CMA-6024 GPS/ SBAS/GBAS Landing System Unit

The CMA-6024 aviation GPS/SBAS/GBAS sensor is a complete, self-contained, fully certified, Precision Approach navigation and navigation solution, certified to Design Assurance Level A (DAL-A). It has been designed as a bolt-on, easy-to-integrate solution for all aircraft. The CMA-6024 provides fully compliant ADS-B and RNP navigation as well as SBAS/LPV and GBAS DME DTG – a fully compatible, self-contained system replaces legacy ILS LOC/GS and DME DTG – with FMS and support. The CMA-6025 Control Panel, the CMA-6024 provides a complete, self-contained, stand-alone SBAS/LPV/LP VDB receiver and GBAS Precision Approach solution.

Key CMA-6024 Technology Features
- Three SBAS and twenty-one GPS continuous channels with full RTCA-D2250E message processing and includes newly introduced SBAS PRNs (120 to 158)
- Can be fully integrated with FMS or can operate completely standalone
- Standalone operation requires optional CMA-6025 Control Panel or integration with an existing ARINC-750 MDU
- Built-in LPV/DTG database when installed as a standalone system
- Built-in VOR receiver enabling GBAS, can reuse existing receive-only VHF antennas (ex: a VOR antenna)
- Outstanding reliability, MTBF and rugged environmental performance
- Special options include Have Quick Timing Interface
- Cross-Feed Control Panel
- Lightning
- EMC/HIRF
- Temperature
- Altitude
- Humidity
- Vibration
- Cooling
- schn Igor
- Other

NEW INTERFACES SUPPORTING GPS APPROACH
- 6/230kHz MTBF
- Supports all legacy FMS database under TSO-C46a without modification, all legacy data and wiring retained per ARINC-744 and supports FMS G496A-3 certification
- The CMA-6024 is the result of over 35 years of Esterline’s CMC Electronics experience in the design and manufacture of certified airborne GPS products for the air transport, helicopter and business aviation markets, and is a collaborative effort with Esterline Inc. for state-of-the-art ARINC 602/603 standard and Novel Connector tracking technology.

CMA-6024 GPS/ SBAS/GBAS Sensor Unit — Specifications

DESIGN REQUIREMENTS

APSR

2730 Characteristic
755-4 Characteristic
710 Characteristic
DO-225D/ DO-230E
DO-244E/GBAS
DO-252C/GBAS

CERTIFICATION

FAA

TSO-C149R/73 Rev 1
TSO-C162 Rev. 1
Hardware RTCA-254 Level A
Software, RTCA-179 Level A
DAR-40/54 and VDB receiver
Part 25 Full Scale/Fail Operational

GPS RECEIVER

Frequency
L1, L1C/52 MHz, GPS & SBAS C/A codes
SBAS PRN codes from 120 to 158

Signal Performance
Fully compliant to RTCA-D2250E GPS and SBAS signal acquisition, tracking, and monitoring accuracy performance and all interference conditions

Time to First Fix
< 75 seconds maximum, 95% confidence

Navigation Accuracy
RTCA-D2250E, GPS and SBAS signal acquisition, tracking, and monitoring accuracy performance and all interference conditions

Velocity Accuracy
< 0.5kts, 95%, SA-OFF, velocity as per RTCA-D2250E Appendix F

Position Update
1 Hz and 10 Hz outputs

Positional Approach Guidance
20Hz ARINC-710C/DS

Antenna
Active antenna compliant with TSO-C190

BITE
Continuous coverage, 99.9% fault detection

VOR RECEIVER

General Performance
Meets or exceeds RTCA D2250C and D VOR performance requirements as Class B receiver with X=10, Y=0, Z=15

Supports authentication with digital time mark

OTHER FEATURES

Pressure Altitude
Automatic incorporation as per RTCA-D2250E Appendix G

FDE/Predictive RAM
Fault detection and isolation with automatic incorporation of pressure altitude data as per RTCA-D2250E

Approach Capability
SBAS LPV, LP, GBAS/LPV or GPS LPV as per RTCA-D2250E Appendix H

SBAS FAS Database
RTCA-D2250 certified, world-wide database

Database Capacity
Built-in 2 cycle capacity, 750kbyte 24kMiB total flash memory for SBAS FAS database

Data Loader
RS-232 and ARINC-415-3, 4050, supports different SBAS FAS database feeds

ADS-B Support
Fully compliant with FAA A20-165B and RTCA-D2250E Appendix L

Maintenance Part
ARMC-743 A & B

ARMC-743 compliant

Physical

Size
18 to 36 VDC

240x173x65 (6.37 x 6.81 x 2.56 inches)

