

Descri	ption

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
- ▲ 16-bit analog to digital hardware

MODES OF OPERATION

- Current
- Position
- Velocity

COMMAND SOURCE

- Encoder Following
- 5V Step and Direction

FEEDBACK SUPPORTED

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

INPUTS/OUTPUTS

- 3 Programmable Analog Inputs (12-bit Resolution)
- 5 Programmable Digital Inputs (Differential)
- 5 Programmable Digital Inputs (Single-Ended)
- 4 Programmable Digital Outputs (Single-Ended)

COMPLIANCES & AGENCY APPROVALS

- RoHS
- UL/cUL Pending
- CE Pending





SPECIFICATIONS

Power Stage Specifications				
Description	Units	Value		
DC Supply Voltage Range	VDC	40 - 190		
DC Bus Over Voltage Limit	VDC	198		
DC Bus Under Voltage Limit	VDC	35		
Logic Supply Voltage	VDC	40 - 190		
Maximum Peak Output Current	A (Arms)	25 (17.7)		
Maximum Continuous Output Current	A (Arms)	12.5 (8.8)		
Maximum Continuous Output Power	W	2256.3		
Maximum Power Dissipation at Continuous Current	W	118.8		
Minimum Load Inductance (Line-To-Line) ¹	μH	300		
Switching Frequency	kHz	20		
Low Voltage Supply Outputs	-	+5 VDC (250 mA)		
Control Specifications				
Description	Units	Value		
Communication Interfaces	-	RS-232, RS-485		
Command Sources	-	5V Step and Direction, 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)	-	10/4		
Programmable Analog Inputs/Outputs (PAIs/PAOs)	-	3/0		
Current Loop Sample Time	μs	50		
Velocity Loop Sample Time	μs	100		
Position Loop Sample Time	μs	100		
Maximum Encoder Frequency	MHz	20 (5 pre-quadrature)		
Mechanical Specifications				
To Be Determined				

Notes

1. Lower inductance is acceptable for bus voltages well below maximum. Use external inductance to meet requirements.



HARDWARE SETTINGS

Switch Functions

Switch	Description	Setting	
	Description	On	Off
1	Bit 0 of binary RS-485 drive address. Does not affect RS-232 settings.	1	0
2	Bit 1 of binary RS-485 drive address. Does not affect RS-232 settings.	1	0
3	Bit 2 of binary RS-485 drive address. Does not affect RS-232 settings.	1	0
4	Bit 3 of binary RS-485 drive address. Does not affect RS-232 settings.	1	0
5	Bit 4 of binary RS-485 drive address. Does not affect RS-232 settings.	1	0
6	Bit 5 of binary RS-485 drive address. Does not affect RS-232 settings.	1	0
7	Bit 0 of drive RS-485 baud rate setting. Does not affect RS-232 settings.	1	0
8	Bit 1 of drive RS-485 baud rate setting. Does not affect RS-232 settings.	1	0

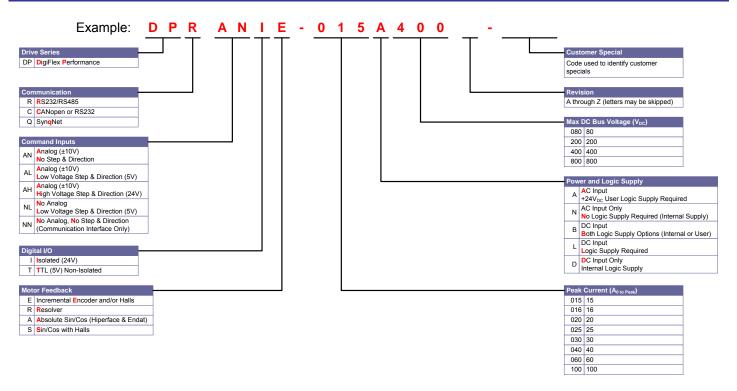
Additional Details

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.

Baud Rate (kbps)	Value For Bit Rate Setting
Load from non-volatile memory	0
9.6	1
38.4	2
115.2	3



PART NUMBERING INFORMATION



DigiFlex®Performance™ series of products are available in many configurations. All models listed in the selection tables of the website are readily available, standard product offerings. Other combinations or possibilities can be made available for OEMs with sufficient volume requests. Feel free to 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 pic specifications in this document.

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