BVR™ Data Concentrator Units (DCUs)

Industry-leading signal-conversion and data-concentration technology, featuring:

- Proven airborne reliability
- Compact, low-weight designs
- Versatile I/O and databus management
- Self calibration, self testing

Advanced DCUs with integrated processing for graphics, Ethernet, power management

Esterline's BVR DCU technology delivers a new generation of compact units engineered with higher levels of built-in processing in addition to data concentration and routing.

Our solutions address customer needs for increasingly robust, powerful, and distributed data networks. A recent milestone has been the BVR remote processor unit (RPU) in support of the S-97 Raider high-speed scout helicopter, currently under development.

Our RPU offers up to 200 I/O channels and includes graphics processing, allowing it to drive passive cockpit displays with data aggregated from sensor arrays, as well as to activate related switch-panel relays automatically. It can also host a customer's real-time operating system (RTOS) and support network infrastructure such as Ethernet and TTEthernet.

In addition, we have adapted our RPU architecture to other applications that integrate data concentration and processing:

- Power management system (PMS)
- Utility management system (UMS)
- Health management system (HMS) with automated pilot alerts

Typical I/O configurations for an RPU and UMS are provided on page 2.

Esterline is an industry leader in developing aircraft data collection, conversion, processing, and routing solutions. We deliver the elements you need for rugged, scalable, fault-tolerant data networks.

DCUs collect discrete inputs, analog signals, and digital data from sensors and equipment throughout the aircraft, then convert them to digital format for streaming over the databus of the flight-control or aircraft-management system (typically ARINC 429, ARINC 664/AFDX, CAN bus, Ethernet, MIL-STD-1553, RS-422, RS-485).

Main advantages include reduced cabling and minimal signal interference, as well as improved robustness and survivability, through distributed redundancy and the elimination of single points of failure.

We optimize DCU reliability, weight, and size by engineering all our units to systematically reduce component count and connections. We implement state-of-the-art electronics technologies, including:

- Embedded passives
- System on a chip
- Configurable I/O
- FPGA circuit integration

Our electronics are so compact that the final form factor is driven by customer requirements for the number of I/O pinouts and associated connectors.

With our depth of expertise in electronics design, software, and mechanical engineering, as well as manufacturing and testing, we are able to deliver solutions perfectly suited to your platform requirements.

BVR™ advanced DCUs with integrated processing

BVR advanced DCUs with integrated processing: RPU and UMS

Features

Includes remote processing unit (RPU) and utility-management system (UMS).

- Proven interface circuits
- No forced air cooling
- Sensor specific software modules
- Field-loadable firmware and software
- DO-160

- DO-178B Level A software
- DO-254 Level A firmware
- MIL-STD-461
- MIL-STD-704
- MIL-STD-810

I/O configuration for RPU

Signal	I/O type	Destination type	Configuration quantity
Discrete	Input	Configurable (GND/open, 28 VDC open); GND/open; chip detector	120
Analog	Input	Configurable (±100 mVDC, ±10 VDC, RTD frequency); LVDT; AC ratio; synchro	45
Serial	Input	ARINC-429	20
Discrete	Bi-directional	Configurable (GND/open, 28 VDC open)	30
Analog	Output	Dynamically configurable ±10 VDC	15
Serial	Output	ARINC-429	10
Network	Bi-directional	Ethernet with ability to interface to time-triggered Ethernet (TTEthernet)	2
Graphics	Output	DVI, VGA	2

Additional RPU capabilities

- Hosting of customer real-time operating system (RTOS)
- Graphics processing and networking
- Raw-data provision for processing by RTOS

I/O configuration for UMS

Signal	I/O type	Destination type	Configuration quantity
Discrete	Input	2-wire, 3-wire, or 6-wire switch with resistor; GND/open; 28 VDC/open	86
Analog	Input	0-5 VDC, 0-30 VDC, 0-1 ADC	12
Serial	Input	ARINC-429	14
Discrete	Output	GND/open, 28 VDC/open, solid-state relay	96
Serial	Output	ARINC-429	10

For more information about BVR data concentrator units, call us at 815-874-2471 or email bvr.sales@esterline.com.

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Control & Communication Systems

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