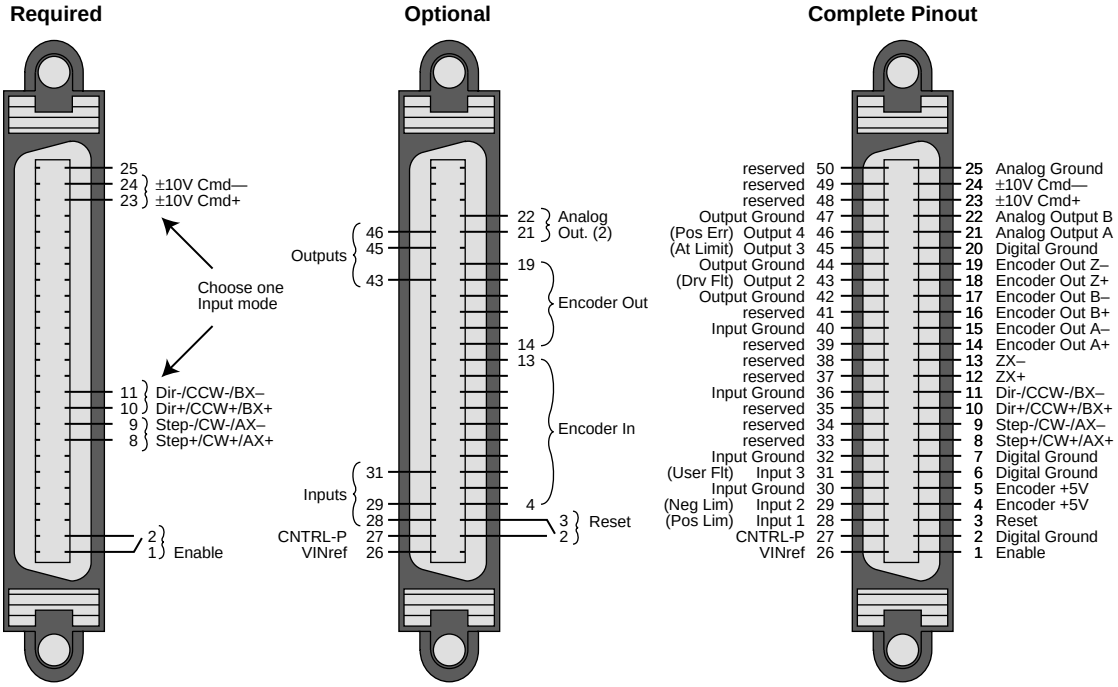
Inputs and Outputs

This section describes all inputs and outputs (I/O) located on the 50 pin DRIVE I/O connector. Not all are required for your system to operate. The next drawing summarizes which are required, and which are optional.



Drive I/O Connector

Connector Specifications:

	Gemini 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 Gemini 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. The mating connector listed above is an insulation displacement connector (IDC), intended for use with molded cables.

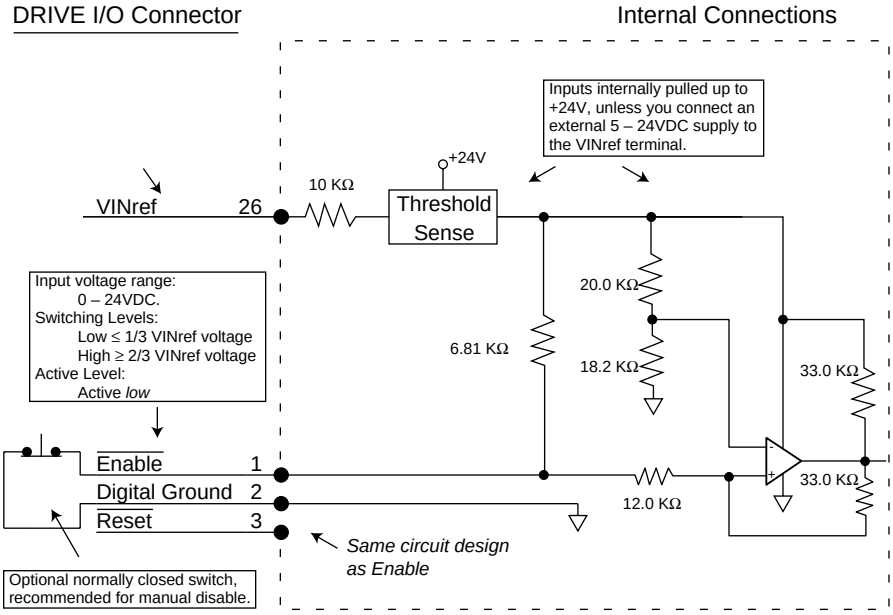
Soldercup Connector

The soldercup connector and plastic screw lock backshell listed below will fit onto the Gemini'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). 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, and digital inputs.

