



Guide DS03EN

# Drive Selector Guide



A complete line of proven motion control products and resources to solve your application – worldwide.

## Technology

- Stepper ●
- PMDC (brushed) ●
- BLDC (brushless) ●



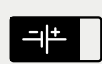



For over 60 years, ElectroCraft has been helping engineers translate innovative ideas into reality – one reliable motor at a time.

As a global specialist in custom motor and motion technology, we provide the engineering capabilities and worldwide resources you need to succeed.



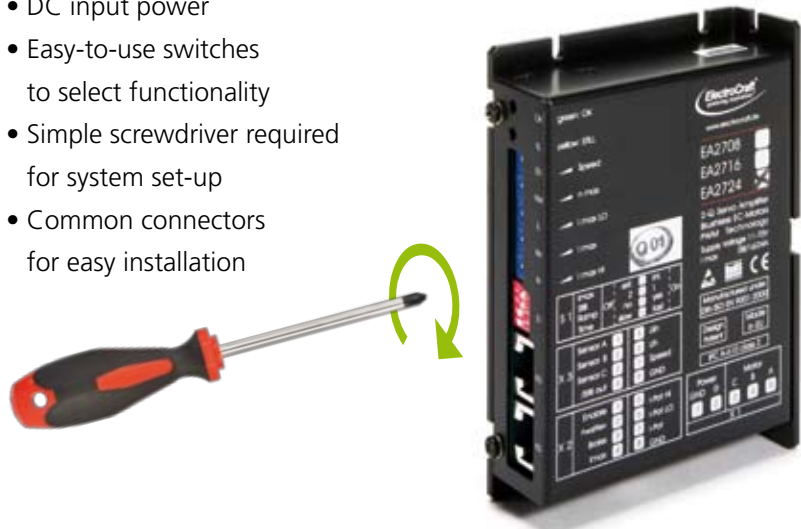
## CompletePower Drives

Simply what you need. No more, no less!

Power Input	Technology			Set-up Tools
DC 	Stepper 	PMDC (brushed) 	BLDC (brushless) 	Screwdriver

A complete line of speed controls and servo drives with a wide range of performance and feature combinations provides a range of product with the exact fit for your application. The ElectroCraft CompletePower™ drive products are ideal fit for those motion control applications that require a simple solution but must not compromise on performance. The full line of CompletePower drives feature:




- DC input power
- Easy-to-use switches to select functionality
- Simple screwdriver required for system set-up
- Common connectors for easy installation



To see a complete line of motor-based linear actuator products that connect to these drives, please visit our website at [www.electrocrafter.com](http://www.electrocrafter.com).

## CompletePower Plus Drives

Maximum flexibility ... maximum functionality!

Power Input		Technology	Set-up Tools
DC 	AC 	BLDC (brushless) 	PC + Windows® SW Interface

A full line of high performance brushless digital drives with functionality built-in to meet even the most demanding motion control applications. The ElectroCraft CompletePower™ Plus drive products provide the user the ability to configure the drive into the ideal motion solution through an intuitive computer-based user interface. The full line of CompletePower Plus drives feature:

- Both DC and AC input power
- Wide range of command input options
- High performance with Hall only or Hall and Encoder feedback
- Set-up wizard to guide installation



