

DPRAHIE-060A800

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.

This DP Series drive features a single RS-232/RS-485 interface used for drive configuration and setup. Drive commissioning is accomplished using DriveWare® 7, available for download at www.a-m-c.com.

All drive and motor parameters are stored in nonvolatile memory.

Power Range	
Peak Current	60 A (42.4 A _{RMS})
Continuous Current	30 A (21.2 A _{RMS})
Supply Voltage	200 - 480 VAC



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
- Built-in brake/shunt regulator
- On-the-Fly Mode Switching
- On-the-Fly Gain Set Switching

MODES OF OPERATION

- Current
- Position
- Velocity
- Hall Velocity

COMMAND SOURCE

- **PWM and Direction**
- Encoder Following
- Over the Network
- ±10 V Analog
- 24V Step and Direction
- Sequencing
- Indexing
- Jogging

FEEDBACK SUPPORTED

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

INPUTS/OUTPUTS

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

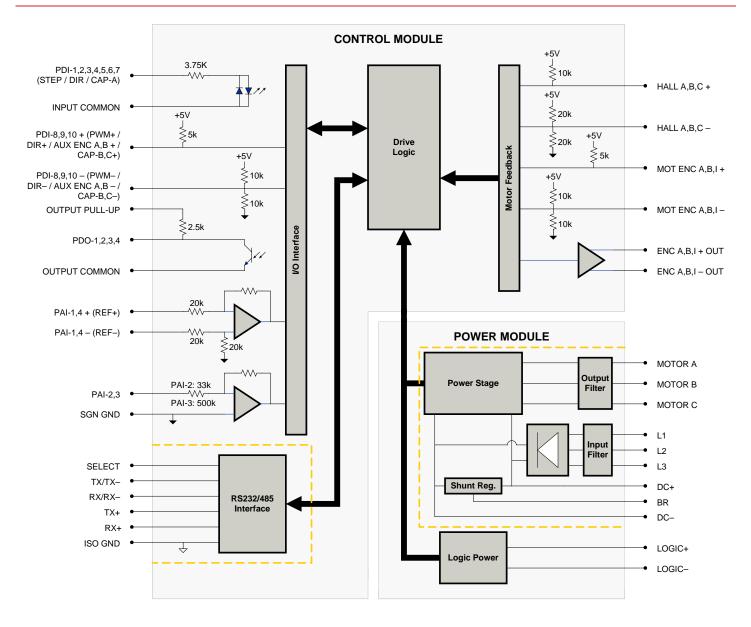
COMPLIANCES & AGENCY APPROVALS

Sold & Serviced By: CE Class A (LVD) C ELECTROMATE CE Class A (EMC)

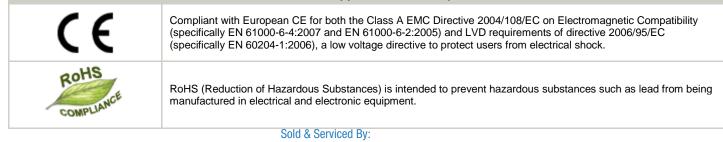
Toll Free Phone (877) SERV098 Toll Free Fax (877) SERV099 www.electromate.com sales@electromate.com



BLOCK DIAGRAM



Information on Approvals and Compliances



Toll Free Phone (877) SERV098 Toll Free Fax (877) SERV099 www.electromate.com sales@electromate.com

