



Made in the U.S.A.

NEMA 1, NEMA 4X and Chassis Mount
Adjustable Speed Controls for DC Motors

BALDOR
MOTORS AND DRIVES

Nema Enclosed DC Control Specifications

Catalog Number						
Features	BC138	BC139	BC140 or BC140-FBR	BC154	BC160	BCW140
Enclosure	Nema 1	Nema 1	Nema 1	Nema 4X	Nema 4X	Nema 4X Washdown
Control Type	Nema K	Nema K	Nema K	Nema K	Nema K	Nema K
AC Line Input	115	230	115 230	115 230	230	115 230
DC Armature Voltage Nominal	90	180	90 180	90 180	180	90 180
Shunt Field Power Supply Voltage - DC	50/100	100/200	50/100 100/200	50/100 100/200	100/200	50/100 100/200
Rated Horsepower Range	1/50 - 1/3	1/50-3/4	1/100-1 1/50-2	1/50-1 1/25-2	3	1/50-1 1/25-2
External Heat Sink (BC143) Required	NO	NO	1 HP 2HP	Not Required	Not Required	Not Required
Speed Range (Motor May Be 20: 1 Constant Torque)	40:1	40:1	50:1	50:1	50:1	50:1
Adjustable Acceleration Time	Yes	Yes	Yes	Yes	Yes	Yes
Adjustable Deceleration Time	Yes	Yes	Yes	Yes	Yes	Yes
Minimum Speed Adjustable	Yes	Yes	Yes	Yes	Yes	Yes
Maximum Speed Adjustable	Yes	Yes	Yes	Yes	Yes	Yes
Current Limit Adjustable	Yes	Yes	Yes	Yes	Yes	Yes
Adjustable Current Limit Tripout Type	No	No	No	Timed or Non-Timed	Timed or Non-Timed	Timed or Non-Timed
Control Of Speed or Torque	Speed	Speed	Speed	Speed or Torque	Speed or Torque	Speed or Torque
IR Compensation Adjustable	Yes	Yes	Yes	Yes	Yes	Yes
Tachometer Feedback Input	No	No	No	Yes	Yes	Yes
Plug-In Horsepower Resistor ®	Required	Required	Required	N/A	N/A	N/A
UL & cUL Recognition, CE	Yes	Yes	Yes	Yes	Pending	Yes
Options						
AC Line Switch	Standard	Standard	Standard	Opt - BC159	No	Standard
Forward/Dynamic Brake/Reverse Switch	No	No	Opt - BC144	Opt - BC156	No	Standard
Run/Jog Switch	No	No	No	Opt - BC157	Opt - BC157	Standard
Input Signal Following Mode Capability Current (1-5, 4-20, 20-50mA) Voltage (0-25,0-120, VDC)	No	No	Opt- BC145 Opt - BC145	Internal Mount Opt - BC145 Std (0-5,0-10 VDC)	Internal Mount Opt - BC145 Std (0-5,0-10 VDC)	External Mount Opt - BC145 Std (0-5,0-10 VDC)
Electrical Connection To Control Barrier Terminal Block	Standard	Standard	Standard	Standard	Standard	Standard
Current Sensing Relay/Overload Protector	No	No	Opt - BC146	Standard	Standard	Standard
Electronic Speed Potentiometer	No	No	Opt - BC151	Opt - BC151	Opt - BC151	Opt - BC151

