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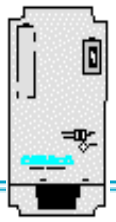
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ORMEC

D & DE-Series Digital Servodrives

ORMEC's D & DE-series digital servo-drives use DSP technology to provide high performance control of matching AC brushless servomotors. Together, they combine to produce continuous stall torques from 3 to 696 lb-in (0.32 to 79 N-m) and maximum speeds from 2,000 to 4,500 RPM.

These torque-mode servodrives are plug compatible with ORION™ DSP Axis Modules using a standard axis interface cable and provide stability, accuracy and quick torque response from stall to high-speed.



ORMEC's D/DE-Series servodrives feature all digital design, high response current mode operation and compact size.

Features

- ❒ All digital DSP technology
- ❒ Continuous output power from 100 watts to 11 kilowatts
- ❒ No isolation transformers required for input power
- ❒ Compact base-mounted design with duct ventilation capability
- ❒ Built-in peak and RMS current limits match the mating motor
- ❒ Intrinsically safe dynamic braking is standard
- ❒ Internal regeneration resistor standard on most models
- ❒ Separate control power independent from main drive power provides diagnostics and feedback with drive disabled
- ❒ Built-in diagnostics with alarm codes and status LED
- ❒ Alarm status display standard for DE-Series
- ❒ Optional status monitor module for D-Series

Understanding the D-Series Servodrive Model Numbers

SAC - DE 04 D2 / A M

- DE — *Subgroup Types (DE, D-Series)*
- 04 — *Continuous current (amps)*
- D2 — *Motor matching reference (A to U) For for DE series only: "1" indicates 115 VAC and "2" indicates 230 VAC input voltage*
- A — *A = Absolute Encoder[1] I = Incremental Encoder*
- M — *M = Servodrive Monitor Module (D-series only)*

[1] *Specify both motor and DSP Axis Module with absolute encoder support when ordering this drive.*

Flexibility

Torque mode control provides easy commissioning, maintenance, and system integration. Servomotor, drive, and load configurations are incorporated into the MotionDesk™ software program by selecting a simple menu screen. This eliminates manual setups including analog potentiometer adjustments. Velocity loop parameters as well as torque command and torque limits (peak and stall) are accessible and controllable under software control.

Loop parameters can be changed on-the-fly to compensate for real-time machine load variations.

Performance

The D/DE-Series servodrives are a third generation design which combines all digital operation with DSP technology to produce fast update rates and current loop

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bandwidths of 1000Hz. High bandwidth current loops teamed with high resolution servomotor feedback provide quick and accurate torque, velocity and position control.

Safety & Maintainability

Fail-safe torque-enable inputs and safety interlocks are standard with all ORMEC servodrives. Integral safety interlocks are based on comprehensive fail-safe alarm detection circuitry interconnecting servodrives, DSP axis modules and the System Module component of an ORION™ motion controller,

System maintainability is enhanced by comprehensive alarm detection and reporting.

Reliability & Size

Use of modular construction and surface mount technology provide long service life and good return on investment with the added bonus of compact design and small servodrive footprint using less panel space.

SPECIFICATIONS

DE-Series Main Circuit Power

- ❒ 100-115 or 200-230 VAC +10%, -15% , 50/60 Hz, single phase
- ❒ 500 to 2,200 watts of incoming service power (see Servomotor Selection Charts for power requirements on matching servodrives).

DE-Series Control Circuit Power

- ❒ 100-115 VAC or 200-230 VAC +10%, -15%, 50/60 Hz, 50 watts RMS, single phase

D-Series Main Circuit Power

- ❒ 200-230 VAC +10%, -15% , 50/60 Hz, three phase
- ❒ 1,100 to 19,000 watts of incoming service power (see Servomotor Selection Charts for power requirements on matching servodrives).

