

Gemini GV

The Gemini GV Digital Servo Drive

The Gemini GV is a compact, low-cost, digital servo drive available in six power levels for producing up to 40 Amps continuous and 100 Amps peak current, or up to 29.4 kW of peak power. The Gemini GV is easily configurable via RS232/485 using Compumotor's Motion Planner™ on a PC or Pocket Motion Planner™ on a Window's CE™-based palm PC. With the available power levels, small package size, low cost, and numerous drive features, the Gemini GV will be the obvious choice for all of your low-to-mid power servo drive applications.

Simplified Tuning/Configuration

Tuning and configuration are easy. They are accomplished via RS232/485 with a PC or palm PC. Only the motor and some basic load information must be known by the drive to determine baseline-tuning gains. These are simple parameter entries the user can complete with the help of the front-end software tools. Users also have the ability to override these parameters for special application requirements.

Features

Performance

- Provides six power ranges for up to 11.8 kW of continuous power
- Torque, velocity, step & direction and CW/CCW modes
- Encoder tracking mode
- Digital notch filters provide the tools to eliminate mechanical resonance
- Sinusoidal commutation with encoder or resolver feedback
- Simplified tuning and configuration
- Variable resolution for encoder signal output as well as the command input
- Wide range of PWM frequencies for linear motor support



Protection

- Short-circuit protection – phase-to-phase and phase-to-ground
- Inrush current protection
- Drive over-voltage protection
- Drive under-voltage (brownout) protection
- Drive and motor over-temperature protection
- Current-foldback protection
- Regeneration protection

Physical

- A wide selection of brushless servo motors are available from Compumotor including the SM, BE, NeoMetric, J and M Series motors; a family of Linear Motors is also available
- Three input power ranges available: low – 120V, universal – 120/240V, and high – 240V
- Diagnostic LEDs for drive status, firmware download, and optional keep alive mode

Gemini Family Features

- 24V Keep Alive (not required) – keeps logic alive if AC power is removed
- Error Log – records 10 most recent errors with time stamp
- Approvals: UL Recognition, cUL, CE (LVD), and CE (EMC)
- Configurable via RS232/485 using Compumotor's Motion Planner™ on a PC or Pocket Motion Planner™ on a Windows CE™-based Palm PC

See Stepper Drive section for the full line of Gemini stepper drives and drive/controllers.

Gemini GV6



The Gemini GV6 Digital Servo Drive with Basic Controller

Compumotor's Gemini GV6 is a compact, low-cost, digital servo drive/controller. In addition to all of the drive features of the Gemini GV, the GV6 incorporates basic motion control and programming capabilities, allowing solutions for many distributed control applications. The Gemini GV6 is easily configured/programmed via RS232/485 using Compumotor's Motion Planner™ on a PC or Pocket Motion Planner™ on a Windows CE™-based Palm PC. The Gemini GV6 also offers connectivity to several field buses including Profibus and DeviceNet.

Features

Performance

- Incorporates all of the powerful features of the Gemini GV digital servo drive
- Provides six power ranges for up to 11.8 kW of continuous power
- Stand-alone servo controller and drive in one small package
- Full ASCII communications capability
- Control features such as registration, motion profiles, S-curve velocity profiling and conditional statements
- Program storage: Up to 32 programs or 190 lines of program code
- Daisy chain up to 99 units
- Simplified configuration and tuning
- 8 programmable inputs and 6 programmable outputs
- Wide range of PWM frequencies for linear motor support

Protection

- Short-circuit protection – phase-to-phase and phase-to-ground
- Inrush current protection
- Drive over-voltage protection

Protection, continued

- Drive under-voltage (brownout) protection
- Drive and motor over-temperature protection
- Current-foldback protection
- Regeneration protection

Physical

- A wide selection of brushless servo motors are available from Compumotor including the SM Series, NeoMetric, J Series and M Series motors; a family of Linear Motors is also available
- Three input power ranges available: low – 120V, universal – 120/240V, and high – 240V
- Diagnostic LEDs for drive status, firmware download, and keep alive mode

Connectivity

- RS232/485 serial communications (ASCII)
- Profibus DP (optional)
- DeviceNet (optional)

Gemini Family Features

- 24V Keep Alive (not required) – keeps logic alive if AC power is removed
- Error Log—records 10 most recent errors with time stamp
- Approvals: UL Recognition, cUL, CE (LVD), and CE (EMC)
- Configurable/Programmable via RS232/485 using Compumotor's Motion Planner™ on a PC or Pocket Motion Planner™ on a Windows CE™-based Palm PC

When can I take advantage of a low-cost stepper motor? Applications with . . .

