

# **GLENTEK ANALOG BRUSH PWM SERVO DRIVES** **MODELS: SMA7115**

Revision: 12/15/20



Glentek's Analog Brush PWM Servo Drives offer high performance analog control of brush type rotary and voice coil motors. Both AC powered (stand alone and multi-axis) and DC powered (module) packages are available. Glentek has been designing and manufacturing analog brush PWM servo drives for over 40 years and continually updates each product as advances in technology become available so that customers are assured of optimal performance and reliability. These drives offer a cost effective, simple (tuning is accomplished by the adjustment of potentiometers) and high performance solution.

ELECTRICAL RATINGS							
Model Number	Input Voltage		Continuous Current (A)	Peak Current (A)	Available Package Configurations		
	VDC	VAC			Module	Stand Alone	Multi-Axis
<b>SMA7115</b>	30-220	110-130	15	25	•	•	•
<b>SMA7115HP</b>	30-220	110-130	20	40	•	•	•

Command/Control Modes
+/- 10 VDC for current (torque)
+/- 10 VDC for velocity (RPM)
Feedback
Analog tachometer (required for velocity control)
Dedicated Inputs
Single-ended or differential signal command, tachometer, +/- limits, inhibit/enable, fault, reset
Dedicated Outputs
Motor current, fault, low-speed electronic circuit breaker, high-speed electronic circuit breaker, over-voltage and over-temperature

## FEATURES

### Performance

<b>Current limit</b>	Peak motor current is adjustable.
<b>Frequency response</b>	2 kHz minimum for current loop and 750 Hertz minimum for velocity loop.
<b>Fault protection</b>	Short from output to output, short from output to ground, drive RMS over current, drive under/over voltage and drive over temperature.
<b>Silent operation</b>	18 kHz PWM standard.
<b>External fault reset</b>	Can reset drive externally in the event of a fault condition.
<b>Tri-mode operation</b>	Can be configured for current (torque), velocity (RPM) or voltage mode with IR compensation.
<b>Voltage mode with IR compensation</b>	This mode uses a pseudo-velocity loop. The drive estimates the motor velocity using the motor parameters and internal measurements. It is not as accurate as a true closed velocity loop with tachometer feedback, but it provides a great low cost alternative for less demanding applications.

### Feedback

<b>Tachometer</b>	Required for velocity feedback.
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### Dedicated I/O

<b>+/- Limits &amp; inhibit</b>	Three separate logic inputs can stop the motor in either or both directions. Inputs may be configured for active-high or active-low, pull-up or pull down termination, and a 0 to +5 VDC or 0 to +15 VDC range.
<b>Dual signal inputs</b>	One single-ended and one differential. Both inputs may be used simultaneously. Both have up to 15,000A/V gain (velocity mode), and inputs will accept the typical $\pm 10$ VDC analog signal.
<b>Fault input/output</b>	Open-collector output goes low in the event of a fault. Forcing the fault terminal low will inhibit the drive. The fault terminals outputs in a multi-axis system may be connected together to shut down all drives should any drive have a fault.

### Input

<b>Wide operating voltage</b>	30-220 VDC for drive modules. Multi-axis versions can be ordered for operation from 110-130 VAC (single or 3-phase, 50/60 Hz). Note: A separate 120 VAC source is required to power cooling fans for the multi-axis chassis.
<b>Direct AC operation</b>	The stand alone units and multi-axis chassis includes a DC bus power supply, cooling fans and a regen clamp with dumping resistor.

### Build

<b>Complete isolation</b>	Complete isolation between signal and power stage.
<b>LED diagnostics</b>	Display various fault and operating conditions.
<b>Short circuit protection</b>	Complete short circuit and ground fault protection.
<b>SMT construction</b>	Provides ultra compact size, cost competitive package and high reliability.
<b>Ergonomic design</b>	Easy access to connections, adjustments, and test points.

