

Product Catalog



Data Bus

Fibre Channel

Synchros/Resolvers

Solid State Power Controllers

Motor Drives/Controllers

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Data Bus



MIL-STD-1553/1760 | ARINC 429 | AFDX®/ARINC 664 | Ethernet

As the leading global supplier of data bus components, cards, and software solutions for the military, civil, and aerospace markets, DDC's data bus networking solutions encompass the full range of data interface protocols to support the real-time processing demands of field-critical data networking between systems and subsystems on military vehicles. These products, along with our traditional MIL-STD-1553 solutions, represent a wide and flexible array of performance and cost solutions, enabling DDC to support multi-generational programs.

Whether employed in increased bandwidth, high-speed serial communications, or traditional avionics and ground support applications, DDC's data solutions fulfill the expanse of military requirements including reliability, determinism, low CPU utilization, real-time performance, and ruggedness within harsh environments. Our use of in-house intellectual property ensures superior multi-generational support, independent of the life cycles of civil devices. Moreover, we maintain software compatibility between product generations to protect our customers' investments in software development, system testing, and end-product qualification.

MIL-STD-1553

DDC provides an assortment of quality MIL-STD-1553 rugged embedded and lab grade cards and components to meet your data conversion and data interface needs. Our 1553 data bus board solutions are integral elements of military, aerospace, and industrial applications. Our extensive line of military and space grade components provide MIL-STD-1553 interface solutions for microprocessors, PCI buses, and simple systems. Our 1553 data bus solutions are designed into a global array of aircraft, helicopter, unmanned vehicles, and missile programs.

ARINC 429

DDC also has a wide assortment of quality ARINC 429 embedded and lab grade cards and components, which will meet your data conversion and data interface needs. DDC's ARINC 429 components ensure the accurate and reliable transfer of flight-critical data. Our 429 interfaces support data bus development, validation, and the transfer of flight-critical data aboard civil aerospace platforms.

AFDX®/ARINC 664

DDC provides powerful, field-proven AFDX®/ARINC 664 solutions for test, simulation, and system integration. These cards support both Airbus and Boeing AFDX protocols.

Ethernet

DDC offers a convenient solution to convert MIL-STD-1553, ARINC 429, and Ethernet protocol in any direction, in real-time, without a host computer.

Extensions to MIL-STD-1553

DDC offers a wide variety of solutions based on extensions of MIL-STD-1553 for emerging aerospace applications. Turbo 1553 increases the data rate of 1553 from 1 Mbps to 5 Mbps while maintaining the architectural features of MIL-STD-1553. Hyper 1553 provides high speed communication (50 to 100+ Mbps) over MIL-STD-1553 buses while operating concurrently with legacy 1 Mbps 1553 (similar to ADSL for telephone networks).

Form Factors, Software, & Drivers

DDC supplies MIL-STD-1553 and ARINC 429 board level products in a variety of form factors including USB, PCI-Express, PCMCIA, ExpressCard, AMC, PMC, XMC, PCI-104, PC/104-Plus, PC/104, PCI, cPCI, VME, and ISAbus boards. Our laboratory simulation and in-flight products include multi-function and single-function for system integration and production test environments. Our extensive line of military and space grade components provide MIL-STD-1553 interface solutions for microprocessors and simple systems. Our software is supplied in the form of menus, libraries, and drivers. We also offer additional software to expand our data networking range of options.

Cards																		Complete Information	Page
Product Number	Max # of Channels												Optional Software						
	1553		429		717		AFDX®/ ARINC 664	Ethernet	CANbus	RS-232	RS-422/485	Digital Discrete	Avionics Discrete	EBR/MMSI 1553 Hub	dataS/MS	Lab VIEW®	BusTRACER®		
Single- Function	Multi- Function	Rx	Tx	Rx	Tx														
PCI-Express																			
BU-67X06K	4	4									8	8		■	■	■		www.ddc-web.com/BU-67206K	5
DD-40000K			36	36	2	2						16		■	■		■	www.ddc-web.com/DD-40000K	5
USB																			
BU-67X02/3U	2	1	4	2							8			■	■	■	■	www.ddc-web.com/BU-67102U	5
BU-67211UX	2	2	8	8	2	2		2	4	4	2	2		■	■	■	■	www.ddc-web.com/BU-67211Ux	5
PCI																			
BU-67107i	4		16	4					2	2	6			■	■	■	■	www.ddc-web.com/BU-67107IT	6
BU-67X10i	8	4									8	16		■	■	■		www.ddc-web.com/BU-67110IT	6
BU-67301i	1										8							www.ddc-web.com/BU-67301i	⌘
BU-65569i	4														■	■		www.ddc-web.com/BU-65569i	⌘
DD-40100i			36	36	2	2						16		■	■		■	www.ddc-web.com/DD-40100i	6
cPCI / PXI																			
BU-67107T	4		16	4					2	2	6			■	■	■	■	www.ddc-web.com/BU-67107IT	7
BU-67X10T	8	4									8	8		■	■	■		www.ddc-web.com/BU-67110IT	7
BU-65569T/Bx	4														■	■		www.ddc-web.com/BU-65569T	⌘
DD-40100T			36	36	2	2						16		■	■		■	www.ddc-web.com/DD-40100T	7
ExpressCard																			
BU-67101Q	2										2	2		■	■	■		www.ddc-web.com/BU-67101Q	6
PMC																			
BU-67X10F/M	8	4									8	16		■	■	■		www.ddc-web.com/BU-67110FM	8
BU-65596/7F/M	4											16		■	■	■		www.ddc-web.com/BU-65596FM	8
BU-67107F/M	4		16	6					2	2	6			■	■	■	■	www.ddc-web.com/BU-67107FM	⌘
BU-65580Mx	1										8		4	■	■	■		www.ddc-web.com/BU-65580Mx	⌘
BU-65578F/M	8										8	8		■	■	■		www.ddc-web.com/BU-65578FM	⌘
DD-40100F			36	36	2	2						16		■	■		■	www.ddc-web.com/DD-40100F	8
DD-82101F							2				8			■	■			www.ddc-web.com/DD-82101F	9
XMC																			
BU-67112Y/Z	8											16		■	■	■	■	www.ddc-web.com/BU-67112	9
PC/104-Plus, PCI-104																			
BU-67104/5C	4										5			■	■	■		www.ddc-web.com/BU-67104C	9
BU-67108/9C	2		16	8							9	8		■	■	■	■	www.ddc-web.com/BU-67108C	9
BU-65577/8C	4										5			■	■	■		www.ddc-web.com/BU-65578C	⌘
BU-65590/1C	2		16	8							9	8		■	■	■	■	www.ddc-web.com/BU-65590C	⌘
Small Form Factors																			
BU-67114Hx	2													■	■	■		www.ddc-web.com/BU-67114Hx	10
BU-67102Ux1	2		4	2							8			■	■	■	■	www.ddc-web.com/BU-67102Ux1	⌘
BU-67113Ux	2													■	■	■		www.ddc-web.com/BU-67113Ux	10
AceXtreme® Bridge Device																			
BU-67115WX	2		6	6			2				12			■	■	■	■	www.ddc-web.com/BU-67115WX	7
BU-67116Wx	2		6	6			2				12			■	■	■	■	www.ddc-web.com/BU-67116Wx	7
BU-67119WX	2		6	6			2				12			■	■	■	■	www.ddc-web.com/BU-67119WX	7
AMC																			
BU-65590A	4		8	4					2	2	6			■	■	■	■	www.ddc-web.com/BU-65590A	⌘
PCMCIA																			
BU-65553	1														■	■		www.ddc-web.com/BU-65553	⌘
DD-42912/24M3			4	4							2			■			■	www.ddc-web.com/DD-429XMM3	⌘
PC/104																			
BU-65567/8	4																	www.ddc-web.com/BU-65568	⌘

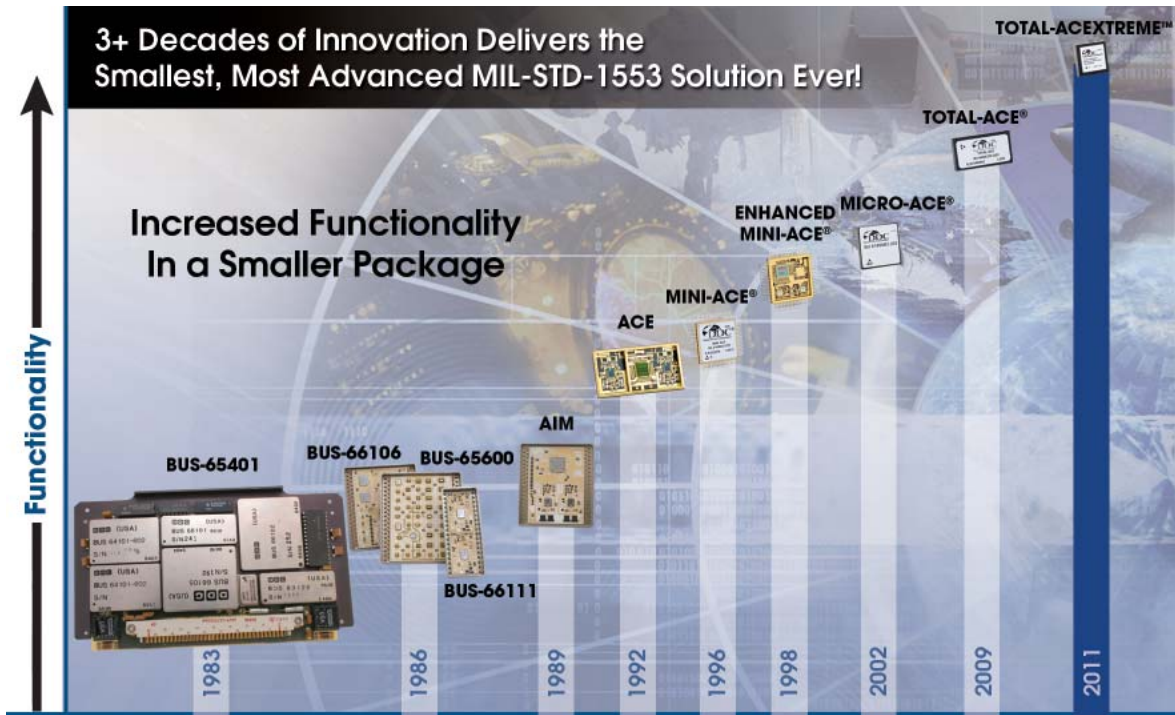
⌘- Visit www.ddc-web.com for complete product information.

Components																	
Product	Product Number	Package								Function (to 1553)				Temperature Range (°C)		Complete Information	Page
		BGA	Flat Pack	Gull Lead	PGA	DIP	LPCC	TQFP	PQFP	Local Bus	PCI	PCle	Simple System	Operating	Storage		
Fully Integrated 1553 Package (includes Protocol, Transceivers, and Transformers)																	
Total-AceXtreme®	BU-67301B	■								■	■		-40 to +100	-65 to +150	www.ddc-web.com/BU-67301B	11	
Total-ACE®	BU-6X8X3T/U/H/i8	■								■	■	■	-55 to +125	-65 to +150	www.ddc-web.com/BU-64843T	11	
Plastic Multi-Chip 1553 Module (includes Protocol and Transceivers)																	
PCI-Express AceXtreme®	BU-67302B0C0L	■									■		-40 to +85	-65 to +150	www.ddc-web.com/BU-67302B	10	
Micro-ACE-TE	BU-64X4XBX-E02	■								■			-55 to +125	-65 to +150	www.ddc-web.com/BU-64X4X	11	
Micro-ACE®	BU-61XX0B3	■								■			-40 to +85	-65 to +150	www.ddc-web.com/BU-61XX0	11	
PCI Micro-ACE-TE	BU-65XX3BX-E02	■								■			-55 to +125	-65 to +150	www.ddc-web.com/BU-64X4X	11	
Ceramic Hybrid 1553 Terminal (includes Protocol and Transceivers)																	
Mini-ACE® Mark3	BU-64XX3		■	■						■			-55 to +125	-65 to +150	www.ddc-web.com/BU-64XX3	11	
PCI Mini-ACE Mark3	BU-65XX3		■	■						■			-55 to +125	-65 to +150	www.ddc-web.com/BU-64XX3	11	
Enhanced Mini-ACE	BU-61XXX		■	■						■			-55 to +150	-65 to +150	www.ddc-web.com/BU-61XX3	12	
PCI Enhanced Mini-ACE	BU-62XXX		■	■						■			-55 to +125	-65 to +150	www.ddc-web.com/BU-61XX3	12	
Mini-ACE®	BU-65178		■	■	■					■			-55 to +125	-65 to +150	www.ddc-web.com/BU-65178	☞	
SSRT Mark3	BU-64703		■	■								■	-55 to +125	-65 to +150	www.ddc-web.com/BU-64703	☞	
SSRT	BU-6170X		■	■								■	-55 to +125	-65 to +150	www.ddc-web.com/BU-6170X	☞	
ACE	BU-6158X		■	■		■				■			-55 to +125	-65 to +150	www.ddc-web.com/BU-6158X	☞	
PCI Bridge																	
ACE Bridge	BU-66318			■									-55 to +150	-65 to +150	www.ddc-web.com/BU-66318	☞	
Radiation Tolerant 1553 Space Terminals (includes Protocol and Transceivers)																	
SP'ACE RT II	BU-63705		■			■						■	-55 to +125	-65 to +150	www.ddc-web.com/BU-63705	12	
SP'ACE II BC/RT/MT	BU-63825		■	■		■				■			-55 to +125	-65 to +150	www.ddc-web.com/BU-63825	12	
Radiation Tolerant 1553 Space Transceiver and Transformer																	
SPACE-PHY	BU-67402F0GHL		■	■									-55 to +125	-65 to +150	www.ddc-web.com/BU-67402F	12	
1553 IP																	
ACE Flex-Core	BU-692X0iX												—	—	www.ddc-web.com/flexcore	☞	
SSRT-Core	BU-69210i1												—	—	www.ddc-web.com/ssrtcore	☞	
1553 Transceivers																	
Single 5V Transceiver	BU-63155					■							-55 to +150	-65 to +150	www.ddc-web.com/BU-63155	13	
Dual 3.3V Transceiver	BU-67401L					■							-55 to +125	-65 to +150	www.ddc-web.com/BU-67401L	13	
Dual 5V Transceiver	BU-63152			■									-55 to +85	-65 to +150	www.ddc-web.com/BU-63152	13	
	BU-631X7		■			■							-55 to +150	-65 to +150	www.ddc-web.com/BU-631X7	☞	
ARINC 429																	
ARINC 429	DD-00429						■	■					-40 to +85	-85 to +125	www.ddc-web.com/DD-00429	13	
	DD-42900		■					■					-40 to +85	-85 to +125	www.ddc-web.com/DD-42900	13	

☞ - Visit www.ddc-web.com for complete product information.

