

APPENDIX A

Specifications

IN THIS CHAPTER

- Gemini Drive Specifications
 - Input/Output Specifications
 - Dimensions
 - Protective Circuits
 - Cable Specifications
-

Power Specifications

+24VDC Input Power

Input voltage range: 19.2 – 28.8 VDC
 Input current: 500 mA (maximum)

AC Input Power

AC

Drive	AC Input Voltage
GT6K-L5	95VAC – 132VAC, 1-phase, 50/60 Hz
GT6K-L8	95VAC – 132VAC, 1-phase, 50/60 Hz
GV6K-L3n	95VAC – 132VAC, 1-phase, 50/60 Hz
GV6K-U3n	95VAC – 264VAC, 1-phase, 50/60 Hz
GV6K-U6n	95VAC – 264VAC, 1-phase, 50/60 Hz
GV6K-U12n	95VAC – 264VAC, 1-phase, 50/60 Hz
GV6K-H20n	165VAC – 264VAC, 1-phase or 3-phase, 50/60 Hz
GV6K-H40n	165VAC – 264VAC, 3-phase, 50/60 Hz



CAUTION



Do not operate GV6K-L3, GT6K-L5 or GT6K-L8 above 132VAC, or the drive will be permanently damaged.

Connector:	GT6K-L5/L8; GV6K-L3/U3/U6/U12/H20:	GV6K-H40
Drive terminals:	#8 (M4) screw terminals	#10 (M5) screw terminals
Mating terminals:	spade fork, 0.325" max. width	ring terminal, 0.25" I.D., 0.50" O.D.
Tightening torque:	20 in-lbs nom., 24 in-lbs max.	20 in-lbs nom., 24 in-lbs max.

Output Power

Drive	Output Current (amps, peak)	Output Voltage (motor bus) (DC, rms)
GT6K-L5	5.0	170
GT6K-L8	8.0	170

Drive	<u>Continuous Output:</u>		<u>Peak Output:</u>	
	Current (amps, peak)	Power (watts, max)	Current (amps, peak)	Power (watts, max)
GV6K-L3n	3A	440W	7.5A	1.1 kW
GV6K-U3n	3A	880W	7.5A	2.2 kW
GV6K-U6n	6A (at 8 kHz)	1.75 kW	15A (at 8 kHz)	4.4 kW
GV6K-U12n	12A (at 8 kHz)	3.5 kW	30A (at 8 kHz)	8.8 kW
GV6K-H20n	20A (3Ø input at 8 kHz)	5.8 kW	50A (3Ø input at 8 kHz)	14.7 kW
GV6K-H40n	40A (3Ø input at 8 kHz)	11.8 kW	100A (3Ø input at 8 kHz)	29.4 kW

Connector:	GT6K-L5/L8; GV6K-L3/U3/U6/U12/H20:	GV6K-H40
Drive terminals:	#8 (M4) screw terminals	#10 (M5) screw terminals
Mating terminals:	spade fork, 0.325" max. width	ring terminal, 0.25" I.D., 0.50" O.D.
Tightening torque:	20 in-lbs nom., 24 in-lbs max.	20 in-lbs nom., 24 in-lbs max.

Amplifier

Type – GV6K Servos:	GV6K-L3n:	40 kHz PWM;	3 phases
	GV6K-U3n:	8 kHz PWM;	3 phases
	GV6K-U6n/U12n:	8, 16, 20 kHz PWM;	3 phases
	GV6K-H20n:	8, 16, 20 kHz PWM;	3 phases
	GV6K-H40n:	8, 16, 20 kHz PWM;	3 phases

Type – GT6K Steppers: 20 kHz fixed frequency, variable duty cycle PWM, current controlled, recirculating, bipolar type, MOSFET construction.

2 Phases: bipolar motor configuration only.

Auto Standby: When enabled, motor current reduces to a percentage of present value, when no step pulses are received for one second. (See DAUTOS command.)

Environmental Specifications

		GT6K-L5/L8; GV6K-L3n/U3/U6/U12n; GV6K-H20 (with < 25W regen); GV6K-H40	GV6K-H20 (with <100W regen)
Operating Temperature:	Still Air:	45°C (113°F)	35°C (95°F)
	Moving air:	50°C (122°F)	40°C (104°F)
	Minimum:	0°C (32°F)	0°C (32°F)
Storage Temperature:	-40°C – 85°C (-40°F – 185°F)		
Humidity:	0 – 95%, non-condensing		
Shock:	15g, 11msec half sine		
Vibration:	10 – 2000 Hz at 2g		

Performance

GV6K Servos – Performance:

Accuracy: ±1 encoder count; encoder dependent

GVTK Steppers – Performance:

Accuracy: ±5 arc min (0.0833°), typical unloaded bidirectional with Compumotor motors. Other motors may have different absolute accuracy.

±1 arc minute (0.0167°), loaded in addition to unloaded accuracy, per each frictional load equal to 1% rated torque.

Repeatability: ±5 arc sec (0.0014°), typical unloaded one revolution returning to starting point from same direction

Hysteresis: Less than 2 arc min (0.0334°) unloaded bidirectional

Resolution: User definable integer value between 200 and 128,000 steps per revolution

Waveform: -20% through 10%, 0.01% resolution, continuously variable, 3rd harmonic, (use DWAVEF command)

Standards

UL, cUL	508C	
CE for LVD	72/23/EEC	
	BS EN61010-1:1993/A2:1995 (ie includes 1995 amendment AMD 8961)	Safety requirements for electrical equipment for measurement, control, and laboratory use
		Part 1. General requirements
CE for EMC	89/336/EEC	
	BS EN61800-3: 1997	Adjustable speed electric power drive systems Part 3. EMC product standard including specific test methods.
	IEC 61800-3: 1996	Adjustable speed electric power drive systems Part 3. EMC product standard including specific test methods.

Interface/Communication

Serial:

“RS-232/485” Connector (COM1):

RS-232: 3-wire connections (Rx, Tx, and GND). 8 data bits; 1 stop bit; no parity; full duplex; baud rate: 9600 (not adjustable). Drive connector: 9 pin D-subminiature plug.

RS-485*: 4-wire plus ground (Rx+, Rx-, Tx+, Tx-, Gnd). 8 data bits; 1 stop bit; no parity; full duplex; baud rate: 9600 (not adjustable). Drive connector: 9 pin D-subminiature plug.

*twisted pair cabling recommended (e.g. Belden 9842)

“RS-232” Connector (COM2):

RS-232: 3-wire connections (Rx, Tx, and GND), and +5VDC. 8 data bits; 1 stop bit; no parity; full duplex; baud rate: 9600 default (set with BAUD command; range: 1200-115200). Drive connector: 9 pin D-subminiature plug. The “RS-232” connector’s default configuration is set for use with an RP240.

Ethernet:

“Ethernet Connector”:

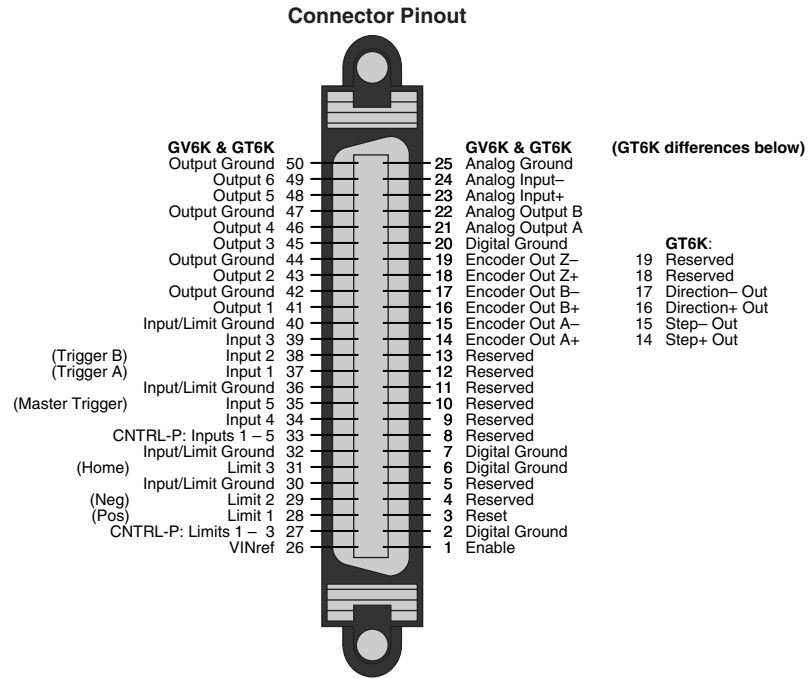
10Base-T (10Mbps twisted pair); TCP/IP protocol. RJ-45 connector. Default IP address is 192.168.10.30 (use NTADDR on RS-232 connector to change address).

