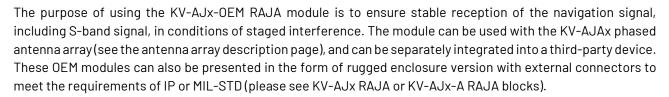


## KV-AJx-OEM RAJA MULTI-BAND ANTI-JAMMING OEM GNSS MODULE

- NavIC L1, L5, S-band support
- Multi-band, anti-jamming GNSS OEM module: up to 3 frequency bands simultaneously (consider specified options)
- Multi-system solution: NavIC (IRNSS) / GPS / Galileo / GLONASS / BeiDou can be used (consider specified options)
- Up to 100 dB J/S performance
- Small size: 113 mm × 78 mm
- Low power consumption: 5 W ...12.8 W (depending on options)
- Support of up to 3 jammers simultaneously for each of frequency bands
- Receiver based on own NTLab's high-performance ASICs: RFFE, baseband, anti-jamming processors
- Up-converter RF output for external GNSS receivers
- Internal receiver with INS, RAW data and with velocity, acceleration option by request
- IP or MIL case option (see the KV-AJx RAJA and KV-AJx-A RAJA series)



Coupled with the use of a multi-band 4-element antenna array (the module can be provided by Kosminis Vytis), the tri-band solution (AJ3-0EM) allows to suppress interferences in up to 3 directions on 3 frequency plans simultaneously. This approach provides significantly higher protection against interference compared to single-frequency options. KV-AJx-0EM RAJA module can be connected to external GNSS receiver or use internal receiver based by own NTLab's ASIC with INS, RAW data and with velocity, acceleration option by request.

## **TECHNICAL SPECIFICATION**

Product code: KV-AJx.y-OEM-zz (x - band options, y - GNSS signal options, zz - Output options)

(RO - RF Only, DO - Digital Only, RD - RF+Digital)

(NO - NI Only, DO - Digital Only, ND - NI 'Digital)							
		Single-band	Dual-band		Tri-band		
Output options		Option* 1.2	Option* 2.3	Option* 2.4	Option* 3.3	Option* 3.4	
RF only Option RO	GNSS signals	NavIC S	NavIC L1, S GPS L1(C/A), L2 Galileo E1 QZSS L1 SBAS L1	NavIC L5, S GPS L5 BeiDou B2a Galileo E5a QZSS L5 SBAS L5	NavIC L1, L5, S GPS L1(C/A), L5 BeiDou B2a Galileo E1, E5a QZSS L1, L5 SBAS L1, L5	NavIC L1, S GPS L1(C/A) Galileo E1 GLONASS G1 QZSS L1 SBAS L1	
	Power	4.3 W (typ)	6.4 W(typ)		10.3 W (typ)		
Digital only Option DO	GNSS signals	NavIC S	NavIC S GPS L1(C/A) Galileo E1 SBAS L1	NavIC L5, S GPS L5 Galileo E5a	NavIC L5, S GPS L1(C/A), L5 Galileo E1 SBAS L1	NavIC S GPS L1(C/A) Galileo E1 GLONASS G1 SBAS L1	
	Power	5.4 W (typ)	6.4 W(typ)		9.1 W (typ)		
RF+Digital Option RD	GNSS signals	RO+DO signals of option 1.2	RO+DO signals of option 2.3	RO+DO signals of option 2.4	RO+DO signals of option 3.3	RO+DO signals of option 3.4	
	Power	6.6 W (typ)	8.7 W (typ)		12.6 W (typ)		
Full bandwidth, MHz		24812506	15641589 24812506	11641189 24812506	15641589 11641189 24812506	15641606 24812506	
* - other GNSS signals available on request							



Parameter	Description	Note	
Interference rejection:			
Single interference	Up to 40 dB	For one CW signal of single jammer	
suppression	Up to 30 dB	For one AWGN signal of single jammer	
Several interference	Up to 32 dB	For one CW signal of each jammer	
suppression (up to three)	Up to 23 dB	For one AWGN signal of each jammer	
Interference resistance:			
Single jammer	Up to 90 dB (J/S) Up to 100 dB (J/S)	With internal GNSS receiver With external third party GNSS receiver	
Several jammers	Up to 82 dB (J/S)	Up to three directions	
Anti-Spoofing Capability	YES	Hardware ready	
Number of channels	4	For each frequency band	
Operation modes:	4	For each frequency band	
GNSS mode	Internal GNSS receiver	By default	
GNSS+INS mode	Internal GNSS +INS receiver with onboard	by derault	
GN22+IN2 Mode	MEMS sensor	Optional	
RF output	Up-converter	Clear L1, L5, S bands depending on option	
Positioning accuracy (RMS) with	nout interference <sup>1</sup> :		
- horizontal	< 2.1 m	Static mode	
- vertical	< 3.8 m	Static mode	
TTFF without interference:			
Cold start	< 90 sec		
Re-acquisition time	< 3 sec	Static mode	
Data interfaces	2xRS422		
Peripheral interface	1x1PPSout	Time accuracy ±20 ns	
Data update rate:			
GNSS mode	20 Hz (1, 2, 5, 10)	PVT data	
GNSS measurements	20 Hz (1, 2, 5, 10)	GNSS raw data	
GNSS+INS mode parameters (or			
Data update rate	Up to 200 Hz	PVT data and Attitude	
Data protocol	NTLaBin	PVT and Attitude based on GNSS + INS	
Orientation accuracy (RMS), wit	h internal GNSS+INS receiver:		
Roll	< 1°	Static mode, relative to the local horizon	
Pitch	< 1°	Static mode, relative to the local horizon	
Heading	< 1°	Mid. dynamic, true north	
Operation conditions:			
Altitude	18 000 m	Up to 50 000 m by request	
Velocity	515 m/s	Up to 3000 m/s by request	
Acceleration	Up to 10 g	Up to 36 g by request	
Jerk	Up to 2 g/s	Up to 20 g/s by request	
Supply voltage	12 V36 V	24 V typical	
Power consumption	5 W12.8 W	Depending on option	
Dimensions	113 mm x 78 mm x 9,5 mm		
Weight	50 g		
Operating temperature	-40 °C+71 °C		

 $<sup>^{\</sup>rm 1}$  Depends on atmospheric conditions, satellite visibility and geometry, multipath conditions.