Optional Software				
Feature	Product			
	dataSIMS	LabVIEW® Support Package	BusTrACER®	Commercial Avionics Utilities
	Avionics Data Bus Test and Analysis Software BU-694X4DS	Easy and Efficient LabVIEW Development Software BU-69093	Data Bus Analyzer and Monitor Software BU-69066	Data Bus Analyzer and Data Loader Software DD-42999SX
Supported Protocols	MIL-STD-1553 / ARINC 429 / Other I/O	MIL-STD-1553 / ARINC 429	MIL-STD-1553	ARINC 429
MIL-STD-1553 Monitoring and Generation	■	■	■	
ARINC 429 Transmit and Receive	■	■		■
Integrate				
Synchro/Digital/Ethernet Protocol Support	■	■		
ICD Database Import Capability	■			
Code Generation			■	
Open Plug-In Based Architecture (add other I/O, Functions, Displays)	■			
Analyze				
Engineering Unit Conversion	■			■
Data Triggering	■	■	■	■
Data Filtering	■	■	■	■
Visualize				
Real-Time Data Display	■	■		■
Report Generation	■			
Drag and Drop Dashboard Creation (Graphs, Knobs, LEDs)	■			
Simulate				
MIL-STD-1553 Reconstruction	■	■	■	
ARINC 429 Reconstruction	■	■		■
ARINC 615 Data Loader				■
Error Injection	■		■	
Complete Information	www.ddc-web.com/datasims	www.ddc-web.com/labview	www.ddc-web.com/bustracer	www.ddc-web.com/arincsw
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History of Innovation



PCI-Express



MIL-STD-1553

DISCRETE

ACEXTREME®



Model: BU-67106K, BU-67206K

Features:

- Channels:
 - 4 Dual Redundant MIL-STD-1553
- BC/Multi-RT/Monitor Per Channel*
- Test and Simulation Toolkit*
- 8 User-Programmable Digital & Avionics Discrete I/O
- IRIG-B Time Code Input/Output
- IRIG-106 Chapter 10 Monitor
- 48-bit/100ns Time Stamp
- Time Tag Clock Input/Output
- Variable Voltage Amplitude

*Multi-Function 206K Series

Applications:

- New Product Development
- Simulation
- Systems Integration
- Bus or Network Analysis
- Production Test
- System Troubleshooting
- Data Recording
- Automatic Test Applications

Complete Info: www.ddc-web.com/BU-67206K



ARINC 429

ARINC 717



Model: DD-4000K

Features:

- Channels:
 - 6, 10, 18, or 36 Prog. Tx/Rx ARINC 429
 - Up to 2 Prog. Tx/Rx ARINC 717
- Up to 16 Avionics Discrete I/O
- IRIG-B Input/Output
- Variable Output Voltage on 8 Channels
- Voltage Monitoring with Scope View on 8 Channels
- 48-bit/100ns Time Tag
- Prog. Speed Per Channel (500bps - 200Kbps)

Applications:

- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Civil Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

Complete Info: www.ddc-web.com/DD-4000K

USB



BU-67X02U



BU-67103U

MIL-STD-1553

ARINC 429

DISCRETE

ACEXTREME®

Model: BU-67102U, BU-67202U, BU-67103U

Features:

- Channels:
 - 2 Dual Redundant MIL-STD-1553
 - 4 Receive & 2 Transmit ARINC 429/575
- 8 User-Programmable Digital Discrete I/O
- IRIG-B Time Code Input
- IRIG-106 Chapter 10 Monitor
- 48-bit / 100ns Time Stamp
- 1 Pulse per Second Output

Applications:

- Box-Level Troubleshooting
- Simulation
- Portable Test Equipment
- Flight Line and Diagnostic Testing
- Software Development
- Systems Integration
- Automatic Test Applications (ATP)

Complete Info: www.ddc-web.com/BU-67102U



MIL-STD-1553

ARINC 429

ARINC 717

DISCRETE

RS-422/485

RS-232

CANBUS 2.0

ACEXTREME®

Model: BU-67211UX

Features:

- Channels:
 - 2 Dual Redundant MIL-STD-1553
 - 8 Rx/Tx ARINC 429
 - 2 Rx/Tx ARINC 717
 - 2 CANbus 2.0
 - 4 RS-232/422/485 Serial I/O
- Standard Twinax MIL-STD-1553 Connectors
- 2 Digital and 2 Avionics-Level Discrete I/O
- Multi-Function: BC+Multi-RT+ Monitor Operation
- Test and Simulation Toolkit

Applications:

- New Product Development
- Simulation
- Systems Integration Labs
- Bus or Network Analysis
- Production Test Stands
- System Troubleshooting

Complete Info: www.ddc-web.com/BU-67211UX

PCI



MIL-STD-1553

MIL-STD-1760

ARINC 429

DISCRETE

RS-422/485

RS-232

ACEXTREME®

Model: BU-67107i

Features:

- Channels:
 - 4 Dual Redundant MIL-STD-1553
 - 16 Receive & 4 Transmit 429
 - 2 RS-232 & 2 RS-422/485
- BC/Multi-RT/Monitor Per Channel
- Test and Simulation Toolkit
- ARINC 429 Only Model Available
- Up to 6 Digital Discrete I/O
- IRIG-B Time Code Input
- 48-bit/100ns Time Stamp

Applications:

- Civil Aerospace
- Systems Integration Labs
- Simulators
- Production Test Labs
- Box-Level Testing and Debugging
- Software Development

Complete Info: www.ddc-web.com/BU-67107i

MIL-STD-1553

MIL-STD-1760

DISCRETE

ACEXTREME®

Model: BU-67110i, BU-67210i

Features:

- Channels:
 - 8 Dual Redundant MIL-STD-1553
- BC/Multi-RT/Monitor Per Channel*
- Test and Simulation Toolkit*
- Up to 8 Digital Discrete I/O
- Up to 8 Avionics Discrete I/O
- IRIG-B Time Code Input/Output
- 48-bit/100ns Time Stamp

Applications:

- Civil Aerospace
- Systems Integration Labs
- Simulators
- Production Test Labs
- Box-Level Testing and Debugging
- Software Development

*Multi-Function 210i Series

Complete Info: www.ddc-web.com/BU-67210i

ARINC 429

ARINC 717



Model: DD-40100i

Features:

- Channels:
 - 6, 10, 18, or 36 Prog. Tx/Rx ARINC 429
 - Up to 2 Prog. Tx/Rx ARINC 717
- Up to 16 Avionics Discrete I/O
- IRIG-B Input/Output
- Variable Output Voltage on 8 Channels
- Voltage Monitoring with Scope View on 8 Channels
- 48-bit/100 ns Time Tag
- Prog. Speed Per Channel (500bps - 200Kbps)

Applications:

- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Civil Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

Complete Info: www.ddc-web.com/DD-40100i

ExpressCard



MIL-STD-1553

DISCRETE

ACEXTREME®



Model: BU-67101Q

Features:

- Channels:
 - 2 Dual Redundant MIL-STD-1553
- 2 User-Programmable Digital Discrete I/O
- 2 User-Programmable Avionics Discrete (+35V) I/O
- IRIG-B Time Code Input/Output
- IRIG-106 Chapter 10 Monitor
- 48-bit/100 ns Time Stamp
- Time Tag Clock Input

Applications:

- Box-Level Troubleshooting
- Simulation
- Portable Test Equipment
- Flight Line and Diagnostic Testing
- Software Development
- System Integration
- Automatic Test Applications (ATP)

Complete Info: www.ddc-web.com/BU-67101Q

cPCI/PXI



MIL-STD-1553
 MIL-STD-1760
 ARINC 429
 DISCRETE
 RS-422/485
 RS-232
ACEXTREME®

Model: BU-67107T

Features:

- Channels:
 - 4 Dual Redundant MIL-STD-1553
 - 16 Receive & 4 Transmit 429
 - 2 RS-232 & 2 RS-422/485
- BC/Multi-RT/Monitor Per Channel
- Test and Simulation Toolkit
- Up to 6 Digital Discrete I/O
- IRIG-B Time Code Input
- 48-bit/100ns Time Stamp

Applications:

- Civil Aerospace
- Systems Integration Labs
- Simulators
- Production Test Labs
- Box-Level Testing and Debugging
- Software Development

Complete Info: www.ddc-web.com/BU-67107T



MIL-STD-1553
 MIL-STD-1760
 DISCRETE
ACEXTREME®

Model: BU-67110T, BU-67210T

Features:

- Channels:
 - 8 Dual Redundant MIL-STD-1553
- BC/Multi-RT/Monitor Per Channel*
- Test and Simulation Toolkit*
- Up to 8 Digital Discrete I/O
- Up to 8 Avionics Discrete I/O
- IRIG-B Time Code Input/Output
- 48-bit/100ns Time Stamp

Applications:

- Civil Aerospace
- Systems Integration Labs
- Simulators
- Production Test Labs
- Box-Level Testing and Debugging
- Software Development

*Multi-Function 210T Series

Complete Info: www.ddc-web.com/BU-67210T



ARINC 429
 ARINC 717



Model: DD-40100T

Features:

- Channels:
 - 6, 10, 18, or 36 Prog. Tx/Rx ARINC 429
 - Up to 2 Prog. Tx/Rx ARINC 717
- Up to 16 Avionics Discrete I/O
- IRIG-B Input/Output
- Variable Output Voltage on 8 Channels
- Voltage Monitoring with Scope View on 8 Channels
- 48-bit/100ns Time Tag
- Prog. Speed Per Channel (500bps - 200Kbps)

Applications:

- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Civil Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

Complete Info: www.ddc-web.com/DD-40100T

AceXtreme® Bridge Device



ETHERNET
 MIL-STD-1553
 MIL-STD-1760
 ARINC 429
 DISCRETE
ACEXTREME®

Model: BU-67119W, BU-67116W, BU-67115W

Features:

- Channels:
 - 2 10/100/1000 Ethernet
 - 4 Dual Redundant 1553/1760
 - 6 Prog Rx/Tx ARINC 429
- Up to 12 Discrete I/Os
- 28Vdc Input Power, per MIL-STD-704 and MIL-STD-1275
- Low Power 1GHz Intel Atom Processor
- 8 GBytes SSD
- Bridge Between Ethernet, MIL-STD-153, and/or ARINC 429
- Remote Access to 429 or 1553 Data via Ethernet

Applications:

- Upgrade & Retrofit
- Protocol Conversion
- Mission Computers
- Displays
- Test & Systems Integration
- Situational Awareness
- Simulators
- Data Loading
- Data Monitoring

Complete Info: www.ddc-web.com/BU-6711XWX

PMC



MIL-STD-1553

MIL-STD-1760

DISCRETE

ACEXTREME®

Model: BU-67110F/M, BU-67210F/M

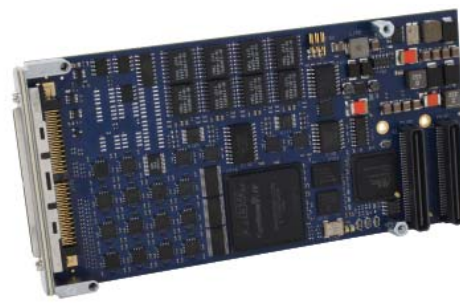
Features:

- Channels:
 - 8 Dual Redundant MIL-STD-1553
- BC/Multi-RT/Monitor Per Channel*
- Test and Simulation Toolkit*
- Up to 8 Digital Discrete I/O
- Up to 16 Avionics Discrete I/O
- IRIG-B Time Code Input/Output
- 48-bit/100ns Time Stamp

*Multi-Function 210F/M Series

Applications:

- Mission Computers
- Displays
- Digital Data Recorders
- Radar Systems/Situational Awareness
- Systems Integration Labs
- Simulators
- Production Test Labs
- Box-Level Testing and Debugging
- Software Development

Complete Info: www.ddc-web.com/BU-67210FM

ARINC 429

ARINC 717



Model: DD-40100F

Features:

- Channels:
 - 6, 10, 18, or 36 Prog. Tx/Rx ARINC 429
 - Up to 2 Prog. Tx/Rx ARINC 717
- Up to 16 Avionics Discrete I/O
- IRIG-B Input/Output
- Variable Output Voltage on 8 Channels
- Voltage Monitoring with Scope View on 8 Channels
- 48-bit/100 ns Time Tag
- Prog. Speed Per Channel (500bps - 200Kbps)

Applications:

- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Civil Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

Complete Info: www.ddc-web.com/DD-40100F

MIL-STD-1553

MIL-STD-1760

DISCRETE

CERTIFIABLE TO DO-254



Model: BU-65596F/M, BU-65597F/M

Features:

- 4 Dual Redundant MIL-STD-1553 Channels
 - BC, RT, MT, or RT/MT Operation
 - Supports MIL-STD-1553A/B and MIL-STD-1760
 - Transformer and/or Direct Coupled
- High MTBF - Rugged Environments
- Up to 16 Avionics Discrete I/O
- Front or Rear I/O
- Shock & Vibration per VITA-47 Class V3
- Conforms to ANSI VITA 20-20005 CCPMC Spec

Applications:

- Mission Computers
- Displays
- Digital Data Recorders
- Radar Systems/Situational Awareness
- Communication Radios
- Ground Maintenance
- Civil Aerospace

Complete Info: www.ddc-web.com/BU-65596FM**Did You Know?**

DDC has been recognized for our outstanding performance and customer service by the industry. The following is a listing of these awards.