### BLDC

ElectroCraft RapidPower™



### Steppers

ElectroCraft TorquePower™



### Linear Actuator

ElectroCraft AxialPower™



### PMDC

ElectroCraft DirectPower™



### Transmissions

ElectroCraft MobilePower™



### Housed AC

ElectroCraft SolidPower™ Plus





















### C-Frame AC









ElectroCraft SurePower™



Model Number		SA4505	SA4510	SA4905	DA4303	DA4709	DA4718	SCA-LE-30-03
<b>CompletePower (Stepper)</b>								
Description		Low Voltage Stepper Drive	Low Voltage Stepper Drive	Low Voltage Stepper Drive	Low Voltage Servo Drive	Low Voltage Servo Drive	Low Voltage Servo Drive	Low Voltage Servo Drive
Quadrants		4	4	4	4	4	4	4
Motor Bus Voltage (VDC)		11 – 48	11 – 48	24 – 90	11 – 30	11 – 70	11 – 70	11 – 30
Input Power	Motor	11 – 48 VDC	11 – 48 VDC	24 – 90 VDC	11 – 30 VDC	11 – 70 VDC	11 – 70 VDC	11 – 30 VDC
	Logic (VDC)	5 – 24	5 – 24	5 – 24	5 – 30	5 – 30	5 – 30	-
Output Current	Peak (A <sub>RMS</sub> )	5	10	-	3	18	36	3
	Continuous (A <sub>RMS</sub> )	5	10	5	3	9	18	3
Output Power	Peak (W <sub>RMS</sub> )	240	480	450	75	1260	2520	75
	Continuous (W <sub>RMS</sub> )	240	480	450	75	630	1260	75
Control Modes		Full Step 1/2, 1/4, 1/16 step	Full Step 1/2, 1/4, 1/16 step	Full Step 1/2, 1/4, 1/16 step	Velocity Torque	Velocity Torque	Velocity Torque	Velocity
Command		1 to 5 VDC Step & Direction (250 kHz)	1 to 5 VDC Step & Direction (250 kHz)	1 to 5 VDC Step & Direction (250 kHz)	±10 VDC	±10 VDC	±10 VDC	±10 VDC
Feedback <sup>*)</sup> Single Ended <sup>*)</sup> Differential		-	-	-	1 x R Comp. Tachometer Voltage	1 x R Comp. Tachometer Voltage	1 x R Comp. Tachometer Voltage	Encoder <sup>*)</sup>
Inputs		Step Direction Enable Ext Speed (1 to +5VDC)	Step Direction Enable Ext Speed (1 to +5VDC)	Step Direction Enable	Set value Enable Ramp Tachometer I Limit (0 to +10 VDC)	Set value Enable Ramp Tachometer I Limit (0 to +10 VDC)	Set value Enable Ramp Tachometer I Limit (0 to +10 VDC)	Set value Enable Tachometer
Outputs		Fault	Fault	Fault	Fault	Speed Monitor Current Monitor Fault	Speed Monitor Current Monitor Fault	Fault
Switches / Jumpers		Micro Step (Select) Current (Select) Fallback (On / Off) Oscillator (On / Off) Oscillator x 8 (On / Off)	Micro Step (Select) Current (Select) Fallback (On / Off) Oscillator (On / Off) Oscillator x 8 (On / Off)	Micro Step (Select) Current (Select) Fallback (On / Off) Speed Set I/O Voltage Enable (Ext / Int) BCD Select (Speed / Current / Ramp)	Set Value (Ext / Int) Tachometer (On / Off) Voltage (On / Off) 1 x R Comp. (On / Off) Torque mode (On / Off)	Set Value (Ext / Int) Tachometer (On / Off) Voltage (On / Off) 1 x R Comp. (On / Off) Torque mode (On / Off) I limit (Ext / Int) I peak (On / Off)	Set Value (Ext / Int) Tachometer (On / Off) Voltage (On / Off) 1 x R Comp. (On / Off) Torque mode (On / Off) I limit (Ext / Int) I peak (On / Off)	Set Value (Ext / Ext Pot / Int) Encoder (On / Off) Encoder Frequency (Select)
Potentiometers		Speed	Speed	Speed	Offset Speed Max Gain 1 x R Comp. I Max	Offset Speed Max Gain 1 x R Comp. I Max	Offset Speed Max Gain I Max	Offset Speed Max Gain 1 x R Comp. I Max
Display		2-Color LED Power / Fault	2-Color LED Power / Fault	2-Color LED Power / Fault	2-Color LED Power / Fault	2-Color LED Power / Fault	2-Color LED Power / Fault	2-Color LED Power / Fault
Communication		-	-	-	-	-	-	-
Regen / Braking		-	-	-	Active External	Active External	Active External	Active External
Motor Types		Stepper	Stepper	Stepper	Brushed (PMD) Linear / Voice Coil	Brushed (PMD) Linear / Voice Coil	Brushed (PMD) Linear / Voice Coil	Brushed (PMD) Linear / Voice Coil
Switching Freq (kHz)		50	50	50	Linear	50	50	Linear
Interface Power Available		+5 VDC @ 50 mA	+5 VDC @ 50 mA	+5 VDC @ 50 mA	±10VDC @ 10mA	+5VDC @ 50mA ±10VDC @ 20mA	+5VDC @ 50mA ±10VDC @ 20mA	+5 VDC @ 100 mA ±3.9 VDC @ 20 mA
Compliance	Safety / EMC	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)
	Environmental	RoHS	RoHS	RoHS	RoHS	RoHS	RoHS	RoHS
Temp. Range	Operating (°C)	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45
	Storage (°C)	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85
Dimensions	Imperial (in)	4.69 x 3.35 x 1.08	4.69 x 3.35 x 1.08	4.69 x 3.35 x 1.08	4.13 x 2.56 x 1.08	4.69 x 3.35 x 1.08	4.69 x 3.35 x 1.08	4.76 x 3.94 x 1.57
	Metric (mm)	119 x 85 x 28	119 x 85 x 28	119 x 85 x 28	105 x 65 x 28	119 x 85 x 28	120 x 85 x 28	121 x 100 x 40
Weight	Imperial (oz)	7.05	7.76	7.76	4.94	7.76	7.76	13.4
	Metric (g)	200	220	220	140	220	220	380
Connections		RJ-45 Screwless Terminals	RJ-45 Screwless Terminals	RJ-45 Screwless Terminals	RJ-45 Screwless Terminals	RJ-45 Screwless Terminals	RJ-45 Screwless Terminals	Removable Terminals
Set-up Tools		Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver
Additional Features		Anti-Resonance Anti-Noise	Anti-Resonance Anti-Noise	Anti-Resonance Anti-Noise				

