

## CONTROLLERS

### EC-2000HP (HIGH POWER)



#### Description

The EC-2000HP power control board has been designed to allow the use of off-board power conversion assemblies for other output voltages and current ratings. A complete open sub panel design, based on the standard Mark-III base, has been assembled into a compact basic controller that can be used for applications requiring output currents of up to 32-amperes at voltages of 50, 100, or 200 volts. These standard panels may also be supplied in NEMA enclosures or used as a basis for special engineered applications. These assemblies may be used as direct replacements for many standard and pre-engineered Mark-III and 4-58 controllers. Special high voltage, low current units are also available for replacement of the old V3A4, MA-440 and Louis Allis MD-9S controllers, permitting operation with coils rated to 220-volts at 2-amperes.

#### Features & Benefits

- Speed – Torque Mode Select
- Manual – Automatic Signal Follower
- Local – Remote Operation
- Separately Adjustable Jog Input
- Two Channel Analog Signal Output
- Programmable Control parameters
- Manual Reference Potentiometer
- Digital Reference from Local Keypad
- Preset Control References
- Torque Limit Motor Protection
- Two Channel Meter Functions
- Password Security Protection

## **CONTROLLERS STANDARD CONFIGURATIONS**

### **1000-SERIES STANDARD OPEN PANEL SUB ASSEMBLIES**

The EC-2000-HP control panels listed above are configured as open sub panel assemblies. The base panel measures 18.50-inches high by 9.38-inches wide by 6.12-inches deep and is physically interchangeable with the Mark-III size 1, 2, 5, and 6 controllers. The basic 32-amp control units are jumper programmable for maximum output current ratings of 32-, 24-, and 16-amps, while the 8-amp units may be jumpered for 8-, 5.5-, and 4-amp maximum output current, expanding the list to fifteen standard sub panel controllers.

### **2000-SERIES AUGMENTED OPEN PANEL ASSEMBLIES**

The standard sub panel controller may be mounted on the large Mark-III panel with an isolation step down transformer and a customer terminal block. This panel measures 23.00-inches high by 22.00-inches wide and is physically interchangeable with the Mark-III size 3, 4, 7, and 8 controllers. These assemblies are limited to controllers with ratings of 4-kva or less.

### **3000-SERIES NEMA-12 ENCLOSED ASSEMBLIES WITHOUT TRANSFORMERS**

All standard sub panel controllers may be mounted in a NEMA-12 enclosure. All enclosed units are shipped complete with a door mounted, gasketed keypad/display unit. This 3000-series assembly does not include any step down or isolation transformer.

### **4000-SERIES NEMA-12 ENCLOSED ASSEMBLIES WITH TRANSFORMERS**

All standard sub panel units may be mounted in a NEMA-12 enclosure, complete with a door mounted, gasketed keypad/display unit, and a properly sized step-down isolation transformer. Smaller transformers are panel mounted. Transformers above 4-kva are mounted on the enclosure floor. Larger enclosures may be fitted with floor mounting kits.

### **5000-SERIES SPECIAL ENGINEERED ASSEMBLIES**

Controllers for application-specific functions, or those requiring modifications to the standard features, are specified by adding an "E" prefix to the standard catalog number, along with a description of the required control functions. Part numbers indicating a 5000-series engineered controller will be assigned by our engineering department.

### **ORDERING CURRENT TRANSFORMERS AND STEP-DOWN TRANSFORMERS**

Current transformers and step-down power transformers must be specified and purchased as separate line items when specifying a 1000-series or 3000-series control assembly. A step-down isolation transformer is included as part of a standard 2000-series open panel assembly, 4000-series NEMA-12 enclosed assembly, or 5000-series engineered package when the transformer is part of the specification. The cost of the included step-down transformer is included in the selling price of the controller. However, the current transformer must be specified and purchased as a separate line item, specifying the motor current rating.

## CONTROLLERS STANDARD CONTROL ASSEMBLIES

### FULL WAVE BRIDGE CONFIGURATION

These complete controllers provide for the most economical solution by connecting directly to 120-VAC or 240-VAC power mains without the use of transformers. The 50-VDC controller is not available in the bridge configuration.

Basic Panel	Volts In	Volts Out	Amps Out
EC-42008-1000	240 VAC	200 VDC	4, 5.5, 8 ADC
EC-41032-1000	120 VAC	100 VDC	16, 24, 32 ADC
EC-42032-1000	240 VAC	200 VDC	16, 24, 32 ADC

### FULL WAVE CENTER-TAPPED CONFIGURATION

These controllers require the use of a center-tapped transformer and feature the same power conversion scheme as the original Mark-III. The transformer provides step down and complete isolation from the high line mains, allowing the power assembly to be grounded.

Basic Panel	Volts In	Volts Out	Amps Out
EC-20532-1000	120 V CT	50 VDC	16, 24, 32 ADC
EC-21032-1000	240 V CT	100 VDC	16, 24, 32 ADC

### EC-2000-HP Panel Number Structure

0 1 5 - 0 A B B 3 2 - C D E E

**Yellow** = Electronic Assembly Designation

A: Power Converter Configuration. Number of controlled SCR's: "2" indicates Center-Tap configuration, "4" is Bridge configuration

BB: Panel Output Voltage Rating. "05" = 50-VDC, "10" = 100-VDC, "20" = 200-VDC

**Blue** = Basic Panel Current Rating

C: Panel Enclosure Configuration.