■ Raytheon:

- 3 Star Supplier Excellence: 2012, 2011, 2010, 2009, 2008, 2007
- 2007 Network Centric Systems 3 Star Supplier Excellence Award

■ Lockheed Martin:

- 2010 Platinum Level Preferred Supplier Award
- 2006 STAR Supplier Award

■ General Atomics 2010 Supplier Excellence Award

■ Honeywell Sensor and Guidance Supplier Excellence Award

■ L-3 Communication Systems West Platinum Level Supplier Award: 2011

AFDX® / ARINC 664 PMC

AFDX®

DISCRETE

Model: DD-82101F**Features:**

- On-board AFDX® Protocol Stack Implementation
- Airbus and Boeing AFDX Compliant Protocol Stack
- Two Full Duplex AFDX Networks that can be Operated in Either Independent or Dual-Redundant Mode
- 10/100Mbps Ethernet
- 8 Bi-directional Discrete I/O Lines
- Comprehensive Error Injection/ Detection, Filtering, and Triggering
- Front Panel I/O Connectors

Applications:

- System Integration Labs
- Simulators
- Production Test Stands
- System Troubleshooting
- Software Development
- ARINC 615A Data Loading
- Data Recording

PCI Carrier Card and *dataSims* Development Software Available.
www.ddc-web.com/AFDX

Complete Info: www.ddc-web.com/DD-82101F

PC/104-PLUS, PCI-104

MIL-STD-1553

MIL-STD-1760

ARINC 429

ACEXTREME®

Model: BU-67104/5C, BU-67108/9C**Features:**

- Channels:
 - 4 Dual Redundant MIL-STD-1553
 - 16 Receive & 8 Transmit 429*
- Up to 9 Digital Discrete I/O
- Up to 8 Avionics Discrete I/O
- IRIG-B Time Code Input/Output
- 48-bit/100ns Time Stamp
- +5V only operation
- 104/5C Series = MIL-STD-1553 only
- *108/9C Series = Multi-I/O

Applications:

- Digital Flight Data Recorders
- Telemetry/Instrumentation Recorders
- Mission Computers
- Small Avionics Displays
- Line Replaceable Units (LRUs)
- Radar Systems/Situational Awareness
- Munitions
- Ground Vehicles
- Avionics Labs

Complete Info: www.ddc-web.com/BU-67104C
www.ddc-web.com/BU-67108C

XMC

MIL-STD-1553

MIL-STD-1760

DISCRETE

Total-ACEXTREME®

Model: BU-67112Y/BU-67112Z**Features:**

- Low 1553 Transceiver Power
- High MTBF for Rugged Environments
- Front or Rear I/O
- 8 Dual-Redundant MIL-STD-1553 Channels
 - BC/MT or Multi-RT/MT per Ch
 - Supports MIL-STD-1553A/B, MIL-STD-1760, and MacAir
- 16 Avionics Digital I/O
- IRIG-106 Chapter 10 Monitor
- 48-bit/100ns Time Stamp
- IRIG-B & Time Tag Clock Input

Applications:

- Mission Computers
- Displays and LRUs
- Digital Data Recorders
- Radar Systems/Situational Awareness
- Civil Aerospace
- Flyable Avionics/UAVs
- Data Loading
- Data Monitoring
- Ground Vehicles

Complete Info: www.ddc-web.com/BU-67112

Did You Know?

To help our customers save time and money when developing systems, DDC created a common API for our Test and Embedded cards.

This common API allows engineers to use the same program they have written for the hardware in their test application, with the hardware in their embedded application.

Additionally, DDC's BusTrACer™ Graphical Monitor/Generator Software offers an Automated Source Code Generation feature, allowing you to output ANSI 'C' source code of your setup file in minutes. It will detect which board is connected and generate a C file for the appropriate SDK.

Small Form Factor

Mini-PCle



MIL-STD-1553

DISCRETE

Total-ACE^{XTREME}

Model: BU-67114Hx

Features:

- Miniature Size PCI-Express Type F2 1553 Board
- 30mm x 50.95mm x 4.7mm (1.18in. x 2.01in. x 0.185in.)
- Very High Reliability (MTBF)
- Ultra Low Power
- Comprehensive Built-In Self Tests
- 2 Dual Redundant MIL-STD-1553 Channels

Applications:

- Rugged Small Embedded Systems
- Laptops or Tablets
- Bus Troubleshooting
- Diagnostic Systems
- Hand Held Test Equipment
- Small Displays

Complete Info: www.ddc-web.com/BU-67114Hx

USB



MIL-STD-1553

DISCRETE

Total-ACE^{XTREME}

Model: BU-67113Ux

Features:

- Miniature Size USB to 1553 Board
- 49.94mm x 63.50mm x 10.46mm (1.966in. x 2.50in. x 0.41in.)
- Very High Reliability (MTBF)
- Ultra Low Power
- Comprehensive Built-In Self Tests
- 2 Dual Redundant MIL-STD-1553 Channels

Applications:

- Rugged Small Embedded Systems
- Laptops or Tablets
- Bus Troubleshooting
- Diagnostic Systems
- Hand Held Test Equipment
- Small Displays

Complete Info: www.ddc-web.com/BU-67113Ux

Did You Know?

DDC MIL-STD-1553 components have been in service since the early 1980's. From 2000 to 2007, DDC had over 200 million hours of in-service history on the EMACE ASIC.

DDC's data bus solutions have been designed into the following projects:

- | | |
|--------------------------------------|-----------------------------------|
| ■ Airbus A350-XWB | ■ The International Space Station |
| ■ The F-16 Falcon | ■ The New Horizons Space Craft |
| ■ The B-1 Bomber | ■ Boeing 767 Tanker Aircraft |
| ■ The F-35 (JSF) | ■ F-15 |
| ■ The AH-64 Apache attack helicopter | ■ F-22 |
| ■ M1A2 Abrams | ■ Rafale |
| ■ The Space Shuttle | ■ Tornado |
| ■ The EuroFighter | |

PCI-Express AceXtreme[®]



MIL-STD-1553

MIL-STD-1760

ACE^{XTREME}

Model: BU-67302B0C0L

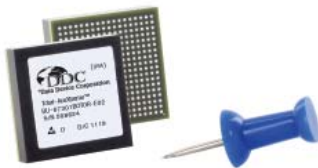
Features:

- Protocol, RAM, and Transceivers in a Single Package
 - 234 Ball JEDEC Standard Size Fine Pitch Ball Grid Array
 - 0.8 mm Ball Pitch
- Ultra Low Transceiver Power
- High Performance PCI-Express X1 Serial Host Interface
 - DMA Engine with 264 MB/sec Burst Transfer Rate
- 1 Dual Redundant 1553 Channel
- BC or Multi-RT with Bus Monitor
- 2Mb (64K x 36) RAM
- Temp Range: -40°C to +85°C

Applications:

- Mission Computers
- Digital Data Recorders
- Radios/Modems
- Displays and LRUs
- Ground Vehicles
- Radar Systems/Situational Awareness
- Small Form Factor Boards
- Civil Aerospace

Complete Info: www.ddc-web.com/BU-67302B

Total-AceXtreme®

MIL-STD-1553

DISCRETE

MIL-STD-1760

Total-ACE^{XTREME}**Model: BU-67301B****Features:**

- Fully Integrated 1553 Terminal & Transformer in a BGA Package
 - 324 Ball BGA 16mm x 16mm (0.63in. x 0.63in.)
 - Protocol, 2Mb RAM, Transceivers & Transformers
- Ultra Low Transceiver Power
- Built-In Self Test & JTAG Support
- 1 Dual Redundant 1553 Channel
- BC or Multi-RT with Bus Monitor
- Temp Range: -40°C to +100°C
- Access Time as low as 12.5ns
- User Selectable & Flexible PCI or Generic Processor Interface

Applications:

- Mission Computers
- Data Recorders
- LRUs
- Radios/Modems
- Displays
- Ground Vehicles
- Radar Systems/Situational Awareness
- Small Form Factor Boards
- Civil Aerospace

Evaluation Card and SDK
www.ddc-web.com/BU-67301B

Complete Info: www.ddc-web.com/BU-67301B**Total-ACE®**

MIL-STD-1553

MIL-STD-1760

CERTIFIABLE TO DO-254

Model: BU-6X8X3T/U/H/i8**Features:**

- Fully Integrated 1553 Terminal & Transformer in a BGA Package
- Small 312 Ball BGA Package 27.9mm x 15.2mm (1.1in x 0.6in)
- 0.185in Max Height
- 1 Dual Redundant 1553 Channel
- BC, RT, MT or RT/MT Functionality
- Temp Range: -40°C to +100°C
- 4K x 16 RAM up to 64K x 16 RAM
- +3.3V Only Operation
- Generic Processor or PCI Interface

Applications:

- Mission Computers
- Data Recorders
- LRUs
- Displays
- Ground Vehicles
- Civil Aerospace

Complete Info: www.ddc-web.com/BU-64843T**Micro-ACE® Series**

MIL-STD-1553

MIL-STD-1760

CERTIFIABLE TO DO-254

Model: BU-61XX0B3, BU-64X4XBX-E02, BU-65XX3BX-E02**Features:**

- 128-Ball Plastic BGA Package (BU-61XX0B3)
- 324-Ball Thermally Enhanced (TE) Package (BU-64X4XBX-E02, BU-65XX3BX-E02)
- Supports 1553A/B Notice 2, McAir, STANAG 3838 Protocols
- Compatible with Mini-ACE and ACE Generations
- Temp Range: -40°C to +85°C (-40°C to +100°C Micro-ACE-TE)
- Generic Processor or PCI Interface

Applications:

- Mission Computers
- Data Recorders
- LRUs
- Displays
- Ground Vehicles
- Civil Aerospace

Complete Info: www.ddc-web.com/BU-64X4X
www.ddc-web.com/BU-61XX0

Mini-ACE® Mark3 Series

MIL-STD-1553

MIL-STD-1760

CERTIFIABLE TO DO-254

Model: BU-64XX3, BU-65XX3**Features:**

- World's only 3.3V Only or 5V Only Terminal (No other power supplies required)
- Smallest CQFP 22.35mm x 22.35mm x 3.3mm (0.88in. x 0.88in. x 0.130in.)
- Supports 1553A/B Notice 2, McAir, STANAG 3838 Protocols
- Highly Flexible Host Side Interface
- Generic Processor or PCI Interface
- Temp Range: -55°C to +125°C
- For Simple System RT (BU-64703) visit: www.ddc-web.com/BU-64703

Applications:

- Mission Computers
- Data Recorders
- LRUs
- Displays
- Ground Vehicles
- Civil Aerospace

Complete Info: www.ddc-web.com/BU-64XX3

Enhanced Mini-ACE® Series



MIL-STD-1553

MIL-STD-1760

Model: BU-61XXX, BU-62XXX

Features:

- Fully Integrated 1553A/B Notice 2, McAir, STANAG 3838 Protocols
- 1 inch square Ceramic Flat Pack or Gull Wing
- Enhanced Mini-ACE Architecture
- 5V or 3.3V Logic
- Temp Range: -55°C to +150°C
- Generic Processor or PCI Interface
- For Simple System RT (BU-64170X) visit: www.ddc-web.com/BU-6170X

Applications:

- Mission Computers
- Data Recorders
- LRUs
- Displays
- Ground Vehicles
- Civil Aerospace

Complete Info: www.ddc-web.com/BU-61XX3

SP'ACE RT II



MIL-STD-1553



Model: BU-63705

Features:

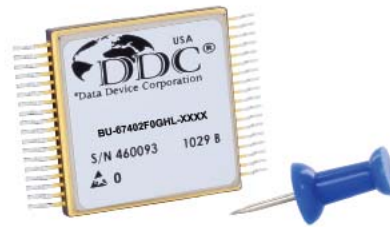
- +5V Only, +5/-15V, or +5/-12V Power
- Complete Integrated Remote Terminal Including: Dual Low-Power Transceivers/Complete RT Protocol
- Direct Interface to Systems With No Processor
- Radiation-Tolerant to 300K Rads
- Space-Qualified
- High Reliability Screening Available
- Temp Range: -55°C to +125°C

Applications:

- Launch Vehicles
- Satellites
- International Space Station

Complete Info: www.ddc-web.com/BU-63705

SPACE-PHY



MIL-STD-1553



Model: BU-67402F0GHL

Features:

- 5 Volt Only
- Dual-Redundant, Side-by-Side, MIL-STD-1553 Transceiver/Transformer Combo
 - Ceramic Flatpack Package
 - 25.4mm x 25.4mm x 6.35mm (1in. x 1in. x 0.25in.)
- Temp Range: -55°C to +125°C
- Radiation Specifications:
 - Total Dose: 100krads
 - Latchup Immunity Minimum LET Threshold: 85.4 MeV-cm²/mg
- MIL-PRF-38534

Applications:

- Launch Vehicles
- Military Satellites
- Research Satellites
- International Space Station
- Civil Telecommunication Satellites

Complete Info: www.ddc-web.com/BU-67402F

SP'ACE II BC/RT/MT



MIL-STD-1553



Model: BU-63825

Features:

- +5V Only, +5/-15V, or +5/-12V Power
- Radiation-Tolerant to 1 MRad Available
- Flexible Processor/Memory Interface
- 16K x 16 Internal RAM
- Automatic BC Retries
- Programmable BC Gap Times
- BC Frame Auto-Repeat
- Flexible RT Data Buffering
- Temp Range: -55°C to +125°C

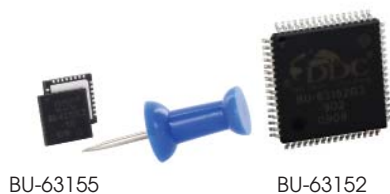
Applications:

- Launch Vehicles
- Satellites
- International Space Station

Complete Info: www.ddc-web.com/BU-63825

Single/Dual 5V Transceivers

MIL-STD-1553



BU-63155

BU-63152

Model: BU-63155, BU-63152

Features:

Single 5V Transceiver (BU-63155)

- World's Smallest +5V 1553 Transceiver
- Temp Range: -55°C to +125°C
- 7mm x 7mm x 1mm (0.28in. x 0.28in. x 0.040in.)
- Requires +5V Power Supply
- 32-Pad LQFP Package
- Low Power Consumption

Dual 5V Transceiver (BU-63152)

- Requires +5V Power Supply
- Temp Range: -55°C to +85°C
- Harris I/O Compatibility
- Conforms Fully to MIL-STD-1553A/B, and 1760
- Low Power Consumption

Applications:

- Military
- Civil Aerospace
- Industrial

Complete Info: www.ddc-web.com/BU-63155
www.ddc-web.com/BU-63152

Dual 3.3V Transceiver

MIL-STD-1553



Model: BU-67401L

Features:

- World's Lowest Power MIL-STD-1553 Transceiver
- Temp Range: -55°C to +125°C
- 7mm x 7mm (0.28in. x 0.28in.)
- Requires +3.3V Power Supply
- Small 48-Pad LQFP Package
- MIL-STD-1553A/B, MIL-STD-1760, and MacAir Compatible Transceiver

Applications:

- Mission Computers
- Digital Data Recorders
- LRUs
- Radios/Modems
- Displays
- Ground Vehicles
- Civil Aerospace
- Radar Systems/Situational Awareness

Complete Info: www.ddc-web.com/BU-67401L

ARINC 429 Controllers

ARINC 429



Model: DD-00429

Features:

- Small 3.3V or 5.0V MIL-STD-1553
- 128 x 32 Shared RAM Interface
- Temp Range: -55°C to +85°C
- Label and Destination Decoding and Sorting
- Two 32 x 32 Transmit FIFO's
- Four 32 x 32 Receive FIFO's
- Built-in Fault Detection
- Free "C" Library Software

Applications:

- Military
- Civil Aerospace
- Industrial

Complete Info: www.ddc-web.com/DD-00429

ARINC 429



Model: DD-42900

Features:

- 128 x 32 Shared RAM Interface
- Label and Destination Decoding and Sorting
- Two 32 x 32 Transmit FIFO's
- Four 32 x 32 Receive FIFO's
- Built-in Fault Detection
- Temp Range: -40°C to +85°C
- Free "C" Library Software
- Interfaces Easily to 8- or 16-bit Microprocessors

Applications:

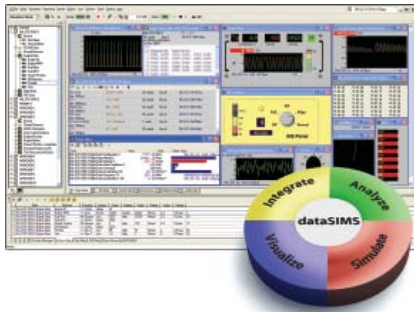
- Military
- Civil Aerospace
- Industrial

Complete Info: www.ddc-web.com/DD-42900

System Level Software

dataSIMS

Avionics Data Bus Test and Analysis Software



MIL-STD-1553

ARINC 429

DISCRETE

SYNCHRO

User Defined

AFDX

Model: BU-694X4DS

Features:

- Accelerates development and deployment
- Eliminates cost of learning and maintaining separate software programs
- Easy-to-use and customize
- Supports all data protocols and I/O formats

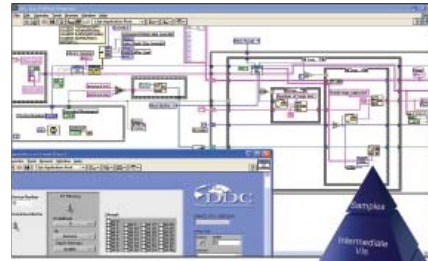
Applications:

- New Product Development
- Systems Integration
- Bus or Network Analysis
- Production Testing
- Troubleshooting
- Data Recording
- Depot/Flight Line Testing
- Automatic Test

Complete Info: www.ddc-web.com/datasims

LabVIEW® Support Package

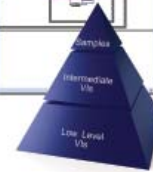
LabVIEW® & LabVIEW® Real-Time/LabWindows®



MIL-STD-1553

ARINC 429

DISCRETE



Model: BU-69093

Features:

- Simple interface for quick startup and easy programming
- Access real-time 1553/429 data using LabVIEW
- Easily integrate data from different types of instruments and sensors
- Create custom user interface from scratch or by modifying samples provided

Applications:

- Box Level Testing
- Simulation
- Portable Test Equipment
- Flight Line Test and Diagnostic
- Software Development
- System Integration
- Debugging

Complete Info: www.ddc-web.com/labview

Protocol Analyzers

BusTrACer®

Data Bus Analyzer and Monitor Software



MIL-STD-1553

DISCRETE

Model: BU-69066

Features:

- Generate or monitor live MIL-STD-1553 data without writing any code
- Saves time and reduces development costs
- Program in minutes with one-click ANSI 'C' application source code generation
- Rapid creation and setup of custom applications

Applications:

- Software Development
- Box Level Testing
- Simulation
- Portable Test Equipment
- Flight Line Test and Diagnostic
- Systems Integration

Complete Info: www.ddc-web.com/bustracer

Commercial Avionics Utilities

Data Bus Analyzer and Data Loader Software



ARINC 429

ARINC 615

Model: DD-42999SX

Features:

- Graphical ARINC 429 data bus analysis and simulation
- Advanced filtering, message scheduling, and triggering
- Graphical ARINC 615 data loader
- Software interface to load data to and from airborne computers

Applications:

- Monitoring
- Analysis
- Simulation
- Airborne Computers
- Flight Data Acquisition Units

Complete Info: www.ddc-web.com/arincsw

Fibre Channel



High Speed and High Reliability Data Networking

DDC developed its line of Fibre Channel network access controllers and switches to support the real-time processing demands of field-critical data networking between sensors, computer nodes, data storage, displays, and weapons for air, sea, and ground military vehicles. Fibre Channel's architecture is optimized to meet the performance, reliability, and demanding environmental requirements of embedded, real-time, military applications, and designed to endure the multi-decade life cycle demands of military/aerospace programs.

DDC's Fibre Channel product line includes the FibreACCESS® Network Access Controller (NAC) card and the FibreMATRIX® Switch, both specifically designed to support high-speed and high-reliability data networking applications. These products were developed using in-house intellectual property independent of the life cycles of civil devices. Ruggedness options for DDC's Fibre Channel cards include a choice of air and conduction cooling, enabling operation over extended temperature ranges without the need for upscreening. The Fibre Channel cards come with software drivers for multiple operating systems, including VxWorks®, Windows®, and Linux®.

DDC supplies Fibre Channel PMC cards supporting MIL-STD-1760E Class I, aka "High-Speed 1760". The High-Speed 1760 cards also support the SAE 5725 Miniature Munitions Store Interface and SAE 5726 Interface for Micro Munitions (IMM) standards. These PMC cards are supplied for use in stores management systems, launchers, bomb racks, weapons, and test equipment. The cards enable the transmission and receipt of MIL-STD-1553 command and control messages, along with higher speed data transfers, including for program files, terrain maps, target templates, and digitized images and video.

Platforms and Programs

Fibre Channel is deployed on a number of military/aerospace platforms and programs including the F/A-18E/F, F-16, F-35, B-1B, B-2, E-2D, the AH-64D and MMH helicopters, and AESA Radar. Applications for Fibre Channel include mission computers, processor and DSP clusters; data storage; video processing, distribution, and displays; sensors such as radar, FLIR, and video; serial backplanes and IFF.

Cards																
Product Number	Max # of Channels	Gb/s Operation		Class 2 & 3 Service Support			Interface		Protocol Support						Complete Information	Page
		1	2	Broadcast	Multicast	Hunt Groups	Copper	Fiber Optic	ASM	TCP/IP	SCSI Initiator	UDP/IP	Raw Mode	FC-AE-1553		
FibreACCESS®																
FC-75000	2	■	■	■	■		■	■	■	■		■	■		www.ddc-web.com/FC-75000	
FC-75100	2	■	■	■	■		■	■	■	■		■	■		www.ddc-web.com/FC-75100	
FC-75300	2	■	■	■	■		■	■	■	■		■	■		www.ddc-web.com/FC-75300	16
High Speed 1760																
FC-752XX	2	■		■			■							■	www.ddc-web.com/FC-752XX	
FC-75400	2	■		■			■							■	www.ddc-web.com/FC-75400	16
FibreMATRIX® Switch																
FC-76000	16	■	■	■	■	■	■								www.ddc-web.com/FC-76000	16

Visit www.ddc-web.com for complete product information.

FibreACCESS® Network Controller

Fibre Channel



Model: FC-75300

Features:

- Dual-Channel Operation
- Conduction or Air Cooled PMC for Extended Temperature Operations
- 1 or 2Gb/s Operation
- Class 2 and 3 Service Including Broadcast and Multicast
- Memory-to-Memory Latency under 20µs
- ASM, TCP/IP, SCSI Initiator and Raw Mode Protocols

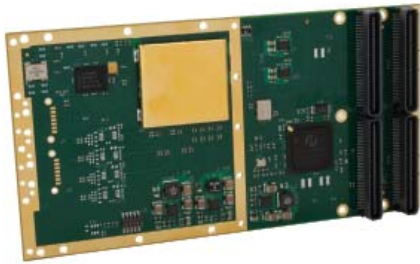
Applications:

- Mission Computers
- Radar
- IFF
- Displays and Digital Maps
- FLIR/Night Vision
- File Servers
- Signal Processing Computers
- Test

Complete Info: www.ddc-web.com/FC-75300

High Speed 1760

Fibre Channel



Model: FC-75400

Features:

- High-Speed 1760 PMC Card
- Two Independent Channels
 - Each can be FC-AE-1553 NC or NT
- NC: NC-to-NT/NT-to-NC Transfers, Mode Codes, & Broadcast
- NT: Multiple Subaddress Buffering Options, NC-to-NT/NT-to-NC Transfers, Mode Codes, & Broadcast
- Supports Large Transfers for Files and Images
- 3.3V, 64-bit, 66MHz PCI Initiator/Target

Applications:

- Weapons Interfaces
- Stores Management Systems
- Launcher and Rack Interfaces
- Weapons Programmers
- Test Equipment
- Simulation

Complete Info: www.ddc-web.com/FC-75400

FibreMATRIX® Switch

Fibre Channel



Model: FC-76000

Features:

- 16-Optical Port
- Conduction or Air Cooled VME64x Form Factor
- 1 or 2Gb/s Data Rate per Switch
- Ethernet and RS-232 Configuration Ports
- Class 2 and 3 Service Including 127 Priority Levels, Broadcast, Multicast, and Hunt Groups
- Supports Implicit or Explicit Fabric Login
- Maximum 2µs Port-to-Port Delay
- ELS Clock Sync Client and Server

Applications:

- Military Programs
- Aerospace Programs
- Sensor Interfaces
- High Speed Networking
- Storage Networks
- Test Labs
- Video Transfer

Complete Info: www.ddc-web.com/FC-76000

Did You Know?