								
SCA-LS-30-03	SCA-SE-30-06	SCA-SS-30-06	SCA-SS-70-10	SCA-SS-70-30	EA2506	EA2708	EA2716	EA2724
CompletePower (PMDC)								
Low Voltage Servo Drive	Low Voltage Servo Drive	Low Voltage Servo Drive	Low Voltage Servo Drive	Low Voltage Servo Drive	Low Voltage Speed/Torque Control	Low Voltage Speed Control	Low Voltage Speed Control	Low Voltage Speed Control
4	4	4	4	4	2	2	2	2
11 – 30	11 – 30	11 – 30	11 – 70	11 – 70	11 – 50	11 – 70	11 – 70	11 – 70
11 – 30 VDC	11 – 30 VDC	11 – 30 VDC	11 – 70 VDC	11 – 70 VDC	11 – 50 VDC	11 – 70 VDC	11 – 70 VDC	11 – 70 VDC
-	-	-	-	-	5 – 30	5 – 30	5 – 30	5 – 30
3	6	6	20	60	6	8	16	24
3	6	6	10	30	6	8	16	24
75	150	150	1400	4200	300	560	1120	1680
75	150	150	700	2100	300	560	1120	1680
Velocity Torque	Velocity	Velocity Torque	Velocity / Torque Analog Position	Velocity / Torque Analog Position	Velocity Torque	Velocity	Velocity	Velocity
±10 VDC	±10 VDC	±10 VDC	±10 VDC	±10 VDC	0 to +10 VDC	0 to +5 VDC	0 to +5 VDC	0 to +5 VDC
I x R Comp. Tachometer Voltage	Encoder*	I x R Comp. Tachometer Voltage	I x R Comp. Tachometer Voltage Encoder*	I x R Comp. Tachometer Voltage Encoder*	Hall	Hall	Hall	Hall
Set value Enable	Set value Enable	Set value Enable	Set value Enable Tachometer Disable Forward Disable Reverse	Set value Enable Tachometer Disable Forward Disable Reverse	Set value Direction Enable Brake	Direction Enable Brake	Speed / Direction Enable Brake	Speed / Direction Enable Brake
Tachometer	Tachometer	Tachometer			I Limit (0 to +10 VDC) I Limit Ext Pot	I Limit (0 to +10 VDC) I Limit Ext Pot	I Limit (0 to +10 VDC) I Limit Ext Pot	I Limit (0 to +10 VDC) I Limit Ext Pot
Fault	Fault	Fault	Speed Monitor Current Monitor Ready Fault	Speed Monitor Current Monitor Ready Fault	Current Monitor Fault	Rotate / Still	Rotate / Still	Rotate / Still
Set Value (Ext / Ext Pot / Int) Tachometer (On / Off) Voltage (On / Off) I x R Comp. (On / Off) Torque mode (On / Off)	Set Value (Ext/Ext Pot/Int) Encoder (On / Off) Encoder Frequency (Select)	Set Value (Ext / Ext Pot / Int) Tachometer (On / Off) Voltage (On / Off) I x R Comp. (On / Off) Torque mode (On / Off)	Set Value (Ext / Ext Pot) Tachometer (On / Off) Voltage (On / Off) I x R Comp. (On / Off) Torque mode (On / Off) Encoder (On / Off) Analog Position (On / Off) I Max (Select)	Set Value (Ext / Ext Pot) Tachometer (On / Off) Voltage (On / Off) I x R Comp. (On / Off) Torque mode (On / Off) Encoder (On / Off) Analog Position (On / Off) I Max (Select)	Set Value (Ext / Int) Mode (Speed / Torque) Vel. Loop Time (Fast / Slow) Enable Internal (On / Off)	I Limit (Ext / Int) Still (High / Low) Ramp (Yes / No) Ramptime (Slow / Fast)	I Limit (Ext / Int) Still (High / Low) Ramp (Yes / No) Ramptime (Slow / Fast)	I Limit (Ext / Int) Still (High / Low) Ramp (Yes / No) Ramptime (Slow / Fast)