Weight

	Drive	Weight <i>pounds (kg)</i>
GV6K Servos:	GV6K-L3n:	4.8 (2.2)
	GV6K-U3n:	4.8 (2.2)
	GV6K-U6n:	5.5 (2.5)
	GV6K-U12n:	5.6 (2.6)
	GV6K-H20n:	9.6 (4.4)
	GV6K-H40n:	17.1 (7.7)
GT6K Steppers:	GT6K-L5:	4.8 (2.2)
	GV6K-U5:	6.4 (2.9)

Inputs and Outputs

This section describes all inputs and outputs (I/O) located on the 50 pin DRIVE I/O connector. The connector pinout is shown in the next drawing.



Drive I/O Connector

Connector Specifications:

	Gem6K Drive:	Mating Connector* (not provided; see note):
Manufacturer:	AMP	AMP
Connector Type:	CHAMP .050 Series II	CHAMP .050 Series II
AMP Part Number:	2-178238-7	2-175677-7
Wire Gauge:	not applicable	use 28 AWG (0.08 mm ²)

* Note: Mating connectors are not provided with Gem6K drives; Compumotor cables are available with mating connectors attached. If you make your own cables, you must use a "jack screw" style fastener, not "spring clip" style.

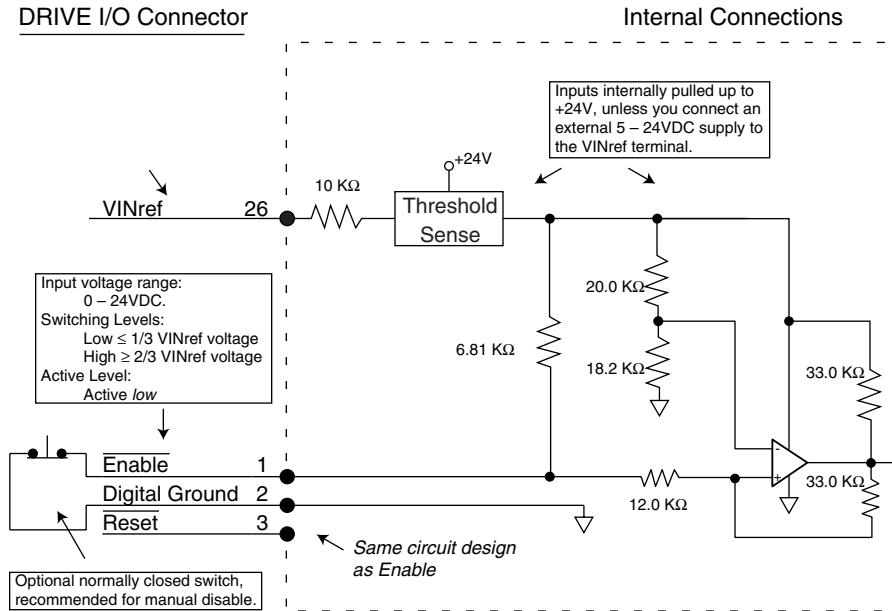
Soldercup Connector

The soldercup connector and plastic screw lock backshell listed below will fit onto the Gem6K's DRIVE I/O connector. Because the backshell is plastic, it should not be used in CE applications.

Connector Type:	Soldercup Connector	Screw Lock Backshell
Manufacturer:	3M	3M
3M Part Number:	10150-3000VE	10350-52A0-008

Enable Input (required)

To enable the drive and energize the motor, you must connect the enable input (pin 1) to digital ground (pin 2), and issue a DRIVE1 command. The next drawing shows the internal circuit.



Enable Input and Reset Input

Reset Input (optional)

The reset and enable inputs use the same circuit design, as the drawing above indicates.

To reset the drive, temporarily connect the reset input (pin 3) to digital ground (pin 2). Reset begins when pin 3 is grounded. The drive will begin its power up sequence upon disconnection of pin 3 from ground.

VINref – Voltage Input Reference (optional)

Use VINref (pin 26) to set the input reference voltage for the enable, reset, digital inputs and limit inputs.

Connections to VINref are optional. If you connect nothing, then the enable, reset, and inputs are internally pulled up to +24VDC. This is the factory default condition.

If you connect an external 5 – 24VDC power supply to VINref, then the input switching thresholds become:

$$\text{Low} \leq 1/3 * \text{VINref}$$

$$\text{High} \geq 2/3 * \text{VINref}$$

$$\text{(Default, with VINref at internal +24VDC: Low} < 8\text{V, High} > 16\text{V)}$$

Digital Inputs (optional)

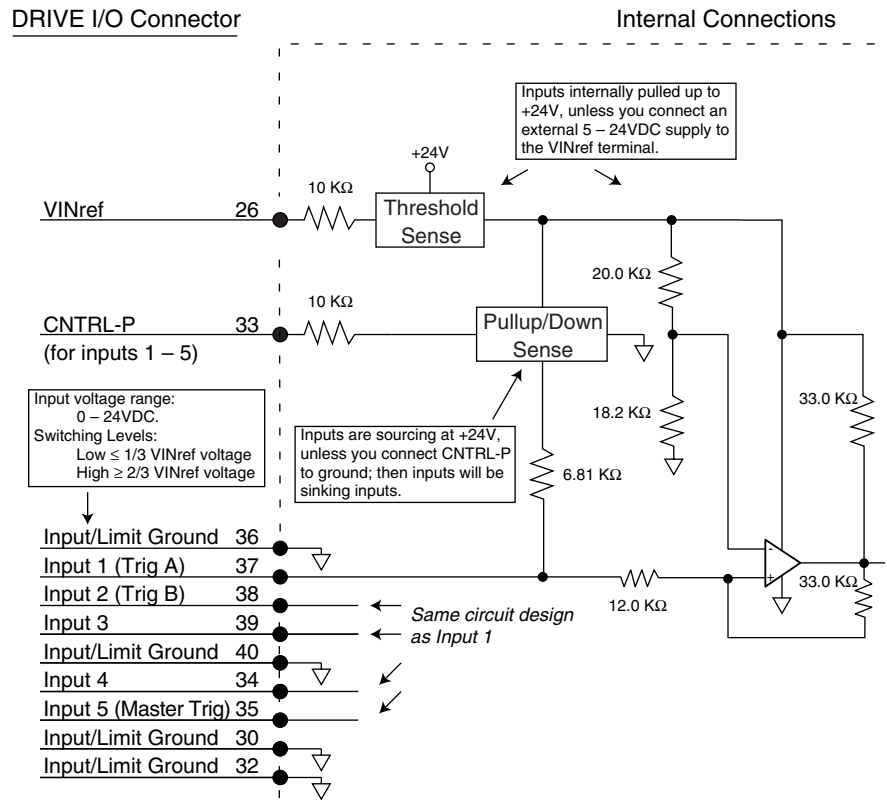
The Gem6K drive has five digital inputs. All connections are shown in the next drawing. By default, all inputs are configured as general purpose inputs. Use the INFNC command to redefine the function of any of the inputs. For more information, see the *Gemini GV6K/GT6K Command Reference*.

By default, these are +24VDC sourcing inputs. You can use VINref (pin 26) to change the switching voltage level. You can also use CNTRL-P (pin 33) to change the inputs from sourcing to sinking inputs.

Should you choose to use the Trigger A, Trigger B, or Master Trigger functions, you must assign them to specific inputs, as follows:

Trigger Function:	Must be assigned to:	Pin number:
Trigger A	Input 1	37
Trigger B	Input 2	38
Master Trigger	Input 5	35

Use the INFNC command to make these assignments.



Inputs

You can use the INLVL and INDEB commands to configure the inputs as active high or active low, and to set the debounce time, respectively.

CNTRL-P – Reference for Digital Inputs (optional)

Make connections to one or both of the CNTRL-P pins to change the digital inputs or limit inputs from sourcing inputs to sinking inputs.

