**RDC**

Remote Data Concentrator

**CAPABILITIES**

- Captures analog and discrete sensor inputs at remote locations
- Software-defined data acquisition
- Safety critical soft-core processor for customer loadable analysis software
- ARINC 429, Ethernet (including PTP), MIMO Wi-Fi, and Bluetooth® outputs
- Lightweight and compact design
- Battery-powered option capable of charging in extreme temperature environments
- Electrically isolated 28 VDC input
- Unregulated 15 VDC, regulated 10 VDC, and current source outputs
- Internal ambient temperature sensor and vibration immune triaxial thermal accelerometer
- Programmable gain amplifiers
- Design Assurance to DO-254 and DO-178
- Qualified to DO-160G and MIL-STD-810F / 461F / 704F

The RDC is a miniature data acquisition unit designed for extremely harsh environments, that can be located at the aircraft signal sources. The RDC enables a distributed data acquisition architecture collecting as many as 32 sensor inputs from multiple locations on the airframe transmitting data via ARINC-429, Ethernet (including PTP) MIMO Wi-Fi and Bluetooth® to avionics systems such as a Flight Data Recorder (FDR), Health and Usage Monitoring System (HUMS) and other systems requiring critical aircraft data.

Locating the RDC close to signal sources simplifies the installation, improves signal accuracy and enables access to data that may otherwise be difficult to obtain. The RDC operation is automatic upon application of aircraft or battery power.

The RDC’s rugged aluminum flange-mount housing with captive hardware, along with MIL-DTL-38999 connectors, provides an environmentally sealed enclosure ideal for most operational requirements. This includes both commercial and military fixed-wing and rotary-wing aircraft with the housing bonding directly to the airframe.

In addition to capturing existing sensor data the RDC offers two auxiliary voltage or current outputs, 28 VDC for powering accelerometers and a regulated 10 VDC for powering potentiometers and strain gauges, allowing for the addition of extra sensors on the airframe that may provide useful maintenance data.
**TYPE**

**STANDARD RDC**
- **Inputs**: Digital: ARINC-429, ARINC-717, MIL-STD-1553
  - Analog: Discretes, Frequency, Strain Gauges, Synchro/LVDT/RVDT, 4 to 20 mA Current Loop, RTD
- **Outputs**: ARINC-429, Ethernet, IEEE 1588
- **Physical**:
  - Height: 1.6 in. (40.88mm)
  - Width: 1.9 in. (49.3mm)
  - Depth: 3.0 in. (77mm)
  - Weight: 0.55 lb. (250g)
- **Power**:
  - Input Power: 28 VDC
  - Consumption: 5 W
  - Battery: n/a
- **J1 Connectors**:
  - Interface: MIL-STD-D38999/20FF35SA
  - Mating: MIL-STD-D38999/26FF35PA
- **Environmental**:
  - Operating Temp.: -55 °C to 70 °C (-67 °F to 158 °F)
  - Non-operating Temp.: -55 °C to 85 °C (-67 °F to 185 °F)
  - Humidity: 100%
  - Operational Altitude: 55,000 ft.
  - Operational Shock: 20 g
  - Vibration: 14 g
  - EMI/EMC: DO-160G, MIL-STD-810F / 461F / 704F
  - Reliability: > 14,000 operating hrs. MTBF
  - Cooling: Passive convection

**WIRELESS RDC**
- **Inputs**: ARINC-429, Ethernet, IEEE 1588
- **Outputs**: ARINC-429, Ethernet, IEEE 1588, MIMO WiFi, Bluetooth®
- **Physical**:
  - Height: 1.6 in. (40.88mm)
  - Width: 2.33 in. (59.2mm)
  - Depth: 4.01 in. (101.9mm)
  - Weight: 1.0 lb. (454g)
- **Power**:
  - Input Power: 28 VDC
  - Consumption: 5 W
  - Battery: Sealed lead acid
- **J1 Connectors**:
  - Interface: MIL-STD-D38999/20FF35SA
  - Mating: MIL-STD-D38999/26FF35PA
- **Environmental**:
  - Operating Temp.: -55 °C to 70 °C (-67 °F to 158 °F)
  - Non-operating Temp.: -55 °C to 85 °C (-67 °F to 185 °F)
  - Humidity: 100%
  - Operational Altitude: 55,000 ft.
  - Operational Shock: 20 g
  - Vibration: 14 g
  - EMI/EMC: DO-160G, MIL-STD-810F / 461F / 704F
  - Reliability: > 14,000 operating hrs. MTBF
  - Cooling: Passive convection

**Internal Sensor**
- Thermal sensors
- MEMS thermal triaxial accelerometer

**RDC Functional System Block Diagram**

**Inputs**:
- ARINC 429
- ARINC 717
- GPS
- Analog & Discretes
- Synchros

**Outputs**:
- ARINC 429
- Ethernet
- Wireless