

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 drive can be configured for a variety of external command signals. Commands can also be configured using the drive's built-in Motion Engine, an internal motion controller used with distributed motion applications. 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.

Network communication is accomplished using either RS-485/232 or Modbus RTU. This DP Series drive features a single serial interface used for drive commissioning via DriveWare® 7, available for download at www.a-m-c.com.

The DPR Hardware Installation Manual is available for download from www.a-m-c.com. All drive and motor parameters are stored in non-volatile memory.

Power Ra	inge
Peak Current	25 A (17.7 A _{RMS})
Continuous Current	12.5 A (12.5 A _{RMS})
Supply Voltage	20 - 190 VDC





Features

- ▲ Four Quadrant Regenerative Operation
- ▲ Space Vector Modulation (SVM) Technology
- ✓ Fully Digital State-of-the-art Design
- Fully Configurable Current, Voltage, Velocity and Position Limits

- ▲ PIDF Velocity Loop
- ▲ PID + FF Position Loop
- ▲ 16-bit Analog to Digital Hardware
- On-the-Fly Mode Switching
- On-the-Fly Gain Set Switching

MODES OF OPERATION

- Current
- Position
- Velocity
- Hall Velocity

COMMAND SOURCE

- ±10 V Analog
- 5V Step and Direction
- Encoder Following
- Over the Network
- Sequencing
- Indexing
- Jogging

FEEDBACK SUPPORTED

- Halls
- Incremental Encoder
- ±10 VDC Position
- Auxiliary Incremental Encoder
- Tachometer (±10 VDC)

INPUTS/OUTPUTS

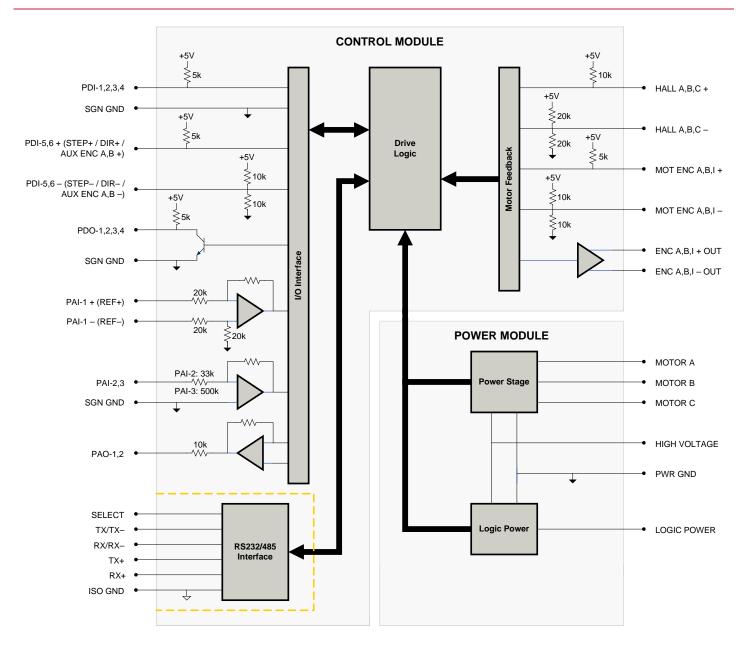
- 3 Programmable Analog Inputs (16-bit/12-bit Resolution)
- 2 Programmable Analog Outputs (10-bit Resolution)
- 2 Programmable Digital Inputs (Differential)
- 4 Programmable Digital Inputs (Single-Ended)
- 4 Programmable Digital Outputs (Single-Ended)

COMPLIANCES & AGENCY APPROVALS

- UL
- cUL
- CE Class A (LVD)
- CE Class A (EMC)
- RoHS II



BLOCK DIAGRAM



	Information on Approvals and Compliances				
US and Canadian safety compliance with UL 508c, the industrial standard for power conversion electronics. UL registered under file number E140173. Note that machine components compliant with UL are considered UL registered as opposed to UL listed as would be the case for commercial products.					
(€	Compliant with European EMC Directive 2004/108/EC on Electromagnetic Compatibility (specifically EN 61000-6-4:2007 for Emissions, Class A and EN 61000-6-2:2005 for Immunity, Performance Criteria A). LVD requirements of Directive 2006/95/EC (specifically, EN 60204-1:2004, a Low Voltage Directive to protect users from electrical shock).				
RoHS II Compliant	The RoHS II Directive 2011/65/EU restricts the use of certain substances including lead, mercury, cadmium, hexavalent chromium and halogenated flame retardants PBB and PBDE in electronic equipment.				