ELECTROMATE



SPECIFICATIONS

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Marmun Pesk Oupp Ourset:A (Arma)80 (42-a)Max. Continuous Output Power B Raid Voltage)W1389Max. Continuous Output Power Bayaton B (asta Voltage)W1389Max. Continuous Over Dastaton B (asta Voltage)W1390Internal Bus CapacitanceµF30Internal Bus CapacitanceµF300Maximum Contoxes Marium Resistance!µH2000Marium John Dyby DYMD Dyby Oyds%100DescriptionControl Sector Sec	DC Bus Under Voltage Limit	VDC	230	
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Max. Continuos Optiq Foreir ® Rated Voltage W 13880 Mex. Continuos Poter Disspito of ® Rated Voltage µF 330 Mex. Continuos Poter Disspito of ® Rated Voltage µF 300 Bito Capacitance µF 300 Bito Capacitance µH 3000 Smitting Faculancy №F 10 Maxmum Opula Pito Day Optie № 10 Description Concrol Specifications Value Communication Interfaces - + 60 VC (250 mA) Value Communication Interfaces - 8-445/22 Value Value Communication Interfaces - 8-445/23 Value Value Communication Interfaces - 8-445/23 Value Value Communication Interfaces - 8-445/23 Value Value Value Communication Interfaces - 8-445/23 Value <	Maximum Peak Output Current ²	A (Arms)	60 (42.4)	
Max. Continuous Power Disspiton @ Patent Viotage W 720 Instremal Bias Capestinase µF 330 External Shurt Resistar Minimum Resistanco' Ω 40 Minimum Load Inductance (Line-To-Line)' µH 3000 Maxetimum Optique/Py HHz 10 Maxetimum Optique/Py/Cycle % 10 Control System Signify Optiques - 45 VDC (20 mA) Control System Signify Optiques - 85-452.32 Command Sourcea - RS-455.452 spatial University Intermental Encoder, Flatower, Over the Network, PVM and Direction, Sequencing, Indexing, Jaggerg Feedback Supported - - 400 Command Sourcea - Sinusodial, Trappezidial Modes of Operation - - - Control Logic Vestor, Single Phase ShoutAll Viola Coll Induction Load), Thee Phase ShoutAll Viola Coll Induction Load), Thee Phase ShoutAll Viola Coll Induction Load) - Modes of Operation Control Control Vestor, Single Phase ShoutAll Viola Coll Induction Load), Thee Phase ShoutAll Viola Coll Induction Load) - Programmable Analog Inputs/Outputs (PDIePDOs) - 40 Programmable Analog Inputs/Out	Maximum Continuous Output Current	A (Arms)	30 (21.2)	
Internal Bun Capacitance μF 30 External Sum Resistance 0 4 Minimur Load Inductance (Line To Line)* μH 3000 Switching Frequency kHz 10 Switching Frequency kHz 10 Switching Frequency kHz 10 Communication Interfaces - 45 VDC (250 mL) Communication Interfaces - RS-485/23 Communication Interfaces - Value Communicatin Methods<	Max. Continuous Output Power @ Rated Voltage ³	W	13680	
External Source Resistor Minimum Resistance 0 40 Minimum Lond Induction (Line To-Line)* 10 Switching Frequency 160 Switching Sequency Optiques	Max. Continuous Power Dissipation @ Rated Voltage	W	720	
Minimu Load Indications (Line To-Line)* µH 8000 Switching Frequency 161 100 Switching Frequency 162 160 Low Values - 45 VDC (250 mA) Description Control Specification Value Communication Interfaces - 45 VDC (250 mA) Commanda Sourcea RS-480/232 Separation, Anology Arcemental Encoder, Folking, Over the Network, PVM and Direction, Separation, Anology Intermental Encoder, Folking, Over the Network, PVM and Direction, Separation, Anology Intermental Encoder, Folking, Over the Network, PVM and Direction, Separation Fredeact Supported - 85-480/232 Communication Methods - Control Methods, Jobion, Velocity Moters Supported - Control Methods - Moters Supported - Control Methods, Jobion, Velocity Programmable Analog Inputs/Dudputs (PDIe/POOs) - 40 Programmable Analog Inputs/Dudputs (PAIe/POos) - 40 Programmable Analog Inputs/Dudputs (PAIe/POos) - 40 Programmable Analog Inputs/Dudputs (PAIe/POos) - 40 Prearrantic Interface -	Internal Bus Capacitance	μF	330	
Switching Frequency Hz 10 Maximum Output PWM Duty Cycle % 160 Low Voltage Skiphy Outputs 45 VDC (250 mA) Communication Interfaces RS-485/32 Command Sources RS-485/32 Communication Interfaces RS-485/32 Communication Interfaces RS-485/32 Communication Interfaces RS-485/32 Communication Methods Stimusoidal, Trapezoidal Communication Methods Clicad Lop Vector, Single Phase (Enched, Voice Coll, Inductive Load), Three Phase (Brushless) Motes of Operation Clicad Lop Vector, Single Phase (Parched, Voice Coll, Inductive Load), Three Phase (Brushless) Moters Supported Closed Lop Vector, Single Phase (Parched, Voice Coll, Inductive Load), Three Phase (Brushless) Programmable Analog Inputs/Outputs (PMIPPOe) 104 Programmable Analog Inputs/Outputs (PMIPPOe) 400 Programmable Analog Inputs/Outputs (PMIPPOe) 400 Vector Loop Sample Time µa 200 Programable Analog Inputs/	External Shunt Resistor Minimum Resistance4	Ω	40	
Switching Frequency Hz 10 Maximum Output PWM Duty Cycle % 160 Low Voltage Skiphy Outputs 45 VDC (250 mA) Communication Interfaces RS-485/32 Command Sources RS-485/32 Communication Interfaces RS-485/32 Communication Interfaces RS-485/32 Communication Interfaces RS-485/32 Communication Methods Stimusoidal, Trapezoidal Communication Methods Clicad Lop Vector, Single Phase (Enched, Voice Coll, Inductive Load), Three Phase (Brushless) Motes of Operation Clicad Lop Vector, Single Phase (Parched, Voice Coll, Inductive Load), Three Phase (Brushless) Moters Supported Closed Lop Vector, Single Phase (Parched, Voice Coll, Inductive Load), Three Phase (Brushless) Programmable Analog Inputs/Outputs (PMIPPOe) 104 Programmable Analog Inputs/Outputs (PMIPPOe) 400 Programmable Analog Inputs/Outputs (PMIPPOe) 400 Vector Loop Sample Time µa 200 Programable Analog Inputs/	Minimum Load Inductance (Line-To-Line) ⁵	μH	3000	