It is not necessary for you to make connections to VINref. 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:

Low ≤ 1/3 ∗ VINref

High ≥ 2/3 ∗ VINref

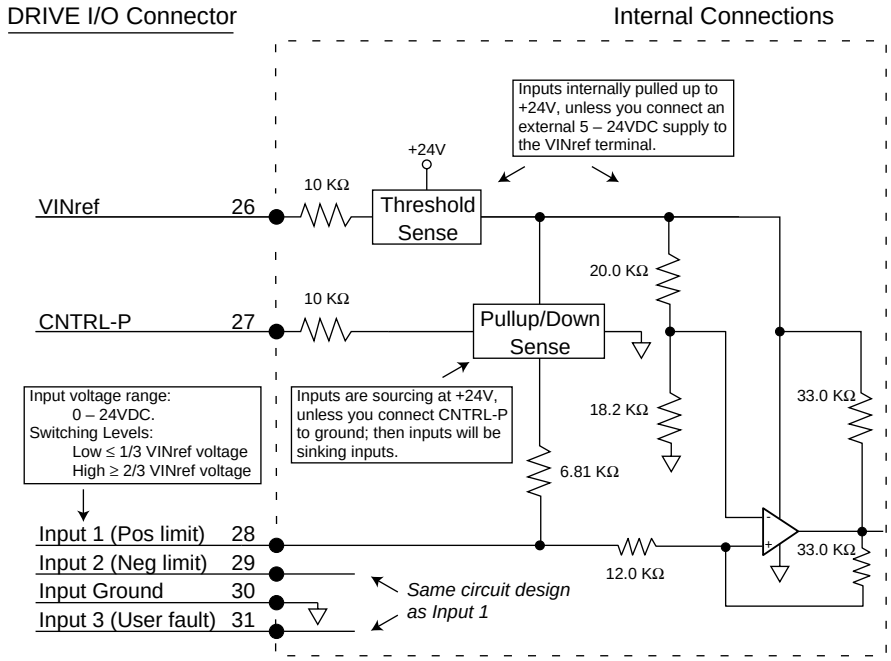
(Default:, with VINref at internal +24VDC: Low < 8V; High > 16V)

Digital Inputs (optional)

The Gemini drive has three digital inputs. Their functions are:

Input 1	Positive Limit Input
Input 2	Negative Limit Input
Input 3	User Fault Input

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. All connections are shown in the next drawing.



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)

Use CNTRL-P (pin 27) to change the digital inputs from sourcing inputs to sinking inputs.

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 CNTRL-P (pin 27) to digital ground (pin 30), then the inputs will become sinking inputs, and will sink current.

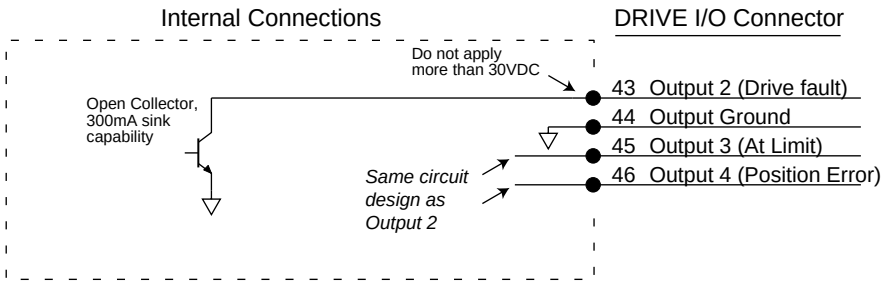
Digital Outputs (optional)

The Gemini drive has three digital outputs. Their functions are:

Output 2*	Drive Fault Output
Output 3*	At Limit
Output 4*	Position Error Output

* For compatibility with other Compumotor products, the outputs are numbered 2, 3 and 4, rather than 1, 2 and 3.

All connections are shown in the next drawing.