SPECIFICATIONS

CC Supply Voltage Range	Description	Power S Units	pecifications Value
BC Bus Under Voltage Limit VDC 17 CD Bus Under Voltage Limit VDC 17 Logis Supply Voltage VDC 20 - 10 Maximum Peak Output Current ¹ A (Arms) 25 (1/25) Maximum Continuous Output Outrent ² A (Arms) 12 5 (1/25) Maximum Continuous Output Power W 286 Maximum Continuous Output Outrent ² W 19 Internal Bus Capacitance µF 50 Minimum Load Inductione (filino ¹ Culting) ¹ µH 300 Switching Frequency Hzt 20 Low Voltage Supply Outputs 1 et al. VDC (250 mA) Low Voltage Supply Outputs 1 et al. VS (VC (250 mA) Communication Interfaces PS - 4846/232 / Modbus RTU Communication Interfaces RS - 488/232 / Modbus RTU Communication Interfaces PS - 488/232 / Modbus RTU Communication Interfaces RS - 488/232 / Modbus RTU Communication Interfaces PS - 488/232 / Modbus RTU Communication Interfaces PS - 488/232 / Modbus RTU Communication Interfaces PS - 488/232	·		1 - 1 - 1
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Logic Supply Voltage VDC 20 - 190 Maximum Positivous Output Current ² A (Arms) 25 (125) Maximum Continuous Output Prower W 2256 Maximum Positivous Dispator al Continuous Current W 19 Internal Bus Capacitance µF 50 Maximum Power Dispator al Continuous Current µF 30 Internal Bus Capacitance µF 50 Switching Frequency HHz 20 Assimum Output PWM Duty Cycle % 100 Low Voltage Supply Outputs Control State Test S			· ·
Maximum Peak Output Current¹ A (Arms) 25 (177) Maximum Continuous Output Current² A (Arms) 12.5 (12.5) Maximum Power Dissipation at Continuous Current W 198 Internal Bus Capacitance µF 50 Minimum Load Inductance (Line-To-Line)³ µH 300 Maximum Output PVM Duty Oydra ½H2 20 Maximum Output PVM Duty Oydra ½H2 20 Maximum Output PVM Duty Oydra ½H2 20 Control Specifical Tomas Description Tomas Surgeria Description Tomas Surgeria Communication Interfaces - R5-485/232 / Modeus RTU Communication Interfaces - R5-485/232 /	·	-	
Maximum Continuous Output Current* A (Arms) 12.6 (1.5.5) Maximum Continuous Output Pover W 256 Maximum Power Dissipation at Continuous Current W 119 Internal Blus Capacitance µF 50 Minimum Loud Inductance (Line*To-Line*)* µH 300 Switching Frequency 4k1 W 20 Low Voltage Supply Outputs % 100 Description Voltage Suppose Value Control Systemics Units Voltage Suppose Value Communication Interfaces - RS-485/22 (Modhus RTU Command Sources - RS-485/22 (Modhus RTU Command Sources - A 10 V Analog, SV Step and Director, Encoder Following, Over the Network, Sequencing Indexing, Jogging Feedback Supported - 2 10 V Analog, SV Step and Director, Encoder Following, Over the Network, Sequencing Indexing, Jogging Motors Supported - 2 10 V Analog, SV Step and Director, Encoder Following, Over the Network, Sequencing Indexing Judges (Policy Policy) Motors Supported - 4 10 V DC Position, Auxiliarly Incremental Encoder, Halls, Incremental Encoder, Technometer (step Su		-	
Maximum Continuous Output Prover W 2256 Maximum Power Dissipation at Continuous Current y 119 Internal Bius Capacitance yF 50 Minimum Load Inductance (Ine-Te-Line)³ yH 300 Maximum Output PVM Duty Cycle %H2 2 Low Voltage Supply Outputs 6 4 5 VDC (250 mÅ) Control Specifications Description Control Specifications Value Command Sources - RS-480232 / Medius RTU Command Sources - - RS-480232 / Medius RTU Modes Of Operation -	·	` '	
Maximum Power Dissipation at Continuous Current M W 119 Internal Bus Capositance (Line-l'o-Line)* μH 300 Switching Frequency kHz 20 Awaimum Durul PVM Duty Cycle % 100 Control Surviva Surply Outputs To Value Description Value Communication Interfaces R - 485232 / Modius RTU Communication Interfaces R - 6 8 - 456232 / Modius RTU Communication Methods R - 485232 / Modius RTU Processive Color Review Supported Feedback Supported R - 6 8 - 485232 / Modius RTU Processive Review Revie	·	1 1	. ,
Internal Bus Capacitance μ/F 50 Minimum Load Inductance (Line-To-Line) ³ μ/H 300 Maximum Output PVM Duty Cycle % 100 Low Voltage Supply Outputs 6 45 VDC (250 mA) Control Supports Commutation Interfaces 9 88-485232 / Modbus RTU Commutation Interfaces 9 410 V Analog, 5V Step and Direction, Encoder Following, Over the Network, Sequencing, Indexing, Logging Feedback Supported 9 10 Construction (Analog Intertoin, Encoder Following, Over the Network, Sequencing, Indexing Logging Modes of Operation 9 10 Construction (Analog Intertoin, Encoder Following, Over the Network, Sequencing, Indexing Logging Match and Protection 9 0 Current, Hall Velocity, Position, Availagely Incremental Encoder, Halls, Incremental Encoder, Tachometer (a10 Construction) Match and Supported 9 0 Construction (Analog Incretion, Encoder Halls, Incrementa	·		
