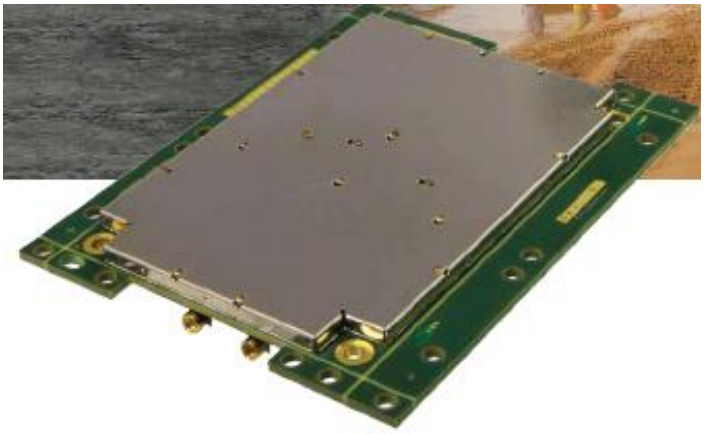
NEOP0107A GNSS Position and Heading Sensor

NEOP0108A GNSS Position Sensor

NEOP0109A GNSS Position (Optional Heading) Sensor with RS232/422 switchable port

NEOP0115A GNSS Position (Optional Heading) Sensor with SD card

NEOTEK – 85, rue Michel Marion 56850 CAUDAN – France
Tel : +33 (0)2 97 89 87 20 / Fax : +33 (0)2 97 89 88 72
www.neotek-web.com



KEY FEATURES

- 544 channels for tracking all known and planned signals from GPS, GLONASS, Galileo, BeiDou, NavIC, QZSS and SBAS on both antennas
- Precise and solid heading calculation
- Centimetre-level (RTK) and sub decimetre-level
- Dual L-band channel with support for corrections
- Septentrio GNSS+ algorithms for robust industrial performanceTechnology

The NEOP01XXA is built with OEM Septentrio AsterX 4, new generation dual antenna receiver built around the new custom built GReCo4 GNSS chipset and powered by the newest algorithms for robust and accurate positioning.

Consistently accurate now and into the future

The AsteRx4 is the most advanced multi-constellation dual receiver from Septentrio. Its triple frequency engine can track all Global Navigation Satellite System (GNSS) constellations - GPS, GLONASS, Galileo, BeiDou, IRNSS and QZSS – on both antennas. It supports current and future signals as they become available – guaranteeing you reliable and accurate GNSS positioning into the future.

Accuracy scalable to a centimeter

Septentrio's knowledge and experience in the GNSS industry ensures that the AsteRx4 offers you the highest possible accuracy, scalable to a centimeter; LOCK+ technology maintains tracking during heavy vibration of machines; and IONO+ technology assures the accuracy of your position even under difficult ionosphere conditions. The AsteRx4 features special interference mitigation technology which filters out ambient intentional and unintentional RF interference.

Straight forward integration

NEOP01XXA was designed and built to easily integrate into your existing systems. The command interface is specifically optimized for M2M communication and sample code is provided to help you start your integration. You can operate the receiver without any special configuration software via the built-in webserver accessible via network.

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NEOP0107A NEOP0108A NEOP0109A NEOP0115A

FEATURES

GNSS Technology

544 hardware channels for simultaneous tracking of all visible satellite signals

- GPS: L1, L2, L5
- GLONASS: L1, L2, L3
- Galileo [1] L1, E5ab, A|tBoc, E6
- BeiDou [1]: B1, B2, B3
- SBAS : EGNOS, WAAS, GAGAN, MSAS, SDCM (L1, L5)
- NaviC : L5 [1]
- QZSS : L1, L2, L5, L6

Septentrio's patented GNSS+ technologies

- **AIM+** interference mitigation unit against narrow system against narrow and wideband interference with spectrum analyser
- **IONO+** advanced scintillation mitigation
- **APME+** a posteriori multipath estimator for code and phase multipath mitigation.
- **LOCK+** superior tracking robustness under heavy mechanical shocks or vibrations.

RAIM (Receiver Autonomous Integrity Monitoring)

RTK (base and rover) [1]

Integrated dual-channel L~band receiver

PPP [1,2]

Moving base [1,3]

Heading GNSS attitude [1]

Formats

Septentrio Binary Format (SBF), fully documented

with sample parsing too\s

RTCM v2>< and 3>< (MSM included)

CMR2.0 and CMR+ (CMR+ input only)

NMEA 0183, v2.3, v3.01 v4 0 (output 0n\y)

Connectivity

2 hi-speed serial ports (RS232) [10]

Or 1 RS232 and 1 switchable RS232/422 (NEOP0109A)

Ethernet port (TCP/IP and UDP)

xPPS output (max 100 Hz)

Inside SD card memory (NEOP0115A)

PERFORMANCE

Position accuracy [4,5]

	Horizontal	Vertical
Standalone	1.2 m	1.9 m
SBAS	0.6 m	0.8 m
DGNSS	0.4 m	0.7 m

RTK performance [4,5,6,7]

Horizontal accuracy	0.6 cm + 0.5 ppm
Vertical accuracy	1 cm + 1 ppm
Average time to fix	7 s

Velocity Accuracy [4,5]