Outputs

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

Encoder Output (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 in the next paragraph are satisfied. There is no Channel Z output in pseudo encoder mode.

Pass Through Encoder Mode:

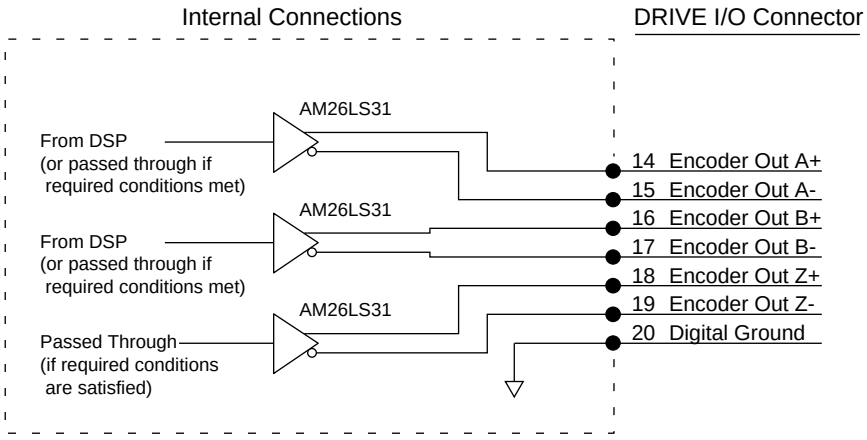
When the following three conditions are satisfied, then Channels A, B, and Z are "passed through" the drive, from the feedback device (e.g. encoder or resolver) to the encoder outputs.

Required Conditions for Pass Through Encoder Mode

1. ERES and ORES values are equal.
2. Drive serial number is greater than 99072100143
3. Gemini Operating System version is 1.01 or greater.

If any one 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

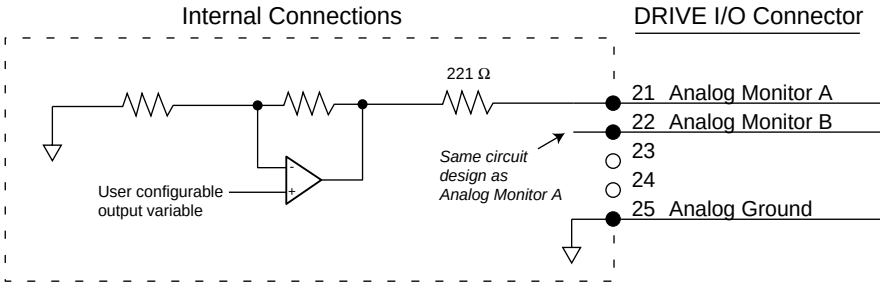
You can use the ORES command to configure the encoder outputs.

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:	±10V (scalable)
Resolution:	8 bits peak to peak (for full scale signal)



Analog Monitors

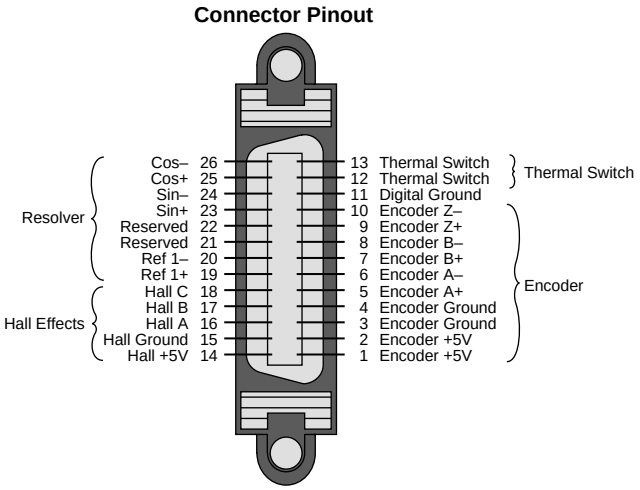
You can configure the analog outputs to monitor many different variables, such as current, velocity, temperature, etc. You can also scale the outputs. See the DMON commands in *Chapter 3 Configuration* and the *Gemini Programmer's Reference* for more information.

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.