## ENVIRONMENTAL CONDITIONS

Storage Temperature:	-40°C to 80°C
Operating Temperature:	Standard: 0°C to 40°C without current derating, up to 50°C with 25% current derating Special: -40°C to 40°C without current derating, up to 50°C with 25% current derating
Humidity:	5% to 95% relative humidity, non-condensing
Altitude:	Up to 1000m without derating, derate current 10% per 1000m above 1000m

## DIMENSIONS

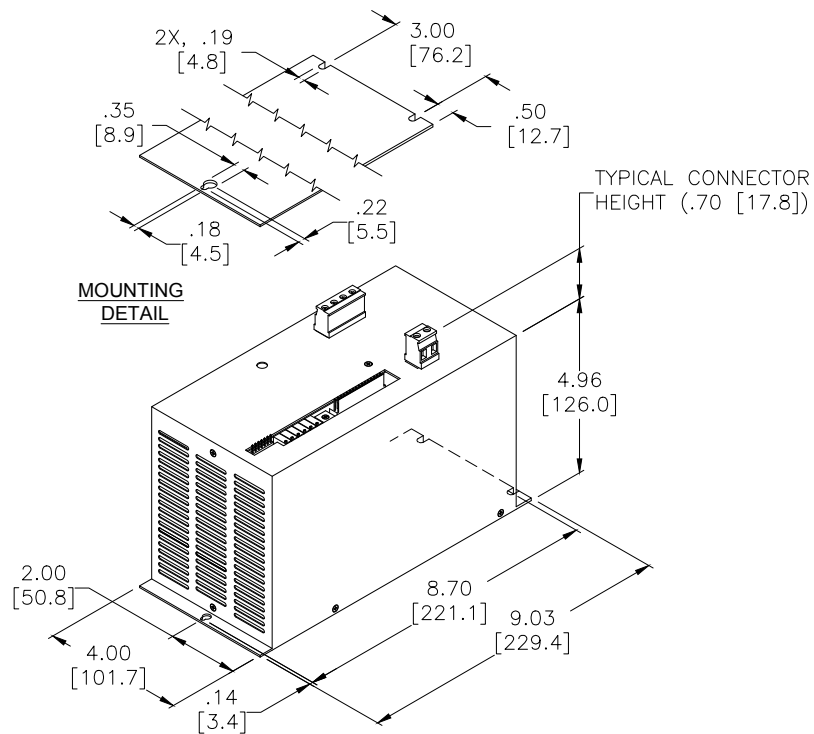
### Mounting Configurations

<b>Stand Alone</b>	This package consists of a drive module, DC bus power supply, regen clamp with dumping resistor, in-rush current limiting protection at power-on, fuses and one or more cooling fans.
<b>Module</b>	This package consists of a drive module, without a DC bus power supply. This type of package is typically used for cost sensitive applications where the customer provides DC bus power supply, forced air cooling and regen/clamp.
<b>Multi-Axis</b>	This package consists of an open frame base plate chassis with DC bus power supply, regen clamp with dumping resistor, in-rush current limiting protection at power-on, fuses and cooling fans. Available in 2 & 4 axis packages. This type of package is typically used for multi-axis applications.

## DIMENSIONS

### SMA7115-1A Stand Alone

Dimensions are inches [millimeter]

