

# Commercial Helicopters

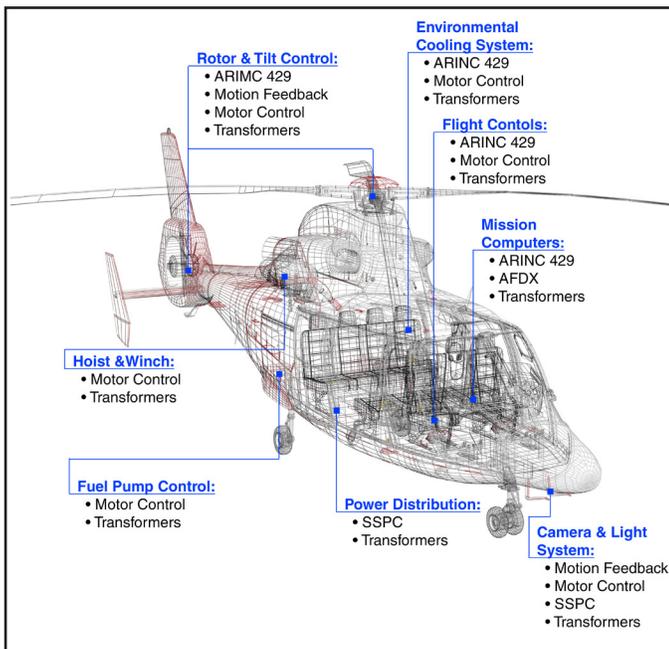


## Application Brief

Commercial Aerospace



DDC, the leader for more than 50 years in high reliability motion control, power control, and data networking technology for the aerospace and defense industries, offers SWaP-C optimized, flight certifiable solutions for commercial helicopter applications - providing field proven, compact products that meet commercial aerospace environmental requirements, while reducing space, weight, power consumption, and total cost of ownership.



### The DDC Advantage:

Commercial helicopters demand reliable, light-weight solutions engineered for precision control and reliable connectivity, designed in compliance with DO-160, DO-178, and DO-254. DDC solutions meeting these requirements include:

#### Power Control:

- Compact Configuration Provides High Power Density, SWaP Savings
- Redundancy & Failsafe Mechanism Provides Optimal Solution for Safety Critical Power Management Applications

#### Motor Control:

- Compact Integrated Single-Module Solution Reduces In-House Development Risk and Time-to-Market
- High MTBF Provides High System Reliability

#### Motion Feedback:

- Accuracy to 8 Arc Minutes
- Internal Synthesized Reference Up to 45° Phase Shift Correction

#### Data Networking:

- ARINC 429 Inputs Internally Protected to Lightning Requirements of DO-160D Level A3
- Operates at Data Rate Beyond ARINC 429 Specifications to 5MHz

### Applications:

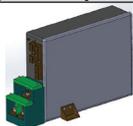
- Camera Systems
- Environmental Cooling
- Power Distribution
- Flight Controls
- Hoists & Winches
- Fuel Pump Controls
- Mission Computers
- Rotor & Tilt Controls

**Your Solution Provider for Connectivity, Power, and Control...** For over 50 years, DDC has continuously advanced the state of high-reliability data communications and control technology with innovations that have minimized component size and weight, while increasing performance. DDC is distinguished with top industry certifications for our controlled processes, clean room manufacturing, and state-of-the-art production equipment. Our products have been deployed on military and commercial aerospace platforms, ground vehicles, underwater unmanned vehicles, and space applications.

For more information: [www.ddc-web.com/CH](http://www.ddc-web.com/CH)

## Power Control

### Flight-Safety Critical SSPC PDU



Model: RP-2F241XXXX

#### Features:

- 24 Independent Load Channels
- High-side and Low-side Switching
- Channels with 10:1 Programmability
- Total Current Capability of 260A
- Independent Remote Control of Individual Channels/Groups
- Redundant Channel Failsafe Mechanism
- Dual Redundant Host Controllers
- Dedicated Controller per ECB/Load Channel
- Designed to Meet DO-160

### 32-Channel Light-Weight PDU



Model: RP-20321X

#### Features:

- Optimized Weight for Flight - 3lbs
- Nominal 28V Operation, MIL-STD-1275C, MIL-STD-704 Compliant
- Total Continuous Current of 120A
- 32 Independent Load Channels
- 5A, 10A, and 20A Channels with 10:1 Current Programmability
- 1A, Low Side Channels
- Designed to Meet DO-160

