

OAF & Cinderella

Topcon's exclusive board/signal management systems

OEM Solutions



OAF Software Activation Codes

OAF (operation authorization files) are the easy and cost effective way to control available options for your Topcon GPS board using electronic files, and only Topcon offers it. With OAF you can eliminate board replacement and the rapid out dating of technology simply by purchasing and uploading OAF files. OAF's activate or deactivate features according to your, or your end-users need. OAF's can change frequency reception options, including GLONASS, Galileo, L2, and L5. Other options include RTK, memory/data recording, and selecting ports for network options. Want to try a feature before buying? There's even an OAF that allows a temporary demo of all available options.

Cinderella Option

The Cinderella Option automatically turns your receiver into a dual frequency GPS+GLONASS for 24 hours, every other Tuesday, starting at GPS midnight. During this time all available satellite signals are received, absolutely free turning Euro 112/160 boards into dual frequency GPS+GLONASS boards automatically. Topcon even offers a Pay-Per-Use (PPU) program— simply purchase the minimum system configuration and then pay for other features and options as you use them. Cinderella days are not counted as PPU time, and are free as part of the Cinderella Option.

These are just two examples of Topcon's innovative solutions and unconventional approach to GPS hardware design and technology. We've revolutionized the Precision Construction and Survey Positioning markets. Now we're please to offer this technology to the navigational, guidance, and asset tracking markets. Before you try another brand, check out Topcon technology, we think you'll appreciate the difference.

The Leader in Positioning Technology...

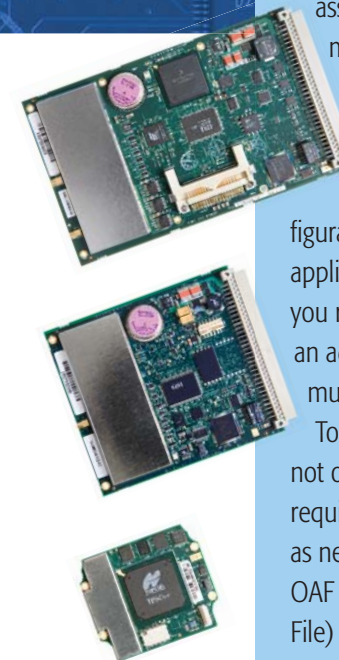
There's only one company that offers you all of the tools and know how to keep you competitive in today's GPS market. From our team of Engineers and designers to our Manufacturing group, we'll work with you to create a solution that fits your needs, perfectly.



Topcon Positioning Systems, Inc.
7400 National Drive • Livermore, CA 94546
www.topconpositioning.com

OEM GNSS SOLUTIONS

Topcon has been a leader in precision positioning applications and technologies for over 75 years, focused primarily in the precision control markets such as high precision surveying, mapping, and construction/agricultural machine guidance. Now Topcon brings that long history of advanced technology and innovation to the mobile control, navigational, guidance, asset tracking and much, much more!



Topcon's OEM products offer high performance in a variety of configurations to fit your specific application needs. Whether you require an L1 product, or an advanced dual-frequency, multi-constellation solution, Topcon OEM systems can not only fit your hardware requirements, but also adapt as necessary via our innovative OAF (Options Authorization File) system.

Specifications subject to change without notice
©2007 Topcon Corporation All rights reserved.
P/N: 7010-0846 Rev. A Printed in U.S.A. 09/07

TOPCON
TG3

Incorporating an innovative form factor (72.6 x 62.5mm), the Topcon TG-3 GNSS board provides powerful dual-constellation L1 performance unsurpassed by any other solution. This GNSS board provides 50-channel L1 GPS and can be software key upgraded via OAF file to:

- GG mode (L1 GPS & GLONASS)
- 20Hz Output
- 100Hz Output

Drawing less than 1.2 watts of power, the TG3 provides all of Topcon's exclusive and advanced GPS+ features. You won't find more capability in any other board in this segment of market.

Tracking Features

50 channels, all-in-view, L1 GPS, L1 GLONASS(optional), WAAS/EGNOS/MSAS. Cinderella Option
 Low signal tracking (down to 30 dBHz)
 Fast acquisition and fast re-acquisition
 Cold start < 35 sec Warm start < 10 sec Reacquisition < 1 sec
 Advanced Multipath Mitigation

Data Features

DGPS RTCM version 2.x Input/Output
 RTCM SC104 versions 2.1, 2.2 and 3.0 Input/Output
 NMEA 0183 versions 2.1, 2.2, 2.3 and 3.0 Output
 1-20-100Hz data output
 Topcon GRIL command interface
 Geoid and Magnetic Variation models
 Multiple DATUM support & grid coordinates

Performance & Accuracy

Static, Fast Static	H: 3mm+ 0.8ppm (x baseline length) V: 4mm+ 1.0ppm (x baseline length)
DGPS	Post Processing : Typically 0.3m Real time RTCM based : Typically less than 0.5m
SBAS	Typically less than 0.5m
Input/Output	3 high speed RS232 ports (up to 460.8 Kbps). Bluetooth Wireless
Power	Two RF inputs for internal and external antennas Input supply voltage: 3.3V main supply, 5V external supply Power consumption: 3.3V: 1W typical; 1.2W max Up to 5V: depends on antenna type connected
Velocity Accuracy	0.03 m/s RMS
Time Accuracy	20 ns RMS

Environmental

Operating Temperature -30°C to +75°C
 Storage Temperature -50°C to +75°C



TOPCON
T112

Based on the small Eurocard format (112mm), this GNSS board provides 40-channel L1 GPS and can be software key upgraded via OAF file to:

- GD mode (L1 + L2 GPS)
- GG mode (L1 GPS & GLONASS)
- GGD mode (L1 + L2 GPS & GLONASS)

The Euro-112T draws only 2.7 watts of power and provides all of Topcon's exclusive and advanced GPS+ features. It includes USB (12Mb/s), Ethernet (10Mb/s), four high speed RS232 serial ports, and on-board power supply. You won't find more accuracy in a larger board.