D-Series Control Circuit Power

- ❒ 200-230 VAC +10%, -15%, 50/60 Hz, 50 watts RMS, single phase

Torque Command

- ❒ ± 10 volts for the full command
- ❒ Current Loop bandwidth of 1.0KHz

External Monitors

- ❒ Torque Monitor output +/-10.0v @ 3V /(100% rated torque)
- ❒ Speed Monitor output +/-10.0v @ 2.0V /1000 RPM

Drive Output

- ❒ IGBT pulsewidth-modulated.
- ❒ Large heat sinks with temperature monitor (fan cooled on D-Series)
- ❒ Internal shunt regulator for regenerative load dissipation except for SAC-DE02A1
- ❒ Peak currents typically 200 to 300% of RMS capability
- ❒ Intrinsically safe dynamic braking

Environmental

- ❒ Ambient operating is 0 to 55C
- ❒ Ambient storage is -20 to 85C
- ❒ Humidity operating/storage is 90% RH or less (non-condensing).

ORDERING GUIDE

D / DE-Series AC Brushless Digital Servodrives

Single Phase 115 VAC Input

SAC-DE02A1/	Servodrive for MAC-DE003A1	@ 4500 RPM
SAC-DE03B1/	Servodrive for MAC-DE006B1	@ 4500 RPM
SAC-DE04C1/	Servodrive for MAC-DE008C1	@ 4500 RPM

Single Phase 230 VAC Input

SAC-DE01A2/	Servodrive for MAC-DE003A2	@ 4500 RPM
SAC-DE02B2/	Servodrive for MAC-DE006B2	@ 4500 RPM
SAC-DE03C2/	Servodrive for MAC-DE011C2	@ 4500 RPM
SAC-DE04D2/	Servodrive for MAC-DE021D2	@ 4500 RPM

Three Phase 230 VAC Input

SAC-D04C/	Servodrive for MAC-DE011C2	@ 4500 RPM
SAC-D08D/	Servodrive for MAC-DE021D2	@ 4500 RPM
SAC-D08F/	Servodrive for MAC-DA030F	@ 4500 RPM
SAC-D08L/	Servodrive for MAC-DB025L	@ 3000 RPM
SAC-D08M/	Servodrive for MAC-DB055M	@ 3000 RPM
SAC-D12E/	Servodrive for MAC-DE042E2	@ 4500 RPM
SAC-D12N/	Servodrive for MAC-DB080N	@ 3000 RPM
SAC-D19G/	Servodrive for MAC-DA055G	@ 4500 RPM
SAC-D19P/	Servodrive for MAC-DB100P	@ 3000 RPM
SAC-D37H/	Servodrive for MAC-DA090H	@ 4500 RPM
SAC-D37J/	Servodrive for MAC-DA110J	@ 4500 RPM
SAC-D37K/	Servodrive for MAC-DA140K	@ 4500 RPM
SAC-D37Q/	Servodrive for MAC-DB200Q	@ 3000 RPM
SAC-D37R/	Servodrive for MAC-DB300R	@ 3000 RPM
SAC-D47S/	Servodrive for MAC-DB330S	@ 3000 RPM
SAC-D55T/	Servodrive for MAC-DB465T	@ 3000 RPM
SAC-D59U/	Servodrive for MAC-DB700U	@ 2000 RPM

Specify options below by adding letter to servodrive model number

Option 1:	(must be specified)
I	Incremental encoder
A	Absolute encoder
Option 2:	
M	Servodrive Monitor Module (D-series only)

Accessories

SAC-OP03A	D-Series Servodrive Alarm/Status Monitor Module
CBL-DMON	D-Series Servodrive Alarm Monitor Cable, 3 ft
RLY-007	Solid-state relay for fail-safe brake circuit, panel mount, 3-32VDC logic, 60VDC switched load, 3 amps

External Regen Resistors

SAC-DRR/0880	Regen Resistor, 880 watts, 6.25 ohms, for SAC-D47S, 13.8"l, 8.7"w, 3.7"d
SAC-DRR/1760	Regen Resistor, 1760 watts, 3.13 ohms, for SAC-D55T & D59U 13.8"l, 11.8"w, 3.8"d

Single Phase Line Filters

SAC-LF215U	Line Filter, 115/230 VAC, single phase, 15 amp Size: 4.2"l, 2.9"w, 2.0"d
SAC-LF230U	Line Filter, 115/230 VAC, single phase, 30 amp Size: 5.5"l, 3.0"w, 2.8"d

