Key Features

- Ultra-precise time synchronization for time transfer applications
- PPS IN internal delay auto-calibration
- CGGTTS V2E compliant
- Tracks all visible signals (GPS, GLONASS, GALILEO, BEIDOU, IRNSS)
- High-precision, low-noise measurements
- Unique interference monitoring and mitigation
- Powerful Web UI and logging tools

Timing
As well as the standard inputs for time and frequency, the PolaRx5TR incorporates a calibration circuit to measure and compensate for the delay between the PPS input and the internal time reference. This ensures the measurement latching is always accurately synchronised with the PPS input. Additionally, PPS out signal allows for long-term monitoring of internal delay stability.

CGGTTS data for the GPS, GLONASS, Galileo and BeiDou constellations are generated with RxTools and can be automatically transferred over FTP. The CGGTTS files are fully compliant with V2E, in accordance with recommendation CCTF 4 (2015).

GNSS technology
PolaRx5TR is built around the GReCo4™ multi-constellation tracking processor, and provides 544 hardware channels which are assigned automatically and on-the-fly to all visible satellites. Advanced interference analysis and mitigation using adaptive filtering facilitates operation in difficult radio environments, including near chirp jammers.

Networking, remote operation and data logging
Communication and (remote) management of PolaRx5TR is made easy with a powerful built-in Web UI accessible over WiFi, network or USB connection. The Web UI features secured access to all receiver settings and status information, data storage, and fast and robust firmware upgrading. SBF, RINEX and BINEX data logging is possible on both a built-in 16 GB memory and on an externally connected device.
FEATURES

GNSS Technology
544 hardware channels for simultaneous tracking of all visible satellite signals
Supported signals: GPS (L1P, L1CA, L2, L5), GLONASS (L1, L2, L3) GALILEO (E1, E5a, E5ab, AltBoc), BEIDOU (B1, B2, B3), SBAS (L1, L5), IRNSS (L5), QZSS (L1, L2, L5) (Galileo, BeiDou and IRNSS are optional features)

P-code tracking on L1 and L2 to avoid CA-P biases

Up to 100 Hz raw data output (code, carrier, navigation data) (optional feature)

A Posteriori Multipath Estimator (APME+) including code and phase multipath mitigation

AIM+ interference mitigates against wide and narrow band interference

Spectrum analyzer

All multipath mitigation and smoothing algorithms can be enabled/disabled

PPS in delay calibration circuit can be enabled/disabled

Formats

Septentrio Binary Format (SBF), fully documented with sample parsing tools
CGGTTTS V2E
RINEX (obs, nav, meteo) v2.x, 3.x
BINEX
NMEA v2.30 and v4.10 output
RTCM output (all MSM messages supported)

Connectivity

10 MHz reference input
1 PPS-IN
x PPS output (max 100 Hz)
10 MHz reference output
4 hi-speed serial ports
1 Ethernet port (100 Mbps)
Integrated WiFi (802.11 b/g/n)
Power Over Ethernet
1 full-speed USB port
1 USB host for external disk
16 GB standard on-board logging
Up to 24 parallel data records
FTP server, FTP push, SFTP

PERFORMANCE

Measurement precision1

- Code-carrier bias 0 by design
- Inter-frequency code bias <10 ns
- Inter-system code bias in common carrier <2 ns
- Code measurements <0.5 ns
- Phase measurements < 5 ps
- PPS in delay calibration precision 20 ps

Time accuracy2

- 1 PPS out 5 ns
- 1 PPS out rise time <2 ns
- Event 20 ns

Update rate

Measurements 100 Hz

Tracking performance (C/N0 threshold)2,3

- Tracking 20 dB-Hz
- Acquisition 33 dB-Hz

HARDWARE PARAMETERS

Time reference input

- Signal type: 1 PPS
- Input impedance: 10k Ω (compatible with 50 Ω 1PPS sources)
- Level: -0.5 to 5.5 V

Frequency reference input

- Signal type: 10 MHz
- Input impedance: 50 Ω
- Amplitude -8 dBm to +4 dBm (0.5 V pp to 2 V pp)

Time reference output

- Signal Type 5 V-level PPS (up to 100 Hz)
- Time system GNSS/UTC/receiver internal time
- Output Impedance 50 Ω

Frequency reference output

- Signal Type 1.1 V pp 10 MHz sine wave
- Time system GNSS/REF IN/receiver internal time
- Output impedance 50 Ω

PHYSICAL AND ENVIRONMENTAL

Size

235 x 140 x 37 mm
(9.25 x 5.51 x 1.45 in)

Weight

940 g (2.07 lb)

Input voltage

9 – 30 VDC

Antenna LNA Power Output

Output voltage +5 VDC
Maximum current 200 mA

Power Consumption

3 – 5 W

Operating temperature

-40 °F to 149 °F
(-40°C to +65 °C)

Storage temperature

-40 °F to 185 °F
(-40 °C to 85 °C)

Humidity

5 % to 95 % (non-condensing)

Connectors

Antenna TNC female
REF IN BNC female
REF OUT BNC female
PPS IN BNC female
PPS OUT BNC female
Power ODU 3 pins female
COM1 ODU 7 pins female
COM2 ODU 7 pins female
COM3/4/USB ODU 7 pins female
USB Host BNC female
IN ODU 7 pins female
OUT ODU 5 pins female
Ethernet SMA female
WIFI antenna SMA female

Certification

IP65, RoHS, CE
FCC Class B Part 15

1 1 Hz measurement rate
2 Max speed 600 m/s
3 Depends on user settings on tracking loop parameters

Specifications subject to change without notice. Certain features and specifications may not apply to all models. © 2016 Septentrio NV. All rights reserved.