Chassis Mount DC Control Specifications

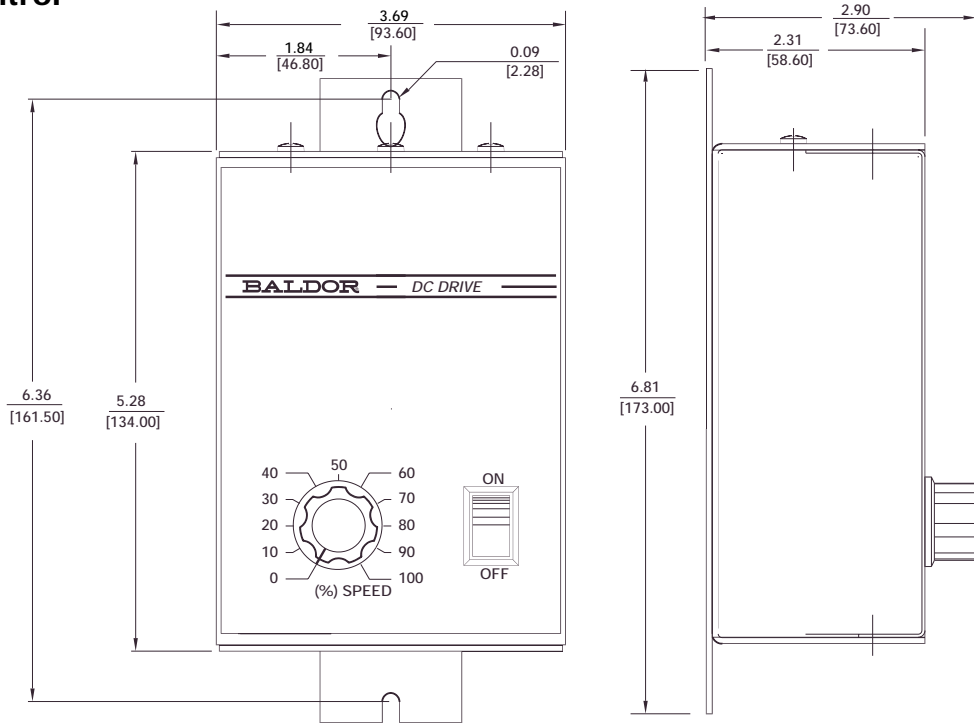
Catalog Number							
Features	BC141	BC142	BC155	BC202	BC200	BC201	BC203
Enclosure	Chassis	Chassis	Chassis	Chassis	Chassis	Chassis	Chassis
Control Type	Nema K	Nema K	Nema K	Regenerative	Regenerative	Regenerative	Regenerative
AC Line Input	115	230	230	115 230	115 230	115 230	230
DC Armature Voltage Nominal	90	180	180	90 180	90 180	90 180	180
Shunt Field Power Supply Voltage - DC	50/100	100/200	100/200	50/10 100/200	50/100 100/200	50/100 100/200	100/200
Rated Horsepower Range	1/100-1.5	1/50-3	5	1/4-3/4 1/2-1 1/2	1/4-1 1/2-2	1/4-1-1/2 1/2-3	5
External Heat Sink (BC143) Required	1 Hp-Up	2 Hp-Up	Not Required	Not Required	Not Required	Not Required	Not Required
Speed Range (Motor may be 20:1 Constant Torque)	50:1	50:1	50:1	50:1	50:1	50:1	50:1
Adjustable Acceleration	Yes	Yes	Yes	Yes-Fwd & Rev	Yes-Fwd & Rev	Yes-Fwd & Rev	Yes-Fwd & Rev
Adjustable Deceleration	Yes	Yes	Yes	Regen	Regen	Regen	Regen
Minimum Speed Adjustable	Yes	Yes	Yes	No	No	No	No
Maximum Speed Adjustable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current Limit Adjustable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current Limit Tripout	No	No	No	Timed	Timed	Timed	Timed
Control of Speed or Torque	Speed	Speed	Speed	Speed Or Torque	Speed Or Torque	Speed Or Torque	Speed Or Torque
IR Compensation Adjustment	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tachometer Feedback Input	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Plug-in Horsepower Resistor ®	Required	Required	N/A	N/A	N/A	N/A	N/A
UL & cUL Recognition	Yes	Yes	Pending	Yes	Yes	Yes	Pending
Options							
Input Signal Following Mode Capability							
Current (1-5,4-20,20-50 mA)	Opt- BC145	Opt- BC145	Opt- BC145	No	No	No	No
Voltage (0-25, 0-120, VDC)	Opt- BC145	Opt- BC145	Std 0-10 VDC	Std 0 -±10 VDC	Std 0 -±10 VDC	Std 0 -±10 VDC	Std 0 -±10 VDC
(0-25, 0-120, VDC)	No	No	No	Opt- BC212	Opt- BC212	Opt- BC212	Opt- BC212
Electrical Connection To Control							
Push-On Quick Connects	Standard	Standard	No	No	No	No	No
Barrier Terminal Block	Opt- BC147	Opt- BC147	Standard	Standard	Standard	Standard	Standard
Current Sensing Relay/ Overload Protector	Opt-BC146	Opt-BC146	Opt-BC146	Standard	Standard	Standard	Standard
Regenerative Accel / Decel Board	No	No	No	Optional	Optional	Optional	Optional
Electronic Speed Potentiometer	Optional	Optional	Optional	Optional	Optional	Optional	Optional