Naximum Coulgue PVM Dup Cycle % 100 Low Volage Supply Outputs				
Lew Vetlages Supply Outputs - 4 SVDC (250 mA) Description Value Communication Interfaces RS-485/232 Command Sources RS-485/232 Feedback Supported RS-485/232 Command Sources Sinusodal, Trapezodal Modes of Operation Closed Loop Vector, Single Phase (Brusched, Voice Coil, Inductive Load), Three Phase (Brusched) Modes of Operation Modes of Operation 40 Programmadb Digital inputs/outputs (PolisPPOs) 40 Programmadb Analog Inputs/Outputs (PolisPPOs) 40 Programmadb Analog Inputs/Outputs (PolisPPOs) 40 Programmadb Analog Inputs/Outputs (PolisPPOs) 40 Valout Command Source		%		
Description Value Communication Interfaces - RS-489/232 Commanication Interfaces - RS-489/234 Step and Directon, Encoder Following, Over the Network, PWM and Directon, Suging Feedback Supported - - Structore Step and Directon, Encoder Following, Over the Network, PWM and Directon, Over Structore, National Encoder, Tachometer [410 Communition Methods - Structore, National Encoder, Halls, Incremental Encoder, Tachometer [410 Modes of Operation - Corrent, Hall Velocity, Position, Velocity Modes of Operation - Corrent, Hall Velocity, Position, Velocity Modes of Operation - Corrent, Hall Velocity, Position, Velocity Corl, Inductive Load), Three Phase (Brushes), Hardware Proteins, Own Corrent, Wer Temperature (Drive & Motor), Own Voltage Programmable Analog Inputs/Outputs (PDIs/PDOs) - 404 Programmable Analog Inputs/Outputs (PAIs/PAOs) - 400 Programmable Analog Inputs/Outputs (PAIs/PAOs) - 400 Programmable Analog Inputs/Outputs (PAIs/PAOs) - 24 VDC Current Loop Sample Time yps 200 National Encoder, Frequency MHz 2 (G pre-quadrature)		-		
Communication Interfaces			specifications	
Command Sources - If U Analog, 24V Spectro, Encoder Following, Over the Network, PWM and Direction, Sequencing, Indoxing, Jogging Feedback Supported - 410 VDC Position, Audiary Incremental Encoder, Tachometer (±10 VDC) Commandston Methods - Sinusoidal, Trapezoidal Modes of Operation - Current, Hall Velocity, Position, Velocity Modes of Operation - Current, Hall Velocity, Position, Velocity Modes Supported - Colesed Loop Vector, Single Phase (Brushed, Voice Coll, Inductive Load), Three Phase (Brushless) Programmable Analog Inputs/Outputs (PDIs/PDOs) - 104 Programmable Analog Inputs/Outputs (PAIs/PAOs) - 400 Priorary IDC Logic Lavel - 24 VDC Current Logs Sample Time μs 200 Velocity Loop Sample Time μs 200 Maximum Encoder Frequency MHz 20 (5 pre-quaristurke) Internal Shurt Regulator - No Internal Shurt Regulator - No Agency Approvals - CE Class A (LVD), RoHS Stare (H X V D) mm (n) 300 5 x 232 1 x 133 (11.4 x s 1 x 5.5)		Units		
Continuition Sources Feedback Supported	Communication Interfaces	-		
Precusados supported - VDC) Commutation Methods - Sinsucoidal, Trapezcidal Modes of Operation - Current, Hall Valocity, Position, Valocity Modes of Operation - Closed Loop Vacors, Single Phase (Brushed, Volec Coll, Inductive Load), Three Phase (Brushless) Hardware Protection - Closed Loop Vacors, Single Phase (Brushed, Volec Coll, Inductive Load), Three Phase (Brushless) Programmable Digital Inputs/Outputs (PDIs/PDOs) - 10/4 Programmable Digital Inputs/Outputs (PDIs/PDOs) - 10/4 Programmable Analog Inputs/Outputs (PDIs/PDOs) - 4/0 Primary IO Logita Level - 24 VDC Current Loop Sample Time µs 200 Position Loop Sample Time µs 200 Position Loop Sample Time µs 200 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Internal Shunt Regulator - Yes Internal Shunt Regulator - Yes Internal Shunt Regulator - Value Agency Approvals - 0 C Casa A (EVC), CE Class A (LVD)	Command Sources	-	Sequencing, Indexing, Jogging	
Modes of Operation · Current, Hall Velocity, Position, Velocity Motors Supported · Closed Loop Vector, Single Phase (Brushed, Voice Coil, Inductive Load), Three Phase (Brushelss) Hardware Protection · · Closed Loop Vector, Single Phase (Brushed, Voice Coil, Inductive Load), Three Phase (Brushelss) Programmable Digital Inputs/Outputs (PDIs/PDOs) · 10/4 Programmable Analog Inputs/Outputs (PAIs/PAOs) · 4/0 Primary (IO Logic Level · 24 VDC Current Loop Sample Time µs 200 Velocity Loop Sample Time µs 200 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Internal Shurt Regulator · Yes Internal Shurt Regulator · Yes Internal Shurt Regulator · Yes Internal Shurt Regulator · Vechanicz	Feedback Supported	-		
Motors Supported Closed Loop Vector, Single Phase (Brushed, Voice Coil, Inductive Load), Three Phase (Brushles), 40+ Configurale Functions, Over Current, Over Temperature (Drive & Motor), Over Voltage, Short Circuit (Phase-Phase & Phase-Ground), Under Voltage Programmable Digital Inputs/Outputs (Pbls/PDOs) - 10/4 Programmable Analog Inputs/Outputs (Pbls/PDOs) - 10/4 Primary I/O Logic Level - 10/4 Current Loop Sample Time µs 100 Vectory Loop Sample Time µs 200 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Internal Shurt Regulator - Ves Internal Shurt Regulator - Ves Agency Approvals - CE Class A (EMC), CE Class A (LVD), RoHS Size (H × W D) Mm (In) 300.5 x 232.1 x 139.3 (11.8 x 91.1 x 5.) Weight g (oz) 6165 (217.5) Heatsink (Base) Temperature Range °C (F) 0-40.85 (40.160.NC E Class A (LVD), RoHS Storago Temperature Range °C (F) 0-40.85 (40.185) Velot - CE class A (EMC), CE Class A (LVD), RoHS Storago Temperature Range °C (F) 0-40.85 (40.1	Commutation Methods	-	Sinusoidal, Trapezoidal	