CNTRL-P (pin 27)	affects Limit Inputs	1 – 3
CNTRL-P (pin 33)	affects Digital Inputs	1 – 5

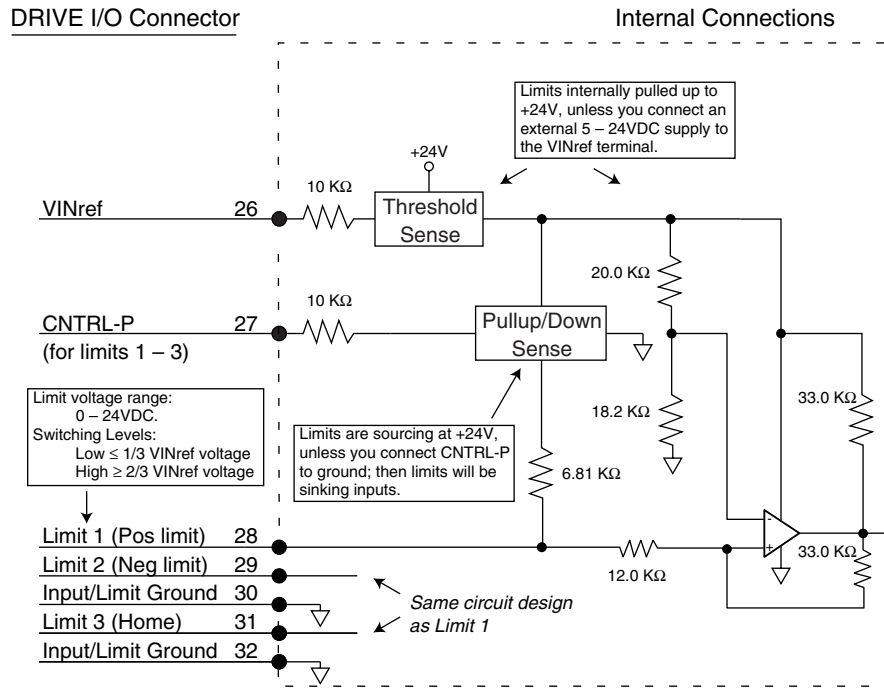
It is not necessary for you to make any connections to CNTRL-P. If you connect nothing, then the inputs are internally pulled up to VINref. If sourcing inputs are appropriate for your application, then make no connections to CNTRL-P.

If you connect a CNTRL-P pin to digital ground, then its associated inputs will become sinking inputs, and will sink current.

Limit Inputs (optional)

The Gem6K drive has three limit inputs. All connections are shown in the next drawing. Defaults are shown in parentheses, but you can use the LIMFNC command to redefine the function of any of the limits. See the *Gemini GV6K/ GT6K Command Reference* for more information.

By default, these are +24VDC sourcing inputs. You can use VINref (pin 26) to change the switching voltage level. You can also use CNTRL-P (pin 27) to change the inputs from sourcing to sinking inputs.

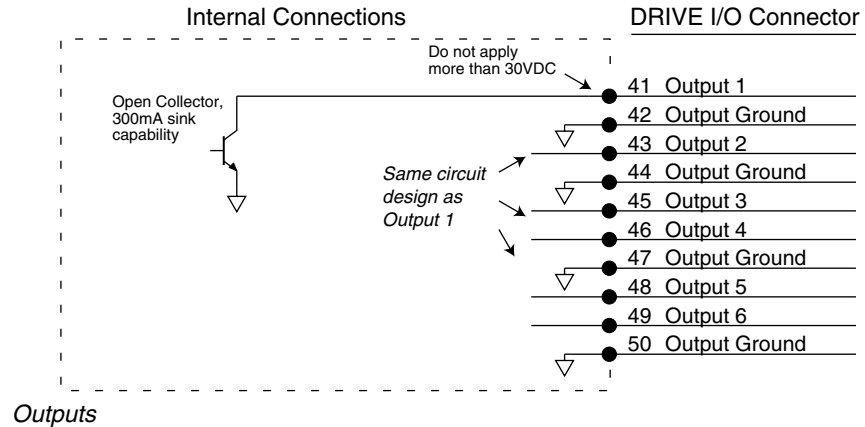


Limits

You can use the LIMLVL and INDEB commands to configure the limit inputs as active high or active low, and to set the debounce time, respectively.

Digital Outputs (optional)

The Gem6K drive has six digital outputs. All connections are shown in the next drawing. Default function is general purpose, but you can use the OUTFNC command to redefine the function of any of the outputs. See the *Gemini GV6K/GT6K Command Reference* for more information.



Outputs

You can use the OUTLVL command to configure each of the outputs as active high or active low. The default value is active low.

Encoder Output – GV6K Servos Only (optional)

Pins 14 – 19 are encoder outputs.

Encoder Output Specifications:

Default Resolution:	Quadrature outputs 4000 counts per revolution, post quadrature
Clockwise Rotation:	Channel A leads Channel B
Counterclockwise Rotation:	Channel B leads Channel A

The encoder outputs operate in one of two modes:

Pseudo Encoder Mode:

Output Channels A and B are derived from position information from the load feedback device (e.g. encoder or resolver). The outputs are *not* based on calculated or commanded position. Pseudo encoder mode is the default mode, unless all conditions listed below are satisfied. There is no Channel Z output in pseudo encoder mode.

Pass Through Encoder Mode:

If the following conditions are satisfied, then Channels A, B, and Z are “passed through” the drive, from the feedback device (e.g. encoder or resolver) to the encoder outputs.

Required Conditions using an Encoder as Feedback Device

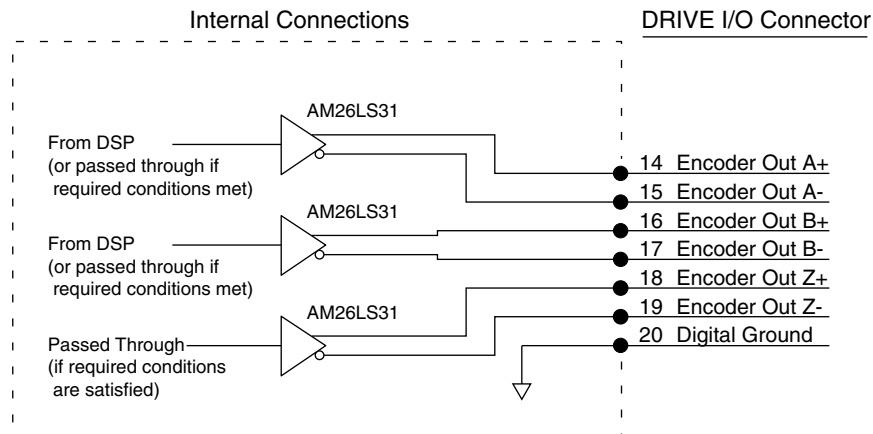
1. ERES and ORES values are equal.

Required Conditions using a Resolver as Feedback Device

1. Resolver is selected as the feedback device (SFB command).
2. ERES is set to 4096.
3. ORES is set to 4096.

If any of these conditions is not satisfied, then the outputs will operate in pseudo encoder mode.

The encoder output circuit is shown in the next drawing.



Encoder Outputs

You can use the ORES command to configure the encoder outputs.

Step & Direction Output – GT6K Steppers Only (optional)

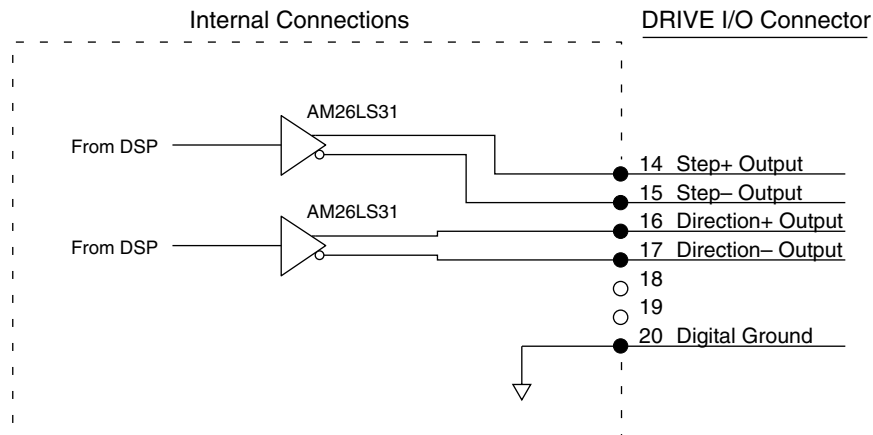
Pins 14 – 17 are step and direction outputs.

The outputs are based on calculated position.

Step & Direction Output Specifications:

- Default Resolution: 25,000 steps per revolution
- Clockwise Rotation: Direction+ = High
- Counterclockwise Rotation: Direction+ = Low

The step and direction output circuit is shown in the next drawing.



Step & Direction Output

You can use the ORES command to configure the step and direction outputs.