Contact Baldor for information on our larger DC SCR Controls. Series 19H and Series 20H Line Regen Digital Controls are available through 600 horsepower.

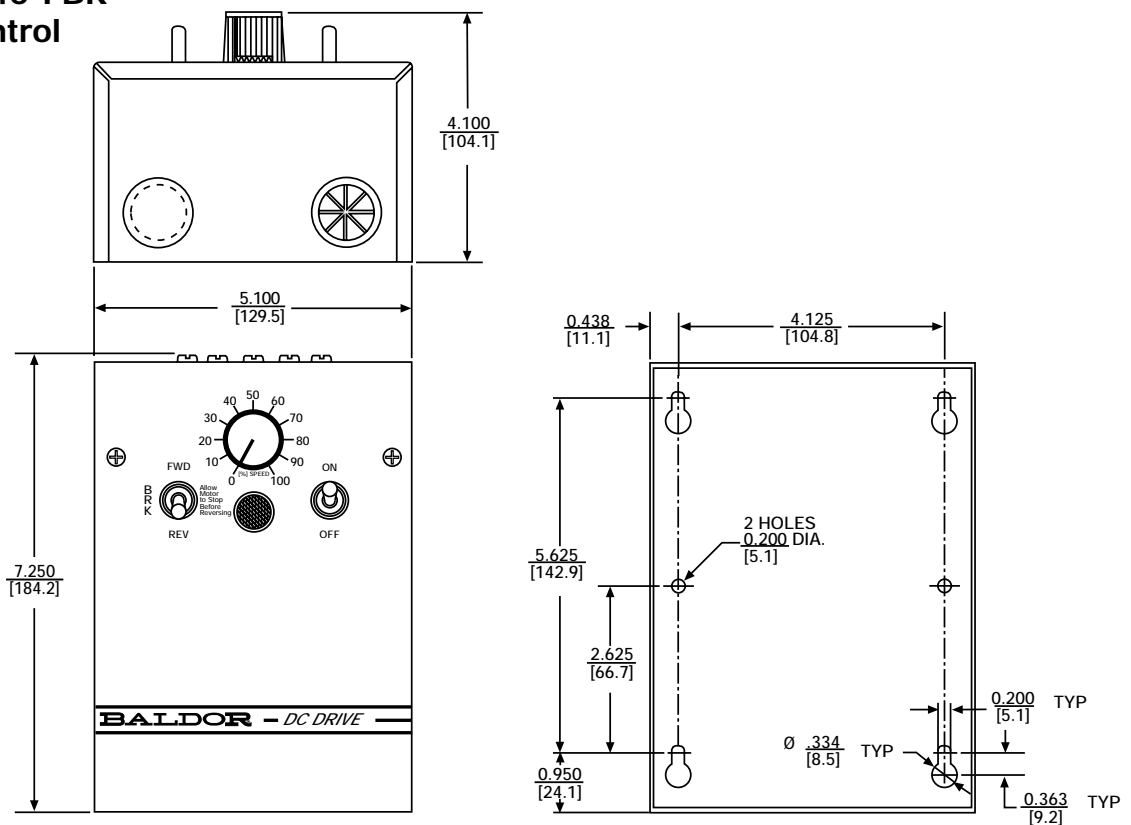
Mechanical Specifications

inches/mm

BC138 / BC139 Nema 1 Control



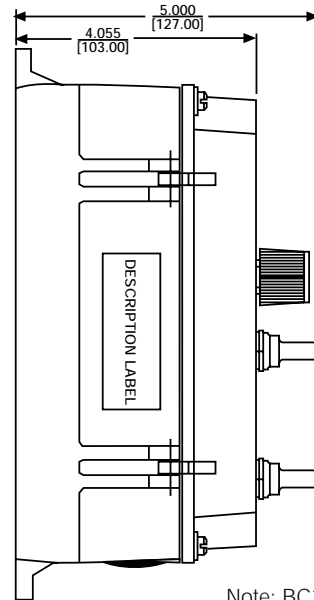