## Motor Positioning & Feedback

### Resolver-to-Digital & LVDT Converters



Models: RD-19230, RD-19240

#### Features:

- +5V Only Option
  - Internal Synthesized Reference
  - Encoder Emulation (A Quad B) Interface
- RD-19230**
- Programmable Resolution (10, 12, 14, 16 bit), Bandwidth, & Tracking
  - ±Accuracy up to 1 Arc Minute
- RD-19240**
- Programmable Resolution (10, 12, 14 bit), Bandwidth, & Tracking
  - ±Accuracy up to 8 Arc Minutes

## Motor Drive and Control

### 3-Phase BLDC Digital Motor Controller



Model: PWR-8256XNX

#### Features:

- Self-contained 3-Phase BLDC Motor Controller
- Torque, Speed, and Position Control Modes
- Up to 600V Bus Support
- 10, 20, or 30A Output Current
- -40°C to +105°C Operation
- Hall Effect or Sensorless Feedback
- CANbus and RS-422/RS-485 Control Interfaces
- User Programmability Via Easy-to-Use GUI
- Designed to Meet DO-160

### 3-Phase BLDC Analog Motor Controller



Model: PWR-XXXXX

#### Features:

- 28VDC/5A Control Power
- 28VDC/155A Motor Power
- Inrush Management
- Current Limit
- -40°C to +55°C Operation
- Motor Stall DSAT Protection
- Analog Control System Eliminates Need for DO-254 and DO-178 Re-certification
- Designed to Meet DO-160

## Data Networking

### AceXtreme® Bridge Device



Models: BU-6711XWX

#### Features:

- Bridge Between Ethernet, MIL-STD-1553, and/or ARINC 429
- Remote Access to 429 or 1553 Data via Ethernet
- Low Power 1GHz Intel Atom Processor
- 8 GB Solid-State Drive
- MIL-STD-810 Shock, Vibration, Humidity, and Altitude Testing
- MIL-STD-461 EMC

## Data Networking

### ARINC 429 Line Receiver



Models: DD-41044, DD-41045

#### Features:

- Converts ARINC 429 Levels to TTL/CMOS Digital Data
- Inputs Internally Protected to Lightning Requirements of DO-160G Level A3, Waveforms 3, 4, and 5 with No Additional Protection Required
- 5V or 3.3V Operation
- 20L TSSOP Package
- Direct Drop-in Replacement for Holt and DEI Line Receivers

### ARINC 429 Line Driver



Model: DD-4107X

#### Features:

- TTL/CMOS ARINC 429 Line Driver
- HI/LO Speed Control Pin for Hi (100Kbps) or Lo (12.5Kbps) Speed Slew Rates
- ±9.5V to ±16.5V Supplies
- Drives Full ARINC Load
- Output Resistor Options: 0, 10, or 37.5 Ohms
- Tristate Output Options
- Direct Drop-in Replacement for Holt and DEI Line Drivers
- Designed to Meet DO-160

### ARINC 429 Mini-PCle Board



Models: DD-40001H060

#### Features:

- DMA Engine for Low CPU
- 6 ARINC 429 Channels
  - (2) ARINC 429 Receive Channels
  - (4) Tx/Rx ARINC 429 Channels
  - (2) can be Programmed as Tx/Rx ARINC 717
- Prog. Speed Per Channel (500bps - 200Kbps)
- Commercial to Extended Temperature Range: -40°C to +85°C Operation
- Designed to Meet DO-160

## Custom Hybrid, MCM, and PCB Solutions

DDC designs boards, hybrids and multi-chip modules (MCM) to meet ruggedness and reliability levels for performance in the most demanding environments. Our expertise lies in our engineering and manufacturing abilities to reduce size, weight and power while providing the highest level of integration into small single packaged solutions.

## Quality

- Underwriters Laboratories (UL) Certified:
  - ISO 9001: 2008 Certified
  - AS9100, Rev. C Compliant
  - EN9100 Compliant
  - JIS Q9100 Compliant
- Defense Supply Center Columbus (DSCC) Certified:
  - MIL-PRF-38534 Class D, G, H, & K



DATA DEVICE CORPORATION  
REGISTERED TO:  
ISO 9001:2008, AS9100C:2009-01  
EN9100:2009, JIS Q9100:2009  
FILE NO. 10001296 ASH09



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