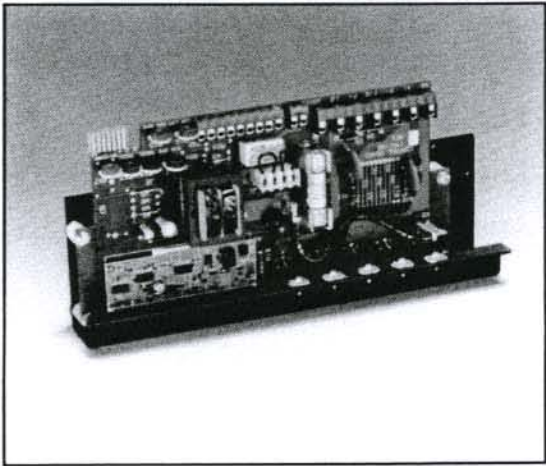


BETA II

Angle Bracket Chassis Single-Phase Adjustable Speed DC Motor Controller 1/6-2 HP



Boston Gear BETA II Series Controllers are high quality, economically priced, general purpose controllers that feature static conversion of AC line power to regulated DC for adjustable speed armature control of shunt wound and permanent magnet DC motors. This controller features the extensive use of miniature components in a high technology, surface mount assembly providing enhanced reliability and significantly expanded features. These controllers are furnished on a unique "angle bracket" heatsink/mounting bracket which allows for close proximity mounting, requiring only two screws. The compact package is designed for a wide range of OEM applications and panel builders.

Standard Features

- UL Listed/CSA Approved
- 115/230 VAC Dual Input*
- 50 or 60 Hz Operation
- Dual Voltage Field Supply*
- Transient Protected
- Static (Contactorless) Run-Stop Models
- Optional Armature Contactor Control— Includes Dynamic Braking Resistor
- Suitable for Pushbutton Control
- Line Starting*
- Hybrid Circuit Board
- Surface-Mounted Miniature Components
- 1/6 thru 2 HP*
- Control Transformer
- Adjustable Linear Acceleration
- Adjustable Linear Deceleration
- CEMF Feedback with IR Compensation
- Power Loss Interlock Circuit
- Full Wave Conversion – NEMA Code K
- DC Tach. Feedback Circuit on Unidirectional Drives
- Load Sensing Signal*
- Speed/Torque Mode*

* = User-selected modifications

Ratings

Chassis 1/6 thru 1 HP @ 115 VAC
 1/2 thru 2 HP @ 230 VAC
 Service Factor 1.0
 Duty Continuous
 Overload Capacity (Armature).. 150% for 1 min.
 Run Speed Potentiometer..... 5 K ohms 1/2 W
 Reference Power Supply..... 10 VDC
 AC Line Fuse, Interrupting
 Capacity..... 100,000 Amperes

Operating Voltages

Power Source (single-phase)	Output VDC		Control Reference Voltage	Magnetic Control Voltage
	Armature	Field		
115V, 50 or 60 Hz	0-90	50/100	10 VDC	24 VDC
230V, 50 or 60 Hz	0-180	100/200		

Operating Conditions

Line Voltage: 115/230 –1–50/60 ($\pm 10\%$)
Line Freq. Variation: ± 2 Hz
Ambient Temp.: Chassis: 0° to 55° C (32°–131°F)
Altitude: 3300 ft. (1000 meters) maximum
Relative Humidity: 0–95%, non-condensing

Performance

Speed Range: 0 to Base Speed
Speed Range at Specified Regulation: 50:1 (Standard IR Comp.)
 200:1 (with Tach. Feedback)

Regulation Method	Variable				Speed Range
	Load Change 95%	Line Voltage $\pm 10\%$	Field Heating Cold/Normal	Temperature $\pm 10^\circ\text{C}$	
Voltage Feedback with IR Compensation	2%	$\pm 1\%$	5–12%	$\pm 2\%$	50:1
Tach Feedback ⁽¹⁾	0.5%	$\pm 1\%$	0.2%	$\pm 2\%$	200:1

(1) Unidirectional Models Only

Efficiencies: Controller - 99%
 Drive & Motor - 85%

Displacement

Power Factor: 87% at rated load and speed

Adjustments

Accel. Time: 0.2–40 sec
Decel. Time: 0.2–40 sec
Min. Speed: 0–40% of Base Speed
Max. Speed: 50–100% of Base Speed
IR (Load) Compensation: 0–100% of Rated Load
Current Limit: 0–150% of Full Load Torque

Model Types and Selection

Consisting of three models, the BETA II offers a basic run/stop unit with the choice of additional armature contactor assemblies. All models require the use of remote operator controls.