- | | |
|--|--------------------------|
| ✓ Predictable loads | ✓ Continuous power needs |
| ✓ High stiffness at rest required | ✓ Speed less than 50 rps |
| ✓ High accuracy, resolution and reliability required | |

Gemini GV6K



The Gemini GV6K Digital Servo Drive with Full-Feature Controller

Compumotor's Gemini GV6K is the most powerful addition to the Gemini servo family lineup. This full-feature, standalone drive/controller offers a complete motion control solution in one economical, compact package. The GV6K comes complete with the same features, connectivity and front-end software tools as the Gemini GV and Gemini GV6. In addition to offering many of the drive features of the Gemini GV and control features of the Gemini GV6, the GV6K incorporates the flexibility and control functionality of Compumotor's 6K Controller to allow highly advanced motion control and sequencing capabilities for unrivaled flexibility in many distributed-control applications. The GV6K is easily configured/programmed via RS232/485 using Compumotor's Windows-based Motion Planner™ software package. The GV6K also offers connectivity to any ASCII-based serial device, including HMI panels and PLC ASCII modules. Products such as OPTO 22™ Snap I/O, DVT™ Vision Systems and AB™ SLC 5/05 PLC platforms can also be used for data chaining using the GV6K's Ethernet Client feature.

Features

Performance

- Combines the powerful features of the 6K Controller with the Gemini GV digital servo drive for a complete stand-alone servo solution in one small package
- Six power ranges for up to 11.8 kW of continuous power
- Full ASCII communication capability
- Control features such as following, registration, multitasking, PLC scan, electronic cam profiling, S-curve profiling, scaling, high-level math functionality and more
- Program storage: 300KB standard (battery backed)
- Daisy chaining of up to 99 units
- Simplified configuration and tuning

Protection

- Short-circuit protection – phase-to-phase and phase-to-ground
- Inrush current protection
- Drive over-voltage protection
- Drive under-voltage (brownout) protection
- Drive and motor over-temperature protection
- Current-foldback protection
- Regeneration protection

Physical

- Compatible with a wide selection of brushless servo motors, such as the Compumotor SM, BE, NeoMetric, J and M Series motors
- Supports linear servo motors, such as the Compumotor LXR and SL motor series
- Three input power ranges available: low – 120VAC, universal – 120/240VAC, and high – 240VAC

Gemini Family Features

- 24VDC Keep Alive Circuit (24VDC supply required) – powers the controller section independent of AC power and maintains vital position and controller information
- Error Log – records 10 most recent errors with time stamp
- Wide range of PWM frequencies for linear motor support
- Approvals: UL Recognition, cUL, CE (LVD), and CE (EMC)
- Diagnostic LEDs for drive status, firmware, download and 24VDC control power active
- Configurable/Programmable via RS232/485 or Ethernet using Compumotor's Motion Planner™

Gemini Offers Greater Flexibility and More Reliability Than Ever Before. Call 1-800-358-9070 Today.

Connectivity

- Two serial communication ports: one RS232 port (3 wire) and one RS232/RS485 port (4 wire)
- Ethernet communication port (10 Base-T, 10 Mbps twisted pair)
- Imbedded Ethernet Client – provides up to six client connections to the following devices: AB™ SLC 5/05 PLC, OPTO 22 SNAP™ I/O or DVT™ vision camera system
- Peer-to-peer data chain – allows direct Ethernet connectivity with up to 8 Gem6K or 6K devices for distributed control
- Master encoder port – allows for following from an external feedback signal
- Expandable I/O (up to 256 additional discrete I/O points, and/or 192 Ethernet I/O points)