Offset Speed Max Gain I x R Comp. I Max	Offset Speed Max Gain I x R Comp. I Max	Offset Speed Max Gain I x R Comp. I Max	Offset Speed Max Gain I x R Comp. I Max	Offset Speed Max Gain I x R Comp. I Max	Motor Speed Speed Max I Max Ramp	Motor Speed Speed Max I Max I Max LO I Max HI	Motor Speed Speed Max I Max I Max LO I Max HI	Motor Speed Speed Max I Max I Max LO I Max HI
2-Color LED Power / Fault	2-Color LED Power / Fault	2-Color LED Power / Fault	2-Color LED Power / Fault	2-Color LED Power / Fault	2-Color LED Power / Fault	2-Color LED Power / Still	2-Color LED Power / Still	2-Color LED Power / Still
-	-	-	-	-	-	-	-	-
Active External	Active External	Active External	Active External	Active External	-	-	-	-
Brushed (PMDC) Linear / Voice Coil	Brushed (PMDC) Linear / Voice Coil	Brushed (PMDC) Linear / Voice Coil	Brushed (PMDC) Linear / Voice Coil	Brushed (PMDC) Linear / Voice Coil	Brushless (BLDC) Linear	Brushless (BLDC) Linear	Brushless (BLDC) Linear	Brushless (BLDC) Linear
Linear	50	50	49	49	50	20	20	20
±3.9VDC @ 20mA	+5VDC @ 100mA ±3.9VDC @ 20mA	±3.9 VDC @ 20 mA	+5 VDC @ 100 mA ±15 VDC @ 20 mA	+5 VDC @ 100 mA ±15 VDC @ 20 mA	+5VDC @ 20mA +10VDC @ 10mA	+6 VDC @ 20 mA	+6 VDC @ 20 mA	+6 VDC @ 20 mA
CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)
RoHS	RoHS	RoHS	RoHS	RoHS	RoHS	RoHS	RoHS	RoHS
-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45
-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85
4.76 x 3.94 x 1.57	4.76 x 3.94 x 1.57	4.76 x 3.94 x 1.57	7.09 x 3.94 x 1.57	7.87 x 3.94 x 3.15	3.66 x 2.19 x .89	4.69 x 3.35 x 1.08	4.69 x 3.35 x 1.08	4.69 x 3.35 x 1.08
121 x 100 x 40	121 x 100 x 40	121 x 100 x 40	180 x 100 x 40	200 x 100 x 80	93 x 56 x 23	120 x 85 x 28	121 x 85 x 28	122 x 85 x 28
11.64	13.73	12.0	26.1	40.57	4.23	7.4	7.4	7.4
330	390	340	740	1150	120	210	210	210
Removable Terminals	Removable Terminals	Removable Terminals	Removable Terminals	Removable Terminals	RJ-45 Screwless Terminals	RJ-45 Screwless Terminals	RJ-45 Screwless Terminals	RJ-45 Screwless Terminals
Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver

