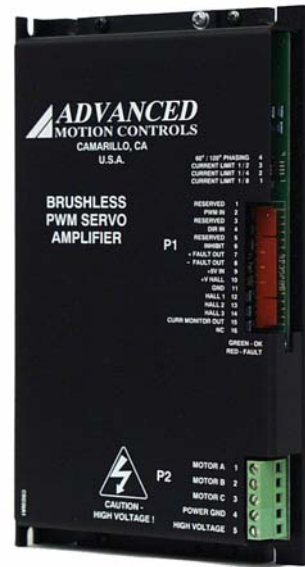


## BD30A SERIES BRUSHLESS SERVO AMPLIFIERS

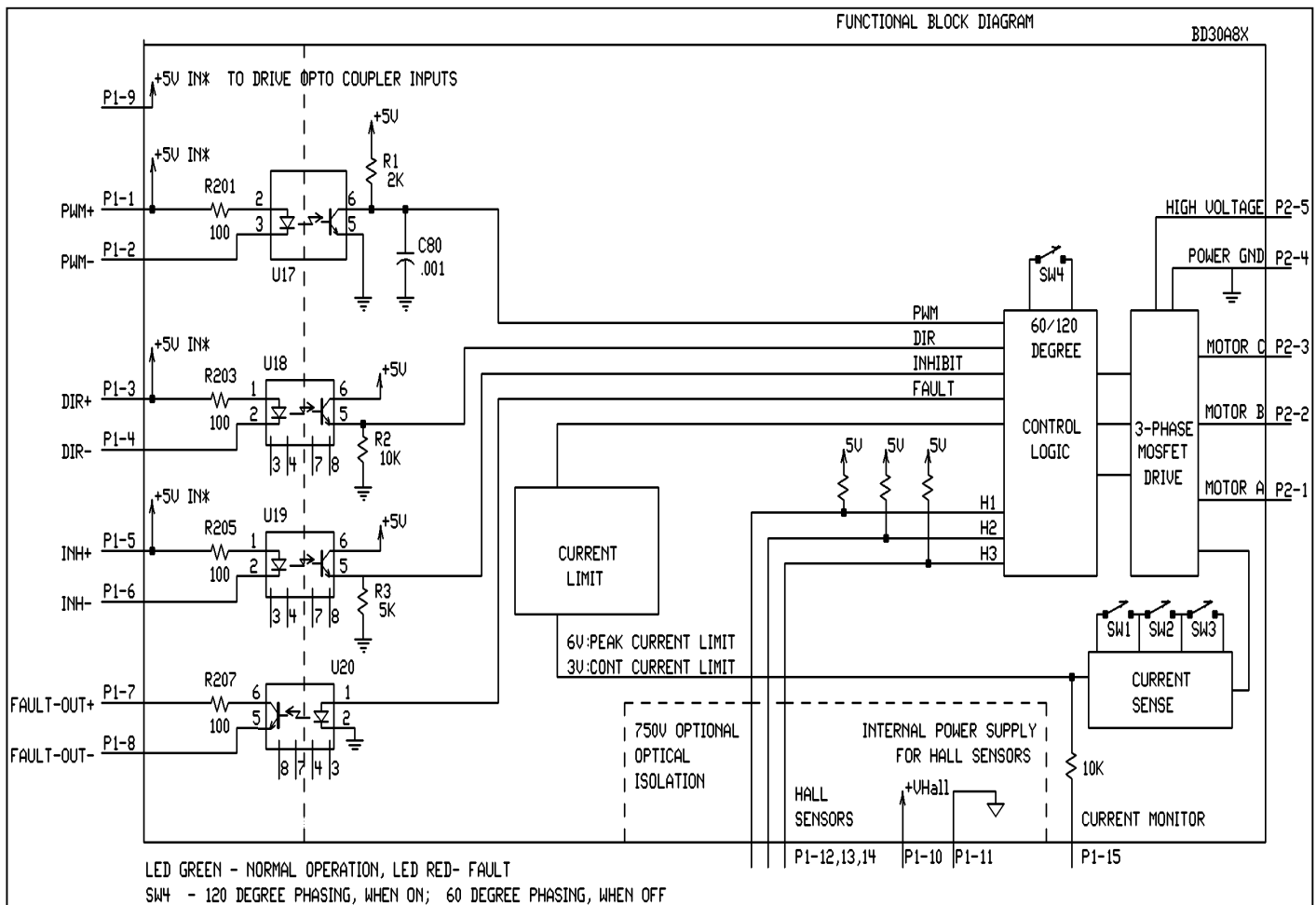
### Models: BD30A8, BD25A20

**FEATURES:**

- Surface-mount technology
- Small size, low cost, ease of use
- Input signal isolation
- Four quadrant regenerative operation
- Hall sensor commutation
- Agency Approvals:



**BLOCK DIAGRAM:**



**ADVANCED MOTION CONTROLS**  
 3805 Calle Tecate, Camarillo, CA 93012 Tel: (805) 389-1935, Fax: (805) 389-1165

**DESCRIPTION:** The BD30A Series PWM servo amplifiers are designed to drive brushless DC motors at a high switching frequency. They are fully protected against over-voltage, over-current, over-heating and short-circuits. All models interface with digital controllers that have a digital PWM output. PWM IN determines the output duty cycle. DIR IN determines the direction of rotation. A single red/green LED indicates operating status. The current limit can be set by DIP switches.

