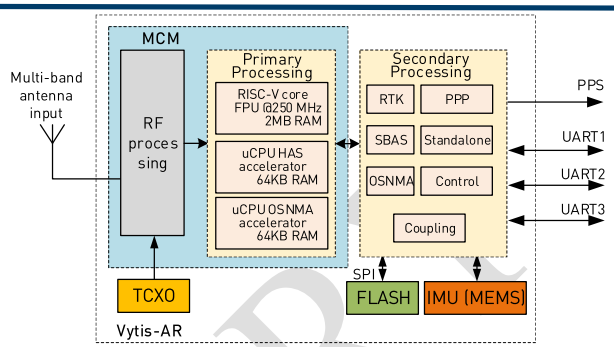
VYTIS-AR

GALILEO HAS-ENABLED UNIVERSAL GNSS RECEIVER

The Vytis-AR is an universal high precision PPP (Galileo HAS enabled) / RTK GNSS-INS receiver with OSNMA authentication, providing centimeter-level position accuracy in PPP mode.

Receiver electronics based on NTLAB's ASICs



Vytis-AR GNSS receiver supports multiple constellations including GPS, Galileo, GLONASS, BeiDou and both the triple frequency for first two navigation systems and the dual frequency for the second two.

NTLAB's original PPP-algorithms allow achieving up to a few centimeters level horizontal accuracy in PPP-mode.

The module also has the optional ability to work with RTK technology and multiplexing GNSS operation with inertial systems: RTK allows to get sub-centimeter positioning accuracy (at short baselines) even when working with single frequency observables, and inertial systems can significantly increase the data output rate and bring additional protection against spoofing based on information discrepancy received from inertial systems and satellites.

Vytis-AR has three physical UART ports, which can be used to transmit navigation information, to output raw ranging measurements, to monitor status information and configure the module.

Vytis-AR uses OSNMA authentication data to detect spoofing attempts and get valid position. In case of detection of interference on the Galileo, the receiver has the ability to use satellites in other GNSS, providing trouble-free work on determination of coordinates.

Vytis-AR OEM (enclosureless) and in enclosure versions are available.

FEATURES

- Flexible positioning modes include RTK, INS, PPP, SBAS and standalone
- Enable HAS demodulation
- Enable OSNMA authentication and spoofing detection
- Compact, lightweight design for easy integration in navigation devices
- Sub-centimeter-level position accuracy in RTK mode
- Centimeter-level position accuracy in PPP mode
- Navigation output: NMEA-0183, NTL Binary
- Raw measurements: RTCM v.3.4, NTL Binary
- MCM package of RF FE and baseband ASICs

APPLICATION

- Precision Agriculture
- Robotics
- UAV
- Logistics
- Machine control

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EUSPA European Union Agency for the Space Programme

Parameter	Parameter description or value	Note
Supported GNSS constellations	Galileo E1, E5b, E5a, E6, E5 AltBOC GPS L1 (C/A), L2C, L5 GLONASS G1 (C/A), G2 (C/A) BeiDou B1, B2 SBAS (EGNOS, WAAS, SDCM)	Tracking user-selectable GNSS constellations, using all GNSS in the navigation solution and raw measurements
Authentication	Yes (OSNMA supporting)	
Time to First Fix (TTFF):		
«Cold» Start	< 60 seconds	
«Hot» Start	< 25 seconds	
Signal Re-acquisition	< 2 seconds	
PPP Convergence time (SL1)	< 300 seconds	
PPP Convergence time (SL2)	< 100 seconds	
Positioning modes	Standalone	Using all GNSS
	DGNSS	Post-processing solution
	SBAS	
	PPP (Galileo E1, E5b, E5a, E6; GPS L1, L2; GLONASS L1, L2)	Using RTCM SSR, including HAS NTRIP
	RTK	Using all GNSS, RTCM 3.4
Multipath mitigation	Yes	
Interference detection and mitigation	Yes	
On-board IMU	MEMS	Possibility to connect external sensors
Data Output Formats	NMEA 2.3, NMEA 4.11	
	NTL Binary	
	RTCM 3.4 (MSM + Legacy messages)	
Data update rates:	20 Hz	1, 2, 5, 10 Hz are available
Accuracy (RMS) (H- horizontal, V- vertical) [NOTE1]:		
Standalone mode	H: 1.1 m, 0.35 m (P2P)[NOTE2]; V: 1.8 m	
SBAS mode	H: 0.6 m, 0.25 m (P2P); V: 0.9 m	
PPP mode	H: 0.05 m, 0.035 m (P2P); V: 0.1 m	For high quality PPP corrections
RTK FIX mode	H: 0.005 m + 0.5 ppm, V: 0.008 m + 1.0 ppm	
Velocity	H: 0.02 m/s, V: 0.03 m/s	
Timing Accuracy	+/- 20 ns	
Interfaces	3xUART, 1xPPSout	
Maximum operating limits		
Velocity	515 m/s	
Altitude	18000 m	
Operating voltage	1.8 V	
Power consumption (TBC)	< 1.0 W (MCM), < 1.3 W (OEM)	Depends on operation mode
Dimensions (L x W x H) (TBC)	71 x 46 x 10 mm / 100 x 86 x 92 mm	OEM (enclosureless) / in enclosure
Weight (TBC)	< 25 g / <405 g	OEM (enclosureless) / in enclosure
Operating temperature	–40 °C ... +80 °C	
Storage temperature	–55 °C ... +85 °C	

Notes:
1 - depends on atmospheric conditions, satellite visibility and geometry, multipath conditions, GNSS antenna;
2 – P2P - Pass-to-Pass accuracy.

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