								
SCO-B1-40-05-01	SCO-B1-50-18	SCO-B1-50-40	SCO-B1-60-18	SCP-B1-40-05	SCP-B1-40-05-77	SCP-B1-50-10	EA4709	EA4718
CompletePower (BLDC)								
Low Voltage Speed Control	Low Voltage Speed Control	Low Voltage Speed Control	Low Voltage Speed Control	Low Voltage Speed Control	Low Voltage Speed Control	Low Voltage Speed Control	Low Voltage Servo Drive	Low Voltage Servo Drive
2	2	2	2	2	2	2	4	4
12 – 40	20 – 50	20 – 50	30 - 60	12 – 40	12 – 40	20 – 50	9 –70	9 – 70
12 – 40 VDC	20 – 50 VDC	20 – 50 VDC	30 - 60 VDC	12 – 40 VDC	12 – 40 VDC	20 – 50 VDC	9 –70 VDC	9 – 70 VDC
-	-	-	-	-	-	-	5 – 30	5 – 30
5	18	40	18	5	5	10	18	36
5	18	40	18	5	5	10	9	18
175	900	2000	1080	150	150	475	1260	2520
175	900	2000	1080	150	150	475	630	1260
Velocity	Velocity	Velocity	Velocity	Velocity	Velocity	Velocity	Velocity / Torque PWM	Velocity / Torque PWM
0 to +5 VDC	0 to +5 VDC	0 to +5 VDC	0 to +5 VDC	0 to +5 VDC	0 to +10 VDC	0 to +5 VDC	±10 VDC	±10 VDC
Hall	Hall	Hall	Hall	Hall	Hall	Hall	Hall Encoder*	Hall Encoder*
Set Value Disable Direction Brake	Set value Disable Direction	Set value Disable Direction	Set value Disable Direction	Set Value Disable Direction	Set Value Disable Direction	Set Value Disable Direction	Set value Enable	Set value Enable
-	-	-	-	-	-	-	Speed Monitor Current Monitor Fault	Speed Monitor Current Monitor Fault
-	-	-	-	-	-	-	PWM (On / Off) Hall (On / Off) Encoder (On / Off) Torque (On / Off) Set Value (Offset/Ext) Phase (120° / 60°) I Peak (On / Off) Enable (On / Off)	PWM (On / Off) Hall (On / Off) Encoder (On / Off) Torque (On / Off) Set Value (Offset / Ext) Phase (120° / 60°) I Peak (On / Off) Enable (On / Off)
Motor Speed Current Max Speed Max	Motor Speed Current Max Speed Max	Motor Speed Current Max Speed Max	Motor Speed Current Max Speed Max	Motor Speed Current Max Speed Max	Motor Speed Current Max Speed Max	Motor Speed Current Max Speed Max	Offset Scale Gain I Max Time	Offset Scale Gain I Max Time
-	-	-	-	-	-	-	2-Color LED Power / Fault	2-Color LED Power / Fault
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	Active External	Active External
Brushless (BLDC) Linear	Brushless (BLDC) Linear	Brushless (BLDC) Linear	Brushless (BLDC) Linear	Brushless (BLDC) Linear	Brushless (BLDC) Linear	Brushless (BLDC) Linear	Brushless (BLDC) Linear	Brushless (BLDC) Linear
20	20	20	20	20	20	20	50	50
+6 VDC @ 20 mA	+6 VDC @ 20 mA	+6 VDC @ 20 mA	+6 VDC @ 20 mA	+6 VDC @ 20 mA	+6 VDC @ 20 mA	+6 VDC @ 20 mA	+5 VDC @ 50 mA ±10 VDC @ 10 mA	+5 VDC @ 50 mA ±10 VDC @ 10 mA
CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)
	RoHS	RoHS	RoHS				RoHS	RoHS
-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45	-10 to +45
-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85
3.54 x 1.97 x 1.18	6.69 x 3.54 x 1.77	6.69 x 3.54 x 1.77	6.69 x 3.54 x 1.77	3.7 x 2.16 x 1.3	3.7 x 2.16 x 1.3	3.7 x 2.16 x 1.54	4.69 x 3.35 x 1.08	4.69 x 3.35 x 1.08
90 x 50 x 30	170 x 90 x 45	170 x 90 x 45	170 x 90 x 45	94 x 55 x 33	94 x 55 x 33	94 x 55 x 39	120 x 85 x 28	120 x 85 x 28
4.41	13.4	14.1	13.4	3.88	3.88	4.94	7.4	7.4
125	380	400	380	110	110	140	210	210
Screw Terminals	Screw Terminals	Screw Terminals	Screw Terminals	Removable Terminals	Removable Terminals	Removable Terminals	RJ-45 Screwless Terminals	RJ-45 Screwless Terminals
Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver	Screwdriver