Minimum Load Inductance (Line-To-Line)³ μH 300 Switching Frequency (±1z) 2 Kawimum Output PVMD Jucy (yolpu) % 100 Low Voltage Supply Outputs % 15 VDC (250 mA) Control Specifications Description Secription Secription Value Command Sources -0 85-485/232 / Modbus RTU Feedback Supported -1 85-485/232 / Modbus RTU Commutation Misthods -1 85-485/232 / Modbus RTU Commutation Misthods -2 410 VAnalog, 3V Step and Direction, Encoder Following, Over the Network, Sequencing, Indoxing, Jogging Modes of Operation -2 310 VDC Position, Auxiliary Incremental Encoder, Halls, Incremental Encoder, Tachometer (±10 VDC) Motors Supported -2 Current, Hall Velocity, Position, Velocity Motors Supported -2 Current, Hall Velocity, Position, Velocity Motors Supported -2 Current, Hall Velocity, Position, Velocity Motors Supported -2 40-Configurable Functions Current, Over Temperature (Drive & Motor), Time Phase (Brushes) Forgarmande Lyang Inguis Quitas (Polas A)			
Switching Frequency IkHz 20 Maximum Output PVM Duty Cycle 4° 4° VDC (250 mA) Control Specifications Control Specifications Description Communication Interfaces Set 485/232 / Modius RTU Command Sources 1° 8°S-485/232 / Modius RTU Communication Interfaces A 19 V A Radiog, SV Step and Direction, Encoder Following, Over the Nerwork, Sequencing, Indexing, Jogging Feedback Supported 2° 8°S-485/232 / Modius RTU Communication Methods Modes Supported 2° Sinuscidal, Trapezoidal Indexing, Jogging Communication Methods 2° Courset, Position, Audiliary Incremental Encoder, Halls, Incremental Encoder, Tachometer (±10 VDC) VDC Communication Methods 2° Courset, Position, Unider Unider, Halls, Incremental Encoder, Tachometer (±10 VDC) Communication Methods 2° Courset, Position, Validary Incremental Encoder, Halls, Incremental Encoder, Tachometer (±10 VDC) Courset,	·		300
Maximum Output PWM Duty Cycle		· · · · · · · · · · · · · · · · · · ·	20
Low Voltage Supply Outputs 3 + 5 VDC (250 mA) Control Specifications Control Specifications Description Value Command Sources 5 - 8 -8485/32 / Modbus RTU Command Sources 410 V Analog, 5V Step and Direction, Encoder Following, Over the Network, Sequencing, Indexing, Jogging Feedback Supported 410 V Position, Auxiliary Incremental Encoder, Halls, Incremental Encoder, Tachometer (±10 V DC) Commutation Methods 5 - Simusoidal, Trapezoidal Modes of Operation 5 - Current, Hall Velocity, Position, Velocity Motors Supported 6 - Current, Hall Velocity, Position, Soley Octored, Uniously Load), Three Phase (Brushless) Hardware Protection 6 - Current, Hall Velocity, Position, Velocity Programmable Digital Inputs/Outputs (PDIsyPDOs) 6 - 40 - Configurable Functions, Over Current, Over Temperature (Drive & Motor), Over Voltage, Short Circuit (Phase-Phase & Phase-Ground), Under Voltage Programmable Digital Inputs/Outputs (PAIsyPAOs) 2 - 32 Programmable Analog Inputs/Outputs (PAIsyPAOs) 4 - 5 VTTL Quirent Loop Sample Time µs 50 Maximum Encoder Frequency µst 100 Maximum Encoder Frequency Mtlz 20 (5 pre-quadrature) Maximum E			100
Control Specifications		-	+5 VDC (250 mA)
Description Units KS-485/232 / Modbus RTU Communication Interfaces - 8.40 / Analog, 5V Step and Direction, Encoder Following, Over the Network, Sequencing, Indexing, Jogging Feedback Supported - 2.00 / DVC Position, Auxiliary Incremental Encoder, Halls, Incremental Encoder, Tachometer (±10 VDC) Communication Methods - 3.00 (Sinusoidal, Trapezoidal) Modes of Operation - 6.00 (Current, Hall Supported) Motors Supported - 6.00 (Current, Hall Supported) Hardware Protection - 6.00 (Current, Hall Supper Phase (Brushed, Voice Coil, Inductive Load), Three Phase (Brushless) Hardware Protection - 6.00 (Current, Hall Supper Phase (Brushed, Voice Coil, Inductive Load), Three Phase (Brushless) Programmable Digital Inputs/Outputs (PDIs/PDOs) - 6.00 (Current, Load) Programmable Digital Inputs/Outputs (PDIs/PDOs) - 6.00 (Current, Load) Programmable Analog Inputs/Outputs (PDIs/PDOs) - 9.00 (Current, Load) Programmable Digital Inputs/Outputs (PDIs/PDOs) - 9.00 (Current, Load) Primary I/O Logic Level - 9.00 (Current, Load) Current, Load Supper Time µs 100 Velocity Loop Sample Time µs 100 Poscription MHz 20 (S pre-quadrature)		Control S	
