace Surface Mount

Customer Reference

Datasheet Datasheet

80,824 In Stock

Can ship immediately

QUANTITY

Add to Cart

Add to List

All prices are in USD

Cut Tape (CT) & Digi-Reel®

QTY	UNIT PRICE	EXT PRICE
	\$4.48000	\$4.48

BLUETOOTH TRANSCEIVER MODULE \$4.80

Product Attributes

TYPE	DESCRIPTION	SELECT
Category	RF/IF and RFID RF Transceiver Modules and Modems	<input type="radio"/>
Mfr	Dialog Semiconductor GmbH	<input type="checkbox"/>
Series	SmartBond™	<input type="checkbox"/>
Package	Tape & Reel (TR) Cut Tape (CT) Digi-Reel®	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Product Status	Active	<input type="checkbox"/>
RF Family/Standard	Bluetooth	<input type="checkbox"/>
Protocol	Bluetooth v5.1	<input type="checkbox"/>
Modulation	-	<input type="checkbox"/>
Frequency	2.4GHz ~ 2.4835GHz	<input type="checkbox"/>
Data Rate	-	<input type="checkbox"/>
Power - Output	2.2dBm	<input type="checkbox"/>
Sensitivity	-93dBm	<input type="checkbox"/>
Serial Interfaces	ADC, GPIO, I ² C, SPI, UART	<input type="checkbox"/>
Antenna Type	Integrated, Trace	<input type="checkbox"/>
Utilized IC / Part	DA14531	<input type="checkbox"/>
Memory Size	128kB Flash, 144kB ROM, 48kB RAM	<input type="checkbox"/>
Voltage - Supply	1.8V ~ 3.3V	<input type="checkbox"/>
Current - Receiving	2mA	<input type="checkbox"/>
Current - Transmitting	4mA	<input type="checkbox"/>
Mounting Type	Surface Mount	<input type="checkbox"/>
Operating Temperature	-40°C ~ 85°C	<input type="checkbox"/>
Package / Case	16-SMD Module	<input type="checkbox"/>
Base Product Number	DA14531	<input type="checkbox"/>



Displaying title 14, up to date as of 8/26/2022. Title 14 was last amended 8/12/2022. [view historical versions](#)

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PART 89 - REMOTE IDENTIFICATION OF UNMANNED AIRCRAFT

§ 89.315 Minimum message elements broadcast by remote identification broadcast modules.

Remote identification broadcast modules must be capable of broadcasting the following remote identification message elements:

- (a) The identity of the unmanned aircraft, consisting of the serial number assigned to the remote identification broadcast module by the person responsible for the production of the remote identification broadcast module.
- (b) An indication of the latitude and longitude of the unmanned aircraft.
- (c) An indication of the geometric altitude of the unmanned aircraft.
- (d) An indication of the velocity of the unmanned aircraft.
- (e) An indication of the latitude and longitude of the take-off location of the unmanned aircraft.
- (f) An indication of the geometric altitude of the take-off location of the unmanned aircraft.
- (g) A time mark identifying the Coordinated Universal Time (UTC) time of applicability of a position source output.

§ 89.320 Minimum performance requirements for remote identification broadcast modules.

Remote identification broadcast modules must meet the following minimum performance requirements:

- (a) **Take-off location.** The remote identification broadcast module must be capable of determining the take-off location of the unmanned aircraft.
- (b) **Time mark.** The time mark message element must be synchronized with all other remote identification message elements.
- (c) **Self-testing and monitoring.**
 - (1) Prior to take-off, the remote identification broadcast module must automatically test the remote identification functionality and notify the person manipulating the flight controls of the unmanned aircraft system of the result of the test.
 - (2) The remote identification broadcast module must continuously monitor the remote identification functionality from takeoff to shutdown and must provide notification of malfunction or failure to the person manipulating the flight controls of the unmanned aircraft system.