Software and Standard Control Features

- Complete position-based following and electronic cam profiling
- Compiled motion functionality
- Multitasking (up to 10 individual programs simultaneously)
- PLC scan mode
- Floating point, integer and binary variables with high-level math functionality
- Full scaling functionality
- Comprehensive program monitoring, status and diagnostic features
- Full-feature 6K language command set
- Compatibility with platforms such as VisualBasic™, Visual C++™ and NI LabVIEW™

I/O Capabilities

- Onboard I/O: 8 digital inputs (3 programmable limits, 5 programmable), 6 digital outputs, 1 analog input, 2 D/A monitor outputs, 1 relay output
- Software selectable onboard input/output functionality
- Expandable serial I/O of up to 256 additional discrete digital I/O points, 64 analog I/O points or a combination of both digital and analog points
- Expandable Ethernet I/O of up to 192 additional digital or analog I/O points using Ethernet Client with OPTO 22 SNAP™ I/O modules
- Registration input capability
- Software selectable I/O high/low active level
- 5-24VDC selectable input reference voltage
- Inputs: selectable as sinking or sourcing; outputs: open collector (sinking)

Gemini Family Summary

	Servo			Stepper		
	GV	GV6	GV6K	GT	GT6	GT6K
CE, UL Recognition	●	●	●	●	●	●
RS232/485	●	●	●	●	●	●
Encoderless Stall Detect				●	●	●
Ethernet			●			●
Profibus		●			●	
DeviceNet		●			●	
± 10V Command Input	●			●		
Step/Direction, CW/CCW Command Input	●			●		
Encoder Signal Input	●		●	●		●
Onboard I/O	○	●	●	○	●	●
Expandable I/O			●			●
Registration		●	●		●	●
System Status & Diagnostics	●	●	●	●	●	●
Scaling			●			●
Variables		○	●		○	●
Following	○		●	○		●
Multitasking			●			●
Compiled Motion		○	●		○	●

● Full Functionality

○ Limited Functionality

GV/GV6 Common Specifications

Specifications	GV (GV6)-L3	GV (GV6)-U3	GV (GV6)-U6	GV (GV6)-U12	GV (GV6)-H20	GV (GV6)-H40
Drive Input Power						
Voltage	95-132VAC	95-265VAC	95-265 VAC	95-265 VAC	208-265 VAC	208-265 VAC
Phase	1Ø	1Ø	1Ø	1Ø	1 or 3Ø	3Ø
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
24V Keep Alive (Optional)	24 VDC +/- 20% @ x Amps max	24 VDC +/- 20%	24 VDC +/- 20%	24 VDC +/- 20%	24 VDC +/- 20%	24 VDC +/- 20%
Drive Output Power						
Bus Voltage	170 VDC	170/340 VDC	70/340 VDC	170/340 VDC	295/340 VDC	295/340 VDC
PWM**	40 kHz	8 kHz	8, 16, 20 KhZ User selectable (current deration applies)			
Continuous Current *	3 Amps	3 Amps	6 Amps	12 Amps	20 Amps	40 Amps
Continuous Power	0.44 kW	0.88 kW	1.75 kW	3.5 kW	5.9 kW	11.8 kW
Peak Current*	7.5 Amps	7.5 Amps	15 Amps	30 Amps	50 Amps	100 Amps
Peak Power	1.1 kW	2.2 kW	4.4 kW	8.75 kW	14.7 kW	29.4 kW
Commutation	Sinusoidal	Sinusoidal	Sinusoidal	Sinusoidal	Sinusoidal	Sinusoidal