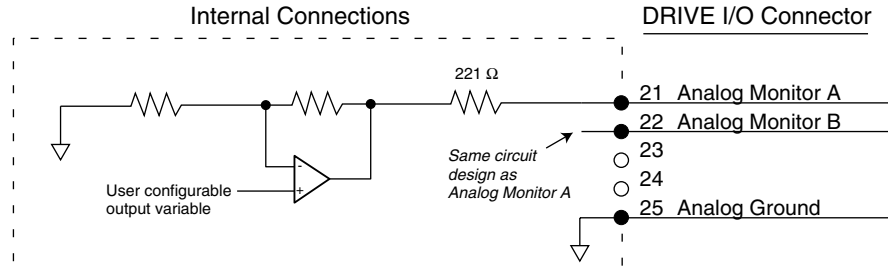
Analog Monitor (optional)

Two analog monitor outputs are available on pins 21 and 22. Use pin 25 as a ground reference for these monitors.

Analog Monitor Specifications:

Maximum Output: $\pm 10V$ (scalable; use DMON command)

Resolution: 8 bits peak to peak (for full scale signal)



Analog Monitors

You can configure the analog outputs to monitor many different variables, such as current, velocity, temperature, etc. You can also scale the outputs. See the DMON commands in *Chapter 3 Configuration* and the *Gemini GV6K/GT6K Command Reference* for more information.



WARNING



Do not use Analog Monitors as control signals. Because of offsets, limited resolution and accuracy, use the analog monitor outputs only for oscilloscope monitoring.

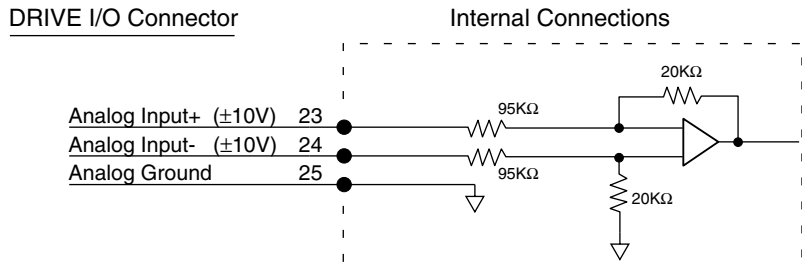
Analog Input (optional)

An analog input is available on pins 23 and 24. Use pin 25 as a ground reference for the analog input.

Connection Instructions for the Analog Input:

1. Connect Analog Input+ to pin 23.
2. Connect Analog Input- to pin 24.
3. Connect your analog source's ground reference to pin 25.

These connections are illustrated in the next drawing.

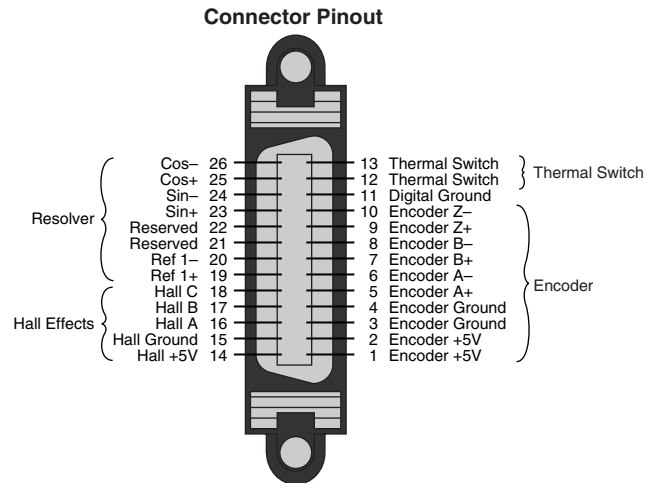


Analog Input

See the ANI, TANI and VARI commands in the *Gemini GV6K/GT6K Command Reference* for more information about using the analog input.

Feedback Devices

This section describes inputs for encoder feedback, resolver feedback, motor thermal switch, and Hall effects located on the drive's 26 pin MOTOR FEEDBACK connector. The next drawing shows the pinout of the connector.



Motor Feedback Connector

Connector Specifications:

	Gem6K Drive:	Mating Connector* (not provided; see note):
Manufacturer:	AMP	AMP
Connector Model:	CHAMP .050 Series II	CHAMP .050 Series II
AMP Part Number:	2-178238-4	2-175677-4
Wire Gauge:	not applicable	use 28 AWG (0.08 mm ²)

* Note: Mating connectors are not provided with Gem6K drives; Compumotor cables are available with mating connectors attached. If you make your own cables, you must use a "jack screw" style fastener, not "spring clip" style.

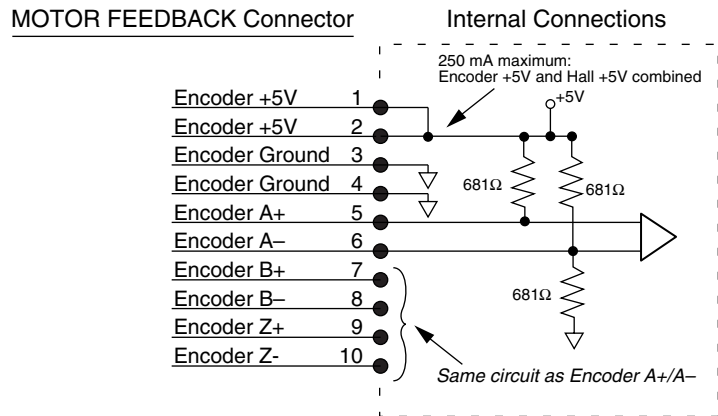
Soldercup Connector

The soldercup connector and plastic screw lock backshell listed below will fit onto the Gem6K's MOTOR FEEDBACK connector. Because the backshell is plastic, it should not be used in CE applications.

Connector Type:	Soldercup Connector	Screw Lock Backshell
Manufacturer:	3M	3M
3M Part Number:	10126-3000VE	10326-52A0-008

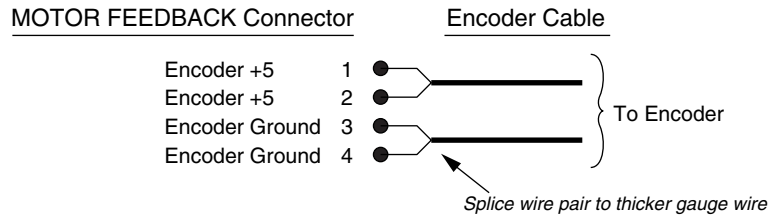
Encoder

If you use a motor with encoder feedback, connect your encoder to pins 1 – 10, as shown in the next figure. (NOTE: The MASTER ENCODER connector is used for Following. See *Chapter 4 Special Features* for master encoder connections.)



Encoder Input Connections

Because the wire used in many encoder cables is very thin, we provide two pins for encoder +5VDC (pins 1 and 2) and for encoder ground (pins 3 and 4). Connect two wires in your encoder cable to the +5VDC pins, and connect two wires to the encoder ground pins. We recommend that you splice each pair of wires to a larger diameter wire, as shown in the next drawing.

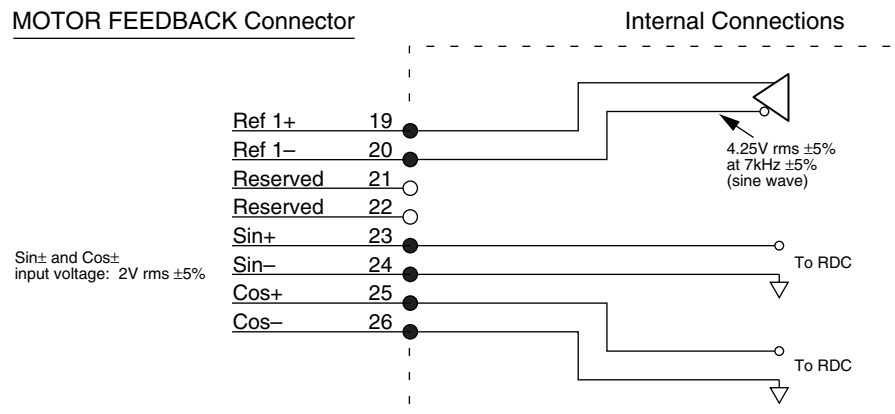


Splicing Wires Together

Splicing to a larger wire provides more wire for current conduction, minimizing voltage drop at the encoder. (Gemini motor feedback cables use this technique.)

Resolver – GV6K Servos Only

If you use a motor with resolver feedback, connect the resolver to pins 19 – 26, as shown in the figure below.



Resolver Input Connections

Motor Thermal Switch – GV6K Servos Only (optional)

Connect your motor's thermal switch wires to pins 12 and 13 on the MOTOR FEEDBACK connector.