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Indexing Joging Peedback Supported - Indexing Joging 1	Communication Interfaces	-	RS-485/232 / Modbus RTU
Commutation Methods	Command Sources	-	Indexing, Jogging
Modes of Operation - Current, Hall Velocity, Position, Velocity Motors Supported - Closed Loop Vector, Single Phase (Brushed, Voice Coil, Inductive Load), Three Phase (Brusheds) 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) - 5/4 Primary I/O Logic Level - 5 V TTL Current Loop Sample Time μs 50 Velocity Loop Sample Time μs 100 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Agency Approvals - CE Class A (EMC), CE Class A (LVD), cUL, ROHS II, UL Size (H x W x D) mm (in) 190.5 x 11.18 x 35.9 (7.5 x 4.4 x 1.4) Weight g (oz) 87 (23.16) Value Q (°F) 0.75 (32 - 167) Storage Temperature Range °C (°F) 40 - 85 (40 - 185) Storage Temperature Range °C (°F) 40 -	Feedback Supported	-	
Motors Supported - Closed Loop Vector, Single Phase (Brushed, Voice Coil, Inductive Load), Three Phase (Brushles) 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) - 5/4 Primary I/O Logic Level - 5V TTL Current Loop Sample Time μs 100 Velocity Loop Sample Time μs 100 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Mechanical Specifications Value Agency Approvals - CE Class A (EMC), CE Class A (LVD), cUL, RoHS II, UL Size (H x W x D) mm (in) 190.5 x 111.8 x 35.9 (7.5 x 4.4 x 1.4) Weight g (c) 37 (2°F) 0.75 (32 - 167) Storage Temperature Range ⁴ °C (°F) 0.75 (32 - 167) Storage Temperature Range °C (°F) 0.75 (32 - 167) Storage Temperature Range °C (°F) 0.75 (32 - 167) Storage Temperature Range °C (°F) 0.75	Commutation Methods	-	Sinusoidal, Trapezoidal
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 Primary I/O Logic Level - 5 V TTL Current Loop Sample Time μs 100 Velocity Loop Sample Time μs 100 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Mechanical Specifications Description Mechanical Specifications Olits Value Agency Approvals - CE Class A (EWD), CE Class A (LVD), cUL, RoHS II, UL Size (H x W x D) mm (in) 190 x 111.8 x 35.9 (7.5 x 4.4 x 1.4) Weight g (oz) 872 (30.8) Heatsink (Base) Temperature Range ⁴ **C (*F) 0 - 75 (32 - 167) Storage Temperature Range **C (*F) -40 - 85 (-40 - 185) Form Factor - Panel Mount Cooling System - Natural Convection	Modes of Operation	-	Current, Hall Velocity, Position, Velocity
Fractional Fraction Circuit (Phase-Phase & Phase-Ground), Under Voltage Programmable Digital Inputs/Outputs (PDIs/PDOs) - 6/4 Primary I/O Logic Level - 5V TTL Current Loop Sample Time μs 50 Velocity Loop Sample Time μs 100 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Mechanical Specifications Units Value Agency Approvals - CE Class A (EMC), CE Class A (LVD), cUL, ROHS II, UL Size (H x W x D) mm (in) 190.5 x 111.8 x 35.9 (7.5 x 4.4 x 1.4) Weight g (oz) 872 (30.8) Heatsink (Base) Temperature Range ⁴ °C (°F) 0 - 75 (32 - 167) Storage Temperature Range °C (°F) -40 - 85 (-40 - 185) Form Factor - Panel Mount Cooling System - Natural Convection IP Rating - Panel Mount COMM Connector - 9-pin, female D-sub FEEDBACK Connector - 15-pin, high-density, female D-sub MOTOR POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header	Motors Supported	-	
Programmable Analog Inputs/Outputs (PAIs/PAOs) - 3/2 Primary I/O Logic Level - 5V TTL 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 Units Value Agency Approvals - C EC class A (EMC), CE Class A (LVD), cUL, RoHS II, UL Size (H x W x D) mm (in) 190.5 x 111.8 x 35.9 (7.5 x 4.4 x 1.4) Weight g (αz) 872 (30.8) Heatsink (Base) Temperature Range ⁴ °C (°F) 0 - 75 (32 - 167) Storage Temperature Range °C (°F) -40 - 85 (-40 - 185) Form Factor - Panel Mount Cooling System - Natural Convection IP Rating - Pin, female D-sub FEEDBACK Connector - 9-pin, female D-sub I/O Connector - 26-pin, high-density, female D-sub MOTOR POWER Connector - 3-por	Hardware Protection	-	40+ Configurable Functions, Over Current, Over Temperature (Drive & Motor), Over Voltage, Short Circuit (Phase-Phase & Phase-Ground), Under Voltage
