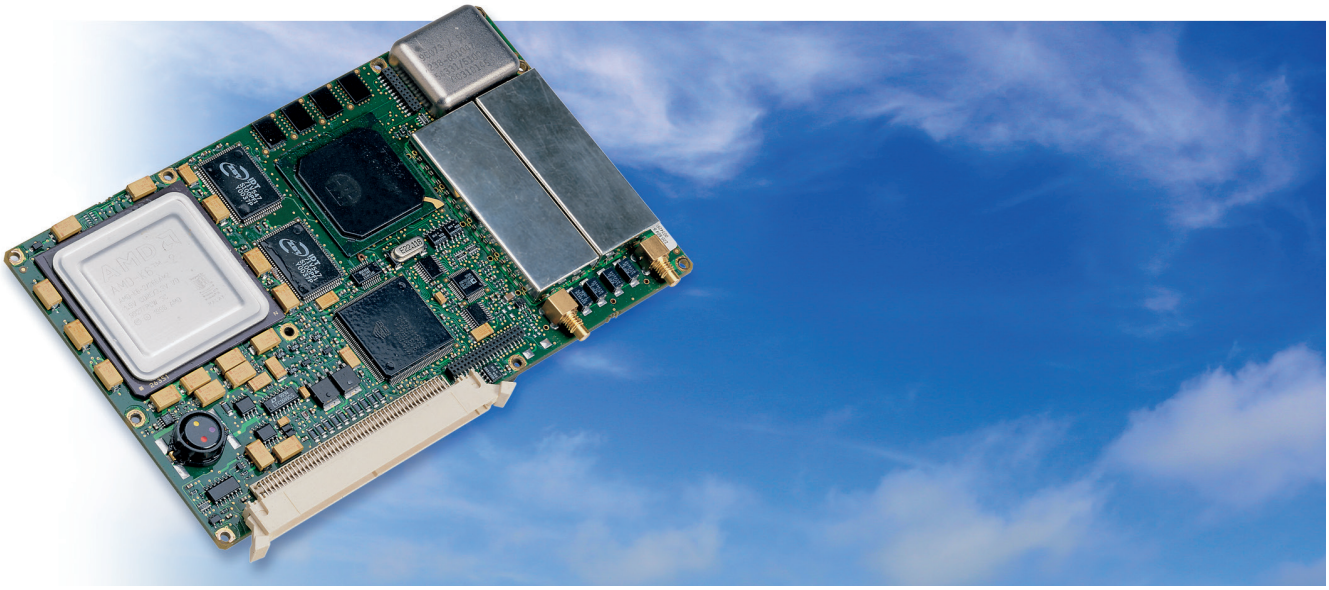
CMA-4124
GNSSA Receiver Module



The SBAS CMA-4124 GPS receiver module is designed for incorporation into all avionics applications such as Multi-Mode Receivers (MMRs). The SBAS CMA-4124 provides the guidance solutions for LP, LPV and SBAS LNAV/VNAV with LOC and GS outputs compliant to ARINC 710.

The SBAS CMA-4124 has been designed to meet all requirements specified in RTCA/DO-229D for Beta-3 and Delta-4 equipment classes. It is supported with a card-level TSO-C145c Beta-3 and TSO-C146c Delta-4 certification package as defined by the FAA.

The CMA-4124 provides digital ILS look-alike LOC and GS guidance solutions compliant to ARINC 710 for LP, LPV, and SBAS LNAV/VNAV approach modes. The SBAS CMA-4124 is single string CAT-I certified, complies to FAA Part-25 design requirements and supports Part-121 operations.

In addition, the SBAS CMA-4124 meets or exceeds all ADS-B requirements (including NAC_VEL=2), RNP0.1 navigation with availability >99.999% when under suitable SBAS coverage, automatic SBAS incorporation maximizing HPL availability under all navigation conditions.