Hardware Protection 40+ Configurable Functions, Over Current, Over Temperature (Drive & Motor), Over Voltage, Short Circuit (Phase-Phase & Phase & Phase Ground), Under Voltage Programmable Digital Inputs/Outputs (PDIs/PDOs) 10/4 Programmable Analog Inputs/Outputs (PAIs/PAOs) 4/0 Primary I/O Logic Level 2/4 VDC Current Loop Sample Time µs 100 Velocity Loop Sample Time µs 200 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Internal Shurt Regulator - No Internal Shurt Regulator - No Agency Approvals CE Class A (EMC), CE Class A (LVD), RoHS Size (H x W x D) mm (in) 3005 x 22.1 x 139.3 (11.8 x 9.1 x 5.5) Weigh g (az) 6165 (217.5) Heatsink (Base) Temperature Range C° (F) 40-8 54(40-186) Form Factor - Panel Mount Cooling System - 2 port, 50 magned, finction lock header Cooling System - 4 port, 762 m spaced, enclosed, finction lock header Cooling System - 9 prin, final-9 p-sub Cooling System <td< td=""><td>Modes of Operation</td><td>-</td><td>Current, Hall Velocity, Position, Velocity</td></td<>	Modes of Operation	-	Current, Hall Velocity, Position, Velocity	
Halwale Protection Circuit (Phase-Phase & Phase-Ground), Under Voitage Programmable Digital Inputs/Outputs (PDIs/PDOs) 104 Programmable Analog Inputs/Outputs (PAIs/PAOs) - 4/0 Current Loop Sample Time µs 100 Velocity Loop Sample Time µs 200 Position Loop Sample Time µs 200 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Internal Shunt Regulator - Ves Internal Shunt Regulator - No Agency Approvals - CE Class A (EMO), CE Class A (LVD), RoHS Size (H xW x D) mm (in) 300.5 x 232.1 x 139.3 (11.8 x 8.1 x 8.5) Velight g (caz) 6155 (217.5) Heatsink (Base) Temperature Range ⁴ °C (°F) 0.7 (5 (23 - 167) Storage Temperature Range ⁴ °C (°F) 0.7 (5 (24 - 185) Groing System - Natural Convection Cooling System - Natural Convection LP Rating - 15-pin, high-density, maile D-sub COMIC Connector - 9-pin, fame Bosub <	Motors Supported	-	Closed Loop Vector, Single Phase (Brushed, Voice Coil, Inductive Load), Three Phase (Brushless)	
Programmable Analog Inputs/Outputs (PAIs/PAOs) - 4/0 Primary I/O Logic Level - 24 VDC Current Loop Sample Time µs 100 Velocity Loop Sample Time µs 200 Position Loop Sample Time µs 200 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Internal Shunt Regulator - Yes Internal Shunt Regulator - No Velocity Loop Sample Time Description Units Value Ves Mechanical Specifications Units Value Size (H x W x D) mm (n) 300.5 x 232.1 x 139.3 (11.8 x 9.1 x 5.5) Velight g (az) 6165 (217.5) Iteratishk (Base) Temperature Range ⁴ °C (°F) 0 - 75 (32 - 167) Storage Temperature Range °C (°F) 40- 65 (40 - 185) Cooling System - Natural Convection IP Rating - IP 10 424 V LOG Connector - 2-port, 5.08 mm spaced, enclosed, friction lock header	Hardware Protection	-	40+ Configurable Functions, Over Current, Over Temperature (Drive & Motor), Over Voltage, Shor	
Primary I/O Logic Level - 24 VDC Current Loop Sample Time µs 100 Velocity Loop Sample Time µs 200 Position Loop Sample Time µs 200 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Internal Shunt Regulator - Yes Internal Shunt Resistor - No Description Mechanical Specifications Units Value Agency Approvals - CE Class A (EMC), CE Class A (LVD), RoHS Size (H X w Z) Weight g (oz) 6165 (217.5) Value Veight g (oz) 6165 (217.5) Value Storage Temperature Range ⁶ 'C (F) 0 - 75 (32 · 167) Storage Temperature Range Form Factor - Panel Mount Storage Temperature Range 'C (F) I'P Rating - Iso m spaced, enclosed, friction lock header AUX ENCODER Connector - 2-port, 5.08 mm spaced, enclosed, friction lock header COMI Connector - 9-port, 7.62 mm spaced, enclosed, friction lock header	Programmable Digital Inputs/Outputs (PDIs/PDOs)	-	10/4	
Current Loop Sample Time μs 100 Velocity Loop Sample Time μs 200 Position Loop Sample Time μs 200 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Internal Shunt Regulator - Yes Internal Shunt Regulator - No Mechanical Expecifications Units Value Agency Approvals - CE Class A (EMC), CE Class A (LVD), RoHS Size (H x V D) mm (in) 300.5 x 23.2 t x 139.3 (11.8 x 9.1 x 5.5) Weight g (oz) 6165 (217.5) Heatsink (Base) Temperature Range ⁶ -CC (°F) 0.75 (32 - 167) Storage Temperature Range -CC (°F) 0.45 (40 - 185) Form Factor - Panel Mount Colling System - 19 10 IP Rating - 19-pin, ingh-density, male D-sub COM Connector - 9-pin, fernale D-sub COM Connector - 4-port, 7.62 mm spaced, enclosed, friction lock header FEEDBACK Connector - 15-pin, high-density, fenale D-sub	Programmable Analog Inputs/Outputs (PAIs/PAOs)	-	4/0	
Velocity Loop Sample Timeµs200Position Loop Sample Timeµs200Maximur Encoder FrequencyMHz20 (5 pre-quadrature)Internal Shunt Regulator-YesInternal Shunt Regulator-NoMechanical SpecificationsValueObscriptionValueObscriptionValueAgency Approvals-C E Class A (EMC), CE Class A (LVD), RoHSSize (H x W x D)mm (in)300.5 x 232.1 x 139.3 (11.8 x 9.1 x 5.5)ValueWeightg (cz)6 165 (217.5)-Heatsink (Base) Temperature Ranget°C (°F)0 - 75 (32 - 167)-Storage Temperature Range°C (°F)40-85 (-40 - 185)-Form Factor-Natural ConvectionIP 10+24V LOGIC Connector-Panel MountColling System-Natural Convection-IP Rating-1P 10+24V LOGIC Connector-9-pin, female D-subCOMM Connector-9-pin, female D-subColling Connector-4-port, 7.62 mm spaced, enclosed, friction lock headerFEEDBACK Connector4-port, 7.62 mm spaced, enclosed, friction lock headerFEEDBACK Connector<	Primary I/O Logic Level	-	24 VDC	