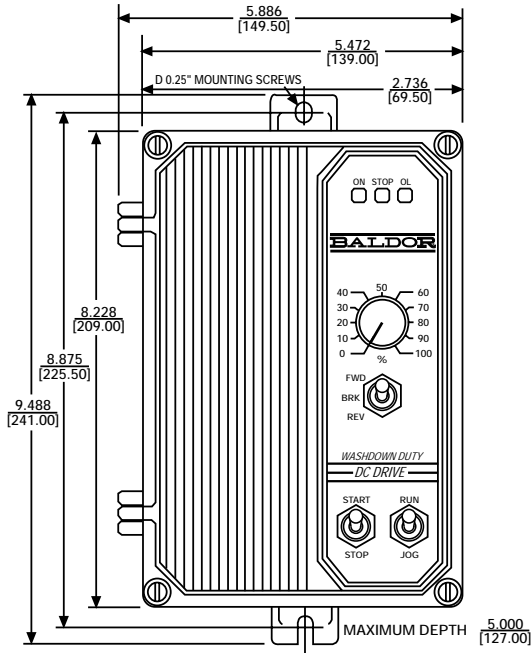
BC140/BC140-FBR Nema 1 Control



Mechanical Specifications

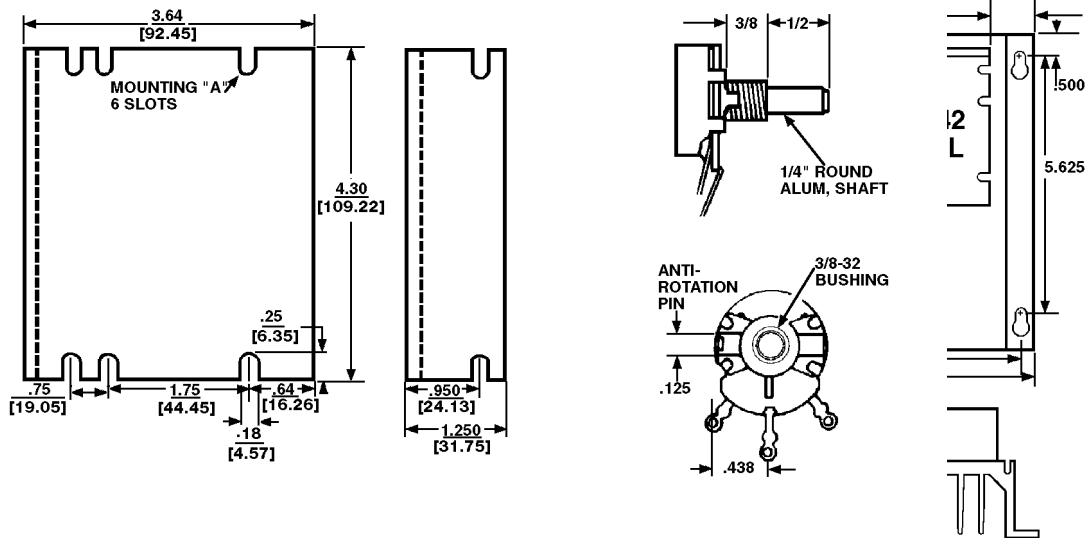
inches/mm

BC154, BC160 AND BCWD140 Nema 4x Control



Note: BC154 and BC160 are not supplied with Forward-Brake-Reverse or Run/Jog switches

