

**Output Type:**  
PWM

**Voltage:**  
Up to 320 VDC

**Amperage:**  
Up to 30 A Peak

**Mounting:**  
6U Eurocard

**Modes:**  
Torque

**Commutation:**  
Ext Sine or Digital Hall



# BPU-S2

High-Power Brushless PWM Servo Amplifier

The BPU-S2 is a high power brushless PWM servo amplifier in a Eurocard 6U form factor. It is ideally suited to torque control applications or for velocity control using a digital position controller. This amplifier can be configured for External Sinusoidal commutation or for self commutation using Digital Hall effect sensors. This unit is similar to the BPU-S5 but in a larger form factor due to a higher maximum voltage rating. Look to the BPU-S3 if Analog Hall sensors are required.

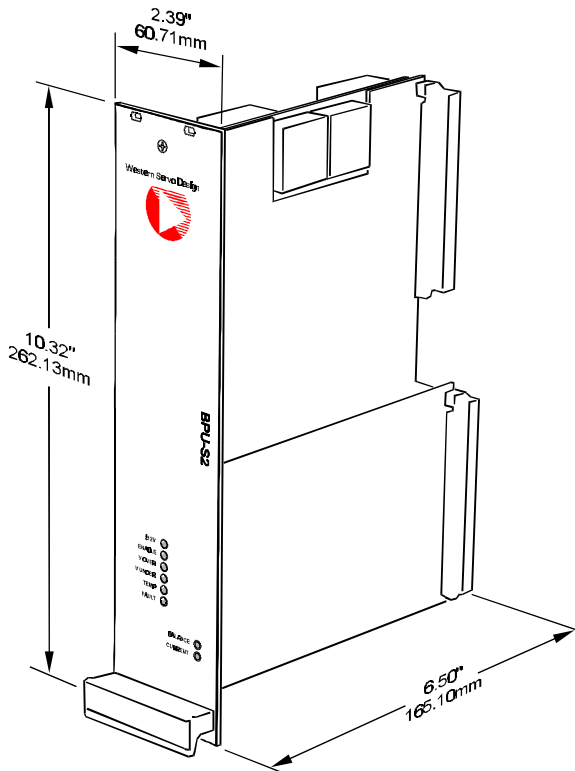
The BPU-S2 is a double card unit, consisting of separate Power and Personality Modules. The Personality Module adds digital status reporting capability, inputs for Hall effect sensors, and allows future amplifier reconfiguration with modules under development at Western Servo Design. Hall effect commutation or external sinusoidal commutation may be selected "on the fly" via digital switching. When using external sinusoidal commutation, the amplifier receives two 120° out of phase sinusoidal command inputs. The optimal third phase is derived by the amplifier. This eliminates "cogging" and greatly enhances low speed operation. An optional backplane is available to allow quick and easy access to motor, power, control and other I/O signals.

- ◉ Eurocard 6U Form Factor
- ◉ Accepts Digital Hall Effect Sensors
- ◉ Two Commutation Modes: Hall Effect and External Sinusoidal Input
- ◉ High Speed Commutation Mode selection using Digital Switching
- ◉ 4 Digital Status Outputs plus Global Fault
- ◉ Travel Limit and Amp Enable Inputs
- ◉ Protected from Over Current, Over Voltage, and Under Bias Conditions
- ◉ Current Monitor Output
- ◉ PWM Frequency: 20 kHz or 80 kHz
- ◉ Bus Voltage: 30 - 320 VDC
- ◉ Continuous Current: 5, 8 or 12 Amperes
- ◉ Full Isolation between Input and Output Circuits
- ◉ Designed for Three-Phase Wye or Delta Wound Motors
- ◉ Advanced Design, Superior Quality and High Reliability
- ◉ One Year Parts and Labor Warranty

## SPECIFICATIONS

Standard Models:	10/10	32/15	32/30
Maximum Bus Voltage	100 VDC	320 VDC	320 VDC
Peak Output Current*	10 A for 0.5 sec	15 A for 0.5 sec	30 A for 0.5 sec
Continuous Output Current*	5 A	8 A	12 A
Command Input Voltage: Hall Commutation Sinusoidal Commutation	0 to ±10 V 0 to ±5 V	0 to ±10 V 0 to ±5 V	0 to ±10 V 0 to ±5 V
Command Input Impedance	10 kOhm	10 kOhm	10 kOhm
Minimum Load Inductance	0.2 mH	2 mH	2 mH
Switching Frequency	80 kHz	20 kHz	20 kHz
Torque Gain: Hall Mode Sinusoidal Mode	1.0 A/V 2.0 A/V	1.5 A/V 3.0 A/V	3.0 A/V 6.0 A/V
Bandwidth	13 kHz	4 kHz	2 kHz
Weight	1.95 Lb (885 grams)		
Recommended Chassis	CHU-S6 Eurocard		
Available Accessories	ACC-V1C Backplane, ACC-V2B Inductor Board, ACC-V3A PMAC Interface Board, PSU-S1 Power Supply		

\*All ratings with forced air cooling to maintain 40°C heat sink temperature. Failure to keep constant air flow to the heat sink will reduce the output current capacity and may result in damage to the unit.



### Ordering Information:

Product	Order Number
BPU-S2-10/10 Amp 100 VDC/10A Peak	WS-007-0008
BPU-S2-32/15 Amp 320 VDC/15A Peak	WS-007-0001
BPU-S2-32/30 Amp 320 VDC/30A Peak	WS-007-0002
ACC-V1C Backplane	WS-914-0004

### Represented By:



## PINOUTS

### PERSONALITY MODULE J1

#### ROW A

Pin	Function (Hall Mode    Sine Mode)
2	+ Bias In (+12 to +15VDC)
4	Ground
6	Current Monitor Out
8	No Connection
10	Hall Ground
12	Hall C    No Connection
14	Hall A    No Connection
16	Over Bus Fault Out
18	Over Current Fault Out
20	Amp Global Fault Out
22	Ground
24	+ Limit In    No Connection
26	Amp Enable In (low true)
28	No Connection
30	Command Return
32	Command In (-)    Phase 1 In

#### ROW C

Pin	Function (Hall Mode    Sine Mode)
2	- Bias In (-12 to -15VDC)
4	Ground
6	No Connection
8	No Connection
10	Ground
12	Hall B    No connection
14	Hall Power Out (+5V)
16	Over Temp Fault Out
18	Bias Under Fault Out
20	No Connection
22	Ground
24	- Limit In    No Connection
26	Ground
28	No Connection
30	Sine/Hall Select In
32	Command In (+)    Phase 2 In

### POWER MODULE J1

#### ROWS A, C & E

Pin	Function
2 - 6	Bus +V
8 - 12	Bus Ground
14 - 18	Motor Phase C
20 - 24	Motor Phase B
26 - 30	Motor Phase A

#### ROW A

32	Motor Temp Switch
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#### ROW C

32	Motor Temp Switch
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#### ROW E

32	Chassis Ground
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See User's Manual for more detailed information including jumper settings and Backplane connections.