

Link 2000+ and ATN Provisioned
Full ACARS / CMU Functionality

UniLink[®]

Communications Management Unit UL-800/801

ACARS VDL Mode 2 Capability

Compliance with FANS Mandates

- Controller-Pilot Data Link Communications (CPDLC)
- Automatic Dependent Surveillance-Contract (ADS-C)

Increasingly congested skies demand a data link system with optimum management of two-way air-to-ground communications. The Universal Avionics UniLink UL-800 and UL-801 Communications Management Unit (CMU) provides superior operations and control of digital communications between the pilot and Air Traffic Controller (ATC) in the exceedingly complex Communication, Navigation, Surveillance (CNS) Air Traffic Management (ATM) environment. Developed in full compliance with DO-178B Level C guidelines, the UniLink UL-800/801 CMU also meets FANS 1/A+ standards.

Combined with the Universal Avionics Satellite-Based Augmentation System (SBAS)–Flight Management System (FMS), the UniLink UL-800/801 CMU provides an opportunity to take full advantage of the safety and efficiency benefits that advanced data link capabilities offer.



UniLink UL-800/801 LRU

A Platform for the Future CNS/ATM Environment

Fully compliant with the FANS 1/A+ mandate affecting operators in the North Atlantic Track System (NATS) and some Pacific Ocean routes, the UniLink UL-800/801 includes Controller-Pilot Data Link Communications (CPDLC) and Automatic Dependent Surveillance-Contract (ADS-C) functionality. With these FANS capabilities, operators gain preferred routing and options for altitudes with more favorable winds when in the NATS. Preferred routing provides a lower fuel burn and shorter station-to-station times, helping operators gain efficiencies that save fuel, time and money.

Provisioned for the upcoming Link 2000+ Programme mandate, the UniLink UL-800/801 enables operators to proactively equip for this and the FANS requirements while increasing the aircraft's utility. By February 2015, the entire NATS between FL350 and FL390 will require FANS 1/A capability.

The UniLink UL-800/801 is also provisioned for the Aeronautical Telecommunications Network (ATN), a future internetwork architecture designed by the International Civil Aviation Organization (ICAO). This network will allow ground / ground, air / ground, and avionics data sub-networks to interoperate by adopting common interface services and protocols based on the International Organization for Standardization (ISO) Open Systems Interconnection (OSI) Reference Model.

Features

- Provides reliable digital communication between the aircraft and the ground (ground to air and air to ground text messaging)
- Meets the FANS 1/A+ mandate
- ACARS functions including Out-Off-On-In (OOOI) and Airline Operational Control (AOC)
- Auto aircraft position reporting and aircraft tracking
- Updated weather information including text and graphical weather maps
- AOC messaging, FANS message handling and uplink / downlink messages from peripheral systems
- FMS Flight Plan uplink from service provider
- Uplink forecast winds

Flight Information Services

Flight Information Services are available through the VHF radio or a capable approved Inmarsat Packet Mode Data or Iridium Short Burst Data (SBD) SatCom system.

- Pre-departure clearance
- Oceanic clearance
- D-ATIS
- TWIP
- Pushback clearance
- Expected taxi clearance

Text and Graphical Weather

UniLink's independent menu-format software integrates seamlessly with the FMS and provides easy access for sending and receiving data. UniLink affords data link opportunities for:

- Air to ground text messaging via service provider, accessed via internet, fax or email
- Ground to air text messaging via service provider, accessed via internet
- Automatic position reporting (aircraft tracking via service provider)
- ETA updates
- Text weather information including TAF, METAR, SIGMETS, and winds aloft

High-resolution color weather graphics can also be uploaded for display on an FMS Control Display Unit (CDU), EFI-890R/890H Nav Display, MFD-890R/890H or MFD-640 Multi-Function Displays. These graphics include display of:

- Composite radar
- Tops and movements
- IR satellite images
- Significant weather
- Winds aloft
- IFR / MVFR depictions
- Icing and turbulence potentials



MFD-640 with weather graphics



Universal Avionics Flight Management Systems can provide control and display for UniLink features and capabilities.

High-resolution weather graphics are viewed on graphics-capable SBAS-FMS CDUs, EFI-890R/890H Nav Displays, MFD-890R/890H or MFD-640 Multi-Function Display Units and other compatible displays.