							
SCA-B4-70-10	SCA-B4-70-30	ACS100	ACS200	ACS300	ACE500	ACE1200	ACE1300
CompletePower Plus (BLDC)							
Low Voltage Servo Drive	Low Voltage Servo Drive	Low Voltage Digital Servo Drive	Low Voltage Digital Servo Drive	Low Voltage Digital Servo Drive	High Voltage Digital Servo Drive	High Voltage Digital Servo Drive	High Voltage Digital Servo Drive
4	4	4	4	4	4	4	4
11 – 70	11 – 70	24 – 48	24 – 48	24 – 48	120 – 360	90 – 400	90 – 400
11 – 70 VDC	11 – 70 VDC	24 – 48 VDC	24 – 48 VDC	24 – 48 VDC	90 – 254 VAC / 1ø	90 – 254 VAC / 1 or 3ø	90 – 254 VAC / 1 or 3ø
-	-	12 – 48	12 – 48	12 – 48	5 (user supplied)	5 (user supplied)	5 (user supplied)
20	60	7	10	20	11	14	21
10	30	3.5	5	11	5	7	14
1400	4200	336	480	960	3960	5600	8400
700	2100	168	240	528	1625	2275	4550
Velocity Torque	Velocity Torque	Velocity / Torque Position	Velocity / Torque Position	Velocity / Torque Position	Velocity / Torque Position	Velocity / Torque Position	Velocity / Torque Position
±10 VDC	±10 VDC	±10 VDC Step / Direction (2 MHz) PWM RS232	±10 VDC Step / Direction (2 MHz) PWM RS232	±10 VDC Step / Direction (2 MHz) PWM RS232	±10 VDC Step / Direction (2 MHz) PWM RS232	±10 VDC PWM RS232	±10 VDC PWM RS232
Hall Encoder*	Hall Encoder*	Hall only Encoder* + Hall Analog	Hall only Encoder* + Hall Analog	Hall only Encoder* + Hall Analog	Hall only Encoder* + Hall Analog	Hall only Encoder* + Hall Analog	Hall only Encoder* + Hall Analog
Set Value (±10 VDC) Enable	Set Value (±10 VDC) Enable	Command Enable Aux. Analog (±10 VDC) Run / Standby	Command Enable Aux. Analog (±10 VDC) Run / Standby	Command Enable Aux. Analog (±10 VDC) Run / Standby	Command Enable Aux. Analog (±10 VDC) Run / Standby Brake	Command Enable Aux. Analog (0 to +10 VDC) Run / Standby Brake	Command Enable Aux. Analog (0 to +10 VDC) Run / Standby Brake
Speed Monitor Current Monitor Fault	Speed Monitor Current Monitor Fault	Enabled Fault	Enabled Fault	Enabled Fault	Enabled Fault  Tach (Pulse Gen)	Encoder out Enabled Fault Motor Over-temp. Tach (Pulse Gen)	Encoder out Enabled Fault Motor Over-temp. Tach (Pulse Gen)
Hall (On / Off) Encoder (On / Off) Torque (On / Off) Set Value (Offset / Ext) Phase (120° / 60°) Comm. Timing (Select) Max Speed (Select)	Hall (On / Off) Encoder (On / Off) Torque (On / Off) Set Value (Offset / Ext) Phase (120° / 60°) Comm. Timing (Select) Max Speed (Select)	-	-	-	-	-	-
Offset Speed Max Gain course Gain fine I Max	Offset Speed Max Gain course Gain fine I Max	-	-	-	-	-	-
