

## Power Range

Peak Current	12 A
Continuous Current	6 A
Supply Voltage	20 - 80 VDC



## Description

The CA12A80 PWM servo drive is designed to drive brush-type DC motors at a high switching frequency. The CA12A80 is fully protected against over-voltage, over-current, over-heating and short-circuits. A single digital output indicates operating status. The drive interfaces with digital controllers that have analog +/-10V output.

See Part Numbering Information on last page of datasheet for additional ordering options.

## Features

- |   |                                |
|---|--------------------------------|
| ▲ Four Quadrant Regenerative Operation      | ▲ Differential Input Command   |
| ▲ Built-in regenerative and shunt regulator | ▲ Digital Fault Output Monitor |
| ▲ Lightweight                               | ▲ Current Monitor Output       |
| ▲ High Switching Frequency                  | ▲ Single Supply Operation      |
| ▲ Wide Temperature Range                    | ▲ Compact Size                 |
| ▲ High Performance Thermal Dissipation      | ▲ High Power Density           |

## HARDWARE PROTECTION

- Over-Voltage
- Over-Current
- Over-Temperature
- Short-circuit (phase-phase)
- Short-circuit (phase-ground)

## INPUTS/OUTPUTS

- Digital Fault Output
- Digital Inhibit Input
- Analog Current Monitor
- Analog Command Input
- Analog Current Reference

## MODES OF OPERATION

- Current

## MOTORS SUPPORTED

- Single Phase (Brushed, Voice Coil, Inductive Load)