Tracking Features

40 channels, all-in-view, L1 GPS, L1/L2 GPS, L1/L2 GLONASS, L1/L2 GPS + L1/L2 GLONASS, WAAS/MSAS/EGNOS Cinderella Option
 Co-Op Tracking Technology
 Low signal tracking (down to 30 dBHz)
 Fast acquisition and fast re-acquisition
 Cold start < 60 sec Warm start < 10 sec Reacquisition < 1 sec
 Up to 30 g's of dynamic
 Advanced Multipath Mitigation

Data Features

Up to 20 Hz update rate for real time position and raw data (code and carrier)
 10 cm code phase and 0.1 mm carrier phase precision
 RTCM SC104 versions 2.1, 2.2 and 3.0 Input/Output
 NMEA 0183 versions 2.1, 2.2, 2.3 and 3.0 Output
 Multiple Base RTCM
 Geoid and Magnetic Variation models
 RAIM
 Multiple DATUM support & grid coordinates
 CMR and CMR+ support

Performance & Accuracy

Static, Fast Static	H: 3mm+ 0.5ppm (x baseline length) V: 5mm+ 0.5ppm (x baseline length)
Kinematic, RTK	H: 10mm+ 1.0ppm V: 15mm+ 1.0ppm
Data Storage	Up to 128 MB of on-board data storage
Input/Output	4 high speed RS232 ports (up to 460.8 Kbps). Full-speed USB device port (12 Mbps). Two 1PPS outputs (LVTTTL) synchronized to GPS, UTC, or GLONASS Two Event inputs Full-duplex 10BASE-T Ethernet port
MINTER interface:	Four external LED drivers ON/OFF control input External command input Four General Purpose 3.3V CMOS inputs Eight General Purpose 3.3V CMOS outputs
Power	Input supply voltage: 4.75V to 28V Power consumption: 2.7W typical; 3.3W max On-board back-up battery for timekeeping and almanac data storage: minimum 10 years of operation

Environmental

Operating Temperature -40°C to +75°C
 Storage Temperature -50°C to +75°C



TOPCON
T160PII

Designed with the Euro-card standard format, this power-packed board provides 40-channel L1 GPS and can be instantly transform via simple software key upgrade files (OAF) to:

- GD mode (L1 + L2 GPS)
- GG mode (L1 GPS & GLONASS)
- GGD mode (L1 + L2 GPS & GLONASS)

The Euro-160T draws 3.5 watts of power and provides all of Topcon's exclusive and advanced GPS+ features, including USB (12Mb/s), Ethernet (10/100Mb/s), support for 4 high speed RS232 serial ports. Clearly an example of Topcon's technology leadership, you won't find more capability in any other board in this format.

Tracking Features

40 channels, all-in-view, L1 GPS, L1/L2 GPS, L1/L2 GLONASS, L1/L2 GPS + L1/L2 GLONASS, WAAS/MSAS/EGNOS. Cinderella Option
 Up to 30 dB of inband interference
 Co-Op Tracking Technology
 Low signal tracking (down to 30 dBHz)
 Fast acquisition and fast re-acquisition
 Cold start < 60 sec Warm start < 10 sec Reacquisition < 1 sec
 Up to 30 g's of dynamic
 Advanced Multipath Mitigation

Data Features

Up to 20 Hz update rate for real time position and raw data (code and carrier)
 10 cm code phase and 0.1 mm carrier phase precision
 RTCM SC104 versions 2.1, 2.2 and 3.0 Input/Output
 NMEA 0183 versions 2.1, 2.2, 2.3 and 3.0 Output
 Multiple Base RTCM
 Geoid and Magnetic Variation models
 RAIM
 Multiple DATUM support & grid coordinates
 CMR and CMR+ support

Performance & Accuracy

Static, Fast Static	H: 3mm+ 0.5ppm (x baseline length) V: 5mm+ 0.5ppm (x baseline length)
Kinematic, RTK	H: 10mm+ 1.0ppm V: 15mm+ 1.0ppm
Data Storage	Up to 1 GB of on-board data storage
Input/Output	4 high speed RS232 ports (up to 460.8 Kbps). Full-speed USB device port (12 Mbps). Two 1PPS I/O (LVTTTL) synchronized to GPS, UTC, or GLONASS Two Event inputs Full-duplex 10BASE-T Ethernet port Frequency I/O?
MINTER interface:	Four external LED drivers ON/OFF control input External command input Four General Purpose 3.3V CMOS inputs Eight General Purpose 3.3V CMOS outputs
Power	Input supply voltage: 4.75V to 28V Power consumption: 3.5W typical; 4.0W max On-board back-up battery for timekeeping and almanac data storage: minimum 10 years of operation

Environmental

Operating Temperature -40°C to +75°C

