

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 single RS-232/RS-485 interface used 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

- Encoder Following
- ±10 V Analog
- 5 V Step & Direction

FEEDBACK SUPPORTED

- Halls
- Incremental Encoder
- ±10 V Analog
- Auxiliary Incremental Encoder

INPUTS/OUTPUTS

- 3 Programmable Analog Inputs (16-bit/12-bit Resolution)
- 2 Programmable Analog Outputs (10-bit Resolution)
- 2 Programmable Digital Inputs (Differential)
- 4 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) ¹ | μH | 250 |
| Switching Frequency | kHz | 20 |
| Control Specifications | | |
| Description | Units | Value |
| Communication Interfaces | - | RS-232, RS-485 |
| Command Sources | - | 5 V Step & Direction, ±10 V Analog, Encoder Following |
| Feedback Supported | - | ±10 V Analog, Auxiliary Incremental Encoder, Halls, Incremental Encoder |
| Commutation Methods | - | Sinusoidal, Trapezoidal |
| 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) | - | 6/4 |
| 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 |
| Maximum Encoder Frequency | MHz | 16 (4 pre-quadrature) |
| 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 |
|-------------------------------|----------------------------|
| Load from non-volatile memory | 0 |
| 9.6 | 1 |
| 38.4 | 2 |
| 115.2 | 3 |

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

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 _{DC}) |
|---------------------------------------|
| 080 80 |
| 200 200 |
| 400 400 |
| 600 600 |

| 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 |

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.