Product summary
DAN-F10N module

u-blox F10 standard precision GNSS antenna module

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Compact L1/L5 dual-band smart antenna module for easy and reliable integration
- Easy to design-in with no RF expertise required
- Best in class dual-band antenna module in compact 20x20 mm size
- Consistently strong performance regardless of installation
- Integrated SAW-LNA-SAW for exceptional out-of-band jamming immunity
- Surface-mount device, enabling automated manufacturing
- Supports optional external active antenna

20.0 x 20.0 x 11.6 mm
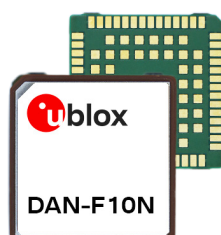
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DAN-F10N

Product description

DAN-F10N is a dual-band patch antenna module based on the u-blox F10 GNSS platform, which uses the L1/L5 GNSS bands to provide robust meter-level positioning accuracy in challenging environments.

Using u-blox F10 proprietary dual-band multipath mitigation technology, the DAN-F10N module utilises the best signals from the L1/L5 bands to achieve better accuracy in urban environments.

The compact 20 x 20 x 8 mm Right Hand Circular Polarized (RHCP) patch antenna provides the best compromise between size and performance of a L1/L5 dual-band antenna. The wide beamwidth of patch antenna increases flexibility in equipment installation.

The DAN-F10N module's robust SAW-LNA-SAW RF architecture and the additional notch filter (LTE B13) in L1 RF path ensure the best possible out-of-band interference mitigation. It is well suited for designs with a nearby cellular modem.

The future-proof DAN-F10N includes internal flash to enable firmware upgradability. It also supports antenna switch function and can optionally be connected to an external dual-band GNSS antenna. The DAN-F10N is designed as a surface mount device, allowing for automated manufacturing.

Incorporating the DAN-F10N dual-band antenna module into customer designs is easy and straightforward thanks to the integrated antenna, robust RF design, simple interface and sophisticated interference suppression that ensures maximum performance even in GNSS-hostile environments. DAN-F10N provides customers with a turnkey solution for rapid time-to-market, while minimising design and manufacturing costs.

	DAN-F10N
Grade	
Automotive	
Professional	•
Standard	
GNSS	
GPS + QZSS/SBAS	•
Galileo	•
BeiDou	•
NavIC	•
Band	L1/L5/E5a/B2a
Interfaces	
UART	1
Features	
Fírmware upgradeable (Flash)	•
Additional SAW	•
Additional LNA	•
RTC crystal	•
Oscillator	T
Built-in antenna	•
Timepulse	1
Power supply	
2.7 V – 3.6 V	•

T = TCXO

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DAN-F10N antenna module

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Product performance

Receiver type	u-blox F10 engine GPS L1 C/A, L5 QZSS L1C/A, L1S, L1Sb, L5 GAL E1B/C, E5a BDS B1C, B2a NavIC L5 SBAS L1C/A, BDSBAS B1C
Nav. update rate[1, 2]	Up to 10 Hz
Horizontal position accuracy[3]	1.0 m CEP (with SBAS) 1.5 m CEP (without SBAS)
Acquisition[2]	Cold start	28 s
	Aided start	2 s
	Hot start	2 s
Sensitivity[2]	Tracking & Nav.	−164 dBm
	Reacquisition	−156 dBm
	Cold start	−145 dBm
	Hot start	−156 dBm

Tracking features

Odometer	Measure traveled distance with support for different user profiles
Protection level	Real-time position accuracy estimate with 95% confidence

Security features

Signal integrity	RF interference and jamming detection and reporting Spoofing detection and reporting
Device integrity	Secure boot of firmware downloaded from host or flash Receiver configuration lock by command
Secure interface	Signed UBX messages (SHA-256) JTAG debug interface disabled by default

Electrical data

Power consumption[2]	63 mW (continuous tracking, 3 V)
Power supply	2.7 V to 3.6 V
Backup supply	1.65 V to 3.6 V

1 = The highest navigation rate can limit the number of supported constellations
2 = Default mode: GPS/SBAS+Galileo+BeiDou
3 = Depends on atmospheric conditions, GNSS antenna, multipath conditions, satellite visibility, and geometry

Package

56 pin LCC (Leadless Chip Carrier): 20 x 20 x 11.6 mm, ca. 17.5 g

Environmental data, quality, and reliability

Operating temp.	−40°C to +85°C
Storage temp.	−40°C to +85°C
Environmental grade	2015/863/EU RoHS-3
Environmental testing	Qualified according to u-blox qualification policy, based on a subset of AEC-Q104
EMC (electromagnetic compatibility)	2014/53/EU RED
Quality management	Manufactured and fully tested in IATF 16949 certified production sites

Interfaces

Serial interfaces	1 UART
Digital I/O	Configurable timepulse 1 EXTINT input for Wakeup
Timepulse	Configurable: 0.25 Hz to 10 MHz
Raw data output	Code phase data
Protocols	NMEA 4.11, UBX binary

Compatible u-blox location services

AssistNow	Achieves premium performance in challenging IoT environments

Support products

u-center 2	Highly intuitive software for GNSS performance evaluation

Product variants

DAN-F10N-00B	u-blox F10 GNSS LCC patch antenna module, Flash, TCXO, SAW, LNA, SAW

Further information

For contact information, see www.u-blox.com / contact-us.

For more product details and ordering information, see the product data sheet.