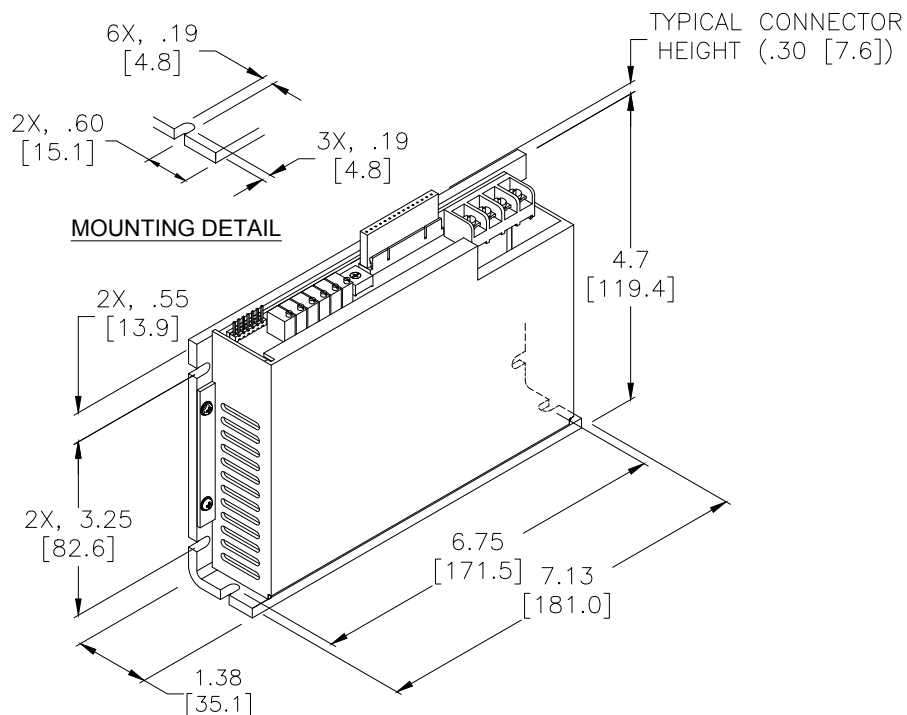


**Weight**

5.3 lb / 2.4 kg

### SMA7115 Module

Dimensions are inches [millimeter]



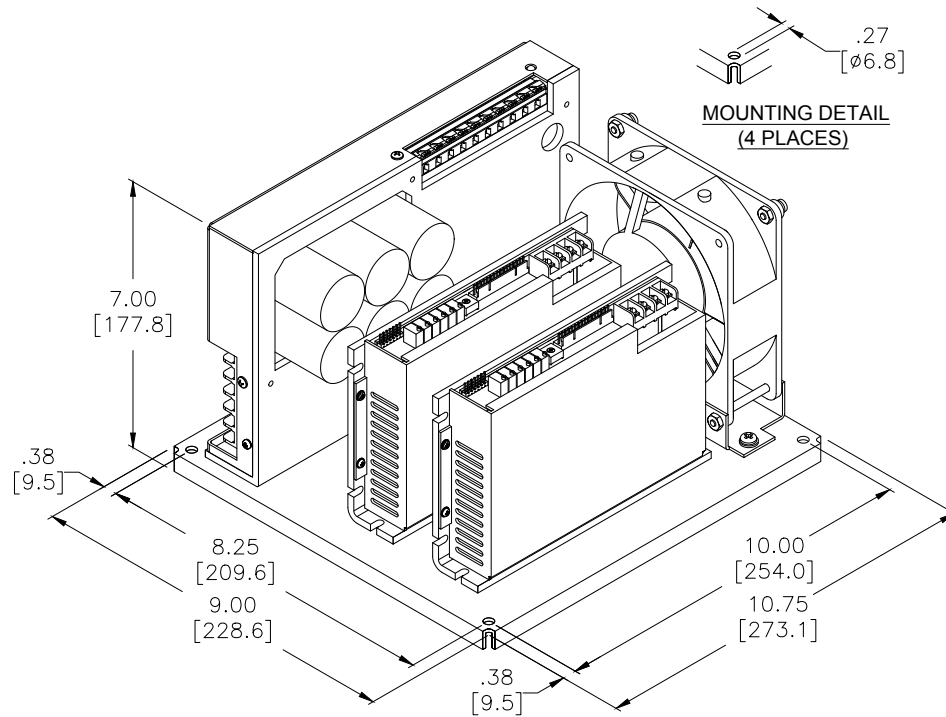
**Weight**

1.3 lb / 0.6 kg

## DIMENSIONS

### SMA7115 2-Axis Package

Dimensions are inches [millimeter]