DDC's Fibre Channel Products support the following Upper Layer Protocols:

- TCP/IP
- UDP/IP
- ASM
- FC-AE-1553
- Raw Mode
- SCSI (Initiator)

Synchros / Resolvers



Synchro, Resolver, LVDT, RVDT, Inductosyn, MR, and Hall Conversion Solutions

Since introducing the first synchro converter module in 1968, DDC has taken a leadership role in the design and manufacture of modern data conversion products. Written by our expert staff, the Synchro/Resolver Conversion Handbook was the first integrated reference source on synchro/resolver data converters, and has served as a teaching aid for many engineers and operators over the years.

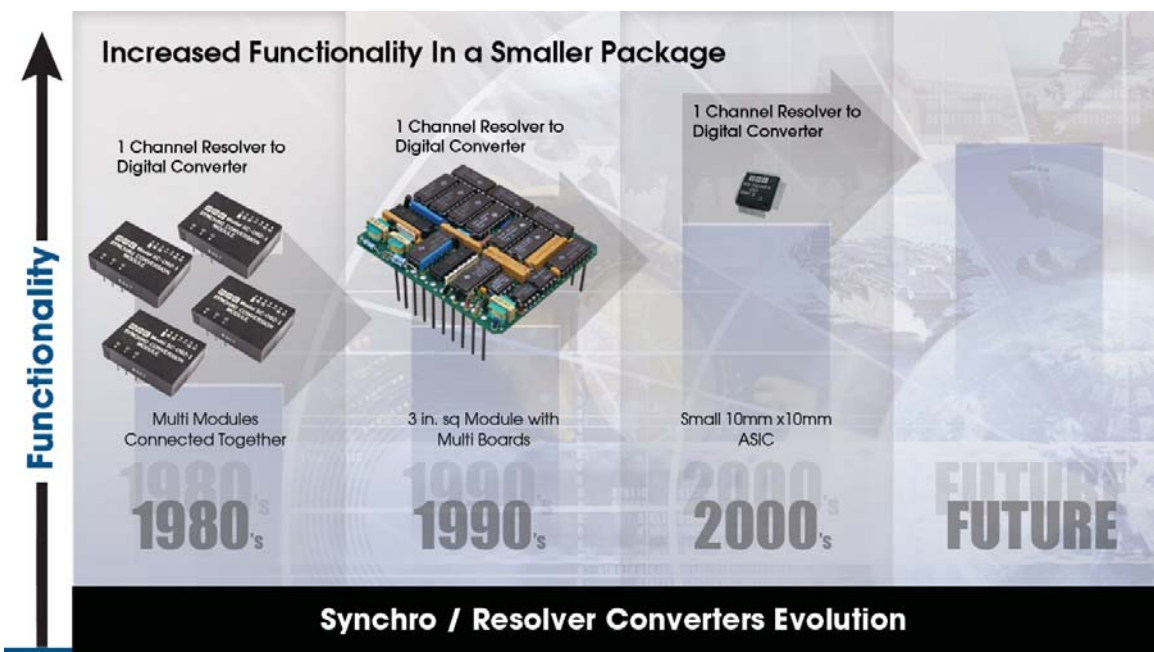
DDC offers a complete line of Synchro/Resolver instrument-grade cards and test equipment including angle position indication and simulation, plus a variety of hardware and software to meet today's civil, military, and COTS/MOTS requirements. DDC is a leading supplier of Synchro/Resolver-to-Digital and Digital-to-Synchro/Resolver components—the smallest, most accurate synchro/resolver-to-digital and digital-to-synchro/resolver converters available today. Most of these single chip and hybrid converters are based on ASIC designs, yielding the most reliable and affordable converters ever offered, and are the building blocks for DDC's card-level products.

Military, industrial, and civil applications include radar, gimbals, navigation systems, fire control, flight instrumentation/simulators, motor/motion feedback controls and drives, and robotics systems. MIL-PRF-38534 processing is available on many products.

Form Factors, Software, & Drivers

DDC supplies all PCI, PCIe, and USB cards with Graphical User Interfaces (GUIs). DDC provides support for high-level function calls to support embedded test program development. Also available are Window drivers and libraries, Linux, LabVIEW, and dataSIMS packages. Synchro/Resolver board level products are available in a variety of form factors, including multi-channel and instrument grade USB, PCI, PCI-Express, cPCI, PMC, PC/104, and VME boards.

History of Innovation



Cards													
Product Number	Basic Function	No. of Channels		Accuracies To	Operating System					Software		Complete Information	Page
		S/R to D	D to S/R		Windows					GUI/Menu	Lib/Driver		
					2000	XP	Vista	7	NT				
USB													
SB-3661XUX-3L0	Portable USB Synchro/Resolver Interface Input Device	2		1 min								www.ddc-web.com/SB-3661XUX	20
cPCI													
SB-36XXTX	Combo Card (API/SIM)	3 - 9	6	2 min								www.ddc-web.com/SB-36XXTX	20
PMC													
SB-36410IX	Resolver/Synchro-to-Digital Conversion (API)	8		1 min								www.ddc-web.com/SB-36410IX	20
VME													
SB-36110VX	12-Channel Synchro/Resolver-to-Digital	12		1 min								www.ddc-web.com/SB-36110VX	20
PCI-Express													
SB-3623X	Digital-to-Resolver/Synchro Conversion (SIM)		6	30 sec								www.ddc-web.com/SB-3623X	21
PCI													
SB-3624X	Resolver/Synchro-to-Digital Conversion (API)	6		1 min								www.ddc-web.com/SB-3624X	21
PC/104													
SB-36320CX*	Digital-to-Resolver/Synchro Conversion (SIM)		2	1 min								www.ddc-web.com/SB-36320C	22
SB-36330CX*	Resolver/Synchro-to-Digital Conversion (API)	4		1 min								www.ddc-web.com/SB-36330C	22
SB-36340CX	Transformer											www.ddc-web.com/SB-36340C	22
SB-36350CX*	Oscillator											www.ddc-web.com/SB-36350C	22
Development Kits													
RD-19230EX-300	Resolver/Synchro-to-Digital Conversion	1		2 min								www.ddc-web.com/RD-19230EX	21
RD-19240EX-300	Development Kits (API)	1		8 min								www.ddc-web.com/RD-19240EX	21

* Sample Application for Windows XP Available.

Components — Resolver, Synchro, LVDT, RVDT, Inductosyn, MR, and Hall Converters																												
Product Number	Package							# of Channels	Accuracy (Arc-Min)					Resolution				Special Features					Complete Information	Page				
	Pin	DIP	DDIP	TDIP	FP	QFP	MQFP		J	Module	1	2	4	5	6	8	21	10	12	13	14	16			Synthesized Reference	Hybrid	Monolithic	Program Resolution
Resolver-to-Digital (note 2)																												
RD-19230	64							1																			www.ddc-web.com/RD-19230	23
RD-19240	52							1																			www.ddc-web.com/RD-19240	23
RDC-19220/2/4	44, 40							1																			www.ddc-web.com/RDC-19220	23
RDC-19220/2S	44, 40							1																			www.ddc-web.com/RDC-19220S	23
Synchro/Resolver-to-Digital																												
SD-14531	36							1																			www.ddc-web.com/SD-14531	24
SD-14550	34							1																			www.ddc-web.com/SD-14550	24
SD-14590/1/2	36							1																			www.ddc-web.com/SD-14590	24
SD-14595/6/7	36							1																			www.ddc-web.com/SD-14595	24
SD-14620	54							2																			www.ddc-web.com/SD-14620	24
SDC-14532	32							1																			www.ddc-web.com/SDC-14532	24
SDC-14560	36							1																			www.ddc-web.com/SDC-14560	24
SDC-14580	36							1																			www.ddc-web.com/SDC-14580	24
SDC-14600/05	28							2																			www.ddc-web.com/SDC-14600	24
SDC-14610/15	36							3																			www.ddc-web.com/SDC-14610	24
SDC-630/2/4A/ST	28							1																			www.ddc-web.com/SDC-630ST	24
Synchro-to-Digital																												
SDC-14545	24							1																			www.ddc-web.com/SDC-14545	24

☞ Visit www.ddc-web.com for complete product information.

- Notes:
- Package Type designation refers to the number of pins and style package: P - plug-in, F - flat pack, DDIP - double-dip, TDIP - triple-dip, QFP - quad flat pack, TQFP - thin quad flat pack, J - J lead, PGA - pin grid array, MQFP - metric quad flat pack, SM - surface mount.
 - Monolithic Resolver-to-Digital converters can be configured for synchro mode with external components.
 - Optional packaging available for many products. Contact factory.
 - Function: R = Resolver, S = Synchro, D = Digital.
 - API = Angle Position Indication (Input), SIM = Simulation (Output)

Components — Digital-to-Synchro and Resolver Converters																					
Product Number	Package						Output Voltage					Output Current	Special Features					Complete Information	Page		
	Pin			TDIP	DDIP	Module	2	6.8	6.81	11.8	90		Scalable	Hybrid	DC to		60/400 Hz			Low Profile	2 Channel
	32	36	40												1 KHz	10 KHz					
Digital-to-Resolver																					
DR-11525	■	■			■		■		■		■	2mA	■		■			www.ddc-web.com/DR-11525	25		
DRC-10520	■				■			■			■	2VA	■	■				www.ddc-web.com/DRC-10520			
DRC-11522	■	■			■						■	2mA	■	■			■	www.ddc-web.com/DRC-11522			
Digital-to-Synchro																					
DSC-10510			■	■					■		■	7VA	■	■				www.ddc-web.com/DSC-10510	25		
DSC-544					■						■	4.5VA				■		www.ddc-web.com/DSC-544	25		
Digital-to-Synchro/Resolver																					
DSC-11520		■			■			■		■	■	2mA	■	■				www.ddc-web.com/DSC-11520			
DSC-11524		■			■			■		■	■	15mA	■	■				www.ddc-web.com/DSC-11524			
DSC-644					■				■	■	■	1.5VA				■	■	www.ddc-web.com/DSC-644			

Components — Synchro and Resolver Special Function																
Product Number	Package						Special Features					Complete Information	Page			
	Pin			DIP	DDIP	SM	Module	Thin Film	Differential	Hybrid	Volts			Other		
	16	18	36								2				11.8	90
Resistor Network																
DDC-49530	■			■			■				■	High Precision Tolerance (0.02%)		www.ddc-web.com/DDC-49530		
DDC-49590	■			■			■				■	High Precision Tolerance (0.02%)		www.ddc-web.com/DDC-49590		
DDC-55688-1	■			■			■			■		High Precision Tolerance (0.02%)		www.ddc-web.com/DDC-55688		
DDC-57470	■				■		■			■		High Precision Tolerance (0.02%)		www.ddc-web.com/DDC-57470		
DDC-57471	■				■		■			■		High Precision Tolerance (0.02%)		www.ddc-web.com/DDC-57471		
DDC-73089	■				■		■	■		■		High Precision Tolerance (0.02%)		www.ddc-web.com/DDC-73089		
2 Speed Combiner																
SD-15900												Ceramic, 1:36 or Binary Ratios in Single Chip Monolithic		www.ddc-web.com/SD-15900	25	
Oscillator																
OSC-15801		■			■							Programmable Frequency, 47Hz to 20kHz		www.ddc-web.com/OSC-15801	26	
OSC-15802		■			■							Programmable Frequency with AGC Amplitude Control, 47Hz to 10kHz		www.ddc-web.com/OSC-15802	26	
OSC-15803		■			■							Radiation Tolerant Synchro/Resolver/Inductosyn® Reference Oscillator		www.ddc-web.com/OSC-15803	26	
Synchro Booster Amplifier																
SBA-3500x						■						90V Synchro or 2V, 5V, 6.8V, 90V Resolver input to 90V Synchro 25VA, 60/400Hz output, full size		www.ddc-web.com/SBA-3500x	24	

Visit www.ddc-web.com for complete product information.