Performance						
Servo Update Accuracy	50 micro seconds Solid lines represent 240VAC operation, continuous and peak. Dashed lines represent performance using 120VACinput. Speed/torque curves may vary +/- 10%. +/- 0.5 arc min (0.0833°), encoder dependent.					
Command Inputs – GV						
Velocity and Torque Mode	12 bit, +/- 10 V					
Position Mode	Step & Direction/CW & CCW/Encoder Tracking					
Inputs – GV						
Enable, Reset	5-24VDC Selectable, 1/3 1/3 1/3 voltage switching threshold					
Neg/Pos Limits	5-24VDC Selectable, 1/3 1/3 1/3 voltage switching threshold					
User Fault	5-24VDC Selectable, 1/3 1/3 1/3 voltage switching threshold					
Encoder	8 MHz Post Quadrature					
Inputs – GV6						
8 Programmable	5-24VDC Selectable, 1/3 1/3 1/3 voltage switching threshold					
Enable, Reset	5-24VDC Selectable, 1/3 1/3 1/3 voltage switching threshold					
Encoder	8 MHz Post Quadrature					
Analog Input	12 bit, +/- 10 VDC input voltage (1 ms update)					
Outputs – GV						
Fault, At Limit	Open collector, 300mA sink capability					
Position Error	Open collector, 300mA sink capability					
Analog Monitors	+/- 10 V scalable, 8 bit (not to be used as control functions)					
Encoder	Programmable up to 1,024,000 counts/rev post quadrature					
Relay	Normally open, dry contact					
Outputs – GV6						
6 Programmable	Open collector, 300mA sink capabilities					
Analog Monitors	+/- 10 V scalable, 8 bit (not to be used as control functions)					
Encoder	Programmable up to 1,024,000 counts/rev post quadrature					
Relay	Normally open, dry contact					
Communications						
Type	RS232/ RS485 (4-wire), ASCII or 8 bit binary protocol					
Baud Rate	Fixed at 9600					
Daisy Chain – GV6	Up to 99					
Fieldbus (GV6)	Profibus (optional), DeviceNet (optional)					
Environmental						
Temperature	Still air: 113°F (45°C), moving air: 122°F (50°C)					
Humidity	0-95%, non-condensing					
Shock/Vibration	Shock:15G half-sine @ 11 msec/vibration: 2G, 10-2000 Hz					
Protection						
Short Circuit	Phase-to-phase, phase-to-ground					
Brownout	AC drops below 85 VAC					
Over Temperature	Shutdown fault at 131°F (55°C)					
Standards	UL, cUL, CE (LVD), CE (EMC)					
Physical						
Compumotor Motors	SM Series, BE Series, NeoMetric Series, J Series, M Series, and Linear Motors					
Non-Compumotor Motors	Please refer to the GV and GV6 Hardware Installation Guide					
Connectors						
Serial	9-pin D-shell (male)					
Motor and Power	Barrier screw terminal					
Command and I/O	50-pin High density Amp Champ - .050 Series II (with screw attachment)					
Feedback	26-pin High density Amp Champ - .050 Series II (with screw attachment)					
+24VDC/Relay	4-pin removable terminal block					