## COMMAND SOURCE

- $\pm 10$  V Analog

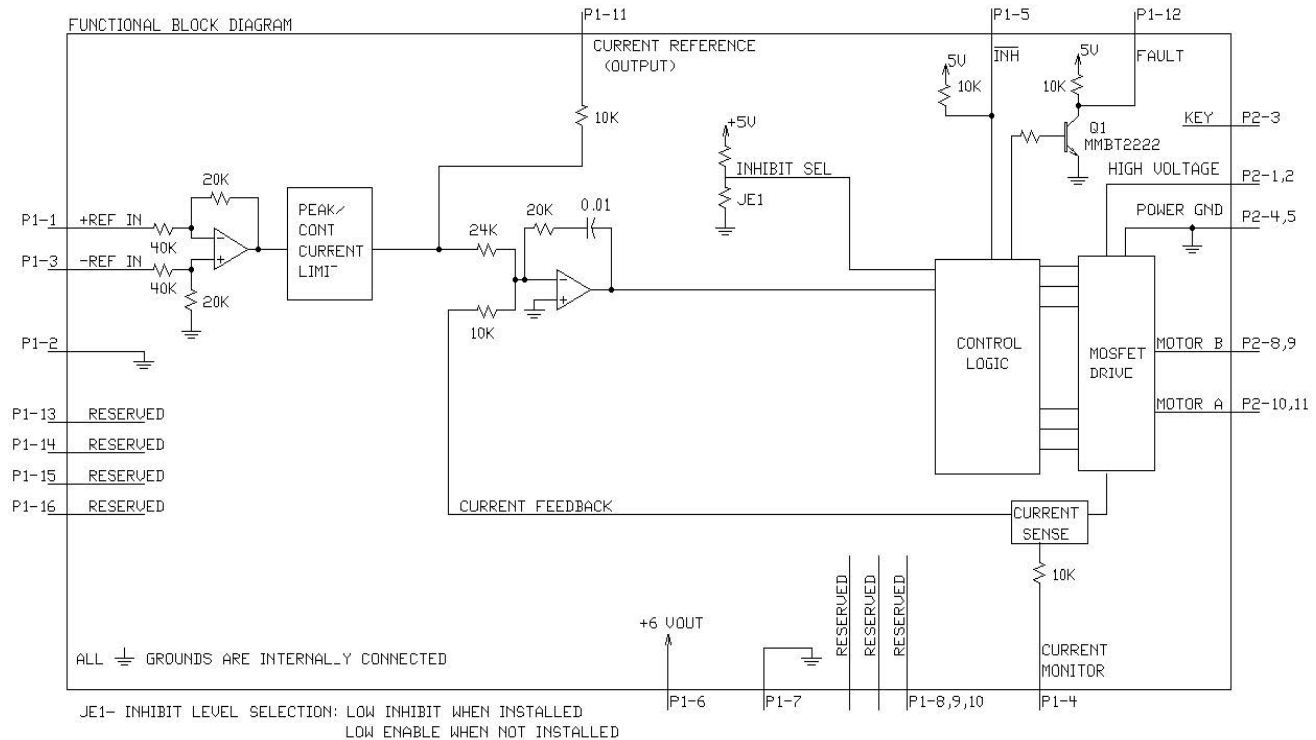
## SPECIFICATIONS

Power Specifications		
Description	Units	Value
DC Supply Voltage Range	VDC	20 - 80
DC Bus Under Voltage Limit	VDC	18
DC Bus Over Voltage Limit	VDC	88
Maximum Peak Output Current <sup>1</sup>	A	12
Maximum Continuous Output Current	A	6
Maximum Continuous Output Power	W	456
Maximum Power Dissipation at Continuous Current	W	24
Minimum Load Inductance (Line-To-Line) <sup>2</sup>	μH	100
Low Voltage Supply Outputs	-	+6 VDC (30 mA)
Switching Frequency	kHz	31
Control Specifications		
Description	Units	Value
Command Sources	-	±10 V Analog
Modes of Operation	-	Current
Motors Supported	-	Single Phase (Brushed, Voice Coil, Inductive Load)
Hardware Protection	-	Over Current, Over Temperature, Over Voltage, Short Circuit (Phase-Phase & Phase-Ground)
Mechanical Specifications		
Description	Units	Value
Size (H x W x D)	mm	127 x 77.5 x 44.5
Operating Temperature Range	°C (°F)	0 - 75 (32 - 185)
Storage Temperature	°C (°F)	-40 - 85 (32 - 185)
Relative Humidity	-	0 - 90% Non-Condensing
P1 Connector		16 Pin, pitch 2.54 mm connector
P2 Connector		8Pin pitch 5.08 mm Pluggable terminal block

### Notes

1. Maximum duration of peak current is ~2 seconds. Peak RMS value must not exceed continuous current rating of the drive.
2. Lower inductance is acceptable for bus voltages well below maximum. If the motor inductance is lower than the minimum inductance, please contact the factory for customized modification.

## BLOCK DIAGRAM



## HARDWARE SETTINGS

### Jumper Settings

Jumpers are SMT, 0 ohm resistors located on the underside of the drive PCB. By default, the drive is configured with the jumpers installed. Typical drive operation will not require the jumpers to be removed. Please contact the factory before jumper removal.

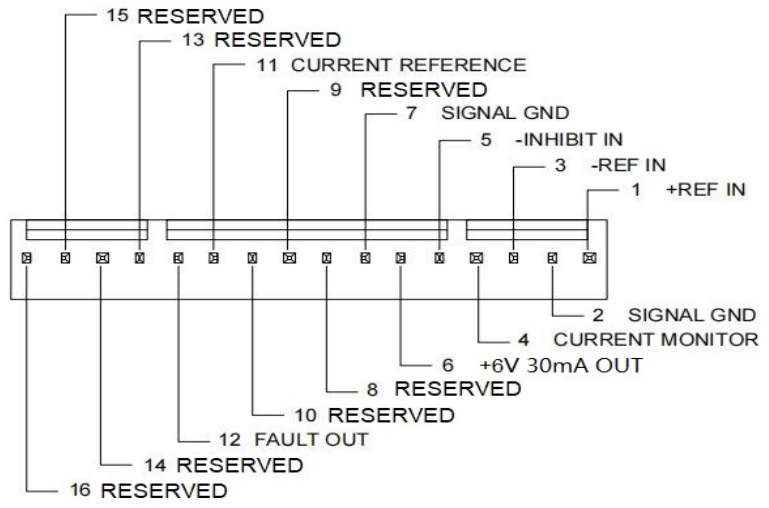
Jumpe	Description	Configuration	
		Not Installed	Installed
JE1	Inhibit logic. Sets the logic level of inhibit pins. Labeled JE1 on the PCB of the drive.	Low Enable	Low Inhibit
JE2	Hall sensor phasing. Selects 120 or 60 degree commutation phasing. Labeled JE2 on the PCB of the drive.	60 degree	120 degree

### Notes:

Any damage done to the drive while performing these modifications will void the product warranty. It is recommended to contact AMC China's technical staff before setting of JPE1 and JPE2.