ORDER BY CATALOG NUMBER OR ITEM CODE

Item Code	Catalog Number	Line Voltage HP Range (i)		Construction Angle Bracket Chassis	Function			Operator's Controls Remote
		115 VAC	230 VAC		Run/ Stop	Arm. Cont. Run/Stop W/DB	Arm. Cont. Rev. W/DB	
57854	RBA2C	1/6-1	1/2-2	X	X			X
57855	RBA2CU			X		X		X
57856	RBA2CM			X			X	X

(i) Note: All units are shipped calibrated for the maximum horsepower ratings shown. Units may be calibrated for other standard ratings by the removal of appropriate resistance wires. Units are connected for 230 VAC and are easily reconnected for 115 VAC input.

Electrical Data

Component			Ratings							
Rated Horsepower (HP)			1/6	1/4	1/3	1/2	3/4	1	1-1/2	2
Rated Kilowatts (kW)			0.124	0.187	0.249	0.373	0.560	0.746	1.120	1.492
1-Phase AC Input (Full-Load)	Line Amps	115 VAC	3.9	5.0	6.0	8.7	12.4	15.8	–	–
		230 VAC	–	–	–	4.2	5.9	8.8	12.6	15.8
	KVA		0.48	0.58	0.71	1.00	1.40	2.00	3.00	4.00
DC Output (Full-Load)	Motor Armature Amps	90V	2.0	2.8	3.5	5.4	8.1	10.5	–	–
		180V	–	–	–	2.6	3.8	5.5	8.2	11.6
	Motor Field Amps (Maximum)	All	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Full-Load Torque (lb-ft) with 1750 RPM Base Speed Motors			0.5	0.75	1.0	1.5	2.2	3.0	4.5	6.0
Minimum Transformer KVA for Voltage Matching or Isolation			0.5	0.75	0.75	1.0	1.5	2.0	3.0	5.0

BETA II Angle Bracket Chassis Modifications

The many standard features of these controllers include selectable functions and adjustable performance characteristics.

Once line voltage and HP selections have been made, these controllers are "ready to run" on most applications using the factory-set adjustments.

Fine Tuning by the user is readily accomplished on those jobs where load and/or speed requirements dictate that such is necessary.

For large orders, user-specified calibrations and adjustments can be set-up at the factory level, if so desired.

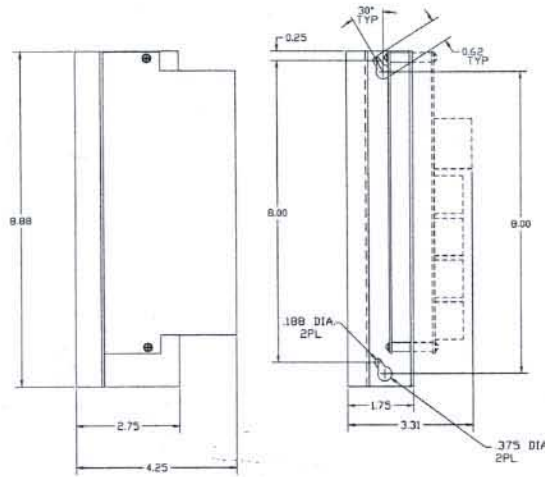
The following modifications and options are useful additions to this line of controllers:

<u>Option</u>	<u>Code</u>	<u>Description</u>
18E	M	Torque-regulated drive; – remove jumper.
24	M	DC Tachometer feedback; – remove jumper.
LS	M	Line starting; – remove jumper.
21A	K	10-Turn Speed adjust potentiometer; analog dial
21B	K	10-Turn Speed adjust potentiometer; digital dial
LR	M	Limit Switch Reversing; CM model only.

Code: K = Field Kit

M = Modifiable feature of standard controller

Dimensions



Approx. Weight (lbs.)

RBA2C	0.9
RBA2CU	1.7
RBA2CM	

NOTE: BETA II controllers are UL Listed (File No. 60207) and CSA approved (File No. LR19781)

Distributed by:



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