The growth path for GBAS/LAAS GAST-C/CAT-I GAST-D/CAT-II + CAT-IIIb has been provisioned for with the appropriate software load.

- 24-channel Narrow Correlator® tracking technology receiver which can be used for continuous GPS and SBAS/WAAS satellite tracking
- Two fully independent L1 RF input channels
- GPS and SBAS/WAAS carrier phase tracking
- Numerous inputs and outputs available to support all required aircraft interfaces for complex applications
- 60,000 hours MTBF
- RTCA/DO-229D certified Full Fault Detection and Exclusion (FDE) and Integrity Monitoring
- Predictive Receiver Autonomous Integrity Monitor (RAIM)
- Automatic pressure altimeter incorporation per RTCA/DO-229D
- Comprehensive end-to-end receiver Built-In Test (BIT)
- Software upgradable to GBAS GAST-C and GAST-D

The CMA-4124 is the result of CMC Electronics' long experience in the design of certified airborne GPS products and a collaborative effort with NovAtel Inc. for state-of-the-art RF front-end and Narrow Correlator® tracking technology.

CMC Electronics

CMA-4124 GNSSA Receiver Module — Specifications

DESIGN REQUIREMENTS

ARINC	743B Characteristic 755-4 Characteristic
RTCA	DO-229D DO-246D (planned) DO-253C (planned)

CERTIFICATION

FAA	TSO-C145c Beta-3 equivalent for an electronics card TSO-C146c Delta-4 equivalent for an electronics card TSO-161a (planned)

RECEIVER

Type	2 Active Antenna Ports with 2 GPS L1 RF channels, 24 parallel Narrow Correlator ® digital processing channels
Frequency	L1, 1575.42 MHz, C/A code
Acquisition Sensitivity	-134 dBm @ 32.87 dB Hz C/No
Tracking Sensitivity	-134 dBm @ 31.04 dB Hz C/No
Time to First Fix	< 75 seconds maximum, 95% confidence
Hor. Position Accuracy	15 meters, 95%, S/A off
Differential	Better than 1.0 meters, 95%
Altitude Accuracy	20 meters, 95%, S/A off
Velocity Accuracy	0.5 knots, 95%, S/A off (0.33kts horizontal, 68 ft/min. vertical)
Position Update	10 independent solutions per seconds (10Hz solution rate)

SOFTWARE

Language	Ada
Level	DO-178B Level A design DO-178B, Level B certified

HARDWARE

Level	DO-254 Level A Design DO-254 Level B Certified
Processor	Pentium Equivalent

OTHER FEATURES

FDE & Predictive RAIM	Fault detection and isolation incorporated High-performance parity space technique uses pressure altitude automatically
Data Loader	On-aircraft software upload via ARINC 615 Data Loader (optional)
Pressure Altitude	Automatic calibration and use in navigation and RAIM
BITE	Continuous coverage, >95% fault detection

PHYSICAL

Size	6.6” x 4” x 0.6” (168 x 102 x 15 mm)
Weight	<0.5 lb (0.23 kg)
Input Power	+3.3, +5.0, +/-12.0 VDC
Consumption	12 W maximum 10 W typical (full configuration)
MTBF	60,000 hours

ENVIRONMENTAL

The CMA-4124 GNSSA receiver is designed to meet the following DO-160E categories when properly installed in a unit enclosure:

Temperature	-55°C to + 70°C
Altitude	55,000 feet (16,500 meters)
Humidity	Supports DO-160E, Cat. C
HIRF	Designed for 200 V/m when properly enclosed

INTERFACES

Inputs	9 ARINC 429 4 RS-422/232 11 discrete inputs
Outputs	5 Independent ARINC 429 4 RS-422/232 2 discretes 3 time marks (1 Hz)

For more information, visit www.cmcelectronics.ca or email us at sales@cmcelectronics.ca

Over 100 Years of Innovation

CMC-CMA4124-FDMS-21-007

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