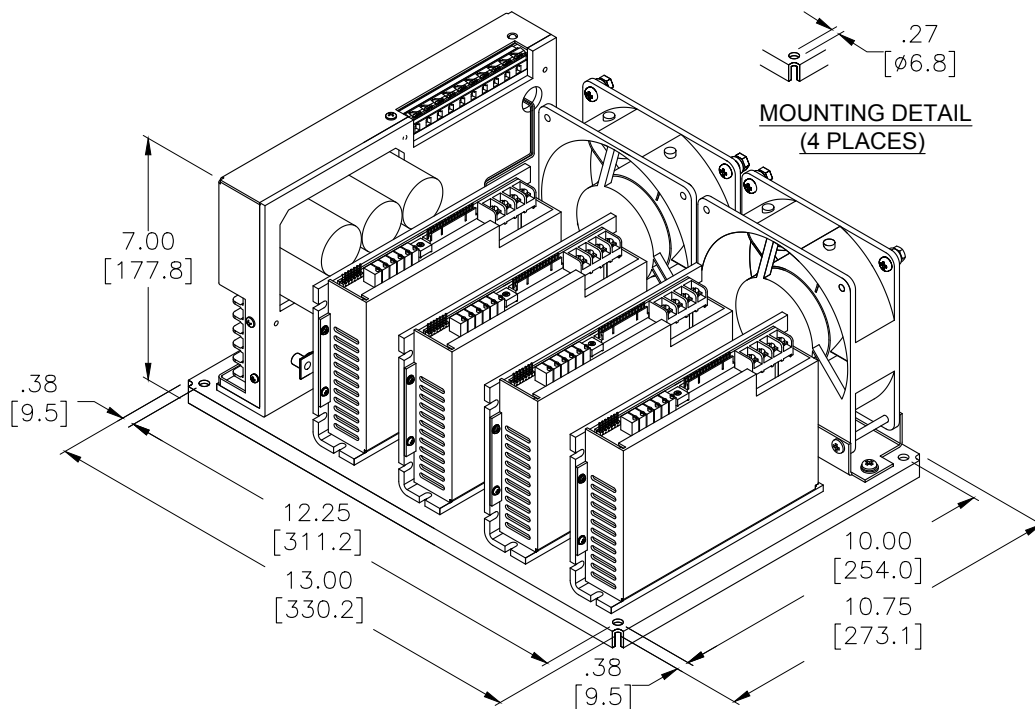


#### Weight

8.5 lb / 3.9 kg

### SMA7115 4-Axis Package

Dimensions are inches [millimeter]



#### Weight

13.3 lb / 6.0 kg

## STAND ALONE MODEL NUMBERING

This section explains the model numbering system for Glentek's Analog Brush PWM servo drives. The model numbering system is designed so that you, our customer, will be able to create the model number for the drive that best suits your needs. In order to accurately select a complete model number, please choose the model and package configuration you require based on its electrical ratings. Then complete the drive configuration code you require using the information on this page. After completing your model number, be sure to contact a Glentek Sales Engineer to confirm that the model number you have created is correct.