Primary I/O Logic Level - 5V TTL 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 Units Value Agency Approvals - CE Class A (EMC), CE Class A (LVD), cUL, RoHS II, UL Size (H x W x D) mm (in) 190.5 x 111.8 x 35.9 (7.5 x 4.4 x 1.4) Weight g (oz) 872 (30.8) Heatsink (Base) Temperature Range ⁴ °C (°F) 0 - 75 (32 - 167) Storage Temperature Range °C (°F) -40 - 85 (-40 - 185) Form Factor Panel Mount Coling System - Natural Convection IP Rating - Natural Convection IP Rating - 19-pin, female D-sub FEEDBACK Connector - 15-pin, high-density, female D-sub MOTOR POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header	Programmable Digital Inputs/Outputs (PDIs/PDOs)	-	6/4
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Position Loop Sample Time μs 100 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Mechanical Specifications Units Value Agency Approvals CE Class A (EMC), CE Class A (LVD), cUL, RoHS II, UL Size (H x W x D) mm (in) 190.5 x 111.8 x 35.9 (7.5 x 4.4 x 1.4) Weight g (oz) 872 (30.8) Heatsink (Base) Temperature Range ⁴ °C (°F) 0 - 75 (32 - 167) Storage Temperature Range °C (°F) -40 - 85 (-40 - 185) Form Factor Panel Mount Cooling System - Natural Convection IP Rating - Natural Convection COMM Connector - 9-pin, female D-sub FEEDBACK Connector - 15-pin, high-density, female D-sub MOTOR POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header	Current Loop Sample Time	μs	50
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Mechanical SpecificationsAgency Approvals-CE Class A (EMC), CE Class A (LVD), cUL, RoHS II, ULSize (H x W x D)mm (in)190.5 x 111.8 x 35.9 (7.5 x 4.4 x 1.4)Weightg (oz)872 (30.8)Heatsink (Base) Temperature Range4°C (°F)0 - 75 (32 - 167)Storage Temperature Range°C (°F)-40 - 85 (-40 - 185)Form Factor-Panel MountCooling System-Natural ConvectionIP Rating-IP10COMM Connector-9-pin, female D-subFEEDBACK Connector-15-pin, high-density, female D-subVO Connector-26-pin, high-density, female D-subMOTOR POWER Connector-3-port, 7.62 mm spaced, enclosed, friction lock header	Position Loop Sample Time	μs	100
Description Units Value Agency Approvals - CE Class A (EMC), CE Class A (LVD), cUL, RoHS II, UL Size (H x W x D) mm (in) 190.5 x 111.8 x 35.9 (7.5 x 4.4 x 1.4) Weight g (oz) 872 (30.8) Heatsink (Base) Temperature Range ⁴ °C (°F) 0 - 75 (32 - 167) Storage Temperature Range °C (°F) -40 - 85 (-40 - 185) Form Factor - Panel Mount Cooling System - Natural Convection IP Rating - IP10 COMM Connector 9-pin, female D-sub FEEDBACK Connector - 15-pin, high-density, female D-sub VO Connector - 26-pin, high-density, female D-sub MOTOR POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header	Maximum Encoder Frequency	MHz	20 (5 pre-quadrature)
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Weight g (oz) 872 (30.8) Heatsink (Base) Temperature Range ⁴ °C (°F) 0 - 75 (32 - 167) Storage Temperature Range °C (°F) -40 - 85 (-40 - 185) Form Factor - Panel Mount Cooling System - Natural Convection IP Rating - IP10 COMM Connector - 9-pin, female D-sub FEEDBACK Connector 15-pin, high-density, female D-sub V/O Connector - 26-pin, high-density, female D-sub MOTOR POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header		mm (in)	
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Storage Temperature Range °C (°F) -40 - 85 (-40 - 185) Form Factor - Panel Mount Cooling System - Natural Convection IP Rating - IP10 COMM Connector - 9-pin, female D-sub FEEDBACK Connector - 15-pin, high-density, female D-sub VO Connector - 26-pin, high-density, female D-sub MOTOR POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header	•		` '
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IP Rating - IP10 COMM Connector - 9-pin, female D-sub FEEDBACK Connector - 15-pin, high-density, female D-sub I/O Connector - 26-pin, high-density, female D-sub MOTOR POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header		-	
COMM Connector - 9-pin, female D-sub FEEDBACK Connector - 15-pin, high-density, female D-sub I/O Connector - 26-pin, high-density, female D-sub MOTOR POWER Connector - 3-port, 7.62 mm spaced, friction lock header	• .	-	IP10
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I/O Connector - 26-pin, high-density, female D-sub MOTOR POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header		-	
MOTOR POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header		-	
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	POWER Connector	-	