USB

Synchro/Resolver-to-Digital



Model: SB-3661XUX-3L0

Features:

- 2 Input Channels
- BIT Output for Each Channel
- Self Test Mode
- ± 1 Arc Minute Accuracy
- 2VA On-Board Programmable Reference Sine Oscillator
- Driver and API Libraries for Windows[®] XP/Vista/7 and Linux[®]
- LabVIEW[®] Support

Applications:

- Motor Control Lab Testing
- Machine Tool Control Lab Testing
- Antenna Control Lab Testing
- Robotics Lab Testing
- Process Control Systems Lab Testing
- Lab Testing
- Production Testing

Complete Info: www.ddc-web.com/SB-3661XUX

cPCI

Combination S/R-to-D & D-to-S/R



Model: SB-36XXXTX

Features:

- Three Independent Angle Position Indication Channels
- Six Independent Simulation Channels
- Unpopulated Simulation Channels may be used as Additional Isolated API Channels
- Built-in Test Diagnostics
- Supports +3.3V or +5V PCI Bus
- Driver and API Libraries for Windows[®] XP and Linux
- Temp Range: 0°C to +55°C

Applications:

- Motor Control
- Machine Tool Control
- Naval Ship Navigation
- Antenna Control
- Process Control Systems

Complete Info: www.ddc-web.com/SB-36XXXTX

PMC

Synchro/Resolver-to-Digital



Model: SB-36410iX

Features:

- 8 Input Channels
- Each Channel Accepts Independent References
- Programmable Inputs, Resolution, and Bandwidth
- ± 1 Arc Minute Accuracy
- Synthesized Reference
- Encoder Emulation Capability
- Temp Range: -40°C to +85°C

Applications:

- Motor Control
- Machine Tool Control
- Antenna Control
- Robotics
- Process Control Systems
- Naval Ship Navigation

Complete Info: www.ddc-web.com/SB-36410ix

VME

Synchro/Resolver-to-Digital



Model: SB-36110VX

Features:

- Up to 12 Independent Converter Channels
- Each Channel Accepts Synchro or Resolver Inputs
- Software Programmable Resolution and Bandwidth
- ± 1 Arc Minute Accuracy
- Synthesized Reference
- 16-, 24-, and 32-Bit Addressing Modes
- Temp Range: -40°C to +85°C

Applications:

- Gimbal Control
- Antenna Position
- Machine Tool Control
- Process Control
- Motor Control

Complete Info: www.ddc-web.com/SB-36110VX

PCI-Express**Digital-to-Synchro/Resolver****Model: SB-3623X****Features:**

- 6 Synchro or Resolver Output Channels with independent reference input
- ± 30 Arc Second Accuracy
- Programmable Dynamic Rotation
- Programmable Two-Speed
- On-Board Reference Sine Oscillator
- Temp Range: 0°C to +55°C
- Driver and API Libraries for Windows® XP/Vista/7 and Linux®
- LabVIEW® Support

Applications:

- High Performance Industrial and Military Position Feedback and Control Systems
- Motor Control
- Machine Tool Control
- Antenna Control
- Robotics and Process Control Systems

Complete Info: www.ddc-web.com/SB-3623X**PCI****Synchro/Resolver-to-Digital****Model: SB-3624X****Features:**

- 6 Input Channels
- Software Programmable Resolution and Bandwidth
- ± 1 Arc Minute Accuracy
- Onboard Programmable Reference Sine Oscillator
- Universal (+3.3 or +5V) PCI Signaling
- Internal Synthesized Reference
- Half-Size PCI Form Factor
- Transformer Isolation Available
- Temp Range: 0°C to +71°C

Applications:

- Motor Control
- Machine Tool Control
- Antenna Control
- Robotics
- Process Control Systems
- Lab Testing
- Production Testing

Complete Info: www.ddc-web.com/SB-3624X**Development Kits****Model: RD-19230EX-300, RD-19240EX-300****Features:**

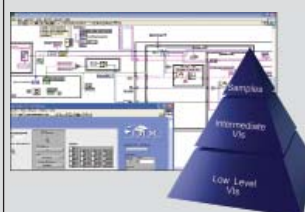
- Easy On-Card Programmable Features of the RD-19230 and RD-19240 Converter
- Pre-Installed RD-19230FX-303 or RD-19240LS-200 Converter on Card
- On-Card Visual LED Indicators for Output Angle and Fault Indicator

Applications:

- Prototyping New Designs

Complete Info: www.ddc-web.com/RD-19230EX
www.ddc-web.com/RD-19240EX**Did You Know?**

DDC's Synchro/Resolver product line offers the following software packages:

Synchro / Resolver
Graphical Analyzer/
SimulatordataSIMS Synchro / Resolver
Angle Position Indication and
Simulation SoftwareSynchro / Resolver
LabVIEW® Support PackageDrivers
and
User API Libraries
for
Windows® and Linux®

PC/104

Digital-to-Synchro/Resolver



Model: SB-36320CX

Features:

- 2 Independent Output Converter Channels for Synchro, Resolver, or SIN/COS Outputs
- Low (2mA) or Medium (15mA) Power Outputs
- 16-Bit Resolution
- ±1 Arc Minute Accuracy
- Opto-Isolated Discrete I/O for External Control Functions
- Temp Range: -40°C to +85°C

Applications:

- ATE
- Displays
- Positioning Applications

Complete Info: www.ddc-web.com/SB-36320C

Synchro/Resolver-to-Digital



Model: SB-36330CX

Features:

- Up to 4 Independent Input Channels for Synchro/Resolver
- Velocity Output
- Software Programmable Resolution and Bandwidth
- Jumper Programmable Reference Voltage Inputs
- ±1 Arc Minute Accuracy
- Discrete I/O for External Control Functions
- Temp Range: -40°C to +85°C

Applications:

- Motor Control
- Machine Tool Control
- Antenna Control
- Robotics
- Process Control Systems
- Gimbal Control

Complete Info: www.ddc-web.com/SB-36330C

Output Isolation



Model: SB-36340CX

Features:

- Up to 2 Channels of Output Isolation
- Converts Low Voltage to 90 Vrms/ 400Hz Synchro Output
- Reference Input Isolation
- Conformal Coated
- Mates Directly with SB-36320CX PC/104 Synchro Output Card
- Temp Range: -40°C to +85°C

Applications:

- Naval Navigation Systems
 - Gyro
 - Antenna
 - Steering
- Naval Firing Control Systems
- Military Control Systems
- 90V Synchro Positioning/ Simulations

Complete Info: www.ddc-web.com/SB-36340C

Reference Sine Oscillator



Model: SB-36350CX

Features:

- Software Programmable Voltage and Frequency
- Isolated Differential Output
- 5 VA Reference Sine Drive
- 400Hz to 8192Hz
- 2V to 123V
- Temp Range: -40°C to +85°C

Applications:

- ATE
- Displays
- Aircrafts
- Ground Vehicles
- Robotics

Complete Info: www.ddc-web.com/SB-36350C

Resolver, Synchro, LVDT, RVDT, Inductosyn, MR & Hall Converters



Model: RD-19230

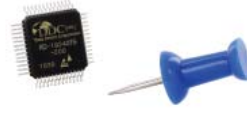
Features:

- ± 1 Arc Minute Accuracy
- Programmable Resolution (10, 12, 14, 16 Bits)
- Up to 45 Degree Phase Shift Correction
- +5V Only Option
- Dual Bandwidth
- Programmable Tracking Rate
- A Quad B Encoder Emulation
- 13.22 mm 64-pin Quad Flat Pack
- RoHS Compliant Versions Available
- Temp Range: -40°C to $+85^{\circ}\text{C}$

Applications:

- Military Fire Control Systems
- Naval Navigation and Weapons Systems
- Industrial Control
- Motor Control
- Machine Tool Control
- Robotics
- Factory Automation
- Hybrid Electric Vehicles
- Aviation Flight Control Surfaces
- Unmanned Vehicles

Complete Info: www.ddc-web.com/RD-19230



Model: RD-19240

Features:

- ± 8 Arc Minute Accuracy
- Programmable Resolution (10, 12, 14 Bits)
- Up to 45 Degree Phase Shift Correction
- +5V Only Option
- Dual Bandwidth
- Programmable Tracking Rate
- A Quad B Encoder Emulation
- 13.22mm 52-pin Quad Flat Pack
- RoHS Compliant Versions Available
- Temp Range: -55°C to $+125^{\circ}\text{C}$

Applications:

- Industrial Control
- Motor Control
- Machine Tool Control
- Robotics
- Factory Automation
- Hybrid Electric Vehicles
- Aviation Flight Control Surfaces

Complete Info: www.ddc-web.com/RD-19240



Model: RDC-19220/2/4

Features:

- ± 2 Arc Minute Accuracy
- +5V Only Option
- Only 5 External Passive Components Needed
- Programmable Resolution, Bandwidth, and Tracking
- Differential Resolver and LVDT Input Modes
- Small Size, Available in DDIP, J-Lead, or MQFP Packages
- RoHS Compliant Available
- Temp Range: -55°C to $+125^{\circ}\text{C}$

Applications:

- Motor Control
- Machine Tool Control
- Robotics
- Flight Surface Control
- Radar Antenna Positioning
- Process Control
- Military Fire Control Systems
- Navigation

Complete Info: www.ddc-web.com/RDC-19220



Model: RDC-19220/2S

Features:

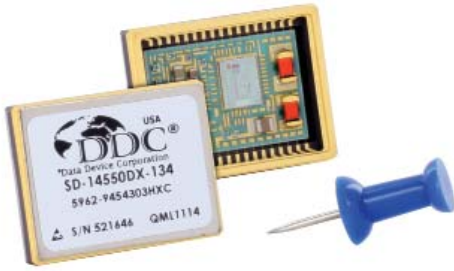
- ± 2 Arc Minute Accuracy
- +5V Only Option
- Programmable Resolution, Bandwidth, and Tracking
- Up to 45° Phase Shift Correction
- Small Size, Available in DDIP, J-Lead, or MQFP Packages
- RoHS Compliant Versions Available
- Temp Range: -55°C to $+125^{\circ}\text{C}$

Applications:

- Motor Control
- Machine Tool Control
- Robotics
- Flight Surface Control
- Radar Antenna Positioning
- Process Control
- Military Fire Control Systems
- Navigation

Complete Info: www.ddc-web.com/RDC-19220S

Synchro/Resolver-to-Digital Converters



Model: SD-14550

Features:

- ±1 Arc Minute Accuracy
- Single +5V Power Supply
- 10, 12, 14, or 16 Bit Programmable Resolution
- Synthesized Reference Option
- Small 34-Pin Ceramic Package
- BIT Output
- Velocity Output Eliminates Tachometer
- High Reliability Single Chip Monolithic
- Temp Range: -55°C to +125°C

Applications:

- Radar Antenna Positioning
- Navigation Systems
- Fire Control Systems
- Motor Control

Complete Info: www.ddc-web.com/SD-14550



Model: SD-14620

Features:

- 2 Channels in One Package
- Single +5V Power Supply
- 10, 12, 14, or 16 Bit Programmable Resolution
- Synthesized Reference Option
- Small 54-Pin Ceramic Package
- BIT Output
- Velocity Output Eliminates Tachometer
- High Reliability Single Chip Monolithic
- Temp Range: -55°C to +125°C

Applications:

- Radar Antenna Positioning
- Navigation Systems
- Fire Control Systems
- Motor Control

Complete Info: www.ddc-web.com/SD-14620

Synchro Booster Amplifier



Model: SDC-630/2/4A/ST

Features:

- Internal Transformer Isolation
- 10, 12, 14, or 16 Bit Resolution
- ±2.6 Arc Minute Accuracy
- Options for Velocity, BIT (Built-In Test)
- Temp Range: -55°C to +105°C

Applications:

- Radar Tracking Systems
- Navigation Systems
- Motor Control

Complete Info: www.ddc-web.com/SDC-630ST



Model: SBA-3500x

Features:

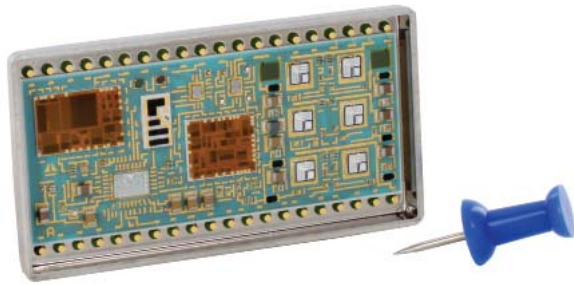
- Powered from Reference
- 90V, 60 or 400Hz Synchro Outputs
- Amplifies 90V Synchro, 6.81V, 5V, and 2V Resolver Inputs
- 25 VA Output Drive
- Protected Against Short Circuits, Overloading, Load Transients, Temperature, and Reference Supply Shutdown
- "Power-Up" in Disable or Enable Mode
- Drop-in Replacement for SBA-25001/2/3/4 Series
- EMI Filtering

Applications:

- Training Simulators
- Remote Indicators
- Gunfire Control
- Navy Retransmission Systems

Complete Info: www.ddc-web.com/SBA-3500x

Digital-to-Synchro Converters



Model: DSC-10510

Features:

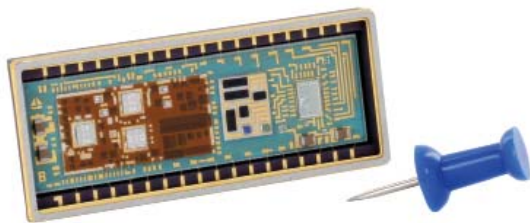
- ± 2 Arc Minute Accuracy
- 7VA Drive Capability for CT, CDX, or TR Loads
- Double Buffered Transparent Input Latch
- 16 Bit Resolution
- Power Amplifier Uses Pulsating or DC Supplies
- Built-in Test (BIT) Output
- Temp Range: -55°C to $+125^{\circ}\text{C}$

Applications:

- Flight Simulators
- Flight Instrumentation
- Fire Control Systems
- Flight Data Computers

Complete Info: www.ddc-web.com/DSC-10510

Digital-to-Resolver Converters



Model: DR-11525

Features:

- ± 1 Arc Minute Accuracy
- Operational Up to 10 kHz
- 2Vrms, 6.81Vrms, 11.8VL-L, or Scalable Resolver Outputs
- 2mA RMS Output
- 16 Bit Resolution
- 8 Bit/2 Byte Double Buffered Transparent Latches
- DC-Coupled Reference Accepts Any Waveform
- High-Rel CMOS D/R Chip
- No +5V Supply Required
- Temp Range: -55°C to $+125^{\circ}\text{C}$

Applications:

- Synchro/Resolver Simulators
- Flight Trainers
- Flight Instrumentation
- Fire Control Systems
- IR
- Radar
- Navigation Systems
- Motor Control Test Systems
- Robotic Control Test Systems

Complete Info: www.ddc-web.com/DR-11525



Model: DSC-544

Features:

- 90V, 4.5VA Output
- Powered from Reference Input
- Power Dissipation Cut in Half
- No External $\pm 15\text{V}$ Supplies Required
- No External Transformer Required at 60Hz
- Short Circuit Protection
- Rugged Power Amplifiers with Current Limiting
- Overvoltage Transient Protection
- Thermal Cutoff
- Temp Range: -55°C to $+85^{\circ}\text{C}$

Applications:

- Simulators
- Flight Trainers
- Flight Instrumentation
- Fire Control Systems

Complete Info: www.ddc-web.com/DSC-544

2 Speed Combiner



Model: SD-15900

Features:

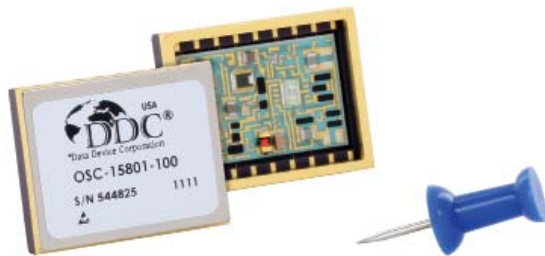
- Increases Resolution and Accuracy using 2-Speed Mode
- Up to 22 Bits Resolution
- Single +5V Power Supply
- Small Size
- Available Speed Ratios: 1 x 4, 1 x 8, 1 x 16, 1 x 32, 1 x 36, 1 x 64
- Custom Speed Ratios Available
- Temp Range: -55°C to $+125^{\circ}\text{C}$

Applications:

- Radar Antenna Positioning
- Navigation Control Systems
- Fire Control Systems
- Motor Control

Complete Info: www.ddc-web.com/SD-15900

Oscillator Components



Model: OSC-15801

Features:

- Programmable Output Frequency from 400Hz to 20kHz
- Quadrature Reference Output (-90°) Voltages for Inductosyn Applications
- Scalable Reference Output
- Small 18-Pin DDIP
- Temp Range: -55°C to +125°C

Applications:

- Radar Antenna Positioning
- Navigation Systems
- Fire Control Systems
- Motor Control
- Robotics
- Inductosyn Applications

Complete Info: www.ddc-web.com/OSC-15801



Model: OSC-15802

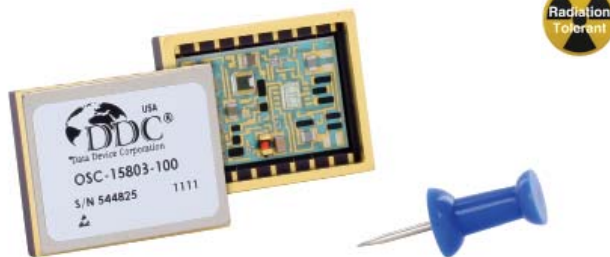
Features:

- Programmable Output Frequency from 400Hz to 10kHz
- ADI Alternate Source
- Quadrature Reference Output (+90°) Voltages for Inductosyn Applications
- Scalable Reference Output
- Small 18-Pin DDIP
- Temp Range: -55°C to +125°C

Applications:

- Radar Antenna Positioning
- Navigation Systems
- Fire Control Systems
- Motor Control
- Robotics
- Inductosyn Applications

Complete Info: www.ddc-web.com/OSC-15802



Model: OSC-15803

Features:

- Programmable Output Frequency from 400Hz to 20kHz
- Quadrature Reference Output Voltages for Inductosyn Applications
- Small 18-Pin DDIP
- Scalable Reference Output
- Radiation Tolerant
- Temp Range: -55°C to +125°C

Applications:

- Space
- Nuclear
- Military
- Inductosyn Applications

Complete Info: www.ddc-web.com/OSC-15803

Did You Know?

DDC's Synchro Conversion Handbook was conceived in 1973 during a series of technical seminars. It was the first integrated reference source on synchro/resolver data converters.

The handbook serves as a practical tutorial and reference source, describing the theory of operation of data converter products, performance parameters, and design factors for typical applications.

Visit: www.ddc-web.com/synchrohandbook

Solid-State Power Controllers



Smart Power Management

Data Device Corporation is the world's largest supplier of Solid-State Power Controllers (SSPCs), and was the first to offer civil and fully-qualified MIL-PRF-38534 and Class K Space-level screening for these products. Highly reliable, these products are used in the Bradley Fighting Vehicles, M1A2 Abrams, and other high performance/severe environment applications.

SSPCs replace traditional electromechanical relays and thermal circuit breakers in power distribution systems, offering more accurate trip protection with solid-state reliability, while reducing overall vehicle-level weight.

DDC's SSPCs support real-time digital status reporting and computer control, and are equipped with instant trip, and true I²T wire protection. We offer custom SSPC modules that are rated up to 300A, and multi-channel boards that are rated up to 25A per channel. SSPCs offer reduced size and weight compared to electromechanical approaches, while also providing enhanced performance and functionality.

Solid-State Power Controllers																		
Product Number	Package						Voltage (VDC)	Current (A)	Features						Notes	Complete Information	Page	
	20 Pin	Module	6U Card	IP-67 Enclosure	Connector	Power Studs			Programmable	EMI - Tolerant	EMI Reduction	STAR Series	Low Power Dissipation	I ² T & Instant Trip Protection				Channel Count
SSPC Cards																		
RP-2621X00NX			■		■		28	238	■		■		■	■	16	2, 4	www.ddc-web.com/RP-2621X	28
RP-2630X00NX					■		28	300	■		■		■	■	4	2, 4	www.ddc-web.com/RP-26300	28
RP-2640X000NX			■		■		28	200	■		■		■	■	8	2, 4	www.ddc-web.com/RP-2640x	28
RP-26231000N1			■				28	250	■		■		■	■	20	5	www.ddc-web.com/RP-263210	28
RP-26200			■		■		28	238	■		■		■	■	16		www.ddc-web.com/RP-26200	☞
Power Distribution Units																		
RP-20161XXC/D1				■	■		28	238	■				■	■	16	2, 4	www.ddc-web.com/RP-2016	29
RP-20321X				■	■		28	120	■				■	■	32	2, 4	www.ddc-web.com/RP-20321X	29
RP-20S14				■		■	28	300	■				■	■	4	2, 4	www.ddc-web.com/RP-20S1XX	29
RP-20S16				■		■	28	200	■				■	■	8	2, 4	www.ddc-web.com/RP-20S1XX	29
SSPC Modules																		
RP-21203XX	■	■					100	1-3	■	■		■				1, 4	www.ddc-web.com/RP-212XX	☞
RP-21209XX	■	■					100	3-9	■	■		■				1, 2, 4	www.ddc-web.com/RP-212XX	☞
RP-21225XX	■	■					100	9-25	■	■		■				1, 2, 4	www.ddc-web.com/RP-212XX	☞
RP-22XXX	■	■				■	28	25-40/ 50-100	■	■		■				1, 2, 3, 4	www.ddc-web.com/RP-22XXX	☞
RP-23031M1		■			■		28	35	■		■		■	■	1		www.ddc-web.com/RP-23031M	30
Enclosed Module								315	■				■	■	6		Contact DDC for more info	30

☞ Visit www.ddc-web.com for complete product information.

Notes:

1. Available with current monitor, various lead configurations.
2. Available with Battle Override.
3. Limited stock, contact factory for availability.
4. Designed to meet tactical nuclear environments.
5. Channel Count is an Option

SSPC Cards

16 Channel



Model: RP-2621X00XNX

Features:

- Nominal 28V Operation, MIL-STD-1275C, MIL-STD-104, Def Stan 61-5 Compliant
- MIL-STD-1275D option
- Ruggedized Conduction Cooled
- Total Continuous Current of 238A
- 16 Independent Load Channels
- 8A, 10A, and 25A Channels with 10:1 Current Programmability
- Instant Trip and I²t Protection/ Thermal Memory
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

Applications:

- Military Land Vehicles
- Civil Trucks
- Industrial Controls
- Military and Civil Ships
- Weapon Systems
- Unmanned Vehicles

Complete Info: www.ddc-web.com/RP-26200

8 Channel



Model: RP-2640X000NX

Features:

- Nominal 28V Operation, MIL-STD-1275C, MIL-STD-104, Def Stan 61-5 Compliant
- MIL-STD-1275D Option
- Ruggedized Conduction Cooled
- Total Continuous Current of 200A
- 8 Independent Load Channels
- 25A Channels with 10:1 Current Programmability
- Instant Trip and I²t Protection/ Thermal Memory
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

Applications:

- Military Land Vehicles
- Civil Trucks
- Industrial Controls
- Military and Civil Ships
- Weapon Systems
- Unmanned Vehicles

Complete Info: www.ddc-web.com/RP-2640X

4 Channel, High Power



Model: RP-2630X00XNX

Features:

- Nominal 28V Operation, MIL-STD-1275C, MIL-STD-704, Def Stan 61-5 Compliant
- MIL-STD-1275D Option
- Ruggedized Conduction Cooled
- Total Continuous Current of 300A
- Compact Form Factor 160 mm x 117 mm (6.3 in x 4.6 in)
- 4 Independent Load Channels
- 75-Amp Channels with 3:1 Programmability
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

Applications:

- Military Land Vehicles
- Civil Trucks
- Industrial Controls
- Primary Power Switching
 - Generators
 - Batteries
- Military and Civil Ships
- Weapon Systems
- Unmanned Vehicles

Complete Info: www.ddc-web.com/RP-26300

Line Replaceable Module (LRM)



Model: RP-26231000N1

Features:

- Nominal 28V Operation, MIL-STD-1275C, MIL-STD-104, Def Stan 61-5 Compliant
- Field Replaceable Form Factor
- Ruggedized Conduction Cooled
- Total Continuous Current of 50A
- 16 Independent Load Channels, 20 Channel Option
- 8A, 10A, and 25A Channels with 10:1 Current Programmability
- Instant Trip and I²t Protection/ Thermal Memory
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

Applications:

- Military Land Vehicles
- Civil Trucks
- Industrial Controls
- Military and Civil Ships
- Weapon Systems
- Unmanned Vehicles

Complete Info: www.ddc-web.com/RP-262310

SSPC Power Distribution Units (PDU)

16 Channel



RP-20161XXXC1

RP-20161XXXD1



Model: RP-20161XXXC1, RP-20161XXXD1

Features:

- MIL-STD-1275D, MIL-STD-461, and MIL-STD-810 Compliant
- Ruggedized, IP-67 Rated Enclosure with Military Connectors
- Total Continuous Current of 238A
- 16 Independent Load Channels
- 8A, 10A, and 25A Channels with 10:1 Current Programmability
- Programmable Channel Trip
- Diagnostics: Load Voltage, Current, & Temperature Monitoring
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

Applications:

- Military Land Vehicles
- Civil Trucks
- Industrial Controls
- Military and Civil Ships
- Weapon Systems
- Unmanned Vehicles

Complete Info: www.ddc-web.com/RP-2016

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
- Instant Trip and I_{pt} Protection/Thermal Memory
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

Applications:

- Military Land Vehicles
- Civil Trucks
- Industrial Controls
- Military and Civil Ships
- Weapon Systems
- Unmanned Vehicles

Complete Info: www.ddc-web.com/RP-20321X

4 Channel, High Power



RP-20S16



RP-20S14

Model: RP-20S1X

Features:

- MIL-STD-461 and MIL-STD-810 Compliant
- Ruggedized, IP-67 Rated Enclosure with Military Connectors
- Total Continuous Current of 300A
- 4 Independent Load Channels
- 75A Channels with 3:1 Programmability
- Diagnostics: Load Voltage, Current, & Temperature Monitoring
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

Applications:

- Military Land Vehicles
- Civil Trucks
- Industrial Controls
- Primary Power Switching
 - Generators
 - Batteries
- Military and Civil Ships
- Weapon Systems
- Unmanned Vehicles

Complete Info: www.ddc-web.com/RP-20S1XX

Did You Know?

DDC's Solid-State Power Controllers have been deployed to control the power of more than 500,000 loads on military vehicles since 1988.