BC141/BC142 Chassis Mount Control

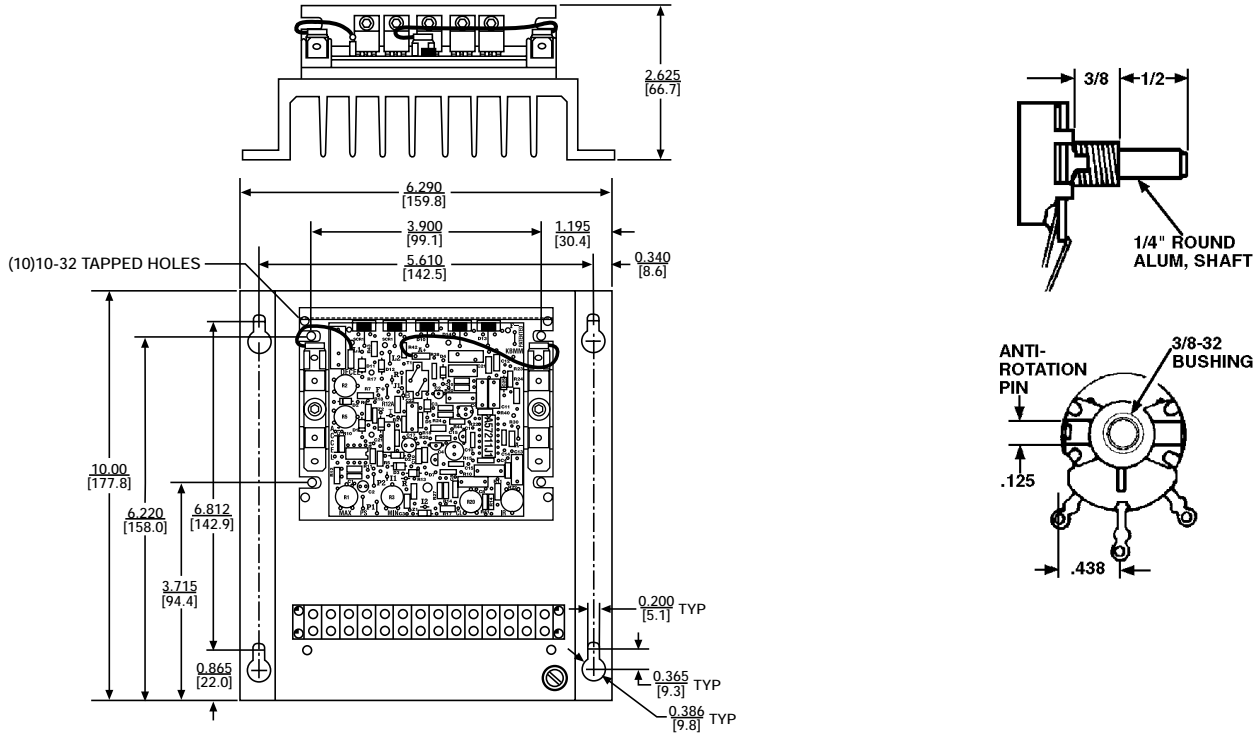


Control with optional BC143 heat sink

Mechanical Specifications

inches/mm

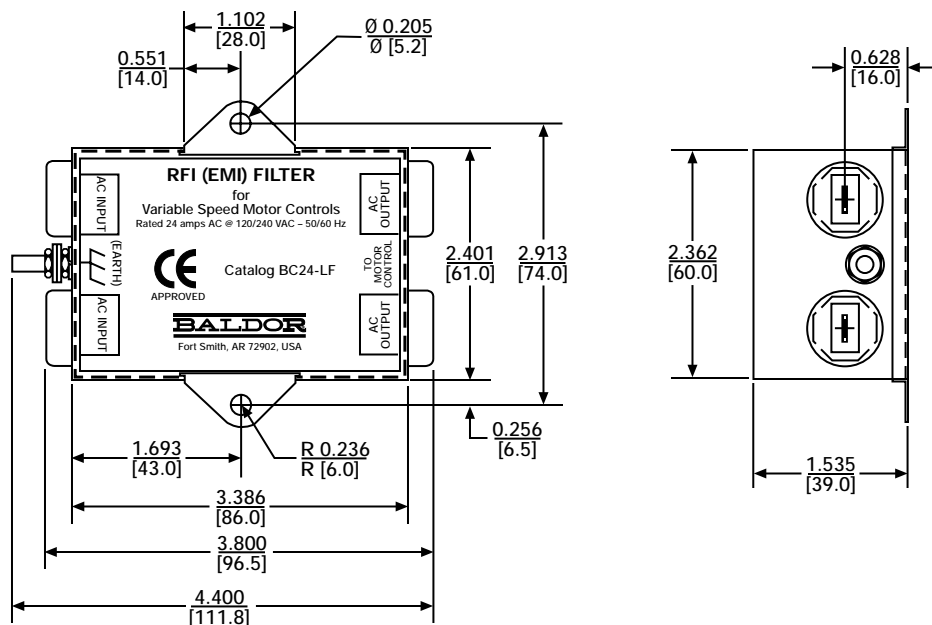
BC155 Chassis Mount 5HP Control



BC24-LF RFI / EMI Filter

Many customers desire to comply with CE Directives. This is possible using any of these controls by adding the BC24-LF filter