Notes

- Capable of supplying drive rated peak current for 2 seconds with 10 second foldback to continuous value. Longer times are possible with lower current limits. Continuous A_{rms} value attainable when RMS Charge-Based Limiting is used.

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

 Additional cooling and/or heatsink may be required to achieve rated performance.
- 2. 3. 4.



PIN FUNCTIONS

	COMM - RS232/RS485 Communication Connector				
Pin	Pin Name Description / Notes				
1	SELECT	RS232/485 selection. Pull to ground (CN1-5) for RS485.	I		
2	RS232 TX / RS485 TX-	Transmit Line (RS-232 or RS-485)	0		
3	RS232 RX / RS485 RX-	Receive Line (RS-232 or RS-485)	I		
4	RESERVED	Reserved	-		
5	ISO GND	Isolated Signal Ground	IGND		
6	RS485 TX+	Transmit Line (RS-485)	0		
7	RESERVED	Reserved	-		
8	RS485 RX+	Receive Line (RS-485)	I		
9	RESERVED	Reserved	-		

		FEEDBACK - Feedback Connector	
Pin	Name	Description / Notes	1/0
1	HALL A+		1
2	HALL B+	Commutation Sensor Inputs	I
3	HALL C+		I
4	MOT ENC A+	Differential Encoder A Channel Input (For Single Ended Signals Use Only The Positive	I
5	MOT ENC A-	Input)	1
6	MOT ENC B+	Differential Encoder B Channel Input (For Single Ended Signals Use Only The Positive	I
7	MOT ENC B-	Input)	I
8	MOT ENC I+	Differential Encoder Index Innut / For Cingle Ended Cignals Lies Only The Desitive Innut)	I
9	MOT ENC I-	Differential Encoder Index Input (For Single Ended Signals Use Only The Positive Input)	I
10	HALL A-	Commutation Sensor Input (For Differential Signals Only)	I
11	HALL B-	Commutation Sensor Input (For Differential Signals Only)	I
12	SGN GND	Signal Ground	SGND
13	+5V OUT	+5V Encoder Supply Output (Short Circuit Protected)	0
14	PAI-3	Programmable Analog Input (12-bit Resolution)	I
15	HALL C-	Commutation Sensor Input (For Differential Signals Only)	I