Routing

The UniLink UL-800/801 supports Air Traffic Services (ATS) Facilities Notification (AFN), allowing the aircraft and the ATS provider to exchange addresses as well as information about the FANS application supported. Communications may be routed using compatible Inmarsat or Iridium satellite systems and via the ACARS high-speed VHF Data Link (VDL) Mode 2 network when within range of these facilities. For increased installation flexibility, the UniLink UL-801 model features an internal VHF Data Radio (VDR) that saves weight and space. The UL-800 supports interface to an external VDL Mode 2 compliant VDR.

Airline Operations

The UniLink can downlink aircraft-acquired data for maintenance and operational analysis including engine data from a Central Maintenance Computer. Meteorological data collection and reporting is supported, as well. UniLink's database-driven user interface and message set is easily customized to match airline operational requirements and is uploaded into UniLink without affecting product software or certification status.

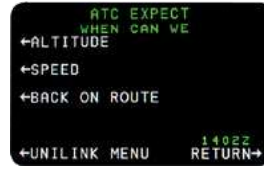
Interfaces

The UniLink UL-800/801 supports Universal Avionics FMS installations, Multi-Function Control Display Unit (MCDU) and ARINC 702A communication protocol. Support for ARINC 739 interface for use with other capable MCDU display units is standard on UniLink.

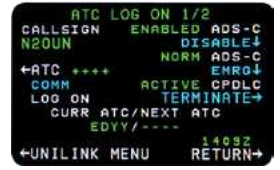
In installations where FANS approval is sought, a Cockpit Voice Recorder (CVR) capable of recording data link messages is required as part of the system installation. The UniLink UL-800/801 supports transmission of AOC, CPDLC and FANS data link recording, interfacing with the Universal Avionics CVR or Cockpit Voice and Flight Data Recorder (CVFDR), or other capable systems, via an ARINC 429 data bus.

Field-Loadable Databases

The customer database driven user-interface and message set can be customized to match airline or business operational requirements. UniLink uses three databases: customer (which includes the Aeronautical Operational Control (AOC) database), geographic and ATC. Databases are installed by Universal Avionics and also in the field by customers using a Universal Avionics data loading DTU-100 or Solid-State Data Transfer Unit (SSDTU). UniLink enables application software to be loaded in the field without removal of the equipment from the aircraft installation.



ATC Expect



ATC Log On



ATC



ATC Request



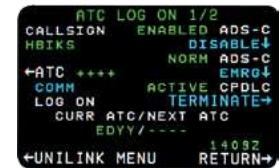
Out-Of-On-In Times



Flight Information Services



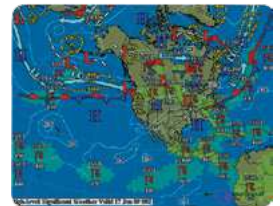
Weather Graphics



Access Message Log



Composite Radar



Significant Weather



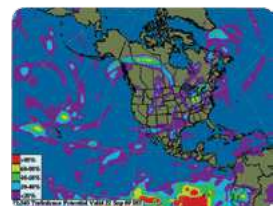
IFR / MVFR



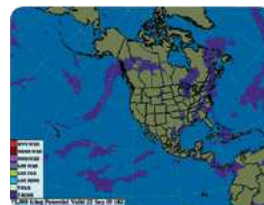
Tops and Movements



IR Satellite



Turbulence



Icing



Winds Aloft

Specifications

Functional

Compliant with ARINC standards 618, 619, 620, 622, 623, 724B and 758
 External Interfaces
 ARINC 750 VHF Radio (UL-800 only)
 ARINC 741 SatCom (supports FANS 1/A+ remote oceanic)
 Iridium / Inmarsat SatCom Telephony
 ARINC 604 Central Maintenance Computer
 ARINC 740 / 744 / 744A Printer
 Serial Printer
 Universal Avionics Ethernet data loader
 SSDTU or DTU-100

Hardware

Size: 1 MCU
 Height: 7.64 in.
 Width: 0.99 in.
 Depth: 15.23 in.
 Weight: UL-800: 3.10 lbs.
 UL-801: 4.54 lbs.
 Internal VDR Radio (UL-801 only): 20 watt;
 118-137 MHz, 25 kHz spacing
 Antenna: 50 ohm passive VHF, 118-137 MHz
 Configuration Module
 Built-in Test Equipment (BITE)