Position Loop Sample Time µs 200 Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Internal Shunt Regulator - Yes Internal Shunt Resistor - No Description Mechanical Superifications Units Value Agency Approvals - CE Class A (EMC), CE Class A (LVD), RoHS Size (H x W x D) mm (in) 300, 5x 232.1 x 139.3 (11.8 x 9.1 x 5.5) Weight g (oz) 6165 (217.5) Heatsink (Base) Temperature Range ⁶ °C (°F) 0 - 75 (32 - 167) Storage Temperature Range °C (°F) 40- 85 (-40 - 185) Form Factor - Panel Mount Cooling System - 1P10 124 VLOGIC Connector - 9 spin, finale D-sub AUX ENCODER Connector - 9 spin, finale D-sub COMM Connector - 9 spin, finale D-sub DE BUS Connector - 4 sport, 7.62 mm spaced, enclosed, friction lock header FEEDBACK Connector - 15-pin, high-density, female D-sub DC Connector - 4 sport, 7.62	Current Loop Sample Time	μs	100	
Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Internal Shunt Regulator - Yes Internal Shunt Regulator - No Description Units Value Agency Approvals - CE Class A (EMC), CE Class A (LVD), RoHS Size (H x W x D) mm (in) 300.5 x 232.1 x 139.3 (11.8 x 9.1 x 5.5) Weight g (cz) 6165 (217.5) 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 - IP 10 +24V LOGIC Connector - 9-pin, figh-density, male D-sub COMM Connector - 9-pin, nigh-density, male D-sub DC BuS Connector - 9-pin, figh-density, female D-sub I/C Connector - 15-pin, high-density, female D-sub DC BuS Connector - 15-pin, high-density, female D-sub I/C Connector - 26-pin, high-density, female D-sub	Velocity Loop Sample Time	μs	200	
Maximum Encoder Frequency MHz 20 (5 pre-quadrature) Internal Shunt Regulator - Yes Internal Shunt Resistor - No Description Watchanical Units Value Agency Approvals - CE Class A (EMC), CE Class A (LVD), RoHS Size (H x W x D) 900.5 6165 (217.5) Heatsink (Base) Temperature Rangeé °C (°F) 0.75 (32 - 167) Storage Temperature Range °C (°F) 400 - 85 (-40 - 185) Form Factor - Panel Mount Cooling System - Natural Convection IP Rating - Spin, high-density, male D-sub COMM Connector - 9-pin, female D-sub COMM Connector - 9-pin, high-density, female D-sub I/C Connector - 26-pin, high-density, female D-sub I/D Connector - 26-pin, high-density, female D-sub I/C Connector - 26-pin, high-density, female D-sub I/D Connector - 26-pin, high-density, female D-sub I/D Connector - 26-pin, high-density, female	Position Loop Sample Time	μs	200	
Internal Shunt Regulator - Yes Internal Shunt Resistor - No Description Mechanical Units Specifications Value Agency Approvals - CE Class A (EMC), CE Class A (LVD), RoHS Size (H x W x D) mm (in) 300.5 x 232.1 x 139.3 (11.8 x 9.1 x 5.5) Weight g (oz) 6165 (217.5) Heatsink (Base) Temperature Rangeé °C (°F) 0.75 (32.167) Storage Temperature Range °C (°F) 40.6 85 (40.185) Form Factor - Panel Mount Cooling System - IP Natural Convection IP Rating - 1P10 +24V LOGIC Connector - 9-poin, female D-sub COMM Connector - 9-pin, female D-sub COMM Connector - 4-port, 7.62 mm spaced, enclosed, friction lock header FEEDBACK Connector - 26-pin, high-density, female D-sub I/O Connector - 26-pin, high-density, female D-sub MOTOR POWER Connector - 26-pin, high-density, female D-sub I/O Connector - 26-pin, hig			20 (5 pre-guadrature)	
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Mechanical UnitsSpecifications ValueAgency Approvals-CE Class A (EMC), CE Class A (LVD), RoHSSize (H x W x D)mm (in)300.5 x 232.1 x 139.3 (11.8 x 9.1 x 5.5)Weightg (oz)6165 (217.5)Heatsink (Base) Temperature Range ⁴ °C (°F)0 - 75 (32 - 167)Storage Temperature Range°C (°F)4-0 - 85 (-40 - 185)Form Factor-Panel MountCooling System-Natural ConvectionIP Rating-1P10424 U CGIC Connector-2-port, 5.08 mm spaced, enclosed, friction lock headerAUX ENCODER Connector-9-pin, female D-subC BUS Connector-4-port, 7.62 mm spaced, enclosed, friction lock headerFEEDBACK Connector-4-port, 7.62 mm spaced, enclosed, friction lock headerFUS Connector-4-port, 7.62 mm spaced, enclosed, friction lock headerFEEDBACK Connector-4-port, 7.62 mm spaced, enclosed, friction lock headerFUS CONNECtor-4-port, 7.62 mm spaced, enclosed, friction lock headerPOWER Connector-4-port, 7.62 mm spaced, enclosed, friction lock headerPOWER Connector-4-port, 7.62 mm spaced, enclosed, friction lock headerPOWER Connector-4-port, 7.62 mm spaced, enclosed, friction lock header <tr< td=""><td></td><td>-</td><td></td></tr<>		-		
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Size (H x W x D)mm (in)300.5 x 232.1 x 139.3 (11.8 x 9.1 x 5.5)Weightg (oz)6165 (217.5)Heatsink (Base) Temperature Rangeé°C (°F)0 - 75 (32 - 167)Storage Temperature Range°C (°F)-40 - 85 (-40 - 185)Form Factor-Panel MountCooling System-Natural ConvectionIP Rating-IP10+24V LOGIC Connector-2-port, 5.08 mm spaced, enclosed, friction lock headerAUX ENCODER Connector-9-pin, female D-subCOMM Connector-9-pin, female D-subIV Connector-4-port, 7.62 mm spaced, enclosed, friction lock headerIVO Connector-26-pin, high-density, female D-subIVO CONNector-4-port, 7.62 mm spaced, enclosed, friction lock headerPREDBACK Connector-26-pin, high-density, female D-subMOTOR POWER Connector-3-port, 7.62 mm spaced, enclosed, friction lock headerPOWER Connector-3-port, 7.62 mm spaced, enclosed, friction lock header	Description			