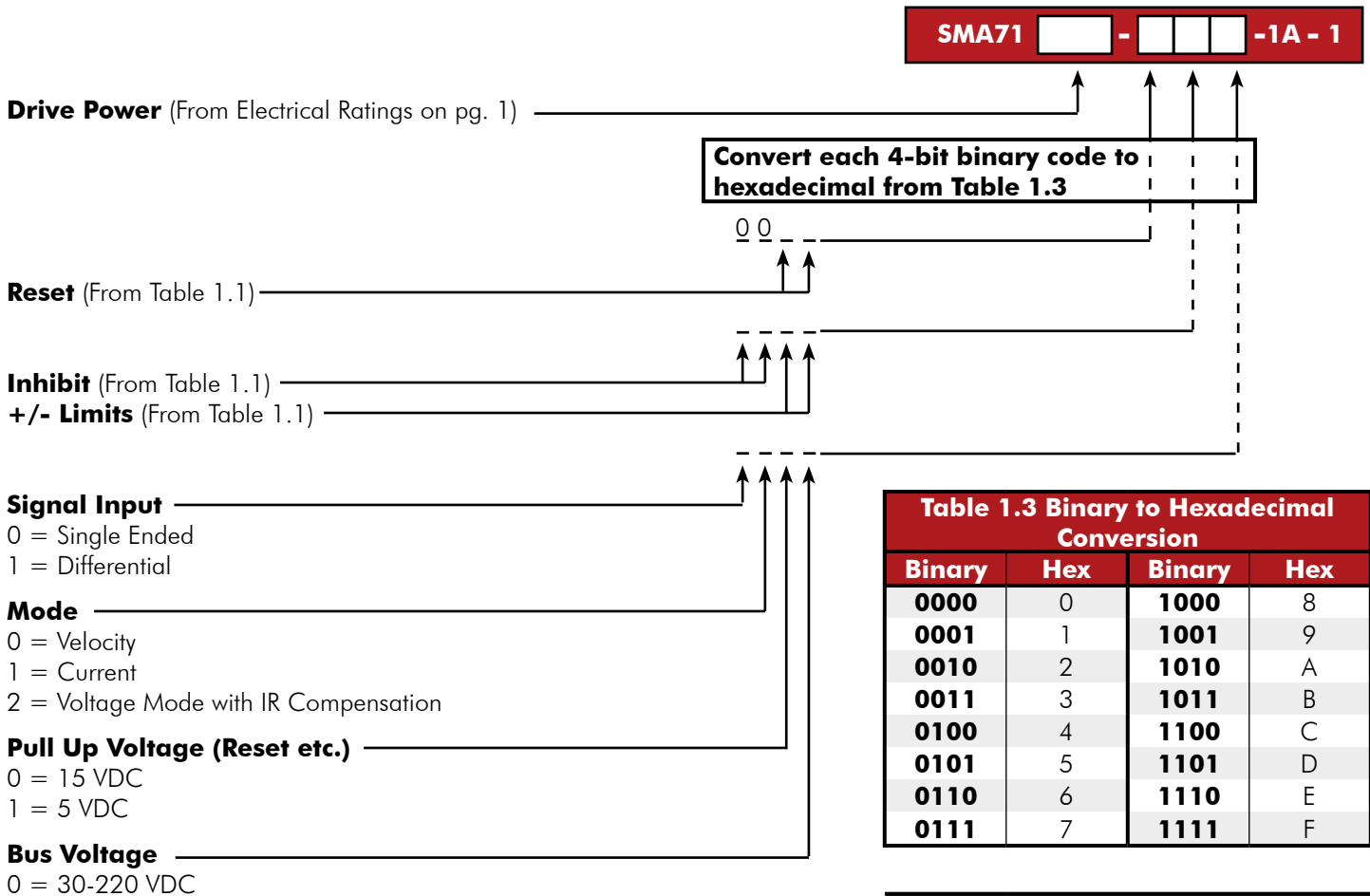
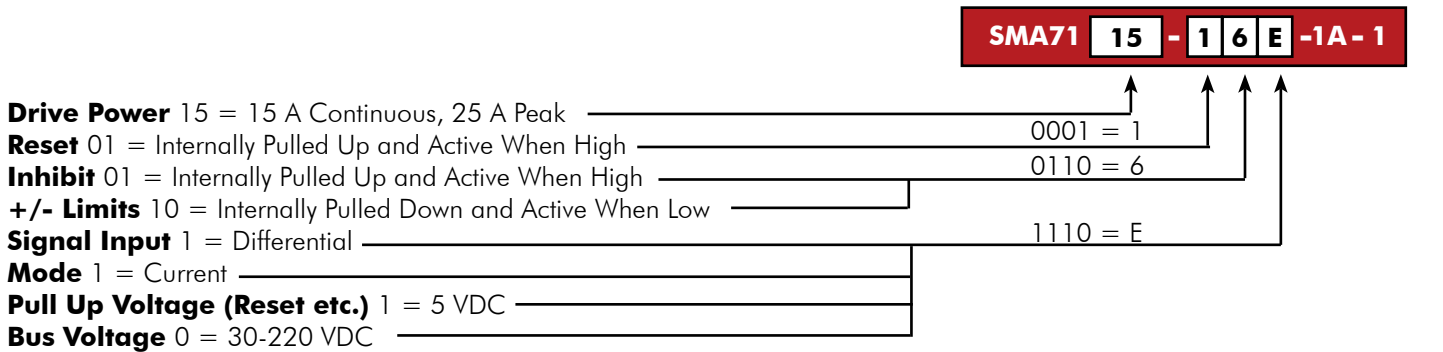


Table 1.3 Binary to Hexadecimal Conversion			
Binary	Hex	Binary	Hex
0000	0	1000	8
0001	1	1001	9
0010	2	1010	A
0011	3	1011	B
0100	4	1100	C
0101	5	1101	D
0110	6	1110	E
0111	7	1111	F

Table 1.1 Inhibit, Reset, +/- Limits Configuration			
Type	Input is:	Input State:	Binary
A	Internally Pulled Up	Active When Low	00
B	Internally Pulled Down	Active When High	11
C	Internally Pulled Up	Active When High	01
D	Internally Pulled Down	Active When Low	10

Table 1.2 Logic Input Configuration	
Type	Logic
A	Requires grounding of input to disable the drive.
B	Requires a positive voltage at input to disable the drive.
C	Requires grounding of input to enable the drive.
D	Requires a positive voltage at input to enable the drive.