Inputs/Outputs

ARINC 429: 16-input / 8-output
 RS-422/232: 6-input / 6-output
 RS-232 Diagnostics Port: 1-input / 1-output
 Ethernet: 3 10 / 100 Base-T
 Discretes: 10-input / 14-output

Power

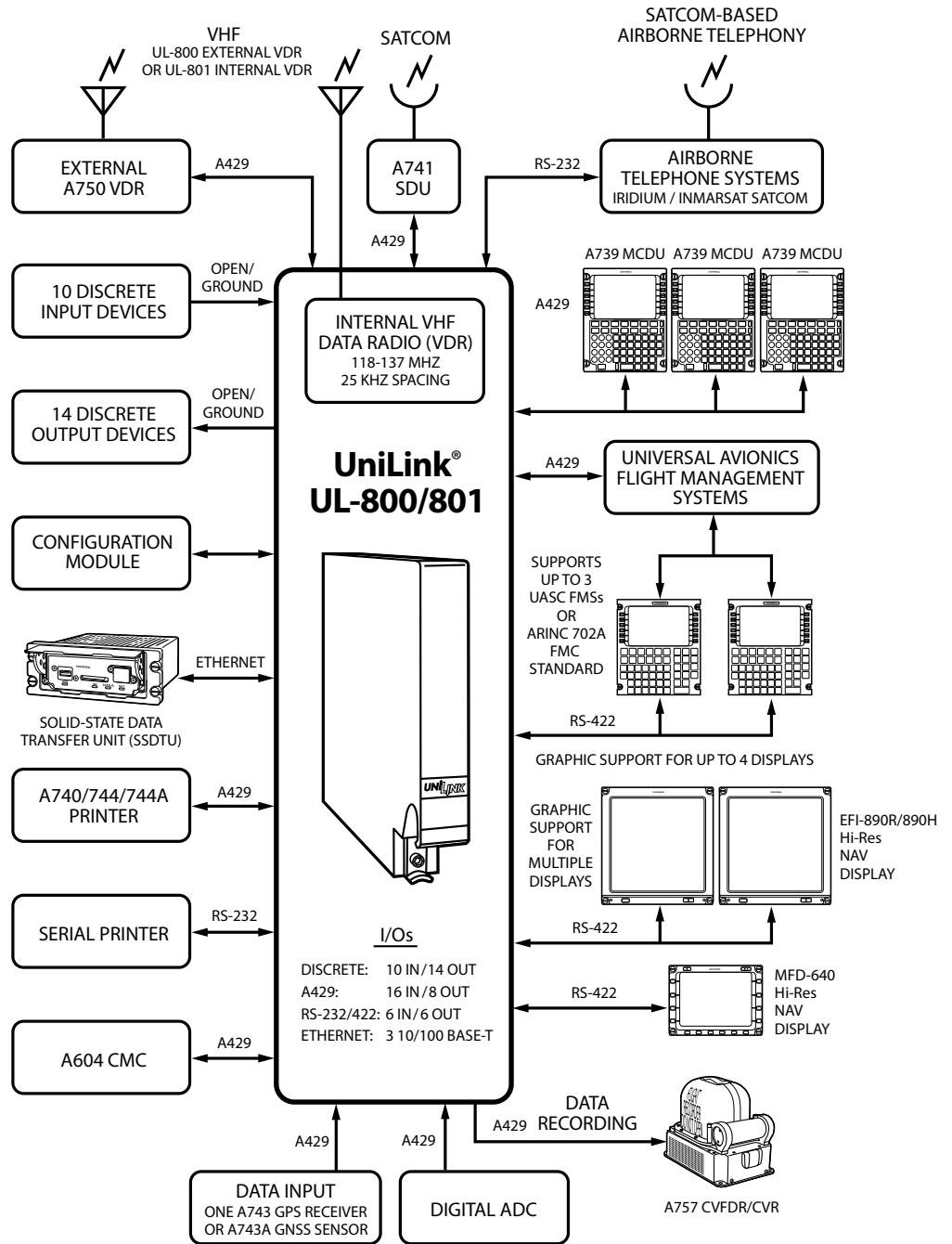
28 VDC nominal
 UL-800: 15 watts typical
 UL-801: 96 watts typical

FAA TSO/ETSO

C160 VDL Mode 2 Communications Equipment

RTCA Documents

Hardware: DO-160F Environmental Categories
 Software: DO-178B Level C



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Features and capabilities are representative of systems at time of printing. Please contact your Universal Avionics sales representative for the latest system enhancements.
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