assembly on the incoming AC line and following the recommended wiring and shielding practices.

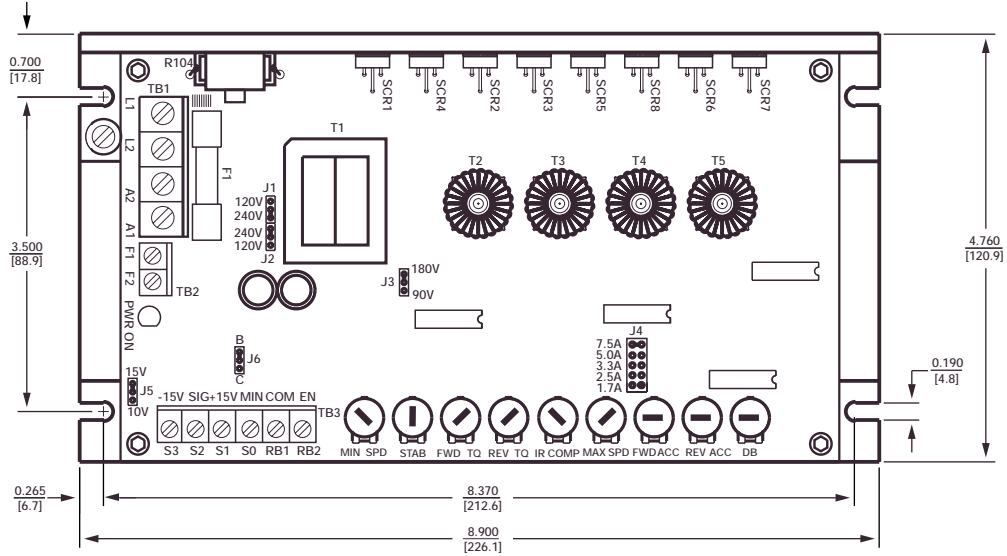
BC24-LF



Mechanical Specifications

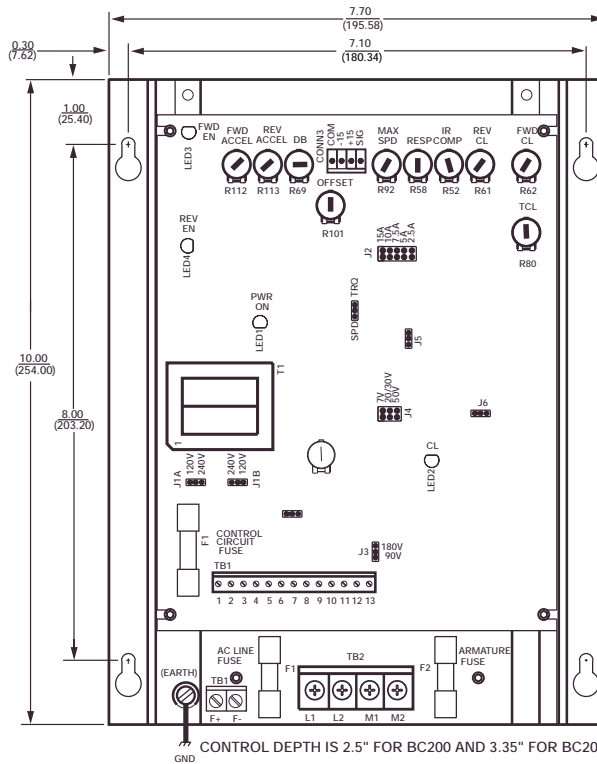
inches/mm

BC202 Chassis Mount Regen Control



NOTES: MAXIMUM HEIGHT WITHOUT ACCESSORY BOARD IS 1.700 [43.2]
 MAXIMUM HEIGHT WITH ACCESSORY BOARD IS 3.100 [78.7]