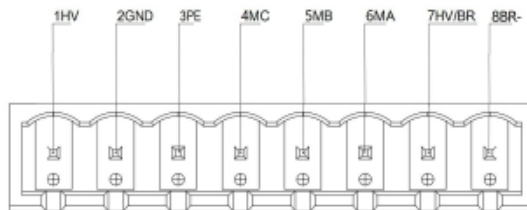
## PIN FUNCTIONS

P1 Signal Interface Definitions		
Connector information		16 Pin, pitch 2.54 mm connector
Matching Connector	Part No.	Molex: P/N 22-01-3167 (Housings) and P/N 08-50-0114 (CRIMP TERMINAL)
	Remark	Connectors need to be ordered separately
Pin	Signal	Description
1	+REF IN	Differential Reference Input ( $\pm 10$ V Operating Range, $\pm 15$ V Maximum Input)
2	SIGNAL GND	Signal Ground
3	-REF IN	Differential Reference Input ( $\pm 10$ V Operating Range, $\pm 15$ V Maximum Input)
4	CURRENT MONITOR	Current Monitor. Analog output signal proportional to the actual current output. Polarity is reversed from command voltage. Scaling is 4 A/V. Measure relative to signal ground.
5	INHIBIT IN	TTL level (+5 V) inhibit/enable input. Leave open to enable drive. Pull to ground to inhibit drive. Inhibit turns off all power devices.
6	+6V 30mA OUT	Low Power Supply For Hall Sensors (+6 V @ 30 mA). Referenced to signal ground. Short circuit protected.
7	SIGNAL GND	Signal Ground
8	RESERVED	RESERVED
9	RESERVED	
10	RESERVED	
11	CURRENT REFERENCE	Measures the command signal to the internal current-loop. This pin has a maximum output of $\pm 7.45$ V when the drive outputs maximum peak current. Measure relative to signal ground.
12	FAULT OUT	TTL level (+5 V) output becomes high when power devices are disabled due to at least one of the following conditions: inhibit, invalid Hall state, output short circuit, over voltage, over temperature, power-up reset.
13	RESERVED	RESERVED
14	RESERVED	
15	RESERVED	
16	RESERVED	