The drive checks for electrical continuity between pins 12 and 13. This continuity is usually provided by a normally-closed thermal switch mounted on the motor. If the motor overheats and the thermal switch opens, the loss of continuity triggers protection circuitry in the drive. The drive will turn off power output to the motor, illuminate the left LED red, and set the motor fault and drive fault bits. You can monitor the fault bits with the TAS and TASX commands.

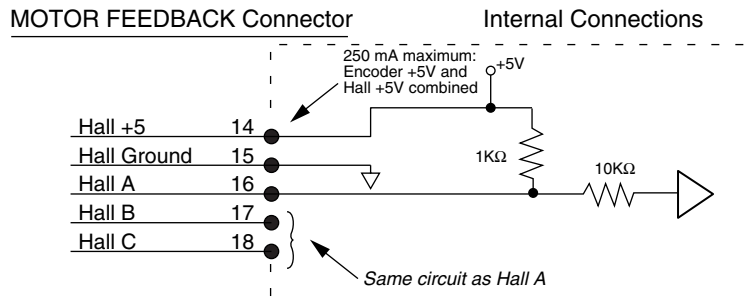
To resume operations after the motor cools and its thermal switch closes, cycle power or issue a DRIVE1 command.

If your servo motor does not have a thermal switch, short pins 12 and 13 together. The drive will experience a motor fault if neither a thermal switch nor a jumper wire is attached to pins 12 and 13.

Hall Effects – GV6K Servos Only

Connect your motor's Hall effect wires to pins 14 – 18 on the MOTOR FEEDBACK connector.

The GV6K drive is designed to be used with motors that have single-ended, open collector Hall outputs. Internally, the drive pulls these signals up to +5V. The Hall effect circuit is shown below.

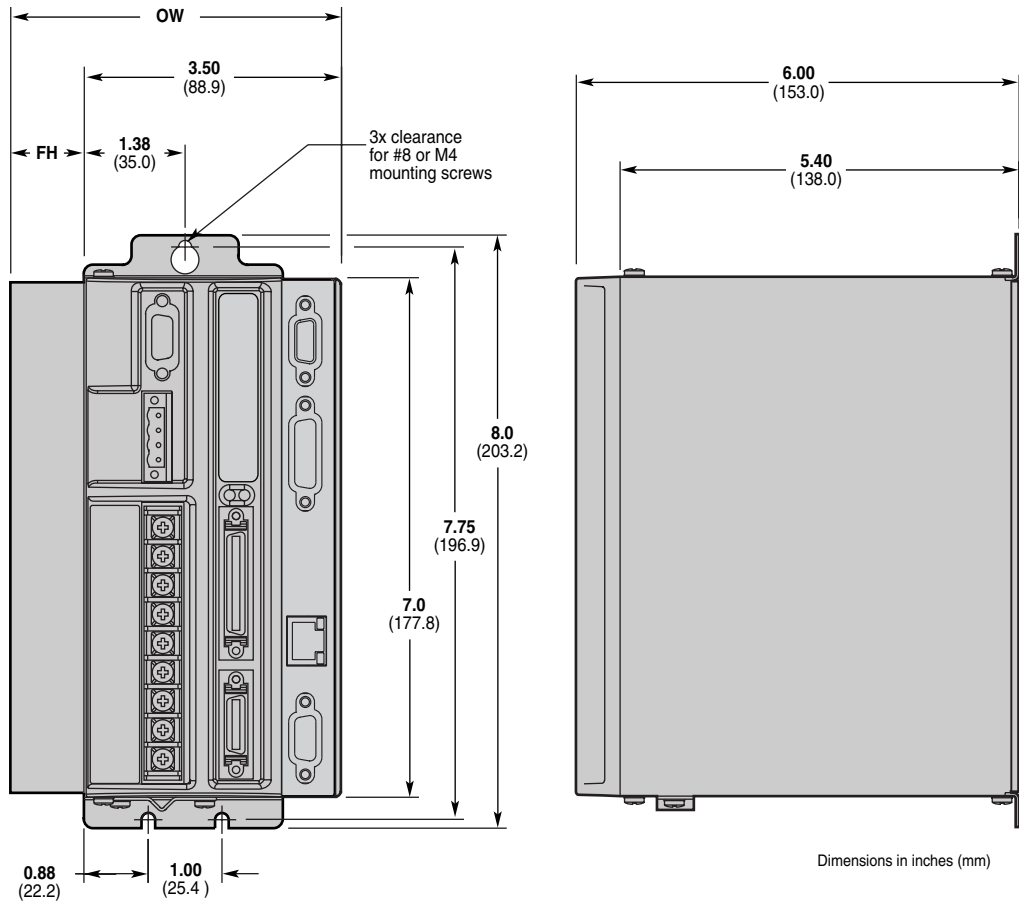


Hall Effect Connections

The GV6K uses the Hall effect inputs to synchronize the encoder with the motor's internal magnets at the start of motion. Initial commutation is trapezoidal; once the drive establishes synchronization it changes to sinusoidal commutation based on encoder position.