**SPECIFICATIONS:**

POWER STAGE SPECIFICATIONS	MODELS	
	BD30A8	BD25A20
DC SUPPLY VOLTAGE	30 - 80 V	40 - 190 V
PEAK CURRENT (2 sec. max., internally limited)	± 30 A	± 25 A
MAX. CONTINUOUS CURRENT (internally limited)	± 15 A	± 12.5 A
MINIMUM LOAD INDUCTANCE*	200 µH	250 µH
SWITCHING FREQUENCY	5 - 20 kHz ±15%	
HEATSINK (BASE) TEMPERATURE RANGE	0° to +65° C, disables if > 65° C	
POWER DISSIPATION AT CONT. CURRENT	60 W	125 W
OVER-VOLTAGE SHUT-DOWN (self reset)	86 V	195 V

MECHANICAL SPECIFICATIONS	
POWER CONNECTOR	Screw terminals
SIGNAL CONNECTOR	Molex connector
SIZE	7.35 x 4.40 x 1.00 inches 186.7 x 111.7 x 25.4 mm
WEIGHT	1.5 lb. 0.68 kg

\* Low inductance motors require external inductors.

## PIN FUNCTIONS:

CONNECTOR	PIN	NAME	DESCRIPTION / NOTES	I/O
P1	1	PWM+	Same as pin 9	I
	2	PWM-	Pulse width modulated digital input	I
	3	DIR+	Same as pin 9	I
	4	DIR-	Direction input	I
	5	INH+	Same as pin 9	I
	6	INH-	Pull low to enable	I
	7	+FAULT	Output transistor turns on and becomes high during output short circuit, over-voltage, over temperature, inhibit, and during power-up reset. Fault condition indicated by red LED.	O
	8	-FAULT		
	9	+5 IN	+5 V @ 150 mA in to drive opto coupler inputs.	I
	10	+V HALL OUT	Power for HALL sensors, Short circuit protected, + 6 V @ 30 mA. See optical signal isolation option below.	O
	11	GND		GND
	12	HALL 1	HALL sensor inputs, logic levels, internal 5 K $\Omega$ pull-up. Maximum low level input is 1.5 V, Minimum high level input is 3.5 V. See optical signal isolation option below.	I
	13	HALL 2		
	14	HALL 3		
	15	CURRENT MONITOR OUT	Current monitor. This signal is proportional to the actual current in the motor leads. See current limit adjustments section below for scaling.	O
	16	Reserved		
P2	1	MOTOR A	Motor phase A connection	O
	2	MOTOR B	Motor phase B connection	O
	3	MOTOR C	Motor phase C connection	O
	4	POWER GND	Power ground	GND
	5	HIGH VOLTAGE	DC power input	I

**SET-UP:** See section "G" for engineering and installation notes.

**CURRENT LIMIT ADJUSTMENTS:**

These amplifiers feature peak and continuous current limit adjustments. DIP switches reduce both peak and continuous current limit. The ratio of peak/continuous current limit is fixed (50%). The switches also adjust the scaling of CURR-MONITOR output.

SW1	SW2	SW3	Peak current (% of max.)	Continuous current (% of max. cont.)	Current Monitor Scaling
ON	ON	ON	100 %	100 %	4 A/V
ON	ON	OFF	50 %	50 %	2 A/V
ON	OFF	OFF	25 %	25 %	1 A/V
OFF	OFF	OFF	12.5 %	12.5 %	0.5 A/V

The actual current can be monitored at pin P1-15 and is referenced to POWER GND P2-4.

**OPTICAL INPUT SIGNAL ISOLATION:**

PWM, DIR, INH, FAULT inputs are always isolated from the power section. If the isolation option is selected the Hall sensor inputs (P1-10 through 14) are also isolated. If the isolated version is not ordered, an isolated power supply should be used with this series of amplifiers.