Three Phase Line Filters

SAC-LF15U	Line Filter, 230 vac, 3-phase, 15 amp, 6.6"l, 4.0"w, 4.0"d
SAC-LF30U	Line Filter, 230 vac, 3-phase, 30 amp, 10.0"l, 5.0"w, 4.8"d
SAC-LF45U	Line Filter, 230 vac, 3-phase, 45 amp, 13.0"l, 5.0"w, 4.8"d
SAC-LF60U	Line Filter, 230 vac, 3-phase, 60 amp, 14.0"l, 6.5"w, 4.8"d
SAC-LF100U	Line Filter, 230 vac, 3-phase, 100 amp, 14.1"l, 6.5"w, 4.8"d

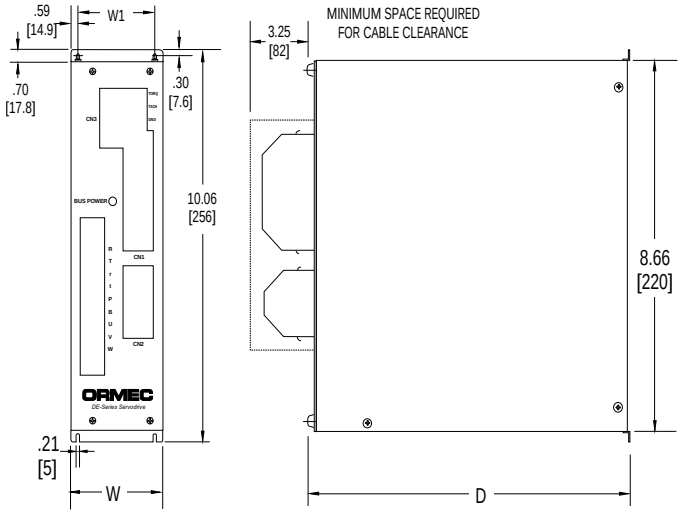
Documentation

SAC-D01	D/DE-Series Servodrive manual (one included with each unit)

Note: Three Phase Servodrives for MAC-DE011C2 and MAC-DE021C2 motors are available.

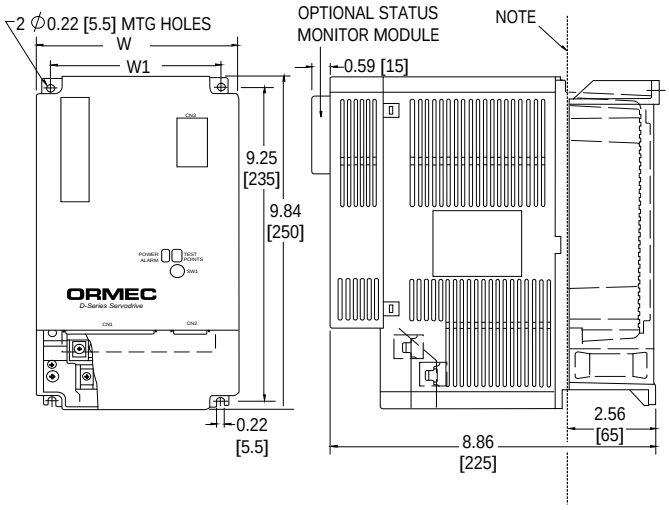
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SAC-DE01, DE02, DE03, DE04 Dimensions



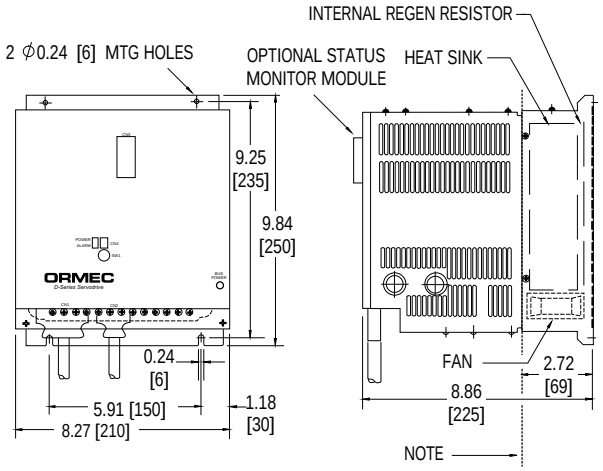
Servodrive	W	W1	D
SAC-DEO2A1	2.36 [60]	1.19 [30]	8.46 [215]
SAC-DE01A2	2.36 [60]	1.19 [30]	8.46 [215]
SAC-DE02B2	2.36 [60]	1.19 [30]	8.46 [215]
SAC-DE03B1	2.95 [75]	1.77 [45]	10.39 [264]
SAC-DE04C1	2.95 [75]	1.77 [45]	10.39 [264]
SAC-DE03C2	2.95 [75]	1.77 [45]	10.39 [264]
SAC-DE04D2	2.95 [75]	1.77 [45]	10.39 [264]