## MODULE MODEL NUMBERING

This section explains the model numbering system for Glentek's Analog Brush PWM servo drives. The model numbering system is designed so that you, our customer, will be able to create the model number for the drive that best suits your needs. In order to accurately select a complete model number, please choose the model and package configuration you require based on its electrical ratings. Then complete the drive configuration code you require using the information on this page. After completing your model number, be sure to contact a Glentek Sales Engineer to confirm that the model number you have created is correct.

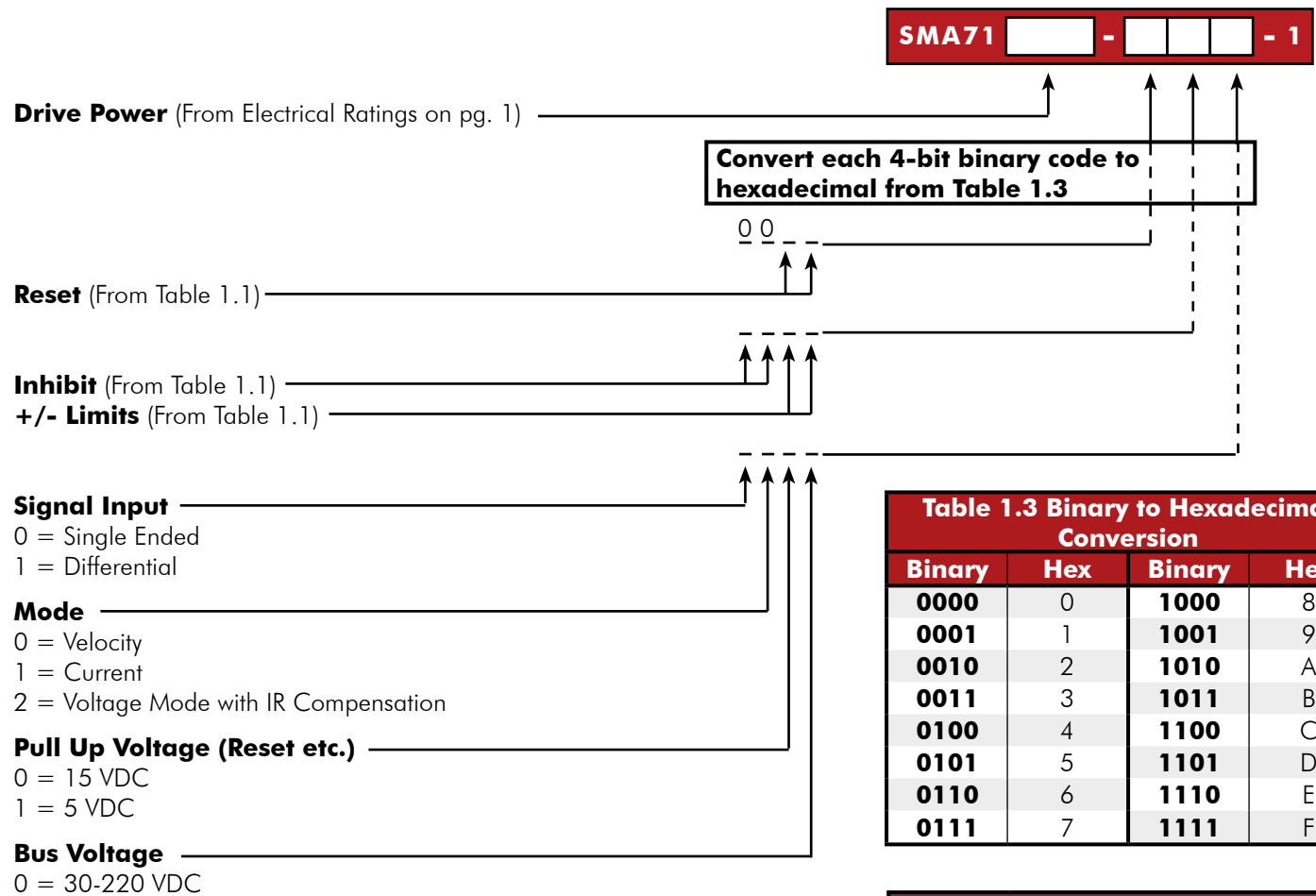
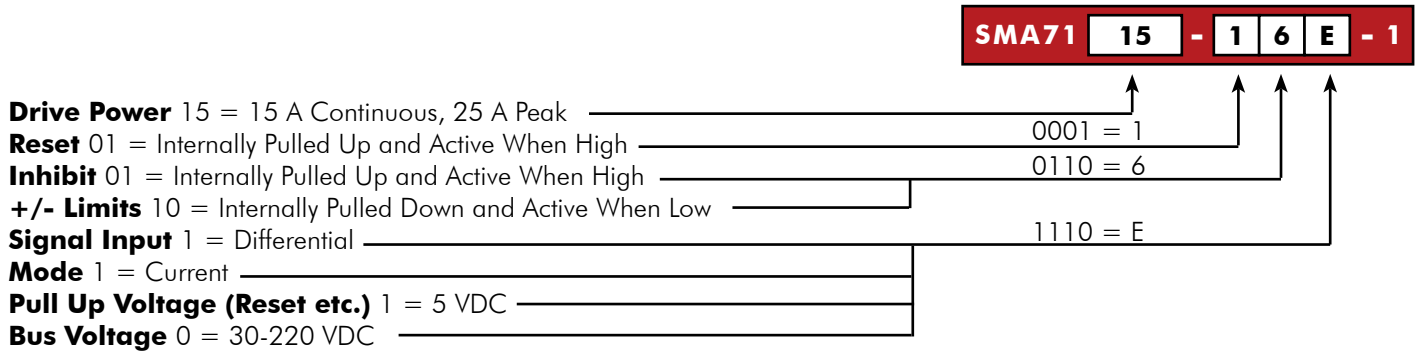