		I/O - Signal Connector	
Pin	Name	Description / Notes	1/0
1	PDO-1	Programmable Digital Output	0
2	SGN GND	Signal Ground	SGND
3	PDO-2	Programmable Digital Output	0
4	PAI-1 + (REF+)	Differential December Analysis Insult on Defending Consultant (40 bit December)	I
5	PAI-1 - (REF-)	Differential Programmable Analog Input or Reference Signal Input (16-bit Resolution)	I
6	PAI-2	Programmable Analog Input (12-bit Resolution)	I
7	PAO-1	Programmable Analog Output (10-bit Resolution)	0
8	PAO-2	Programmable Analog Output (10-bit Resolution)	0
9	PDI-6 - (DIR- / AUX ENC B-)	Programmable Digital Input or Direction- or Auxiliary Encoder (For Differential Signals Only)	I
10	PDO-3	Programmable Digital Output	0
11	PDI-1	Programmable Digital Input	I
12	PDI-2	Programmable Digital Input	I
13	PDI-3	Programmable Digital Input	I
14	PDO-4	Programmable Digital Output	0
15	+5V OUT	+5V Encoder Supply Output (Short Circuit Protected)	0
16	SGN GND	Signal Ground	SGND
17	PDI-5 + (STEP+ / AUX ENC A+)	Programmable Digital Input or Step+ or Auxiliary Encoder	I
18	PDI-6 + (DIR+ / AUX ENC B+)	Programmable Digital Input or Direction+ or Auxiliary Encoder	I
19	PDI-4	Programmable Digital Input	I
20	ENC A+ OUT	Duffered Freedon Observal A Outset	0
21	ENC A- OUT	Buffered Encoder Channel A Output	0
22	ENC B+ OUT	Deffered Faredra Observal B Outset	0
23	ENC B- OUT	Buffered Encoder Channel B Output	0
24	ENC I+ OUT	Buffered Encoder Index Output	
25	ENC I- OUT		
26	PDI-5 - (STEP- / AUX ENC A-)	Programmable Digital Input or Step- or Auxiliary Encoder (For Differential Signals Only)	I

		MOTOR POWER - Power Connector	
Pin	Name	Description / Notes	1/0
1	MOTOR A	Motor Phase A	0
2	MOTOR B	Motor Phase B	0
3	MOTOR C	Motor Phase C	0



		POWER - Power Connector	
Pin	Name	Description / Notes	1/0
1	PWR GND	Power Ground (Common With Signal Ground)	PGND
2	HIGH VOLTAGE	DC Power Input	I
3	LOGIC GND	Logic Supply Ground (Common With Signal Ground)	GND
4	LOGIC PWR	Logic Supply Input	I

HARDWARE SETTINGS

Switch Functions

Switch	Description	Setting	
SWILCII	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

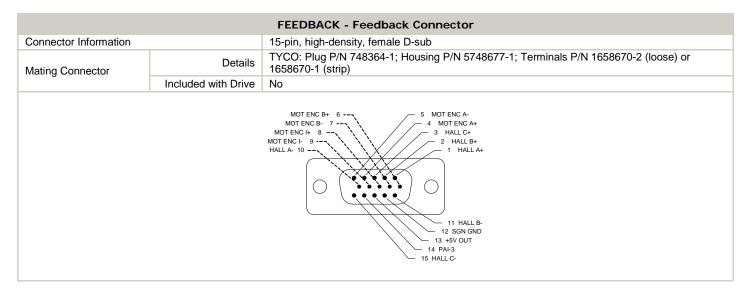
The drive can be configured to use the address and/or bit rate stored in non-volatile memory by setting the address and/or bit rate value to 0. Use the table below to map actual bit rates to a bit rate setting.

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

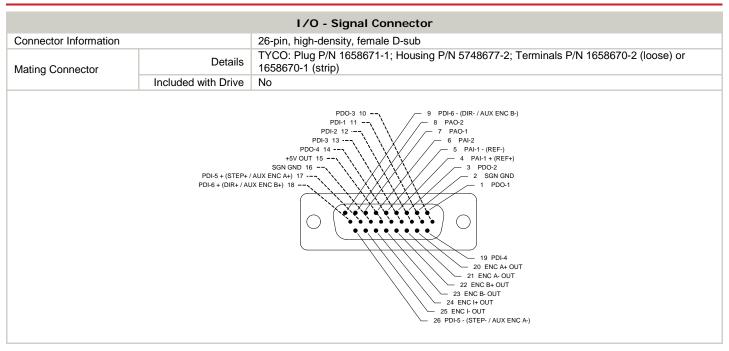


MECHANICAL INFORMATION

COMM - RS232/RS485 Communication Connector		
Connector Information		9-pin, female D-sub
Mating Connector	Details	TYCO: Plug P/N 205204-4; Housing P/N 5748677-1; Terminals P/N 1658540-5 (loose) or 1658540-4 (strip)
· ·	Included with Drive	No
		5 ISO GND 3 RS232 RX / RS485 RX- 2 RS232 TX / RS485 TX- 1 SELECT 6 RS485 TX+ 8 RS485 RX+