Weightg (oz)6165 (217.5)Heatsink (Base) Temperature Range ⁶ °C (°F)0 - 75 (32 - 167)Storage Temperature Range°C (°F)-40 - 85 (-40 - 185)Form Factor-Panel MountCooling System-Natural ConvectionIP Rating-IP10+24V LOGIC Connector-2-port, 5.08 mm spaced, enclosed, friction lock headerAUX ENCODER Connector-15-pin, high-density, male D-subCOMM Connector-9-pin, female D-subDC BUS Connector-15-pin, high-density, female D-subIVO Connector-2-port, 7.62 mm spaced, enclosed, friction lock headerFEEDBACK Connector-26-pin, high-density, female D-subIVO Connector-4-port, 7.62 mm spaced, enclosed, friction lock headerFEEDBACK Connector-26-pin, high-density, female D-subIVO R POWER Connector-3-port, 7.62 mm spaced, enclosed, friction lock headerPOWER Connector-3-port, 7.62 mm spaced, enclosed, friction lock header	Agency Approvals	-	CE Class A (EMC), CE Class A (LVD), RoHS	
Heatsink (Base) Temperature RangeéO (°F)0 - 75 (32 - 167)Storage Temperature Range°C (°F)-40 - 85 (-40 - 185)Form Factor-Panel MountCooling System-Natural ConvectionIP Rating-IP10+24V LOGIC Connector-2-port, 5.08 mm spaced, enclosed, friction lock headerAUX ENCODER Connector-15-pin, high-density, male D-subCOMM Connector-9-pin, female D-subDC BUS Connector-15-pin, high-density, female D-subIV Connector-2-port, 7.62 mm spaced, enclosed, friction lock headerFEEDBACK Connector-4-port, 7.62 mm spaced, enclosed, friction lock headerIVO Connector-26-pin, high-density, female D-subVO Connector-15-pin, high-density, female D-subVOR POWER Connector-26-pin, high-density, female D-subPOWER Connector-3-port, 7.62 mm spaced, enclosed, friction lock header	Size (H x W x D)	mm (in)	300.5 x 232.1 x 139.3 (11.8 x 9.1 x 5.5)	
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Storage Temperature Range°C (°F)-40 - 85 (-40 - 185)Form FactorPanel MountCooling System-Natural ConvectionIP Rating-IP10+24V LOGIC Connector-2-port, 5.08 mm spaced, enclosed, friction lock headerAUX ENCODER Connector-15-pin, high-density, male D-subCOMM Connector-9-pin, female D-subDC BUS Connector-15-pin, high-density, female D-subIFEEDBACK Connector-15-pin, high-density, female D-subI/O Connector-26-pin, high-density, female D-subPOWER Connector-26-pin, high-density, female D-subPOWER Connector-3-port, 7.62 mm spaced, enclosed, friction lock header	0		0 - 75 (32 - 167)	
Form FactorPanel MountCooling System-Natural ConvectionIP Rating-IP10+24V LOGIC Connector-2-port, 5.08 mm spaced, enclosed, friction lock headerAUX ENCODER Connector-15-pin, high-density, male D-subCOMM Connector-9-pin, female D-subDC BUS Connector-4-port, 7.62 mm spaced, enclosed, friction lock headerFEEDBACK Connector-15-pin, high-density, female D-subI/O Connector-26-pin, high-density, female D-subVO Connector-26-pin, high-density, female D-subPOWER Connector-3-port, 7.62 mm spaced, enclosed, friction lock header				
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IP RatingIP10+24V LOGIC Connector2-port, 5.08 mm spaced, enclosed, friction lock headerAUX ENCODER Connector-AUX ENCODER Connector-COMM Connector9-pin, female D-subDC BUS Connector-PEEDBACK Connector-FEEDBACK Connector-I/O Connector-VO Connector-POWER Con				
+24V LOGIC Connector2-port, 5.08 mm spaced, enclosed, friction lock headerAUX ENCODER Connector15-pin, high-density, male D-subCOMM Connector9-pin, female D-subDC BUS Connector-FEEDBACK Connector-I/O Connector-VO Connector-POWER Connector- </td <td>• •</td> <td></td> <td></td>	• •			
AUX ENCODER Connector15-pin, high-density, male D-subCOMM Connector9-pin, female D-subDC BUS Connector4-port, 7.62 mm spaced, enclosed, friction lock headerFEEDBACK Connector15-pin, high-density, female D-subI/O Connector26-pin, high-density, female D-subMOTOR POWER Connector-POWER Connector-POWER Connector-Support 7.62 mm spaced, enclosed, friction lock headerPOWER Connector-POWER Connecto	-			
COMM Connector 9-pin, female D-sub DC BUS Connector 4-port, 7.62 mm spaced, enclosed, friction lock header FEEDBACK Connector 15-pin, high-density, female D-sub I/O Connector 26-pin, high-density, female D-sub MOTOR POWER Connector - POWER Connector - POWER Connector - POWER Connector - Sport, 7.62 mm spaced, enclosed, friction lock header				
DC BUS Connector 4-port, 7.62 mm spaced, enclosed, friction lock header FEEDBACK Connector 15-pin, high-density, female D-sub I/O Connector 26-pin, high-density, female D-sub MOTOR POWER Connector - POWER Connector - POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header				
FEEDBACK Connector 15-pin, high-density, female D-sub I/O Connector 26-pin, high-density, female D-sub MOTOR POWER Connector - POWER Connector - POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header			•	
I/O Connector 26-pin, high-density, female D-sub MOTOR POWER Connector - POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header				
MOTOR POWER Connector 4-port, 7.62 mm spaced, enclosed, friction lock header POWER Connector 3-port, 7.62 mm spaced, enclosed, friction lock header				
POWER Connector - 3-port, 7.62 mm spaced, enclosed, friction lock header				
	POWER Connector	Sold & Serviced		