- (d) **Tamper resistance.** The remote identification broadcast module must be designed and produced in a way that reduces the ability of a person to tamper with the remote identification functionality.
- (e) **Error correction.** The remote identification broadcast module must incorporate error correction in the broadcast of the message elements in § 89.315.
- (f) **Interference considerations.** The remote identification broadcast module must not interfere with other systems or equipment installed on compatible unmanned aircraft, and other systems or equipment installed on compatible unmanned aircraft must not interfere with the remote identification equipment.
- (g) **Message broadcast.**
 - (1) The remote identification broadcast module must be capable of broadcasting the message elements in § 89.315 using a non-proprietary broadcast specification and using radio frequency spectrum compatible with personal wireless devices in accordance with 47 CFR part 15, where operations may occur without an FCC individual license.
 - (2) The remote identification broadcast module must be designed to maximize the range at which the broadcast can be received, while complying with 47 CFR part 15 and any other applicable laws in effect as of the date the declaration of compliance is submitted to the FAA for acceptance.

(h) **Message elements performance requirements.**

- (1) The reported geometric position of the unmanned aircraft must be accurate to within 100 feet of the true position, with 95 percent probability.
- (2) The reported geometric altitude of the unmanned aircraft must be accurate to within 150 feet of the true geometric altitude, with 95 percent probability.
- (3) The reported geometric position of the take-off location must be accurate to within 100 feet of the true geometric position, with 95 percent probability.
- (4) The reported geometric altitude of the take-off location must be accurate to within 150 feet of the true geometric altitude, with 95 percent probability.
- (5) The remote identification broadcast module must broadcast the latitude, longitude, and geometric altitude of the unmanned aircraft no later than 1.0 seconds from the time of measurement to the time of broadcast.
- (6) The remote identification broadcast module must broadcast the message elements at a rate of at least 1 message per second.

Subpart E - Means of Compliance

§ 89.401 Applicability.

This subpart prescribes -

- (a) Requirements for means of compliance with [subpart D of this part](#).
- (b) Procedural requirements for the submission and acceptance of means of compliance used in the design and production of standard remote identification unmanned aircraft or remote identification broadcast modules to ensure they meet the minimum performance requirements of this part.
- (c) Rules governing persons submitting means of compliance for FAA acceptance.

§ 89.405 Submission of a means of compliance for FAA acceptance.

- (a) **Eligibility.** Any person may submit a means of compliance for acceptance by the FAA.
- (b) **Required information.** A person requesting acceptance of a means of compliance must submit the following information to the FAA in a form and manner acceptable to the Administrator:
 - (1) The name of the person or entity submitting the means of compliance, the name of the main point of contact for communications with the FAA, the physical address, email address, and other contact information.
 - (2) A detailed description of the means of compliance.
 - (3) An explanation of how the means of compliance addresses all of the minimum performance requirements established in [subpart D of this part](#) so that any standard remote identification unmanned aircraft or remote identification broadcast module designed and produced in accordance with such means of compliance meets the remote identification requirements of this part.
 - (4) Any substantiating material the person wishes the FAA to consider as part of the request.
- (c) **Testing and validation.** A means of compliance submitted for acceptance by the FAA must include testing and validation procedures for persons responsible for the production of standard remote identification unmanned aircraft or remote identification broadcast modules to demonstrate through analysis, ground test, or flight test, as appropriate, how the standard remote identification unmanned aircraft or the remote identification broadcast module performs its intended functions and meets the requirements in [subpart D of this part](#), including any applicable FAA performance requirements for radio station operation.

§ 89.410 Acceptance of a means of compliance.

- (a) A person requesting acceptance of a means of compliance must demonstrate to the Administrator that the means of compliance addresses all of the requirements of [subparts D and E of this part](#), and that any standard remote identification unmanned aircraft or remote identification broadcast module designed and produced in accordance with such means of compliance would meet the performance requirements of [subpart D of this part](#).
- (b) The Administrator will evaluate a means of compliance that is submitted to the FAA and may request additional information or documentation, as needed, to supplement the submission.
- (c) If the Administrator determines the person has demonstrated that the means of compliance meets the requirements of [subparts D and E of this part](#), the FAA will notify the person that the Administrator has accepted the means of compliance.

§ 89.415 Rescission.

- (a) **Rescission of an FAA-accepted means of compliance.**
 - (1) A means of compliance is subject to ongoing review by the Administrator. The Administrator may rescind acceptance of a means of compliance if the Administrator determines that a means of compliance does not meet any or all of the requirements of [subpart D or E of this part](#).
 - (2) The Administrator will publish a notice of rescission in the FEDERAL REGISTER.
- (b) **Inapplicability of part 13, subpart D, of this chapter.** Part 13, subpart D, of this chapter does not apply to the procedures of [paragraph \(a\)](#) of this section.

