

**Description**

The DigiFlex Performance (DP) Series digital servo drives are designed to drive brushed and brushless servomotors. These fully digital drives operate in torque, velocity, or position mode and employ Space Vector Modulation (SVM), which results in higher bus voltage utilization and reduced heat dissipation compared to traditional PWM. The command source can be generated internally or can be supplied externally. In addition to motor control, these drives feature dedicated and programmable digital and analog inputs and outputs to enhance interfacing with external controllers and devices.

This DP Series drive features a CANopen interface for networking and a RS-232 interface for drive configuration and setup. Drive commissioning is accomplished using DriveWare, available at [www.a-m-c.com](http://www.a-m-c.com).

All drive and motor parameters are stored in non-volatile memory.

**Power Range**

Peak Current	25 A (17.7 A <sub>RMS</sub> )
Continuous Current	12.5 A (8.8 A <sub>RMS</sub> )
Supply Voltage	40 - 190 VDC


**Features**

- ▲ Four quadrant regenerative operation
- ▲ Space vector modulation (SVM) technology
- ▲ Fully digital state-of-the-art design
- ▲ Programmable gain settings
- ▲ Fully configurable current, voltage, velocity and position limits
- ▲ PIDF velocity loop
- ▲ PID + FF position loop
- ▲ Compact size, high power density

**MODES OF OPERATION**

- Current
- Position
- Velocity

**COMMAND SOURCE**

- ±10 V Analog
- Encoder Following
- Communication Interface

**FEEDBACK SUPPORTED**

- ±10 V Analog
- Auxiliary Incremental Encoder
- Heidenhain EnDat®
- Stegmann Hiperface®

**INPUTS/OUTPUTS**

- 3 High Speed Captures
- 3 Programmable Analog Inputs (16-bit/12-bit Resolution)
- 2 Programmable Analog Outputs (10-bit Resolution)
- 2 Programmable Digital Inputs (Differential)
- 6 Programmable Digital Inputs (Single-Ended)
- 4 Programmable Digital Outputs (Single-Ended)

**COMPLIANCES & AGENCY APPROVALS**

- RoHS
- UL/cUL Pending
- CE Pending

**This datasheet is incomplete. Contact Advanced Motion Controls for more information.**

**SPECIFICATIONS**

Power Stage Specifications		
Description	Units	Value
DC Supply Voltage	VDC	40 - 190
Over Voltage Limit	VDC	198
Under Voltage Limit	VDC	35
Peak Output Current	A	25
Maximum Continuous Output Current	A	12.5
Maximum Continuous Output Power	W	2375
Maximum Power Dissipation at Continuous Current	W	118.8
Minimum Load Inductance (Line-To-Line) <sup>1</sup>	μH	250
Switching Frequency	kHz	20
Control Specifications		
Description	Units	Value
Communication Interfaces	-	CANopen (ISO 11898-2), RS-232
Command Sources	-	±10 V Analog, Communication Interface, Encoder Following
Feedback Supported	-	±10 V Analog, Auxiliary Incremental Encoder, Heidenhain EnDat®, Stegmann Hiperface®
Commutation Methods	-	Sinusoidal
Modes of Operation	-	Current, Position, Velocity
Motors Supported	-	Brushed, Brushless, Induction, Voice Coil
Hardware Protection	-	40+ Configurable Functions, Over Current, Over Temperature (Drive & Motor), Over Voltage, Short Circuit (Phase-Phase & Phase-Ground), Under Voltage
Programmable Digital Inputs/Outputs (PDIs/PDOs)	-	8/4
Programmable Analog Inputs/Outputs (PAIs/PAOs)	-	3/2
Current Loop Sample Time	μs	50
Velocity Loop Sample Time	μs	100
Position Loop Sample Time	μs	100
Mechanical Specifications		
To Be Determined		

**Notes**

1. Low inductance motors, such as 'pancake' and 'basket-wound', require external inductors. The Minimum Load Inductance provided assumes the highest allowed bus voltage. Lower inductances are acceptable for lower bus voltages.

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**HARDWARE SETTINGS**

**Switch Functions**

Switch	Description	Setting	
		On	Off
1	Bit 0 of binary value of drive address/ID.	1	0
2	Bit 1 of binary value of drive address/ID.	1	0
3	Bit 2 of binary value of drive address/ID.	1	0
4	Bit 3 of binary value of drive address/ID.	1	0
5	Bit 4 of binary value of drive address/ID.	1	0
6	Bit 5 of binary value of drive address/ID.	1	0
7	Bit 0 of binary value of drive bit rate setting.	1	0
8	Bit 1 of binary value of drive bit rate setting.	1	0

*Additional Details*

The drive can be configured to use the address and/or bit rate stored in non-volatile memory by setting the address and/or bit rate value to 0. Use the table below to map actual bit rates to a bit rate setting.

Bit Rate (kbits/sec)	Value For Bit Rate Setting
Load from non-volatile memory	0
500	1
250	2
125	3

**Jumper Settings**

Jumper	Description	Configuration		
		Not Installed	Pins 1-2	Pins 2-3
J1	Reserved.	-	-	N/A
J2	CAN bus termination. Install this jumper on the last drive in a CAN network.	Non-terminating Node	Terminating Node	N/A

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**PART NUMBERING INFORMATION**

Example: **D P R A N I E - 0 1 5 A 4 0 0 -**

Drive Series
DP DigiFlex Performance

Communication
R RS232/RS485
C CANopen or RS232
Q SynqNet

Command Inputs
AN Analog (±10V) No Step & Direction
AL Analog (±10V) Low Voltage Step & Direction (5V)
AH Analog (±10V) High Voltage Step & Direction (24V)
NL No Analog Low Voltage Step & Direction (5V)
NN No Analog, No Step & Direction (Communication Interface Only)

Digital I/O
I Isolated (24V)
T TTL (5V) Non-Isolated

Motor Feedback
E Incremental Encoder and/or Halls
R Resolver
A Absolute Sin/Cos (Hiperface & Endat)
S Sin/Cos with Halls

Customer Special
Code used to identify customer specials

Revision
A through Z (letters may be skipped)

Max DC Bus Voltage (V <sub>DC</sub> )
080 80
200 200
400 400
600 600

Power and Logic Supply
A AC Input +24V <sub>DC</sub> User Logic Supply Required
N AC Input Only No Logic Supply Required (Internal Supply)
B DC Input Both Logic Supply Options (Internal or User)
L DC Input Logic Supply Required
D DC Input Only Internal Logic Supply

Peak Current (A <sub>0 to Peak</sub> )
015 15
016 16
020 20
025 25
030 30
040 40
060 60
100 100

DigiFlex® Performance™ series of products are available in many configurations. All models listed on the website are readily available, standard product offerings. Other combinations or possibilities can be made available for OEMs with volume requests of 100 or more. Contact Applications Engineering for further information and details.

All specifications in this document are subject to change without written notice. Actual product may differ from pictures provided in this document.

**This datasheet is incomplete. Contact Advanced Motion Controls for more information.**