2-Color LED Power / Fault	2-Color LED Power / Fault	Power - LED Status - LED	Power - LED Status - LED	Power - LED Status - LED	Power Motor - LED Power Logic - LED Fault Status - LED Shunt Status - LED I Limit - LED	Power Motor - LED Power Logic - LED Fault Status - LED Shunt Status - LED I Limit - LED	Power Motor - LED Power Logic - LED Fault Status - LED Shunt Status - LED I Limit - LED
-	-	RS232 CAN (Read / Write)	RS232 CAN (Read / Write)	RS232 CAN (Read / Write)	RS232	RS232	RS232
Active External	Active External	Active External	Active External	Active External	Passive External	Internal Passive External	Internal Passive External
Brushless (BLDC) Linear	Brushless (BLDC) Linear	Brushless (BLDC) Linear / Voice Coil	Brushless (BLDC) Linear / Voice Coil	Brushless (BLDC) Linear / Voice Coil	Brushless (BLDC) Linear / Voice Coil	Brushless (BLDC) Linear / Voice Coil	Brushless (BLDC) Linear / Voice Coil
49	49	40 / 20 center-aligned	40 / 20 center-aligned	40 / 20 center-aligned	30 / 15 center-aligned	30 / 15 center-aligned	30 / 15 center-aligned
+5 VDC @ 100 mA ±15 VDC @ 20 mA	+5 VDC @ 100 mA ±15 VDC @ 20 mA	+5 VDC @ 250 mA	+5 VDC @ 250 mA	+5 VDC @ 250 mA	+5 VDC @ 250 mA	+5 VDC @ 250 mA	+5 VDC @ 250 mA
CE (EN61800-3) CE (EN61800-5)	CE (EN61800-3) CE (EN61800-5)				UL 1950 CSA 22.2.14 CE (IEC 60950)	UL 1950 CSA 22.2.14 CE (IEC 60950)	UL 1950 CSA 22.2.14 CE (IEC 60950)
RoHS	RoHS	RoHS	RoHS	RoHS	RoHS		
-10 to +45	-10 to +45	0 to +50	0 to +50	0 to +50	0 to +50	0 to +50	0 to +50
-40 to +85	-40 to +85	-20 to +85	-20 to +85	-20 to +85	-20 to +85	-20 to +85	-20 to +85
7.87 x 3.94 x 1.57	7.87 x 3.94 x 3.14	4.5 x 3.0 x 1.0	4.5 x 3.0 x 1.0	5.25 x 3.38 x 1.03	6.9 x 5.2 x 1.95	11.1 x 6.68 x 4.7	11.1 x 6.68 x 4.7
200 x 100 x 40	200 x 100 x 80	114 x 76 x 24	114 x 76 x 24	133 x 86 x 26	175 x 132 x 50	282 x 170 x 119	282 x 170 x 119
20.4	40.6	6.5	6.5	7.8	30	94	94
580	1150	184	184	222	862	2676	2676
Removable Terminals	Removable Terminals	Removable Mini Removable Molex	Removable Mini Removable Molex	Removable Mini Screw Terminals	DB-Style Removable Terminals	DB-Style Removable Terminals	DB-Style Removable Terminals
Screwdriver	Screwdriver	Windows S/W Interface	Windows S/W Interface	Windows S/W Interface	Windows S/W Interface	Windows S/W Interface	Windows S/W Interface
		Oscilloscope Real-time Tuning Set-up Wizard	Oscilloscope Real-time Tuning Set-up Wizard	Oscilloscope Real-time Tuning Set-up Wizard	Oscilloscope Real-time Tuning Set-up Wizard	Oscilloscope Real-time Tuning Set-up Wizard	Oscilloscope Real-time Tuning Set-up Wizard