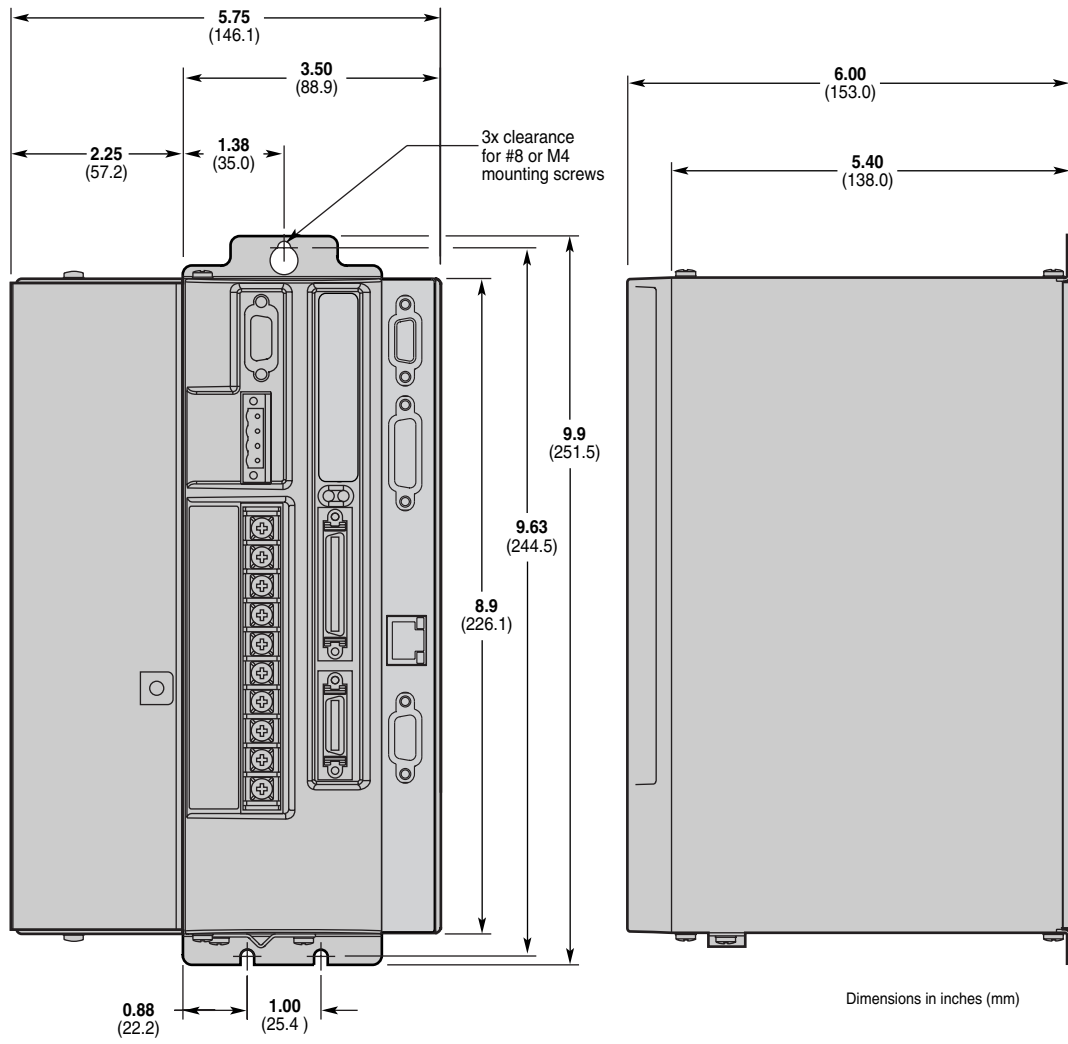
Dimensions

Drive Dimensions

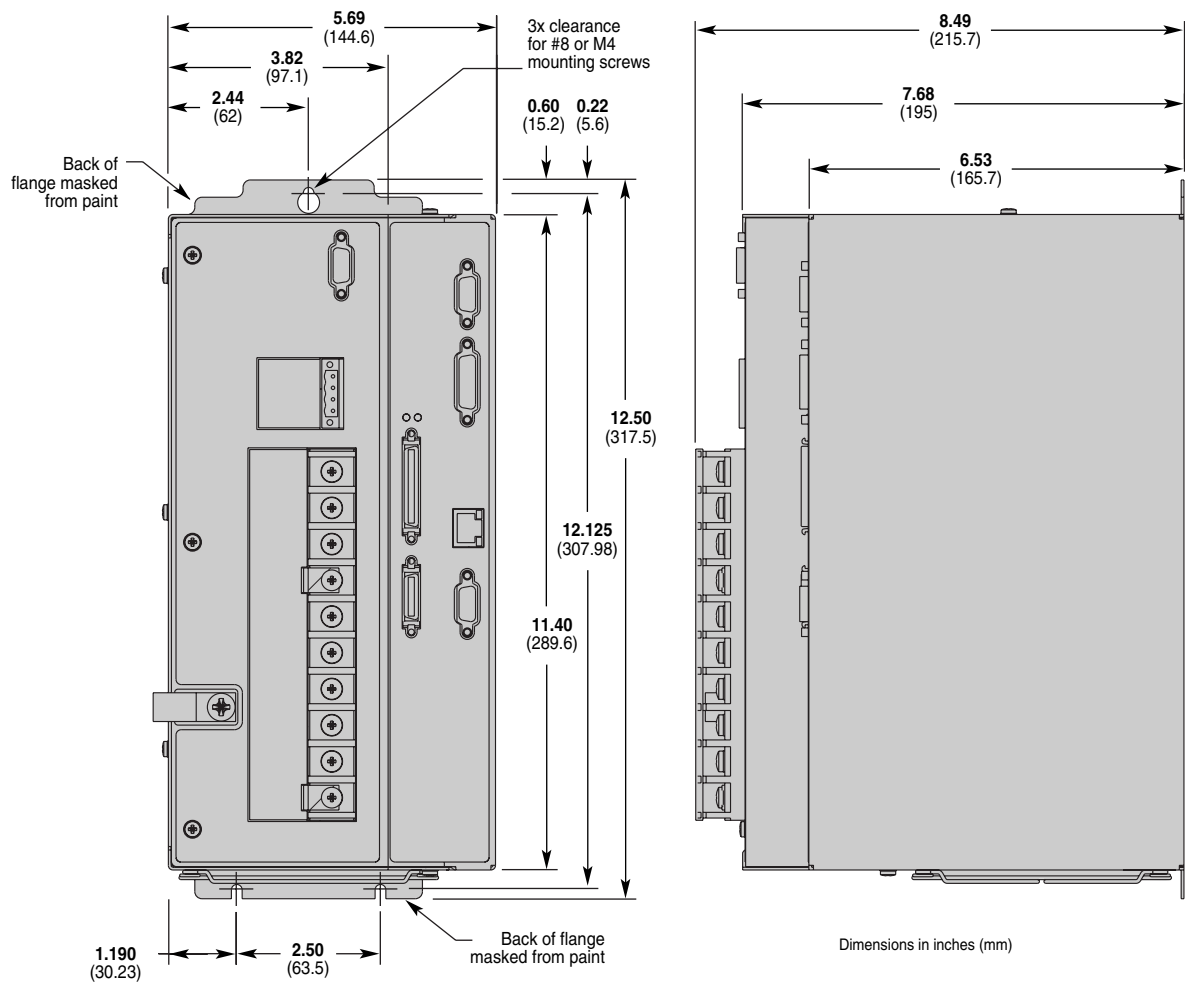


Product	OW Overall Width inches (mm)	FH Fin Height inches (mm)
GV6K-L3n	3.88 (98.6)	0.38 (9.5)
GV6K-U3n	3.88 (98.6)	0.38 (9.5)
GV6K-U6n	4.50 (114.3)	1.00 (25.4)
GV6K-U12n	4.50 (114.3)	1.00 (25.4)
GT6K-L5	3.88 (98.6)	0.38 (9.5)
GT6K-L8	4.50 (114.3)	1.00 (25.4)

Dimensions (Shorter Enclosure)