“1” = Standard Mark-III type open sub panel assembly

“2” = Standard sub panel assembly mounted on Large Mark-III panel with Transformer and Terminal Block

“3” = Standard sub panel assembly mounted in NEMA-12 Enclosure WITHOUT Transformer

“4” = Standard sub panel assembly mounted in NEMA-12 Enclosure WITH Transformer

5” = Special Engineered assembly per specification

D: Modification ID. “0” = Standard universal configuration

E: Assembly Current Rating. “16” = 16-amps, “24” = 24-amps, “32” = 32-amps

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### STANDARD CONTROLLER ENGINEERING INFORMATION

PREFERRED CONFIGURATIONS:	50-VDC Output:	EC-20532-1000
	100-VDC Output:	EC-41032-1000
	200-VDC Output:	EC-42008-1000
		EC-42032-1000

### NEMA-12 ENCLOSURE SIZES & TRANSFORMERS

Basic Panel	Panel P/N	DCV Out	DCA Out	Enclosure Size and Transformer			
EC-41032-1000	015-041032-1016	100-VDC	16-ADC	1	None	3	64-429
EC-41032-1000	015-041032-1024	100-VDC	24-ADC	2	None	4	64-401
EC-41032-1000	015-041032-1032	100-VDC	32-ADC	3	None	*	64-402
EC-42008-1000	015-042008-1004	200-VDC	4-ADC	1	None	2	64-362
EC-42008-1000	015-042008-1006	200-VDC	5.5-ADC	1	None	3	64-428
EC-42008-1000	015-042008-1008	200-VDC	8-ADC	1	None	3	64-428
EC-42032-1000	015-042032-1016	200-VDC	16-ADC	2	None	*	64-431
EC-42032-1000	015-042032-1024	200-VDC	24-ADC	3	None	*	(2) 64-401
EC-42032-1000	015-042032-1032	200-VDC	32-ADC	3	None	*	(2) 64-402

### FULL WAVE CENTER-TAPPED CONFIGURATION

Basic Panel	Panel P/N	DCV Out	DCA Out	Enclosure Size and Transformer			
EC-20532-1000	015-020532-1016	50-VDC	16-ADC	1	(None)	2	64-429
EC-20532-1000	015-020532-1024	50-VDC	24-ADC	1	(None)	3	64-430
EC-20532-1000	015-020532-1032	50-VDC	32-ADC	1	(None)	4	64-401
EC-21032-1000	015-021032-1016	100-VDC	16-ADC	1	(None)	3	64-431
EC-21032-1000	015-021032-1024	100-VDC	24-ADC	1	(None)	4	64-431
EC-21032-1000	015-021032-1032	100-VDC	32-ADC	2	(None)	*	64-432

Encl. Size	Area (Sq. In.)	Size (H-W-D)	DSI Part No.
1	1840	24x20x10	31-672
2	2304	24x24x12	31-662
3	3744	36x30x12	31-630
4	6144	48x36x16	31-647

*Consult factory for alternate cooling options.*

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### STANDARD CURRENT TRANSFORMERS FOR USE WITH THE EC-2000 AND EC-2000HP

Drive Source International, Inc. offers four standard motor current transformer assemblies for use with the EC-2000 and EC-2000HP controllers for motors with full load current ratings to 500 amps. These current transformers may also be used with the 4000/4050 and DSI-700 controllers.

Current Transformer p/n	Motor FLA
015-000203-0003	0-70 amps
015-000203-0125	60-125 amps
015-000203-0250	125-250 amps
015-000203-0500	250-500 amps

The motor full load current rating is necessary to order the proper current transformer. The actual motor full load amps (FLA) may be obtained from the motor name plate. If this information is not available, enter the TYPICAL MOTOR FULL LOAD CURRENT table below with the motor horsepower rating and line voltage to determine the typical motor current.

Specify actual line voltage and motor HP when ordering. (Example: 230V or 460V, not 230/460V)

### Typical Motor Full Load Current

3 Phase AC Induction Type – Squirrel Cage and Wound Rotor				
HP	200V	230V	460V	575V
0.5	2.3	2	1	0.8
0.75	3.2	2.8	1.4	1.1
1	4.15	3.6	1.8	1.4
1.5	6	5.2	2.6	2.12
2	7.8	6.8	3.4	2.7
3	11	9.6	4.8	3.9
5	17.5	15.2	7.6	6.1
7.5	25	22	11	9
10	32	28	14	11
15	48	42	21	17
20	62	54	27	22
25	78	68	34	27
30	92	80	40	32
40	120	104	52	41
50	150	130	65	52
60	177	154	77	62
75	221	192	96	77
100	285	248	124	99
125	358	312	156	125
150	415	360	180	144
200	550	480	240	192