SAC-D04, D08, D12 & D19 Dimensions



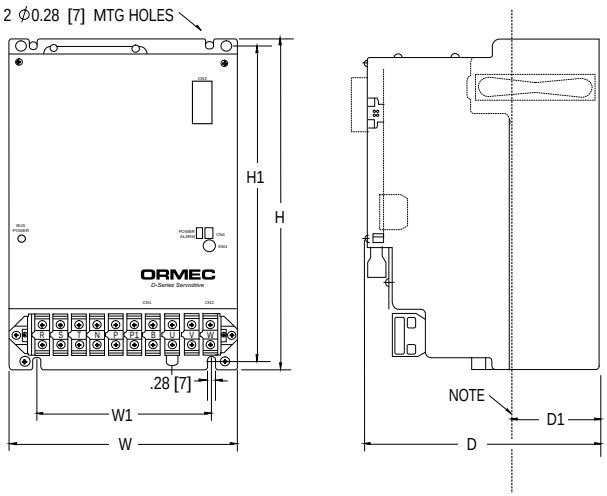
Servodrive	W	W1
SAC-D04	4.33 [110]	3.62 [92]
SAC-D08	4.33 [110]	3.62 [92]
SAC-D12	4.33 [110]	3.62 [92]
SAC-D19	5.31 [135]	4.61 [117]

SAC-D37 Dimensions



NOTE: ALTERNATE MOUNTING SURFACE REFERENCED FOR DUCT VENTILATED OPERATION

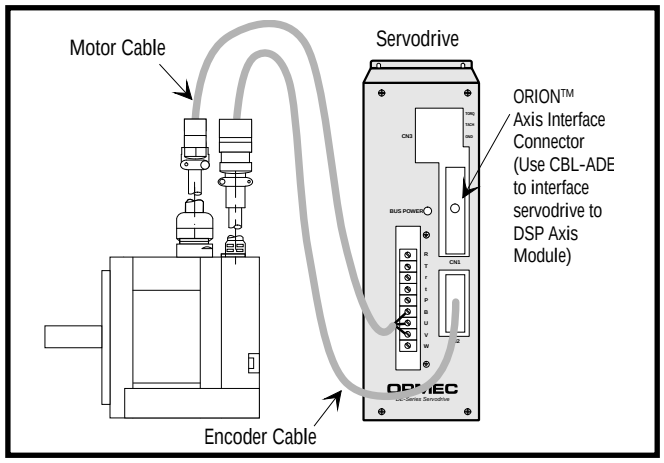
SAC-D47, D55, D59 Dimensions



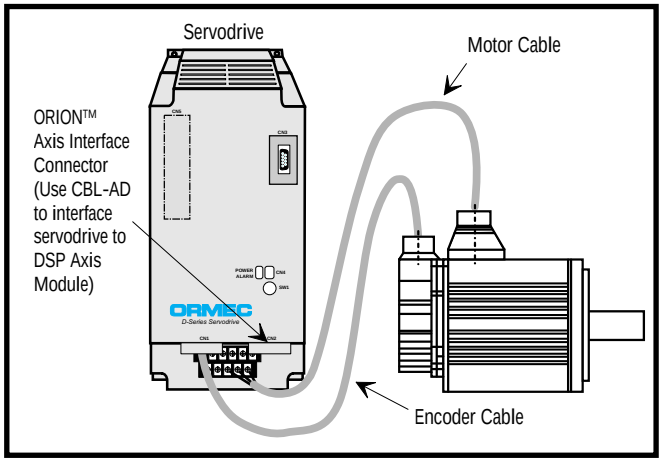
Servodrive	W	W1	H	H1	D	D1
SAC-D47	9.06 [230]	7.09 [180]	13.78 [350]	13.19 [335]	9.25 [235]	3.54 [90]
SAC-D55	9.06 [230]	7.09 [180]	13.78 [350]	13.19 [335]	9.25 [235]	3.54 [90]
SAC-D59	10.24 [160]	7.87 [200]	17.72 [450]	17.13 [435]	11.22 [285]	4.92 [125]

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D-Series Cable Ordering Guide



DE-Series Cable Interconnection Diagram



D-Series Cable Interconnection Diagram

Servomotor/Drive Interface Cables

ORMEC offers standard, 100% computer-tested servomotor, servodrive and encoder cables for reliably interfacing to all of our D & DE-series AC brushless servomotors.

