# EDCU (Engine Data Concentrator Unit)

## Digitizing engine/platform data for avionics & glass cockpit implementations

- ***Digitizing engine, hydraulic & other aircraft sensors data***
- ***Interface engine/platform sensors to modern digital avionic computers***
- ***Dual Redundant***
- ***Fully certified for civil aviation***
- ***For helicopter & fixed wind platforms***

Astronautics' Engine Data Concentrator Unit (EDCU) is a real-time certified digitizing unit, that converts aircraft & engine sensors data into a digital format provided over ARINC-429 interface to EICAS displays, avionics computers and any other modern glass cockpit computer that requires engine/aircraft sensor data in a digitized form.


The EDCU interfaces Engine temperature, pressure & RPM sensors, providing digitization values of all engine, hydraulic & power plan sensors,. The EDCU convert all inputs into a digital format, condition the signals and perform any required filtering and data conversion computation. The raw data is then converted by software into a digital, physical data format & packed in standard ARINC-429 labels transmitted over the ARINC-429 output channels.

The EDCU is a dual redundant system, with separate interfaces, processing and power supply to each portion. Each half is packaged in Engine Data Conversion Module (EDCM) that is fully functional and totally independent from the other module residing in the same LRU.

The Astronautics' Engine Data Concentrator processing is based on a DSP processor that manages the I/O, performs the computations and send out the ARINC-429 labels. Each internal module is independent, therefore – two ARINC-429 channels are provided as an output – one from each module. The receiving system may receive both inputs for redundancy. Alternatively, the EDCU will be connected to two separate smart EICAS displays, with each ARINC-429 channel feeding a different EICAS display. Alternatively, the EDCU data will be provided to an avionics computer or a display processor, to be used as data in generating combined Primary Flight / Engine display formats to the pilot.

The EDCU also receives various discretes from aircraft systems and may include logic implementation in software for generating alerts and advisory to the pilot based on a pre-defined logic. The alerts may be generated upon a parameter exceedance, out of range values and/or a combination of values from different sensors and/or state of input discretes – all in accordance to the specific platform requirements.

ASTRONAUTICS C.A. LTD.

# ECDU (Engine Data Concentrator Unit)

## Dual Redundant ❋ High-Reliability ❋ DO-178 & DO-254 compatible

### General features

- Dual redundant – two identical modules in a single LRU
- Full redundancy – I/O, Power & ARINC-429 interface
- Comply with DO-178A level A & DO-254
- Support fuel tank sensors calibration (empty, full)
- Build In Test (BIT)

### Engine/Platform Interfaces & ARINC labels

- Engine Interfaces:
  - Tachometer (engine, rotor & Gas)
  - Fuel (Quantity, pressure &Fuel Flow)
  - Torque pressure
  - Gas & Oil Temperature
  - Transmission (in helicopters)
  - AC/DC power (voltage & load)
- ARINC-429 labels supported (sample):
  - 316-7 – Engine Oil Pressure / Temp
  - 256/320 – Fuel pressure / QTY
  - 300-1 – Transmission Oil Pressure / Temp
  - 302/344/346 – Tachometer (Engine, Rotor, Gas)
  - 354 - Engine Gas tachometer
  - 336 – Torque pressure
  - 101/102/1104 – DC voltage & load (main/standby)
  - 076 – AC volts
  - 304-5 – Fuel QTY offset (empty & full)

### Characteristics

**Power** 28VDC, 25 Watts per DO-160E (operation @ 15VDC for 15 sec.)

**Cooling** Thermal conduction and free convection (no active cooling required)

**Environment** Per DO-160E
Temp: -40ºC to +55ºC (+70ºC intermittent)
Altitude: Up to 15,000 feet
Decompression: From 8,000 feet to max altitude in 15 sec.
Overpressure: 15,000 feet for 10 minutes.
Lightning: Per DO-160E, Section 22.

**EMI** Per DO-160E, section 16, Cat A requirements

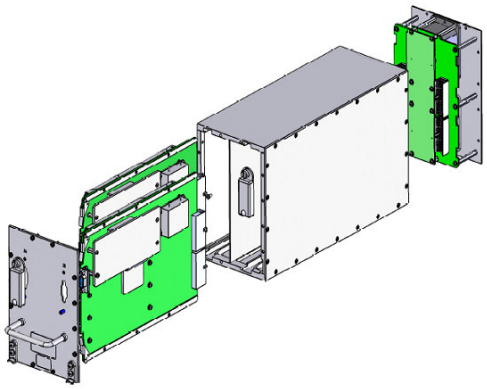
**MTBF** >20,000 Hours

### EDCU I/O

**Analog I/O** – Strain gauge, mV DC measurement, capacitor input, RDT, synchro I/O, Analog I/O (AC, DC), Thermocouple input & tachometer frequency input

**Discretes** Input & Output, different types (open/ground, 28VDC/Open, differential etc.)

**Communication** RS-422 & ARINC-429 (in & out)



### Mechanical

**Dimensions:** 11” x 10” x 4”

**Weight** < 7 Lbs

ASTRONAUTICS C.A. LTD.
16 Martin Gehl St., Petah Tikva 49130, ISRAEL
Tel: (972)-3-9251555, Fax: (972)-3-9251550
Email: astro @ astro.co.il
Web Site: www.astronautics.co.il