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:

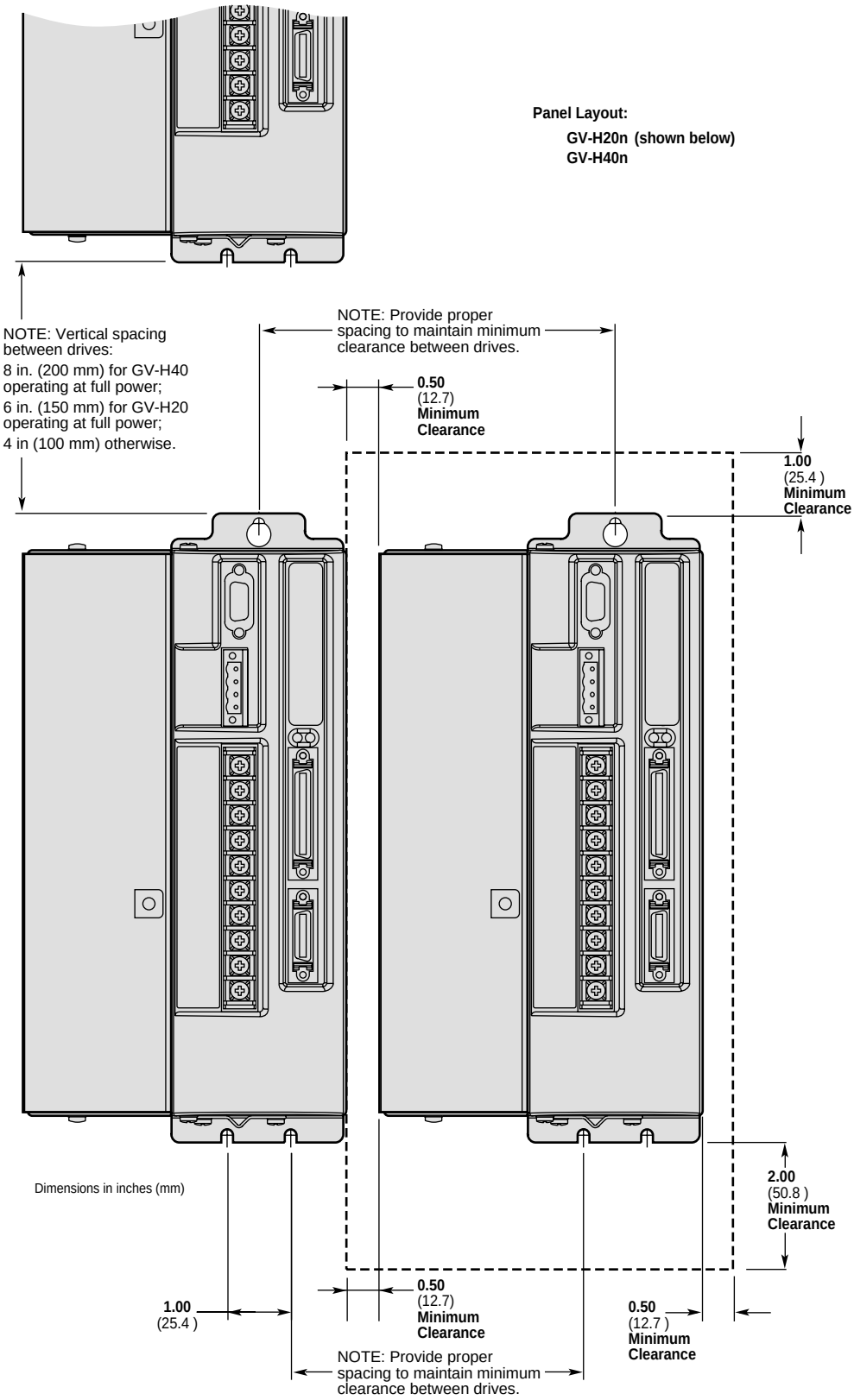
	Gemini Drive:	**Mating Connector* (not provided; see note):**
Manufacturer:	AMP	AMP-
Connector Model:	CHAMP .050 Series II	CHAMP .050 Series II
AMP Part Number:	2-178238-4	2-175677-4
Wire Gauge:	not applicable	use 28 AWG (0.08 mm^2)

* Note: Mating connectors are not provided with Gemini 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. The mating connector listed above is an insulation displacement connector (IDC), intended for use with molded cables.

Soldercup Connector

The soldercup connector and plastic screw lock backshell listed below will fit onto the Gemini'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



Panel Layout Dimensions – GV-H20n and GV6-H40n