BC200-201 Chassis Mount Regen Control



CONTROL DEPTH IS 2.5" FOR BC200 AND 3.35" FOR BC201

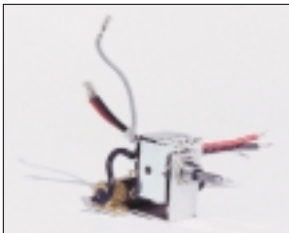
Accessories

The accessories for these single phase input DC controls are unique and primarily designed to be used with these controls alone. The following is a review of each accessory and where they might be used.



BC143 External Heat Sink

Used on BC140, BC140-FBR, BC141, and BC142 to achieve maximum output ratings. Bolts to chassis mount or NEMA enclosed control.



BC144 Forward Reverse Switch

Mounts in BC140 making it into BC140-FBR. Allows forward and reverse direction selection along with dynamic braking on STOP. The toggle switch has detents to help prevent plug reversal. Used for up to 2 HP 180 volt motors.



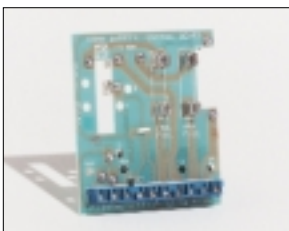
BC145 Signal Isolator Board

BC145 mounts as a stand alone or it can be mounted in the cover of BC154 (no F-B-R switch installed). Allows 0-25, 0-120 or 0-550 VDC voltage or 1-5, 4-20 or 10-50 mA current input to the control with a 0-10 VDC output powered from 120 or 230 VAC. It provides an isolated interface between non-isolated signals and Baldor speed controls.



BC146 Current Sensing Relay and Overload Protector

BC146 is an electronic DC current sensing relay and overload protector for use with motors 1/8 - 3 HP. Larger motors may be monitored by use of an external shunt. BC146 contains 5 preset current trip points which can be further adjusted with a trim pot. The unit also has provisions for trip time delay. An LED indicates when the preset current trip point has been reached. External contacts are provided which may be connected to sound an alarm or shut the system down in case of an overload.



BC147 Barrier Terminal Board

BC147 is designed for BC141 or BC142 controls. It provides a terminal strip for control connection instead of the standard push-on terminals.



BC148 Replacement Potentiometer Kit

BC148 is a standard 5K ohm pot with an insulating washer. It is a replacement for those supplied in or with all small SCR controls. It may also be used with the "H" series controls as an analog input.



BC149 Knob and Dial Kit

BC149 is a plastic knob and 0-100% dial that may be used with a remotely mounted potentiometer.



BC151 Electronic Speed Potentiometer

BC151 is used instead of the control's 5K ohm potentiometer. It is ideally suited for use with SCR controls because its power source is the control's DC field power supply. It is generally used with a set of momentary push button switches (customer supplied). One switch is used to increase speed (UP) and the other to decrease speed (DOWN). The unit contains a meter output that can be used to operate a digital or analog meter. The meter scale can be calibrated to desirable units with built-in meter scale trimpot. Min. and Max. trimpots are used to set the range of motor output speeds. A trimpot allows setting of the rate of speed change. BC151 will be difficult to use as a replacement for a 5K ohm pot on an inverter or vector control because of its need for DC input power and also that its output is not isolated and requires use of a signal isolator board.



BC152 Barrier Terminal Board with Signal Isolator

BC152 combines the BC145 Signal Isolator and BC147 Barrier Terminal Board into a cost effective board for BC141 and BC142.