* Peak of sine wave

** Motor ripple frequency is rated at twice the PWM value for a given drive

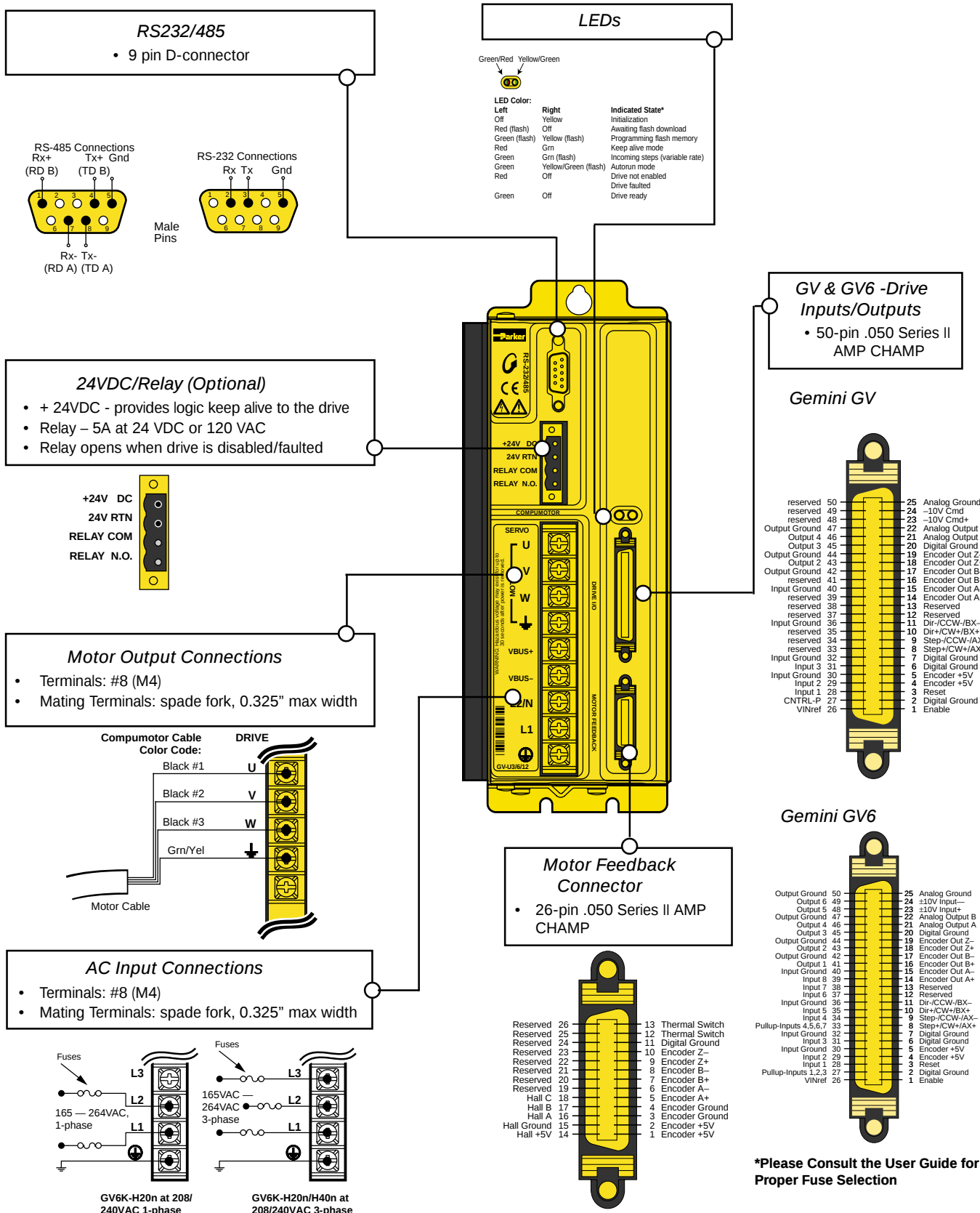
GV6K Common Specifications

Specifications	GV6K-L3	GV6K-U3	GV6K-U6	GV6K-U12	GV6K-H20	GV6K-H40
Drive Input Power						
Voltage	95-132VAC	95-265VAC	95-265 VAC	95-265 VAC	208-265 VAC	208-265 VAC
Phase	1Ø	1Ø	1Ø	1Ø	1Ø or 3Ø	3Ø
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
24V Keep Alive (Required)	24 VDC +/- 20%	24 VDC +/- 20%	24 VDC +/- 20%	24 VDC +/- 20%	24 VDC +/- 20%	24 VDC +/- 20%
Drive Output Power						
Bus Voltage	170 VDC	170/340 VDC	70/340 VDC	170/340 VDC	295/340 VDC	295/340 VDC
PWM**	40 kHz	8 kHz	8, 16, 20 KhZ User selectable (current deration applies)			
Continuous Current *	3 Amps	3 Amps	6 Amps	12 Amps	20 Amps	40 Amps
Continuous Power	0.44 kW	0.88 kW	1.75 kW	3.5 kW	5.9 kW	11.8 kW
Peak Current*	7.5 Amps	7.5 Amps	15 Amps	30 Amps	50 Amps	100 Amps
Peak Power	1.1 kW	2.2 kW	4.4 kW	8.75 kW	14.7 kW	29.4 kW
Commutation	Sinusoidal	Sinusoidal	Sinusoidal	Sinusoidal	Sinusoidal	Sinusoidal
Performance	50 micro seconds Solid lines represent 240VAC operation, continuous and peak. Dashed lines represent performance using 120VACinput. Speed/torque curves may vary +/- 10%. +/- 0.5 arc min (0.0833°), encoder dependent. 5-24VDC Selectable, 1/3 1/3 1/3 voltage switching threshold 12-bit, +/- 10 VDC input voltage (2 ms update) 5-24VDC Selectable, 1/3 1/3 1/3 voltage switching threshold 8 MHz Post Quadrature Up to 256 additional digital inputs (2ms update) Up to 64 additional 12-bit analog inputs (+/- 10 VDC) Up to 192 analog or digital Ethernet inputs via Ethernet Client and OPTO22™ SNAP I/O Module Open collector, 300mA sink capability +/- 10 V scalable, 8 bit (not to be used as control functions) Programmable up to 1,024,000 counts/rev post quadrature Normally open, dry contact Up to 256 additional digital outputs (2ms update) Up to 64 additional 12-bit analog outputs (+/- 10 VDC) Up to 192 analog or digital Ethernet outputs via Ethernet Client and OPTO22™ SNAP I/O Module Serial: RS232/ RS485 (4-wire), ASCII Selectable up to 115200 Up to 99 10 Base-T (10 Mbps twisted pair) TCP/IP