Notes

Sold & Serviced By:

1.

DC supply operation through the L1, L2, or L3 termine with red ce reck for current rings by 30%. See installation manual for details. Capable of supplying drive rated peak current for 2 sectors with 10 second foldback to continuous value. Longer times are possible with lower current limits. P = (DC Rated Voltage) * (Cont. RMS Current) * 0.95. Toll Free Phone (877) SERV098 ADVANCED Motion Controls recommends using an external fuse to perfer with the shurpt desistor. A 3 amp motor delay fuse is typical. 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 with the shurpt desistor. 2.

3.

4.

5.

6.

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PIN FUNCTIONS

	+24V LOGIC - Logic Power Connector			
Pin	Pin Name Description / Notes I/O			
1	LOGIC PWR	Logic Supply Input	I	
2	LOGIC GND	Logic Supply Ground	GND	

AUX ENCODER - Auxiliary Feedback Connector

Pin	Name	Description / Notes	1/0
1	RESERVED	Reserved	-
2	RESERVED	Reserved	-
3	RESERVED	Reserved	-
4	PDI-8 + (PWM+ / AUX ENC A+ / CAP-B+)	Programmable Digital Input or PWM or Auxiliary Encoder or High Speed Capture (For	I
5	PDI-8 - (PWM- / AUX ENC A- / CAP-B-)	Single-Ended Signals Leave Negative Terminal Open)	I
6	PDI-9 + (DIR+ / AUX ENC B+ / CAP-C+)	Programmable Digital Input or Direction Input or Auxiliary Encoder or High Speed Capture	1
7	PDI-9 - (DIR- / AUX ENC B- / CAP-C-)	(For Single-Ended Signals Leave Negative Terminal Open)	I
8	PDI-10 +	Deserves able Divited legate (Fee Circle Feederl Circle) active Negative Terminal Open)	1
9	PDI-10 -	Programmable Digital Input (For Single-Ended Signals Leave Negative Terminal Open)	I
10	SGN GND	Signal Ground	SGND
11	SGN GND	Signal Ground	SGND
12	SGN GND	Signal Ground	
13	+5V OUT	+5V Encoder Supply Output (Short Circuit Protected)	
14	PAI-4 +	Differential Programmable Analog Input (12-bit Resolution)	
15	PAI-4 -		

	COMM -	RS232/RS485 Communication Connector	
Pin	Name	Description / Notes	1/0
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	-

	DC BUS - Power Connector		
Pin	Name	Description / Notes	1/0
1	DC-	Internal DC Bus Voltage (Can Be Used To Connect External Shunt Regulator)	I/O
2	2 BR External Brake Resistor Connection -		-
3	3 DC+ Brake Resistor DC+. Connection for brake resistor. O		0
4	DC+	Internal DC Bus Voltage (Can Be Used To Connect External Shunt Regulator)	I/O

	FEEDBACK - Feedback Connector			
Pin	Name	Description / Notes	1/0	
1	HALL A+		I	
2	HALL B+	Commutation Sensor Inputs	1	
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)	I	
6	MOT ENC B+	Differential Encoder B Channel Input (For Single Ended Signals Use Only The Positive	I	
7	MOT ENC B-	Input)		
8	MOT ENC I+	Differential Face dealed by larget (Fac Circle Face ded Circle) Line Only The Desitive larget	1	
9	MOT ENC I-	Differential Encoder Index Input (For Single Ended Signals Use Only The Positive Input)		
10	HALL A-	Commutation Sensor Input (For Differential Signals Only)	1	
11	HALL B-	Commutation Sensor Input (For Differential Signals Only)	1	
12	SGN GND	Signal Ground	SGND	
13	+5V OUT	Signal Ground +5V Encoder Supply Output (Short Circuit Protected)	0	
14	PAI-3	Programmable analog incu (12 dit Resolution)	I	
15	HALL C-	Commutation Sensor Input (For Differential Signals Only) I Toll Free Phone (877) SERV098		

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DigiFlex[®] Performance[™] Servo Drive

		I/O - Signal Connector	
Pin	Name	Description / Notes	1/0
1	PDO-1	Isolated Programmable Digital Output	0
2	OUTPUT COMMON	Digital Output Common	OGND
3	PDO-2	Isolated Programmable Digital Output	0
4	PAI-1 + (REF+)	Differential Decomposable Angles Insut as Deference Circulture (40 bit Decolution)	1
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)	1
7	SGN GND	Signal Ground	SGND
8	OUTPUT PULL-UP	Digital Output Pull-Up For User Outputs	1
9	PDI-5	Isolated Programmable Digital Input	1
10	PDO-3	Isolated Programmable Digital Output	0
11	PDI-1	Isolated Programmable Digital Input	1
12	PDI-2	Isolated Programmable Digital Input	1
13	PDI-3	Isolated Programmable Digital Input	1
14	PDO-4	Isolated Programmable Digital Output	0
15	INPUT COMMON	Digital Input Common (Can Be Used To Pull-Up Digital Inputs)	IGND
16	SGN GND	Signal Ground	SGND
17	PDI-4 (STEP)	Isolated Programmable Digital Input or Step	1
18	PDI-6 (DIR)	Isolated Programmable Digital Input or Direction	I
19	PDI-7 (CAP-A)	Isolated Programmable Digital Input or High Speed Capture	I
20	ENC A+ OUT	Buffered Encoder Channel A Output	0
21	ENC A- OUT	Buileieu Elicodei Chaimei A Output	0
22	ENC B+ OUT	Buffered Encoder Channel B Output	0
23	ENC B- OUT		0
24	ENC I+ OUT	Buffered Encoder Index Output	0
25	ENC I- OUT		0
26	SGN GND	Signal Ground	SGND