Dimensions – GV6K-H20

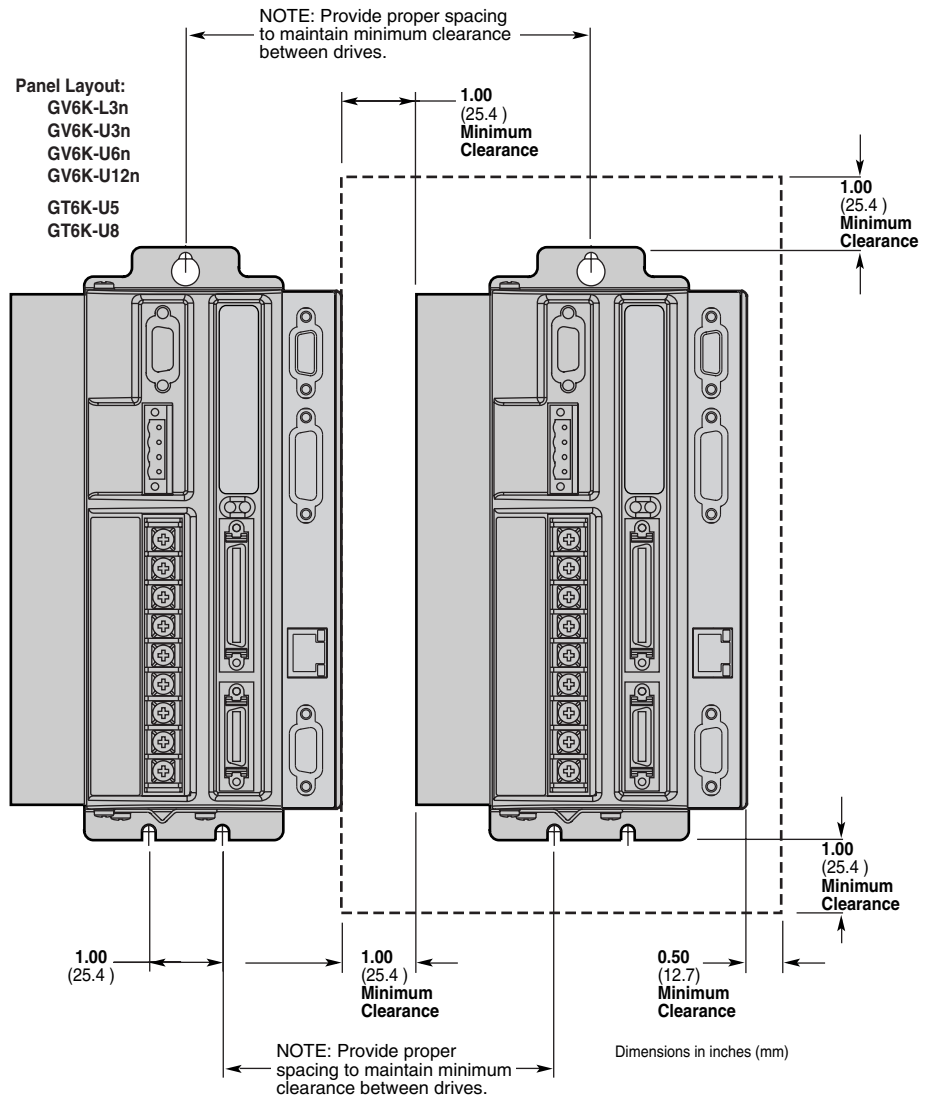


Dimensions – GV6K-G40

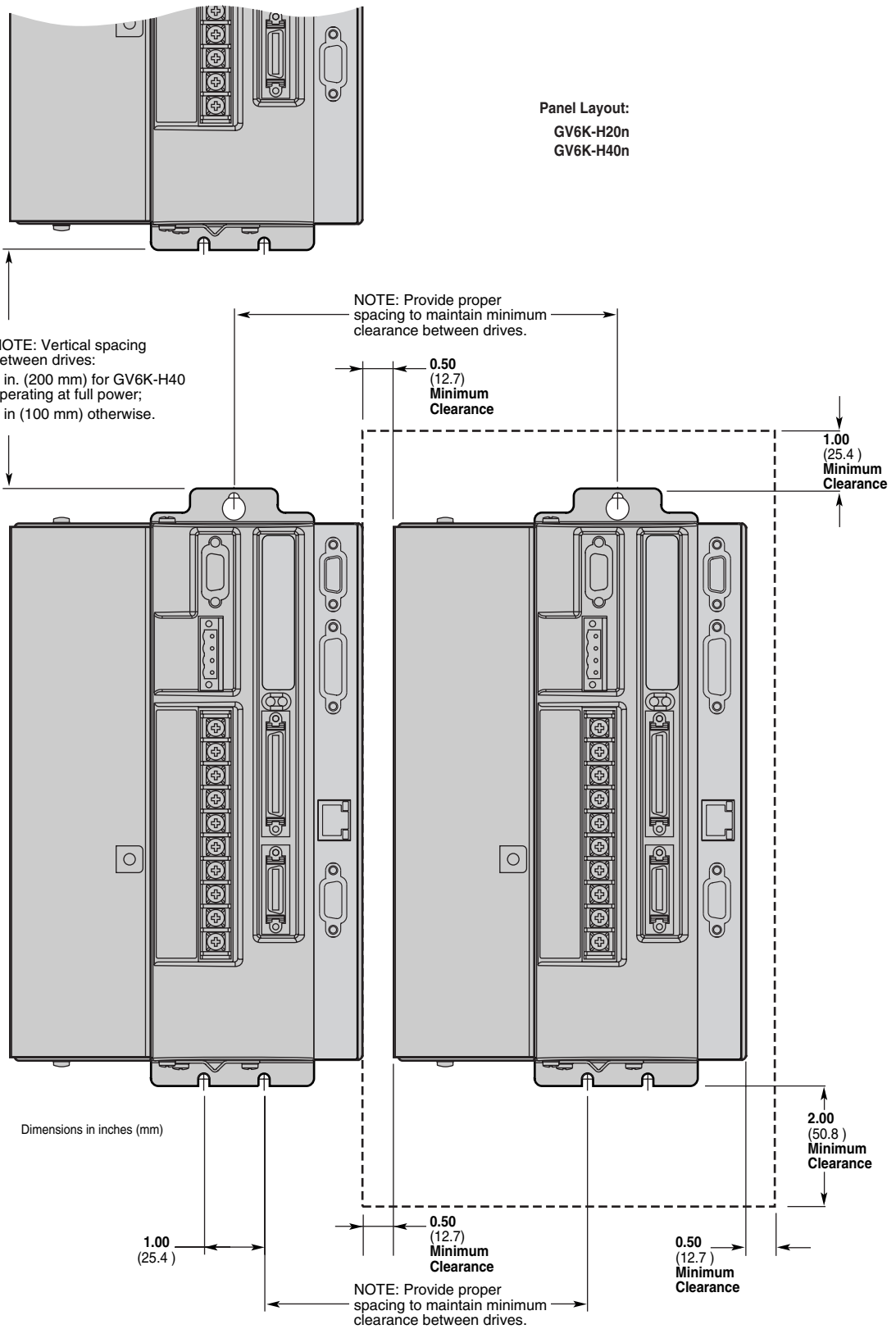
Drive Mounting

The Gem6K drive is a vented product. Mount it under an overhang to prevent material spilling into the drive.

Panel Layout Dimensions



Panel Layout Dimensions (Shorter Enclosure)



Panel Layout Dimensions (Taller Enclosure)

Protective Circuits

Short Circuit Protection

The Gem6K drive has an internal circuit that protects it from short circuits between one motor terminal to another (phase to phase), or from any motor terminal to earth. A short circuit fault is a latched fault.

Short circuit fault caused by:	Phase to phase short circuit Phase to earth short circuit
Results of Fault:	Power to motor is turned OFF LEDs: Left = illuminated RED; Right = off Fault output is activated Latched fault

Inrush Current Protection

The Gem6K drive has internal circuitry that protects it from high inrush current when power is initially applied to the drive. The circuitry works automatically.

Drive	Inrush Current Limiter (ohms):	Current limiter bypassed with shorting relay:
GV6K-L3n	5Ω	yes
GV6K-U3n	10Ω	yes
GV6K-U6n	10Ω	yes
GV6K-U12n	10Ω	yes
GV6K-H20n	10Ω	yes
GV6K-H40n	20Ω	yes
GT6K-L5	5Ω	yes
GT6K-L8	5Ω	yes

The shorting relay removes the inrush current limiter after drive startup. This allows maximum bus voltage during high acceleration/peak torque/maximum speed applications.

Inrush current is temperature dependent:

Ambient Temperature:	Inrush Current Limit:
25°C (77°F)	less than 35 amps
50°C (122°F)	less than 70 amps
50°C (122°F)	less than 70 amps

Drive Overtemperature Protection

The Gem6K drive's overtemperature circuit monitors the drive's internal temperature sensors. If the sensors exceed the threshold temperature, the drive issues an overtemperature fault.

Threshold Temperature:	All drives except GV6K-H20n: 80°C (176°F) GV6K-H20n: 90°C (194°F)
Results of Fault:	Power to motor is turned OFF LEDs: Left = illuminated RED; Right = off Fault output is activated Latched fault

Motor Overtemperature Protection – GV6K Servos Only

The GV6K drive has two motor overtemperature circuits:

Hardware Switch:	a thermal switch is embedded in Compumotor motor windings
P_t Thermal Model:	the drive's internal operating software predicts motor winding temperature, based on motor current.

Undervoltage Protection

The Gem6K drive's undervoltage protection circuit monitors AC input voltage. If the voltage falls below 75VAC while the drive is operating (85VAC for GV6K-H20), the drive issues an undervoltage fault and turns off power to the motor.

Undervoltage protection has the following features:

Threshold Voltage:	Voltage falling below 75VAC trips fault (85VAC for GV6K-H20n)
Results of Fault:	Power to motor is turned OFF LEDs: Left = illuminated RED; Right = off Fault output is activated Latched fault

Overvoltage Protection – GV6K Servos Only

The GV6K drive's overvoltage circuit protects the drive from excessive regeneration. If the voltage on the motor output terminals rises above the threshold voltage, the drive disables its output terminals, and the motor will freewheel.

Threshold Voltage:	GV6K-L3n: 212VDC GV6K-U3n/6n/12n/H20n/H40n: 410VDC
Results of Fault:	Power to motor is turned OFF LEDs: Left = illuminated RED; Right = off Fault output is activated Latched fault



CAUTION

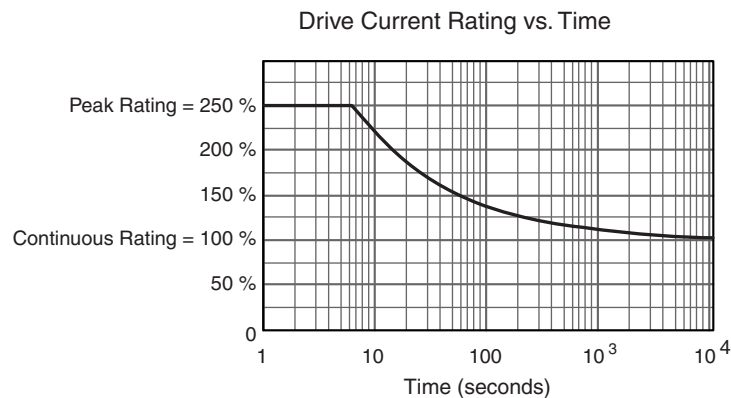


Overvoltage protection monitors only the motor output terminals (DC motor bus). It does not protect against an overvoltage on the AC input terminals.

Current Foldback – GV6K Servos Only

The GV6K drive's current foldback circuit helps to protect the motor from damage due to prolonged high currents.

If your drive is operating above its continuous rating, use the figure below to predict the number of seconds until foldback will occur. For example, the figure shows that at the drive's peak current rating (250% of continuous), foldback will occur after six seconds.



Time Until Foldback

See *Chapter 3 Configuration* for more information on how to configure the current foldback circuit to protect your motor.

Cable Specifications

This section contains specifications for Compumotor cables and cabling accessories you can use with Gem6K drives.

CE Cables

Many Compumotor cables are *CE Cables*. If installed according to instructions in *Appendix C Regulatory Compliance: UL and CE*, these cables are designed to aid the user in gaining European Compliance, and are thus an integral part of a CE system solution. CE cables add RF screening and bonding to reduce emissions, and provide high integrity safety Earth bonding. They also help to reduce problems in high electrical noise environments.

