

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 RS232 interface for drive configuration and setup. Drive commissioning is accomplished using DriveWare, available at 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 _{RMS}) |
| Continuous Current | 12.5 A (8.8 A _{RMS}) |
| 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
- 5V Step & Direction
- Communication Interface

FEEDBACK SUPPORTED

- Halls
- ±10 V Analog
- Auxiliary Incremental Encoder
- Sine/Cosine Encoder

INPUTS/OUTPUTS

- 3 High Speed Captures
- 4 Programmable Analog Inputs
- 1 Programmable Analog Output
- 3 Programmable Digital Inputs (Differential)
- 7 Programmable Digital Inputs (Single-Ended)
- 4 Programmable Digital Outputs

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) ¹ | μH | 250 |
| Switching Frequency | kHz | 20 |
| Control Specifications | | |
| Description | Units | Value |
| Communication Interfaces | - | CANopen (ISO 11898-2), RS-232 |
| Command Sources | - | ±10 V Analog, 5V Step & Direction, Communication Interface |
| Feedback Supported | - | ±10 V Analog, Auxiliary Incremental Encoder, Halls, Sine/Cosine Encoder |
| 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) | - | 10/4 |
| Programmable Analog Inputs/Outputs (PAIs/PAOs) | - | 4/1 |
| Current Loop Sample Time | μs | 50 |
| Velocity Loop Sample Time | μs | 100 |
| Position Loop Sample Time | μs | 100 |
| Sin/Cos Encoder DC Offset Range | V | 2 - 3.4 |
| Maximum Sin/Cos Encoder Frequency | kHz | 200 |
| 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.

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

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 |
|-------------------------------|-------------------------------|----------------------------|
| CANopen | RS-485 | |
| Load from non-volatile memory | Load from non-volatile memory | 0 |
| 500 | 9.6 | 1 |
| 250 | 38.4 | 2 |
| 125 | 115.2 | 3 |

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PART NUMBERING INFORMATION

Ex: **D P R A N I E - 0 8 0 A 0 1 5**

| 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 |

| Max DC Bus Voltage (V _{DC}) | |
|---------------------------------------|-----|
| 080 | 80 |
| 200 | 200 |
| 400 | 400 |
| 800 | 800 |

| Power and Logic Supply | |
|------------------------|---|
| A | AC Input +24V _{DC} 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 _{0 to Peak}) | |
|--|-----|
| 015 | 15 |
| 016 | 16 |
| 020 | 20 |
| 025 | 25 |
| 030 | 30 |
| 040 | 40 |
| 060 | 60 |
| 100 | 100 |

Disclaimer

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.