**ORDERING INFORMATION:**

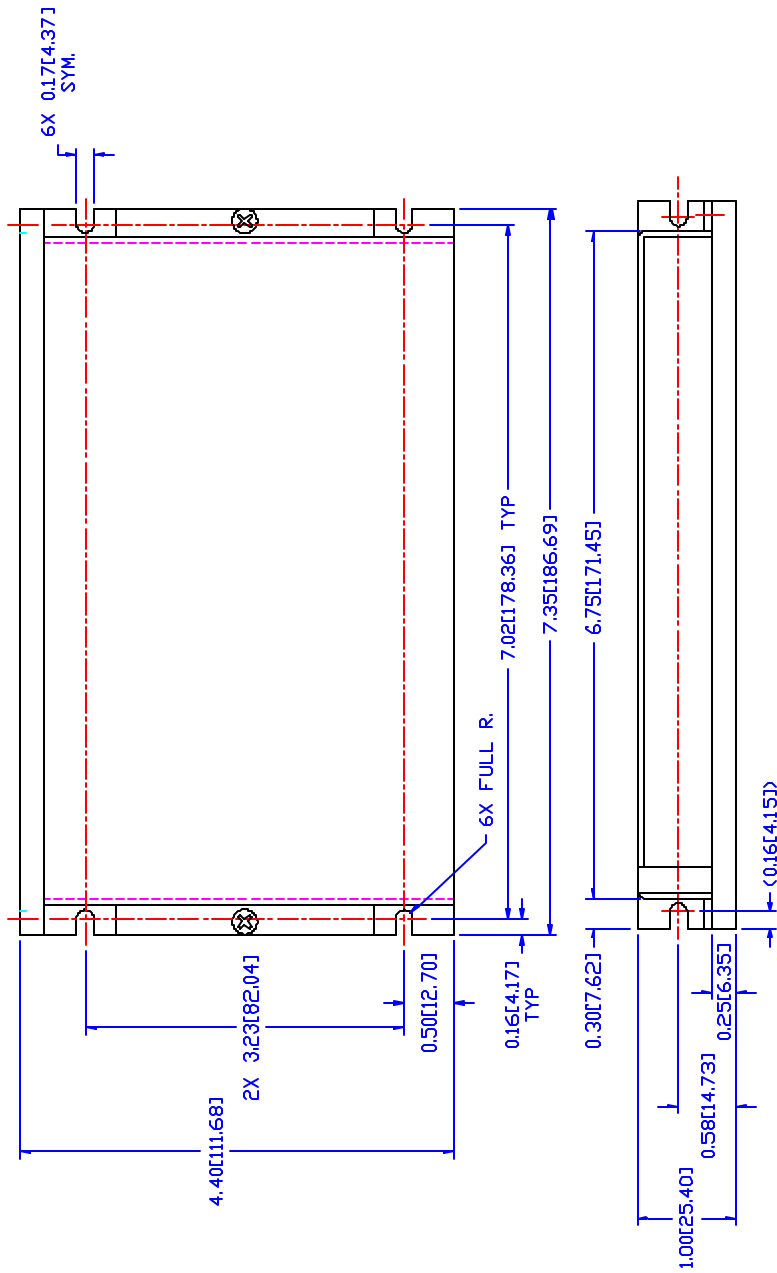
Models: BD30A8X, BD25A20X

With isolation:

Models: BD30A8IX, BD25A20IX

X indicates the current revision letter.

**MOUNTING DIMENSIONS:** See page F-9.



D	CHANGE ADDRESS ON TITLE BLOCK	02/12/12	RB
C	REMOVED S31A SERIES FROM USED ON	02/07/99	RB
B	UPDATED DWG FORMAT	08/22/96	RB
REV	DESCRIPTION	DATE	BY

<p><b>ADVANCED</b> MOTION CONTROLS PWM SERVO AMPLIFIERS 3805 Colle Terrace, Centerville, OH 43012</p>	
<p>TITLE MOUNTING DIMENSIONS B30A, BE30A, BD30A, 51A-DD &amp; 51A SERIES</p>	
DO NOT SCALE DRAWING	DO NOT SCALE DRAWING
TOLERANCES .XX ± .010 .XXX ± .005	TOLERANCES .XX ± .010 .XXX ± .005
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
BE30A SERIES	BE30A SERIES
B30A SERIES	B30A SERIES
BD30A SERIES	BD30A SERIES
DD SERIES	DD SERIES
51A SERIES	51A SERIES
USED IN	USED IN
DESIGN APPROVED:	DESIGN APPROVED:
CHECK BY:	CHECK BY:
DATE:	DATE:
DRAWN BY:	DRAWN BY:
DATE:	DATE:
ROBERTO	ROBERTO
09/27/95	09/27/95
SIZE DWG. NO.	SIZE DWG. NO.
B	B
MB30A	MB30A
REV	REV
D	D
SCALE: NONE	SCALE: NONE
SHT. 1 OF 1	SHT. 1 OF 1

NOTE: DIMENSIONS IN [ ] ARE IN MM.