SSPC Modules

6 Channel Enclosed Module



Model: Enclosed Module

Features:

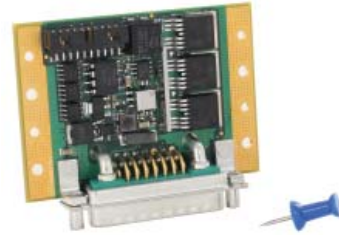
- Nominal 28V Operation, MIL-STD-1275D, MIL-STD-704F Compliant
- Compact, Rugged Module
- 6 Independent Load Channels
- Channel Configuration: 3 x 75A, 3 x 30A
- Instant Trip and I²t Protection/ Thermal Memory/Controlled Rise/Fall Times
- Low Power Dissipation
- Channel Paralleling for High Loads

Applications:

- Military Land Vehicles
- Weapon Systems
- Military and Civil Ships
- Industrial Controls
- Unmanned Systems

Contact DDC for more information

1 Channel



Model: RP-23031M1

Features:

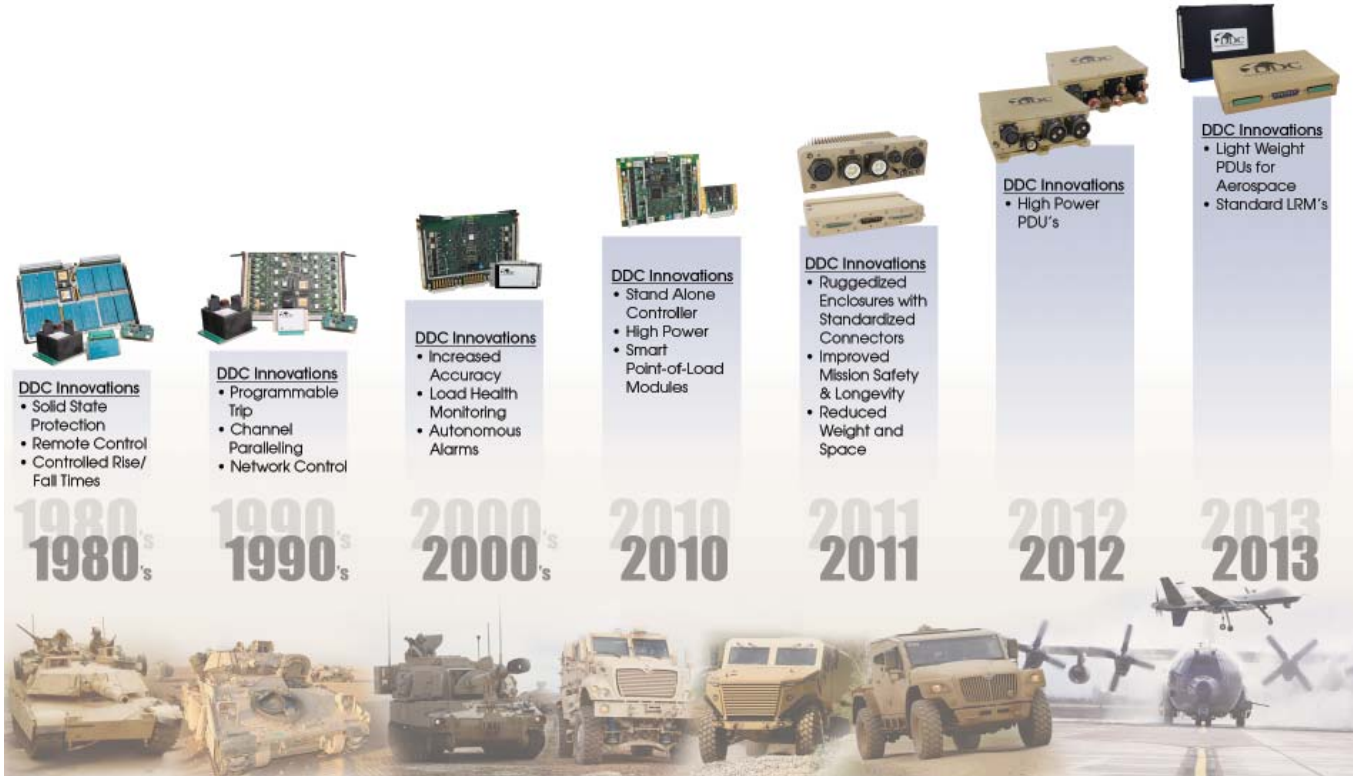
- Nominal 28V Operation, MIL-STD-1275C, MIL-STD-104, Def Stan 61-5 Compliant
- Ruggedized Conduction Cooled
- Total Module Current of 35 Amps
- 10:1 Current Programmability
- Instant Trip and I²t Protection/ Thermal Memory
- Controlled Rise/Fall Times

Applications:

- Military Land Vehicles
- Weapon Systems
- Military and Civil Ships
- Industrial Controls
- Unmanned Systems

Complete Info: www.ddc-web.com/RP-23031M

History of Innovation



More than 500,000 DDC SSPC nodes installed on Military Vehicles since 1988

Motor Drives/Controllers



High Precision, Plug-in Modules and Space Grade Hybrids

DDC is a premier manufacturer of hybrid motor drives and controllers for brush, 3-phase brushless, and induction motors-operating from 28 VDC to 270 VDC and requiring up to 64 kilowatts of power. A wide range of applications include aircraft actuators for primary and secondary flight controls, jet or rocket engine thrust vector control, missile flight controls, pumps, fans, solar arrays, and momentum wheel control for space and satellite systems. Motor drives for space applications are rated up to 100k Rads for radiation hardness. We also offer custom motor controllers and motion control systems to satisfy specific requirements not addressed by standard products.

Motor Drives / Controllers																	
Product Number	Package						Voltage (VDC)	Current (A)	Features							Complete Information	Page
	Pin				Case				Formed Leads	Hybrid	3-Phase	Torque Controller	Bridge Drive	H-Bridge Drive	Small Plug In		
	18	26	34	41	DIP Style	Flat Pack											
Torque Loop Controllers																	
PW-82550N0				■	■		100	10		■	■	■			■	www.ddc-web.com/PW-825XXN	32
PW-82550N1				■	■		100	1		■	■	■			■	www.ddc-web.com/PW-825XXN	
PW-82550N3				■	■		100	3		■	■	■			■	www.ddc-web.com/PW-825XXN	
PW-82551N0				■	■		200	10			■	■			■	www.ddc-web.com/PW-825XXN	32
PW-82530N0							100	10			■	■				www.ddc-web.com/PW-82530N	32
Power Amplifier Drivers																	
PWR-82331		■				■	200	30	■	■	■		■			www.ddc-web.com/PWR-82331	
PWR-82333		■				■	500	30	■	■	■		■			www.ddc-web.com/PWR-82333	
PWR-82340	■					■	200	30	■	■				■		www.ddc-web.com/PWR-8234X	32
PWR-82341				■		■	100	5		■				■	■	www.ddc-web.com/PWR-82341	
PWR-82342	■					■	500	30	■	■				■		www.ddc-web.com/PWR-8234X	32
Space Grade Hybrids																	
PWR-82332		■				■	400	19		■	■		■			www.ddc-web.com/PWR-82332	
PWR-82540R0				■		■	100	10		■	■	■			■	www.ddc-web.com/PW-825XXN	32

Visit www.ddc-web.com for complete product information.

Torque Loop Controllers



Model: PW-82550NX, PW-82551N0

Features:

- Self-contained 3-Phase Motor Controller
- Operates as Current or Voltage Controller
- 1, 3, or 10A Output Current
- 1.5% Linearity
- 3% Current Regulating Accuracy
- User-Programmable Compensation
- 10kHz - 100kHz PWM Frequency
- Holding Torque through Zero Current
- Cycle-by-Cycle Current Limit

Applications:

- Robotics
- Electromechanical Valve Assemblies
- Actuator Systems
- Antenna and Solar Radar Positioning
- Fan and Blower Motors for Environmental Conditioning
- Reaction Wheels
- Compressor Motors for Cryogenic Coolers

Complete Info: www.ddc-web.com/PW-8255XNX



Model: PW-82530Nx

Features:

- Self-contained 3-Phase Motor Controller
- Operates as Current or Voltage Controller
- 10A Output Current
- 7% Linearity
- 3% Current Regulating Accuracy
- User-Programmable Compensation
- 10kHz - 50kHz PWM Frequency
- Complementary Four-Quadrant Operation
- Holding Torque through Zero Current

Applications:

- Electric Actuators
- Antenna Position and Control
- Reaction/Momentum Wheel Systems using Brushless or Brush Motors
- Flight Surface Control
 - Horizontal Stabilizers
 - Flaps
- Valve Control
- Pump Control
 - Fuel Pumps
 - Hydraulic Pumps
- Robotic Countermeasure Systems
- Industrial Robotics

Complete Info: www.ddc-web.com/PW-82530N

Power Amplifier Drivers



Model: PWR-82340, PWR-82342

Features:

- Small Size 57.1mm x 53.3mm x 9.91mm (2.25in x 2.1in x 0.39in)
- +200V and +500V Capability
- 30A Current Capability
- High-Efficiency MOSFET or IGBT Drive Stage
- Direct Drive from PWM
- Drives Brush or Brushless DC Motors
- Four Quadrant Operation
- 0.85°C/W θ_{j-c} Max
- Military Processing Available

Applications:

- Robotics
- Electromechanical Valve Assemblies
- Actuator Systems
- Antenna and Solar Radar Positioning
- Fan and Blower Motors for Environmental Conditioning
- Reaction Wheels
- Compressor Motors for Cryogenic Coolers

Complete Info: www.ddc-web.com/PWR-8234X

Space Grade Hybrids



Model: PW-82540R0

Features:

- Self-contained 3-Phase Motor Controller
- Operates as Current or Voltage Controller
- 1, 3, or 10A Output Current
- 1.5% Linearity
- 3% Current Regulating Accuracy
- User-Programmable Compensation
- 10kHz - 100kHz PWM Frequency
- Designed to Meet the Following Radiation Levels
 - 100kRad Total Dose
 - 36MeV SEU

Applications:

- Robotics
- Electromechanical Valve Assemblies
- Actuator Systems
- Antenna and Solar Radar Positioning
- Fan and Blower Motors for Environmental Conditioning
- Reaction Wheels
- Compressor Motors for Cryogenic Coolers

Complete Info: www.ddc-web.com/PW-82540R

Data Device Corporation

Leadership Built on 50 Years of Innovation

Military | Civil Aerospace | Space | Industrial

Data Device Corporation (DDC) is a world leader in the design and manufacture of high-reliability products for aerospace, defense, and industrial automation applications. For 50 years, DDC has continuously advanced the state of high-reliability technology with innovations that have minimized component size and weight while increasing performance, especially in severe or demanding environments.

DDC headquarters along with our design and manufacturing operations are located in Bohemia, NY.

Product Families

Data Bus | Synchro/Resolver | Power Controllers | Motor Drives

DDC is a leader in the development, design, and manufacture of highly reliable and innovative military data bus solutions. DDC's Data Networking Solutions include MIL-STD-1553, ARINC 429, Fibre Channel, and AFDX. Each interface is supported by a complete line of quality MIL-STD-1553 and ARINC 429 civil, military, and COTS grade cards and components, as well as software that maintain compatibility between product generations. The Data Bus product line has been field proven for the military, civil and aerospace markets.

DDC is also a global leader in Synchro/Resolver Solutions. We offer a broad line of Synchro/Resolver instrument-grade cards, including angle position indicators and simulators. Our Synchro/Resolver-to-Digital and Digital-to-Synchro/Resolver microelectronic components are the smallest, most accurate converters, and also serve as the building blocks for our card-level products. All of our Synchro/Resolver line is supported by software, designed to meet today's COTS/MOTS needs. The Synchro/Resolver line has been field proven for military and industrial applications, including radar, IR, navigation systems, fire control, flight instrumentation/simulators, motor/motion feedback controls and drivers, and robotic systems.

As the world's largest supplier of Solid-State Power Controllers (SSPCs) and Remote Power Controllers (RPCs), DDC was the first to offer civil and fully-qualified MIL-PRF-38534 and Class K Space-level screening for these products. DDC's complete line of SSPC and RPC boards and components support real-time digital status reporting and computer control, and are equipped with instant trip, and true I²T wire protection. The SSPC and RPC product line has been field proven for military markets, and are used in the Bradley fighting vehicles, M1A2 tank, and various other high performance and/or extreme environment applications

DDC is the premier manufacturer of hybrid motor drives and controllers for brush, 3-phase brushless, and induction motors operating from 28 Vdc to 270 Vdc requiring up to 64 kilowatts of power. Applications range from aircraft actuators for primary and secondary flight controls, jet or rocket engine thrust vector control, missile flight controls, to pumps, fans, solar arrays and momentum wheel control for space and satellite systems.

Certifications

Data Device Corporation is ISO 9001:2008 and AS 9100, Rev. C certified.

DDC has been granted certification by the Defense Supply Center Columbus (DSCC) for manufacturing Class D, G, H, and K hybrid products in accordance with MIL-PRF-38534, as well as ESA and NASA approved.

Industry documents used to support DDC's certifications and Quality system are: AS9001 OEM Certification, MIL-STD-883, ANSI/NCSS Z540-1, IPC-A-610, MIL-STD-202, JESD-22, and J-STD-020.





DATA DEVICE CORPORATION
REGISTERED TO:
ISO 9001:2008, AS9100C:2009-01
EN6100:2009, JIS G9100:2009
FILE NO. 10001296 ASH09



The first choice for more than 50 years—DDC

DDC is the world leader in the design and manufacture of high reliability data interface products, motion control, and solid-state power controllers for aerospace, defense, and industrial applications.

Inside the U.S. - Call Toll-Free 1-800-DDC-5757

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www.ddc-web.com



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