0.03m/s

GNSS attitude Accuracy [4,5,7]

Antenna separation	Heading	Pitch/Roll
1m	0.15°	0.25°
10m	0.03°	0.05°

Maximum Update rate [8]

Position	100 Hz
Position and attitude	50 Hz
Measurements	100 Hz

Latency [9]

<10 ms

Time accuracy [10]

xPPS Out [10]	10 ns
Event accuracy	<20 ns

Time to first fix [8]

Cold start [11]	<45 s
Warm start [12]	<20 s
Re-acquisition	avg. 1 s

Tracking performance (C/N0 threshold)

Tracking	20 dB-Hz
Acquisition	33 dB-Hz

PHYSICAL AND ENVIRONMENTAL

Size	290 x 142 x 37 mm
Weight	930 g
Input voltage	9–30 VDC
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C
Certification	RoHS, WEEE, CE

Antenna LNA Power Output

Output voltage	5 V DC
Maximum current	200 mA

Connectors

RS232	ODU G80F1C-P07QC00A000
ETH	ODU G80F1C-P04QF00A000
Power	ODU G80F1C-P03QJ00A000
PPS	BNC
Antenna Connector	TNC

Power Consumption

1.6 W (GPS/GLO L1/L2)

1.8 W (GPS/GLO L1/L2 Dual-Antenna)

2.6 W (All Signals)

3.0 W (All signals, Dual antenna)

[1] Optional feature

[2] Service subscription required

[3] Maximum output rate is 20Hz

[4] Open sky conditions

[5] RMS levels

[6] RTK fixed ambiguities

[7] Baseline: <40 km

[8] If combined with MARINESTAR max. 10Hz

[9] 99.9%

[10] Including Sawtooth compensation

[11] No information available (no almanac, no approximate position)

[12] Ephemeris and approximate position known

[13] Max. speed 600m/s

[14] Ephemeris and approximate position known

[15] If combined with MARINESTAR max 10Hz

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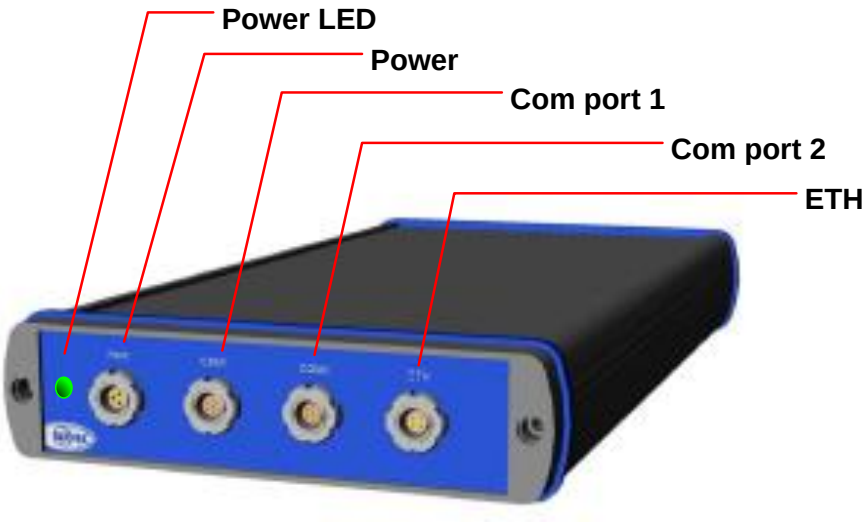
NEOP01XXA

Front view



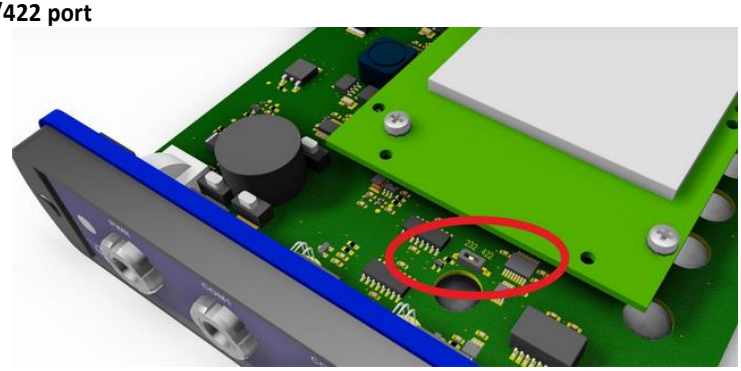
Com port 1 and 2 description

Pin #	Description
1	Not connected
2	Signal ground (GND)
3	Not connected
4	Not connected
5	Receive Data (RXD – input to the receiver)
6	Transmit Data (TXD – output from the receiver)
7	Not connected

Com port 2 description (NEOP0109A)

Pin #	Description	
	RS422	RS232
1	RS422 PPS+	RS422 PPS+
2	0V	0V
3	RS422 TX+	RS232 RTS
4	RS422 RX+	RS232 CTS
5	RS422 RX-	RS232 RX
6	RS422 TX-	RS232 TX
7	RS422 PPS-	RS422 PPS-

NEOP0109A switchable RS232/422 port



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ETH

Pin #	Description
1	TxD+
2	TxD-
3	RxD+
4	RxD-

Power

Pin #	Description
1	9 to 30 VDC
2	Not connected
3	GND

Rear view