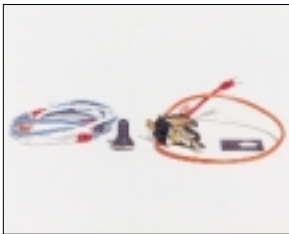
BC156 Forward-Brake Reverse Switch

BC156 is for BC154 (a replacement for BCWD140). Allows forward and reverse direction selection along with dynamic braking. Not used on BC160 (cannot handle 3HP current).



BC157 Run-Jog Switch

BC157 is for BC154 or BC160 (a replacement for BCWD140). Allows a JOG function along with continuous RUN.



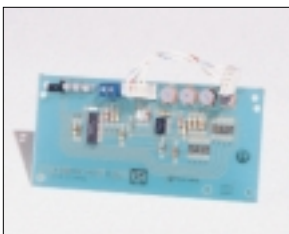
BC158 Auto/Manual Kit

BC158 is a toggle switch for BC154 or BC160, which is used in conjunction with an internally mounted BC145, allowing manual use from the switches or automatic use from the input signal to the BC145.



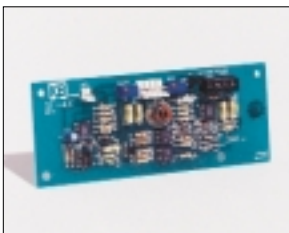
BC159 AC Line Switch

BC159 is used to break both lines of the AC input on BC154 or BCWD140. It may be used with wound field motors so the fields will not be continuously energized when AC line power is present. Our BCWD140, either the START-RUN or RUN-JOG switches must be removed to allow mounting space. Not used with BC160 because of higher line current.



BC211 Quadrant Accel/Decel Board

BC211 is used with BC200, BC201, BC202 or BC203 to allow for independent and separate adjustment of forward accel and decel and reverse accel and decel. Without BC211, the pot for forward accel also controls reverse decel, and the reverse accel pot also controls forward decel. BC211 provides 4 adjustment pots, one for each setting. It connects to BC200 or BC201 with a ribbon cable and mounts under the main control board in a slot provided in the extrusion.



BC212 Bipolar Signal Isolator

The BC212 is used with BC200, BC201, BC202 or BC203 and mounts below the main control board in a slot in the extrusion. A built-in power supply is now included. BC212 provides complete electrical isolation between input voltage signals which are derived from PLC's transducers and digital/analog converters. There are two input ranges: ± 25 VDC and ± 250 VDC which are jumper selectable. The input/output ratio can be scaled via the included zero and Max. trimpots.

Other quality products from Baldor to serve your Processing Industry needs.

No one offers a broader line of motors and drives than Baldor—no one!



DC Motors - Shunt Wound and Permanent Magnet

Baldor stocks the industry's widest range of shunt wound and permanent magnet DC motors. These include 1/50 thru 600 HP motors, as well as lifting magnet generators of 5-40 KW output. We also stock tachometer generators with DC, AC, or digital output.



Pre-Engineered Control Panel

Baldor's pre-engineered control panel offers factory wired combination controller with inverter, vector or DC SCR controls.

- NEMA 1 Enclosure
- Flange mounted disconnect
- Thermal overload relay
- Molded case circuit breaker
- Control power transformer with 100 VA extra capacity at 120 VAC

- 3 wire (start/stop pushbutton) or 2 wire (hand-off-auto) control operation



AC & DC Gearmotors

Baldor's selection of gearmotors is one of the broadest in the industry. Typical gear motor applications include conveyors, packaging machinery, machine tools, speed reducers, commercial ovens, medical and laboratory equipment. Available in either AC or DC from 1/50 Hp to 1/3 Hp. Motors are stocked in parallel shaft and right-angle designs. All motors are:

- Suitable for horizontal or vertical mounting
- Standard with high quality ball bearings
- Designed for continuous duty
- Finished with a baked-on enamel



Baldor Inverters

Baldor Inverter Drives provide adjustable speed operation from a three phase induction motor.

Standard features include:

- Microprocessor controlled Pulse Width Modulated (PWM) output power
- Operator Keypad can be remote mounted
- Easy to read Alpha Numeric Display for setup and fault diagnostics
- Multiple Preset Speeds and Jog Speed
- Separate Accel and Decel rates
- Independent Skip Frequency Zones
- Programmable output indicators for control status
- Off the shelf ratings to 500 Horsepower