## P2 Power Interface Definitions

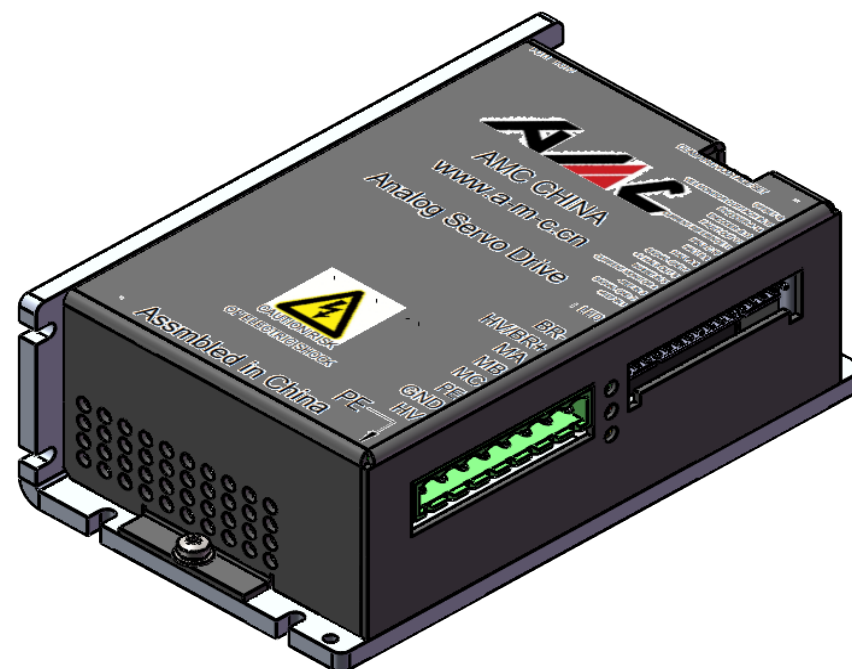
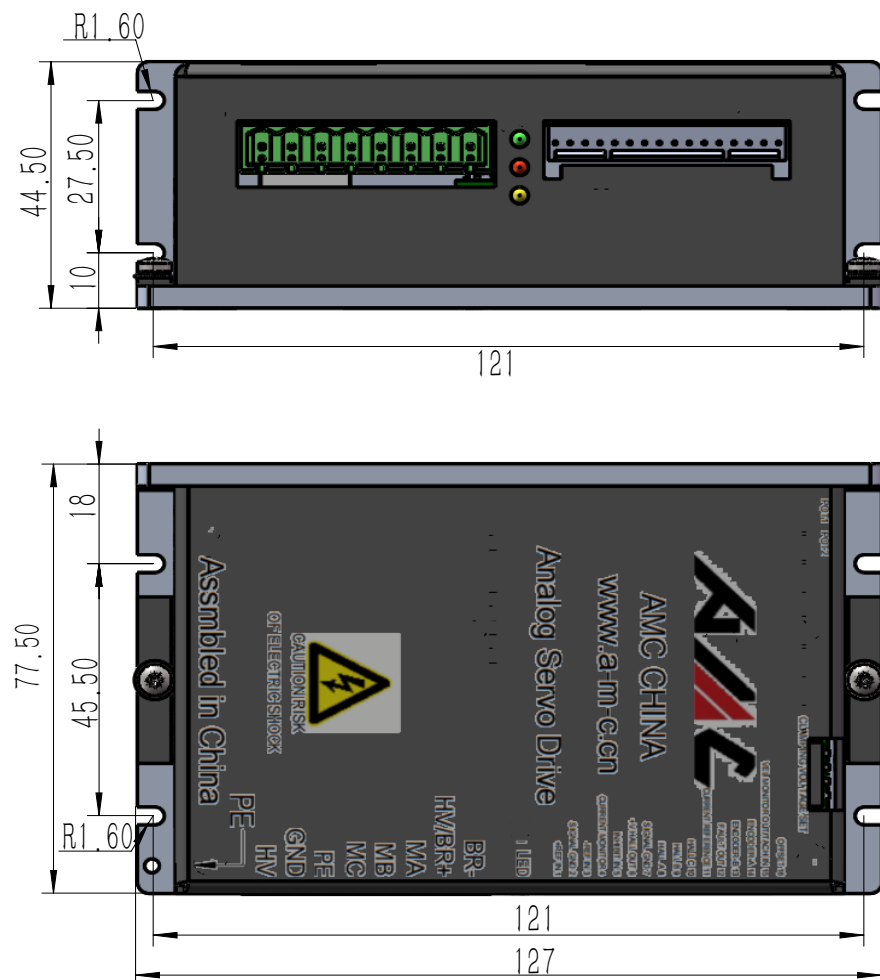
Connector information		8Pin pitch 5.08 mm Pluggable terminal block
Matching Connector	Part No.	KF2EDGK5.08
	Remark	Connectors need to be ordered separately
Pin	Signal	Description
1	HV	DC+ Power Input
2	GND	Power Ground (Common With Signal Ground).
3	PE	Protective ground (Connect motor cable shield)
4	MC	Motor Phase W
5	MB	Motor Phase V
6	MA	Motor Phase U
7	HV/BR+	External braking resistor connection. Connect a resistor between BR+ and BR-.
8	BR-	



# Golden Ding Series Analog Servo Drives



## DIMENSIONS (mm)



## PART NUMBERING INFORMATION