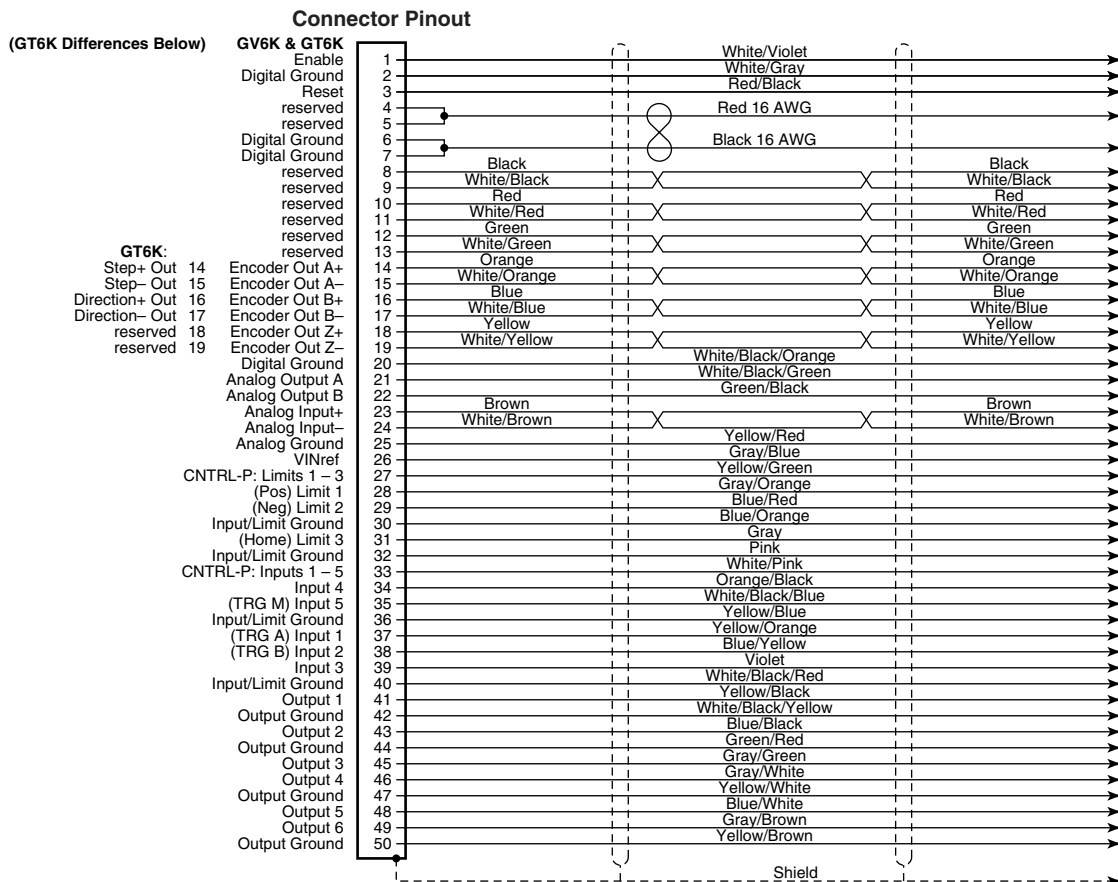
Gem6K 50 Pin Connector to Flying Leads Cable

Use this cable to connect an external device to the Gem6K drive's 50 pin DRIVE I/O connector.

Part Number: 71-016943-10

CE Cable: Yes, if installed according to instructions in *Appendix C*

The next drawing shows the color code for the cable.



Cable - Flying Leads

Gem6K 50 Pin Connector to 50 Pin D-Connector Cable

Use this cable to connect the Gem6K's 50 pin DRIVE I/O connector to the 50 pin D-connector on the Gemini 50 pin breakout module (GEM-VM50).

Part Number: 71-016945-03
 CE Cable: Yes, if installed according to instructions in *Appendix C*

This cable has the same pinout and color code as the flying lead cable; instead of flying leads, it has a 50 pin D-connector on the end.

Gemini GEM-VM50 – 50 Pin Breakout Module

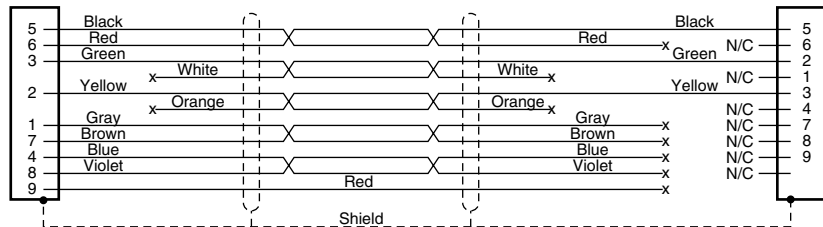
Use the 50 pin breakout module for access to individual terminals on the 50 pin connector. The GEM-VM50 includes the cable above.

Description:	Part Number:
50 pin Breakout Module (with Cable)	GEM-VM50
50 pin Breakout Module (without cable)	01-016986-01

Null Modem Cable – 9 Pin D-Connector to 9 Pin D-Connector

Use this cable for RS-232 communications between the Gem6K and a terminal. Note that this is not a “straight-through” cable; pins 2 and 3 are crossed, making it a “null-modem” cable.

Part Number: 71-016939-10
 CE Cable: Yes, if installed according to instructions in *Appendix C*
 Connector: 9 pin female D-subminiature connector on each end



Cable – RS-232 Null Modem

Gemini GC-26 and GC-50 Connectors

Two breakout modules are available that connect directly to the Gem6K's MOTOR FEEDBACK and DRIVE I/O connectors.

NOTE: These modules are recommended for system prototyping only—*not* for permanent installation.

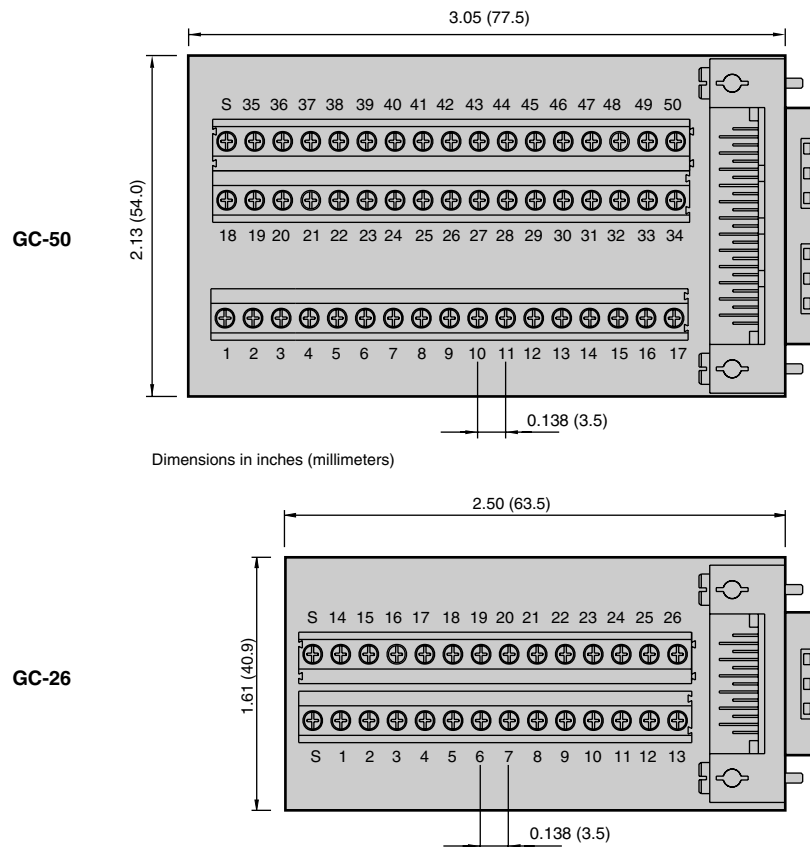
Description:	Part Number:
50 pin Connector/Breakout Module	GC-50
26 pin Connector/Breakout Module	GC-26



CAUTION



Connect wires to the GC-26 and GC-50 *before* installing in the drive. This will avoid damage that may be caused by wiring the connector while attached to the drive.



GC-26 and GC-50 Dimensions

Gem6K 26 Pin Feedback Connector Kit

A cable connector backshell kit is available from Compumotor. The kit includes plug, cover, and all parts necessary to assemble the connector. It also includes spade lugs to install on the motor cable. The part number is:

GFB-KIT

The plug mates with the drive's 26 pin MOTOR FEEDBACK connector.