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C	Internally Pulled Up	Active When High	01
D	Internally Pulled Down	Active When Low	10

Table 1.2 Logic Input Configuration	
Type	Logic
A	Requires grounding of input to disable the drive.
B	Requires a positive voltage at input to disable the drive.
C	Requires grounding of input to enable the drive.
D	Requires a positive voltage at input to enable the drive.

## MULTI-AXIS MODEL NUMBERING

This section explains the model numbering system for Glentek's Analog Brush PWM servo drives. The model numbering system is designed so that you, our customer, will be able to create the model number for the drive that best suits your needs. In order to accurately select a complete model number, please choose the model and package configuration you require based on its electrical ratings. Then complete the drive configuration code you require using the information on this page. After completing your model number, be sure to contact a Glentek Sales Engineer to confirm that the model number you have created is correct.

SMA71 15 - 1 6 E - 4 A - 3

**Drive Power** 15 = 15 A Continuous, 25 A Peak

**Reset** 01 = Internally Pulled Up and Active When High

**Inhibit** 01 = Internally Pulled Up and Active When High

**+/- Limits** 10 = Internally Pulled Down and Active When Low

**Signal Input** 1 = Differential

**Mode** 1 = Current

**Pull Up Voltage (Reset etc.)** 1 = 5 VDC

**Bus Voltage** 0 = 30-220 VDC

**Mounting Configuration** 4 = 4-Axis Chassis

**Number of Drives Installed** 3 = 3 Drives (4-Axis Chassis)

**Drive Power** (From Electrical Ratings on pg. 1)

**Reset** (From Table 1.1)

**Inhibit** (From Table 1.1)

**+/- Limits** (From Table 1.1)

**Signal Input**

0 = Single Ended

1 = Differential

**Mode**

0 = Velocity

1 = Current

2 = Voltage Mode with IR Compensation

**Pull Up Voltage (Reset etc.)**

0 = 15 VDC

1 = 5 VDC

**Bus Voltage**

0 = 30-220 VDC

**Mounting Configuration**

2 = 2-Axis Chassis

4 = 4-Axis Chassis

**Number of Drives Installed**

1 = 1 Drive (2-Axis Chassis)

2 = 2 Drive (2-Axis Chassis)

3 = 3 Drive (2-Axis Chassis)

4 = 4 Drive (2-Axis Chassis)

Convert 4-bit binary  
code to hexadecimal

Table 1.3 Binary to Hexadecimal Conversion			
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0100	4	1100	C
0101	5	1101	D
0110	6	1110	E
0111	7	1111	F

Table 1.2 Logic Input Configuration	
Type	Logic
A	Requires grounding of input to disable the drive.
B	Requires a positive voltage at input to disable the drive.
C	Requires grounding of input to enable the drive.
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C	Internally Pulled Up	Active When High	01
D	Internally Pulled Down	Active When Low	10