

BETAplus

Single-Phase Adjustable Speed DC Motor Controller 1/6-3 HP

Boston Gear BETApplus 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 motors. Combining a rugged, compact design with our advanced hybrid technology produces a controller that has more standard features than previously offered. Using DIP switches for the selection of voltage, horsepower and modifications make this control an ideal choice for a broad range of industrial applications. Designed and manufactured to comply with applicable standards established by the National Electric Code and NEMA for industrial motor and control equipment, these units are UL listed and CSA approved.



Standard Features

- NEMA 3, 4 & 12 Enclosure
- UL Listed/CSA Approved
- 115/230 VAC Dual Input*
- 50/60 Hz Operation
- Dual Voltage Field Supply*
- Transient Protected
- Jogging at Set Speed
- Suitable for Pushbutton Control
- Line Starting*
- Hybrid Circuit Board
- Surface-Mounted Miniature Components
- Customer Run Contact (Isolated)
- Isolated Regulator & Operators
- Cermet Potentiometers for Stability
- Ferrite Noise Filters
- 1/6 thru 3 HP*
- Control Transformer
- Adjustable Linear Acceleration
- Adjustable Linear Deceleration
- CEMF Feedback with IR Compensation
- Power Loss Interlock Circuit
- Full Wave Conversion – 4-SCR Bridge
- Rugged Die-Cast Aluminum Housing
- DC Tach. Feedback Circuit*
- Motor Overload Protection
- Speed/Torque Mode*
- External Signal Input, with Isolation*
- Overcurrent LED Indicator
- "Power On" LED Indicator
- DIP Switch Configuration*
- Jumper Selectable HP & Voltage
- Static (Contactorless) Run-Stop Models
- Armature Contactor Control-Includes Dynamic Braking

* = User-choice selection or adjustment

Ratings

Enclosed 1/6 thru 1 HP @ 115 VAC
 1/2 thru 2 HP @ 230 VAC
 Chassis 1/6 thru 1 HP @ 115 VAC
 1/2 thru 3 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	0-5 VDC 0-10 VDC	24 VDC
230V, 50 or 60 Hz	0-180	100/200	4-20 mA	

*Choice of one

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Model Types and Selection

Consisting of thirteen models, the BETApplus Series offers either an open chassis configuration or NEMA 3/4/12 enclosed controllers with a choice of blank operators' panels (for use with external pilot devices) or panels with Run/Stop/Jog switch, speed pot and, when desired, Forward/Reverse selection switch as well.

ORDER BY CATALOG NUMBER OR ITEM CODE

Item Code	Catalog Number	Line Voltage HP Range		Construction		Function				Operator's Controls	
		115 VAC	230 VAC	Open Chassis	Enclosed	Run/Stop	Arm. Cont. Run/Stop W/DB	Arm. Switch Rev.	Arm. Cont. Rev. W/DB	Local (Integral)	Remote
64874	RBS2	1/6 - 1	1/2 - 2	X		X					X
57894	RBS2U			X			X				X
64878	RBS2M			X					X		X
64875	RBS2B					X	X				X
57896	RBS2UB					X		X			X
64879	RBS2MB					X				X	X
64876	RBS2S					X	X				X
64877	RBS2R					X			X		X
57897	RBS2US					X		X			X
64880	RBS2MR						X			X	X
64881	RBS3	1/6 - 1	1/2 - 3	X		X					X
57895	RBS3U			X			X				X
64882	RBS3M			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 changing the position of a jumper. 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	3
Rated Kilowatts (kW)			0.124	0.187	0.249	0.373	0.560	0.746	1.120	1.492	2.238
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	22.0
	KVA		0.48	0.58	0.71	1.00	1.40	2.00	3.00	4.00	5.00
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	15.1
	Motor Field Amps (Maximum)	RBS2 Series	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-
		RBS3 Series	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
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	9.0
Minimum Transformer KVA for Voltage Matching or Isolation			0.5	0.75	0.75	1.0	1.5	2.0	3.0	5.0	7.5

BETAplus Options and 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.

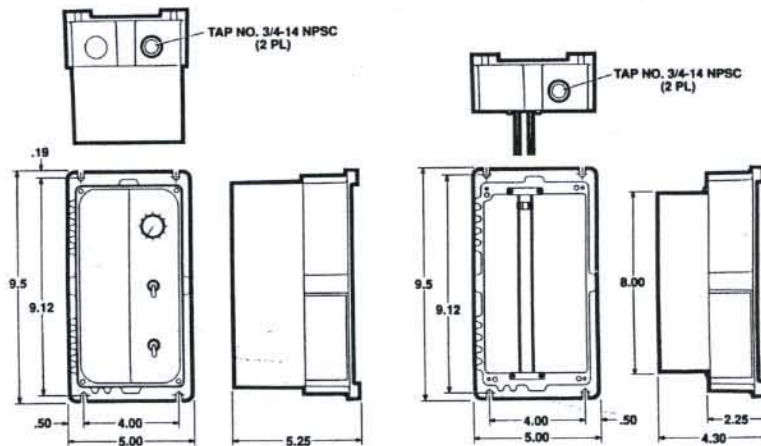
For large orders, user-specified calibrations and adjustments can be set-up at the factory level, if so desired.

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

Option	Code	Description
18E	S	Torque-regulated drive
24	S	DC Tachometer feedback
LS	S	Line starting
21A	K	10-Turn Speed adjust potentiometer; analog dial
21B	K	10-Turn Speed adjust potentiometer; digital dial
LR	M	Limit Switch Reversing; M or MB models only.
25	S	External DC input 0 – 5 VDC; 0 – 10 VDC & 4 – 20 mA
38	K	Manual/Follower selector Switch

Code: K = Kit or Factory installed
 M = Modifiable feature of standard controller
 S = Selectable in standard controller by dip switch

Dimensions



Approx. Weight (lbs.)

RBS2,3	3.3
RBS2M,3M RBS2U,3U	3.8
RBS2B,S,R	5.5
RBS2UB,US,MB,MR	6.1

NOTE: BETAplus controllers are UL Listed (File No. 60207) and CSA approved (File No. LR19781) as Type 1 enclosures but all models are designed and manufactured to meet the requirements of NEMA Type 3, 4 and 12 enclosures.

Distributed by:



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