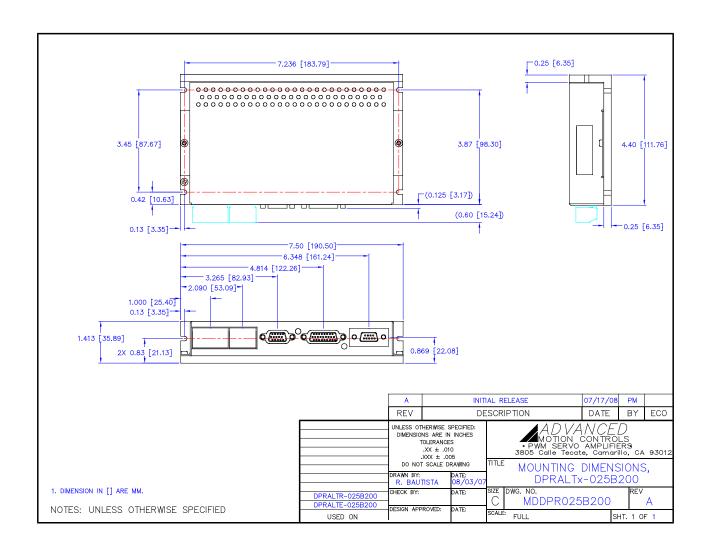


MOTOR POWER - Power Connector		
Connector Information		3-port, 7.62 mm spaced, enclosed, friction lock header
Mating Connector	Details	Phoenix Contact: P/N 1804917
Mating Connector	Included with Drive	Yes
		1 MOTOR A 2 MOTOR B

POWER - Power Connector		
Connector Information		4-port, 7.62 mm spaced, enclosed, friction lock header
Mating Connector	Details	Phoenix Contact: P/N 1804920
	Included with Drive	Yes
1 PWR GND 2 HIGH VOLTAGE 4 LOGIC PWR		

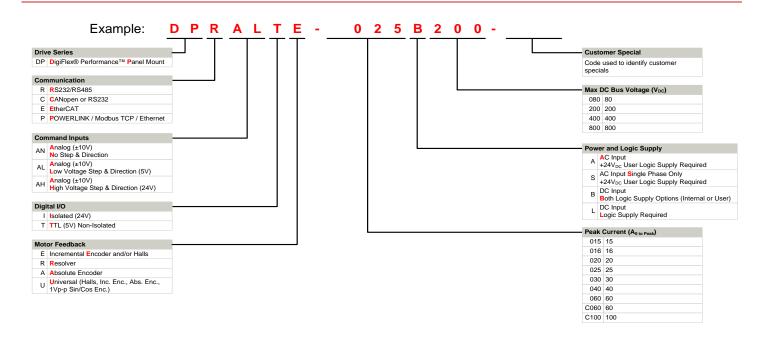


MOUNTING DIMENSIONS





PART NUMBERING INFORMATION



DigiFlex® Performance™ series of products are available in many configurations. Note that not all possible part number combinations are offered as standard drives. All models listed in the selection tables of the website are readily available, standard product offerings.

ADVANCED Motion Controls also has the capability to promptly develop and deliver specified products for OEMs with volume requests. Our Applications and Engineering Departments will work closely with your design team through all stages of development in order to provide the best servo drive solution for your system. Equipped with on-site manufacturing for quick-turn customs capabilities, ADVANCED Motion Controls utilizes our years of engineering and manufacturing expertise to decrease your costs and time-to-market while increasing system quality and reliability. Feel free to contact Applications Engineering for further information and details.

Examples of Customized Products

- Optimized Footprint
- ▲ Private Label Software
- ▲ OEM Specified Connectors
- No Outer Case
- ✓ Increased Current Resolution
- ▲ Increased Temperature Range
- Custom Control Interface
- ✓ Integrated System I/O

- ▲ Tailored Project File
- ▲ Silkscreen Branding
- Optimized Base Plate
- ▲ Increased Current Limits
- ▲ Increased Voltage Range
- ▲ Conformal Coating
- Multi-Axis Configurations
- ▲ Reduced Profile Size and Weight

Available Accessories

ADVANCED Motion Controls offers a variety of accessories designed to facilitate drive integration into a servo system. Visit www.a-m-c.com to see which accessories will assist with your application design and implementation.



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