128V fault output discrete

1 RS-422

1 RS-232

1 28V fault output discrete

Three 1-Hz time marks

Specifications are subject to change at no notice. Novel Connector tracking technology is a registered trademark of Novel Inc. "Bigeye Flight" is a trademark of CMC Electronics Inc.

www.esterline.com/aviationproducts
High-Performance Landing System with SBAS/LP/LPV, GBAS/GNS, ADS-B and RNP

- Patented 24-channel Narrow Correlator® ARINC 743B compliant sensor unit
- High-integrity SBAS Beta-3/Delta-4 and GBAS GAST-C/D sensor for Precision Approach
- RNP navigation with full ADS-B compliance and support
- All navigation functions fully compatible with all ARINC 743A capable systems
- Precision Approach performance available as a self-contained system with Control Panel or standalone system
- Compatibility with all ARINC-743A capable FMS
- RNP navigation with full ADS-B and GBAS/GBAS sensor unit
- Continuous coverage, >95% fault detection, and SBAS signal acquisition, tracking, and position accuracy performance

CMA-6024 GPS/SBAS/GBAS Landing System Sensor Unit

The CMA-6024 GPS/SBAS/GBAS sensor is a complete, self-contained, fully certified Precision Approach and navigation solution, certified to Design Assurance Level A (DAL-A). It has been designed as a bolt-on, easy-to-integrate solution for all aircraft. The CMA-6024 provides all the required functions, including accurate vertical and lateral guidance, as well as full ADS-B integration.

Key CMA-6024 Technology Features

- Three SBAS/GPS transponders, all GPS 3D, with full RTCA DO-220D message processing and SBAS and GBAS compatibility
- In-flight Software Upgrade (ISU)
- Built-in VOR receiver enabling GPS/GBAS Approach Guidance for all aircraft with the CMA-6024
- Outstanding reliability, MTBF and rugged environmental performance
- Special options include Have Quick Timing Interface CSDB interface, Doppler Velocity Emission and custom solutions upon request

DESIGN REQUIREMENTS

- ARINC 743B Characteristic
- 710 Characteristic
- RTCA/DO-220D
- DS-240D GBAS
- DS-150D GBAS

CERTIFICATION

- FAA
- DO-160G Cat A3J33
- DO-160G Cat. M
- DO-160G Cat. F2, 55,000 feet (16,500 meters)
- DO-160G Cat (CYL), R(G)
- CSDB Interface (LOC and GS)
- Have Quick Timing Interface
- Digital high integrity switch
- Supports “bolt-on” SBAS/GBAS precision approach with built-in digital high integrity switch

OPTIONS

- Options
- Have Quick Timing Interface
- CSDB interface (LOC and GS)
- Doppler Velocity Emission
- Other Specialty items (enquire)

NEW INTERFACES SUPPORTING GPS APPROACH

- ILS Localizer
- ARINC 710 digital GS/GS
- DME
- ARINC 750 digital DME
- Control Panel
- ARINC 429
- Cross-Fad
- ARINC 429 for dual and triple installations including Full Safety and Full Operational
- Linear Dantas
- ARINC 429
- MCDU
- ARINC 750 IN AFS database

Other Features

- Pressure Altitude
- Automatic incorporation as per RTCA DO-220E Appendix G
- Automatic incorporation of pressure after data as per RTCA DO-220E
- Approach Certification
- SBAS LPV, LNAV/NAV as per RTCA DO-220E, GBAS GAST-C/D as per RTCA DO-220E
- SBAS FAS Database
- FAA full database certified, world-wide database approved

Physical

- Size: 2.8” x 3.5” x 3.5” (76 x 89 x 95 mm)
- Weight: 6.0 lbs (2.72 kg)
- Input Power: 10 to 32V DC
- Consumption: 26W max, 23W typical

Environment

- Temperature: DO-160G Cat A, -50°C to 15°C
- Altitude: DO-160G Cat F, 8,000 feet (2,400 meters)
- Humidity: DO-160G Cat B
- Power: DO-160G Cat (CYL), R(G)
- Cooling: Not required
- EMC/IRP: DO-160G Cat Y1, Y2000 ITN
- EMI: DO-160G Cat
- Lightning: DO-160G Cat A333

Accuracy/TH About CMA-9434

- Equations:
  - 8 ARINC 429, 1 RS-232
  - Outputs: 3 ARINC 429
  - 1 RS-232
  - 1,350 fault output contacts
  - Three 1-Hz time marks
- Specifications are subject to change without notice.

CMA-6024 GPS/SBAS/GBAS Sensor Unit — Specifications