Servodrive Cables

CBL-ADE/X	*Axis Interface Cable, DSP Axis Module to DE-Series servodrives, 1-50 ft*
CBL-ADET/X	*Terminal Block to DE-Series Axis Cable, 1-50 ft*
CBL-AD/X	*Axis Interface Cable, DSP Axis Module to D-Series servodrives, 1-50 ft*
CBL-ADT/X	*Terminal Block to D-Series Axis Cable, 1-50 ft*
CBL-AT/X	*Axis Interface Cable to Terminal Block Cable, 1-50 ft*

Encoder Cables

Standard	*IP-67 Option*	
CBL-DEMAC/X	*CBL-DEMACV/X*	*Encoder Cable for MAC-DE servomotors used in combination with SAC-DE servodrives, 1-150 ft*
CBL-DEMACD/X	*CBL-DEMACDV/X*	*Encoder Cable for MAC-DE servomotors used in combination with SAC-D servodrives, 1-150 ft*
CBL-DMAC/X	*CBL-DMACV/X*	*Encoder Cable for MAC-DA & MAC-DB servomotors, 1-150 ft*

DE-Series Motor Cables

Standard	*IP-67 Option*	*Brake Option*	*Brake & IP-67 Options*	
CBL-DEMAC1/X	*CBL-DEMACV1/X*	*CBL-DEMACB1/X*	*CBL-DEMACVB1/X*	*Motor Cable for MAC-DE servomotors used in combination with SAC-DE servodrives, 1-150 ft*
CBL-DEMAC2/X	*CBL-DEMACV2/X*	*CBL-DEMACB2/X*	*CBL-DEMACVB2/X*	*Motor Cable for MAC-DE011 & DE021 servomotors used in combination with SAC-D servodrives, 1-150 ft*
CBL-DEMAC3/X	*CBL-DEMACV3/X*	*CBL-DEMACB3/X*	*CBL-DEMACVB3/X*	*Motor Cable for MAC-DE042 servomotor, 1-150 ft*

D-Series Motor Cables

Standard	*IP-67 Option*	*Brake Option*	*Brake & IP-67 Options*	
CBL-DMAC1/X	*CBL-DMACV1/X*	*CBL-DMACB1/X*	*CBL-DMACVB1/X*	*Motor Cable for MAC-DA030, DA055, DB025, DB055 & DB080 servomotors, 1-150 ft*
CBL-DMAC2/X	*CBL-DMACV2/X*	*CBL-DMACB2/X*	*CBL-DMACVB2/X*	*Motor Cable for MAC-DA090, DA110 & DB200 servomotors, 1-150 ft*
CBL-DMAC3/X	*CBL-DMACV3/X*	*CBL-DMACB3/X*	*CBL-DMACVB3/X*	*Motor Cable for MAC-DA140 & DB300 servomotors, 1-150 ft*
CBL-DMAC4/X	*CBL-DMACV4/X*	*CBL-DMACB4/X*	*CBL-DMACVB4/X*	*Motor Cable for MAC-DB100 servomotor, 1-150 ft*
CBL-DMAC5/X	*CBL-DMACV5/X*	*CBL-DMACB5/X*	*CBL-DMACVB5/X*	*Motor Cable for MAC-DB330 servomotor, 1-150 ft*
CBL-DMAC6/X	*CBL-DMACV6/X*	*CBL-DMACB6/X*	*CBL-DMACVB6/X*	*Motor Cable for MAC-DB465 & DB700 servomotors, 1-150 ft*
		CBL-DMACB/X	*CBL-DMACBV/X*	*Brake Cable for MAC-DB330, DB465 & DB700 servomotors, 1-150 ft*

Note: For all cables above, specify length of the cable by adding the numerical length in the "X" placeholder in the Model Number.

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