MOTOR POWER - Power Connector

Pin	Name	Description / Notes	1/0
1	SHIELD	Motor cable shield. Internally connected to protective earth ground.	-
2	MOTOR C	Motor Phase C	0
3	MOTOR B	Motor Phase B	0
4	MOTOR A	Motor Phase A	0

		POWER - Power Connector	
Pin	Name	Description / Notes	1/0
1	L3		I
2	L2	AC Supply Input (Three Phase)	I
3	L1		I



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HARDWARE SETTINGS

Switch Functions

Switch	Description	Setting	
Switch	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



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MECHANICAL INFORMATION

+24V LOGIC - Logic Power Connector			
Connector Information		2-port, 5.08 mm spaced, enclosed, friction lock header	
Mating Connector	Details	Phoenix Contact: P/N 1757019	
Mating Connector	Included with Drive	Yes	
2 LOGIC GND 1 LOGIC PWR IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII			

AUX ENCODER - Auxiliary Feedback Connector			
Connector Information 15-pin, high-density, male D-sub		15-pin, high-density, male D-sub	
Mating Connector	Details	TYCO: Plug P/N 1658681-1; Housing P/N 5748677-1; Terminals P/N 1658686-2 (loose) or 1658686-1 (strip)	
	Included with Drive	No	
	PDI-9 - (DIR- / AUX ENC PDI-9 + (DIR+ / AUX ENC B+ /		

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+	

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DC BUS - Power Connector		
Connector Information 4-port, 7.62 mm spaced, enclosed, friction lock header		
Matter Organisation	Details	Phoenix Contact: P/N 1804920
Mating Connector	Included with Drive	Yes
		L L L L L L L L L L L L L L L L L L L

FEEDBACK - Feedback Connector		
Connector Information		15-pin, high-density, female D-sub
Mating Connector	Details	TYCO: Plug P/N 748364-1; Housing P/N 5748677-1; Terminals P/N 1658670-2 (loose) or 1658670-1 (strip)
	Included with Drive	No
MOT ENC B+ 6		

		I/O - Signal Connector
Connector Information 26-pin, high-density, female D-sub		
Mating Connector	Details	TYCO: Plug P/N 1658671-1; Housing P/N 5748677-2; Terminals P/N 1658670-2 (loose) or 1658670-1 (strip)
-	Included with Drive	No
	SG	PDC-3 10



MOTOR 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 Included with Drive Yes

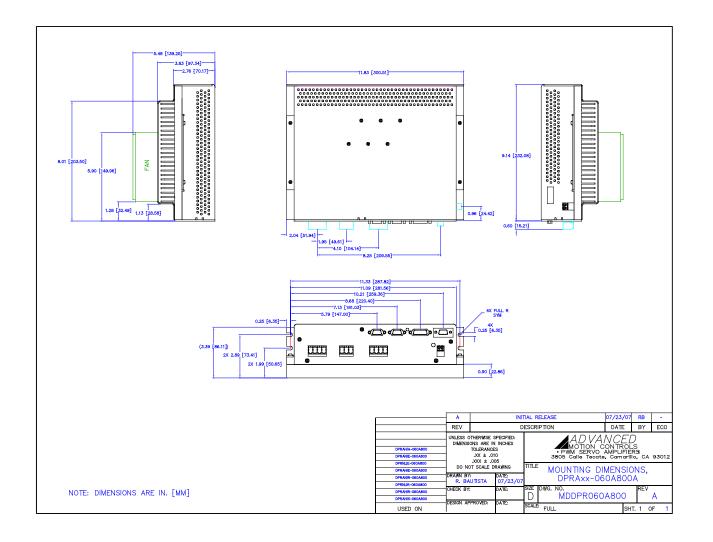
POWER - Power Connector			
Connector Information		3-port, 7.62 mm spaced, enclosed, friction lock header	
Mating Connector	Details	Phoenix Contact: P/N 1804917	
Mating Connector	Included with Drive	Yes	



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MOUNTING DIMENSIONS

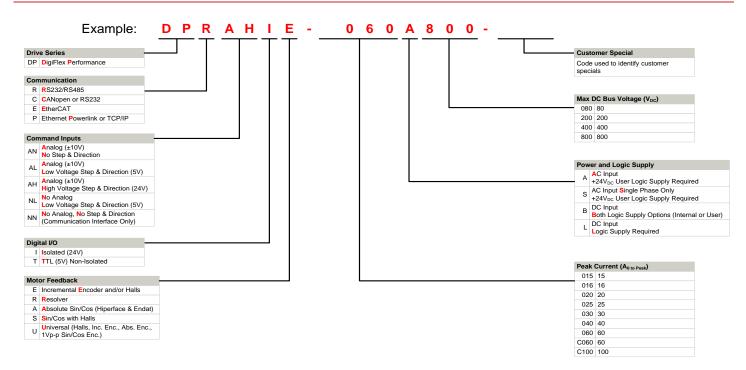




sales@electromate.com



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	Tailored Project File		
Private Label Software	Silkscreen Branding		
OEM Specified Connectors	Optimized Base Plate		
No Outer Case	Increased Current Limits		
Increased Current Resolution	Increased Voltage Range		
Increased Temperature Range	Conformal Coating		
Custom Control Interface	Multi-Axis Configurations		
Integrated System I/O	Reduced Profile Size and Weight		
Ava	ilable Accessories		
ADVANCED Motion Controls offers a variety of accessories designed to facilitate drive integration into a servo system. Visit <u>www.a-m-c.com</u> 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.