and UDP, ModBus/TCP, AB Ethernet and ASCII over Ethernet Still air: 113°F (45°C), moving air: 122°F (50°C) 0-95%, non-condensing Shock:15G half-sine @ 11 msec/ vibration: 2G, 10-2000 Hz Phase-to-phase, phase-to-ground AC drops below 85 VAC Shutdown fault at 131°F (55°C) UL, cUL, CE (LVD), CE (EMC) SM Series, BE Series, NeoMetric Series, J Series, M Series, and Linear Motors Please refer to the GV and GV6 Hardware Installation Guide 9-pin D-shell (male) RJ45 connector for 10 Base-T Barrier screw terminal 50-pin High density Amp Champ - .050 Series II (with screw attachment) 26-pin High density Amp Champ - .050 Series II (with screw attachment) 9-pin D shell (female) 15-pin D shell (female) 4-pin removable terminal block					
Servo Update Accuracy						
Inputs – Onboard						
8 Programmable						
1 Analog						
Enable, Reset						
Encoder						
Inputs – Expansion (Optional)						
Outputs – Onboard						
6 Programmable						
2 Analog Monitors						
Encoder / Resolver						
Relay						
Outputs – Expansion (Optional)						
Communications						
Type						
Baud Rate						
Daisy Chain						
Ethernet						
Protocols supported						
Environmental						
Temperature						
Humidity						
Shock/Vibration						
Protection						
Short Circuit						
Brownout						
Over Temperature						
Standards						
Physical						
Compumotor Motors						
Non-Compumotor Motors						
Connectors						
Serial (Com1 & Com2)						
Ethernet						
Motor and Power						
Command, Onboard I/O						
Feedback						
Master Encoder						
Expandable I/O						
+24VDC/Relay						

* Peak of sine wave

** Motor ripple frequency is rated at twice the PWM value for a given drive

Gemini GV/GV6 Connections and LEDs



See Stepper Drive section for the full line of Gemini stepper drives and drive/controllers.

Gemini GV6 with Profibus Option

Profibus LED Indicators

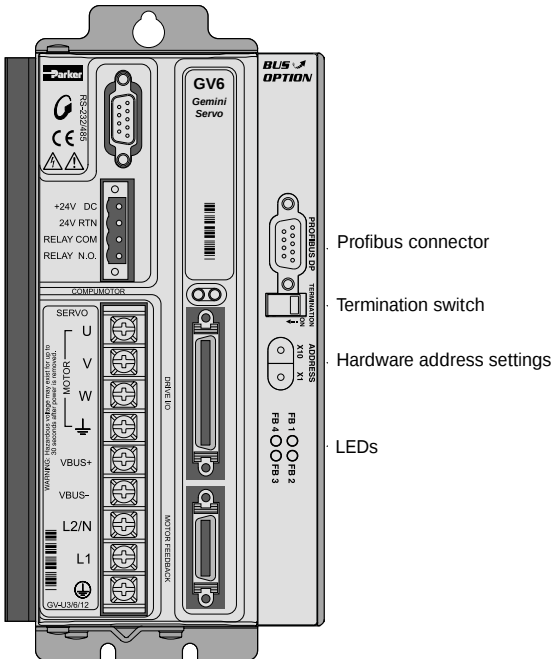
LED	Steady	Flash	Function	Status
FB1	--	--	Not used	--
FB2	Off		Module is not online	FBS bit #4= 0
	Green		Module is online	FBS bit #4= 1
FB3	Off		Module is not offline	FBS bit #4= 1
	Red		Module is offline	FBS bit #4= 0
FB4	Off		No diagnostics present	--
		Red	1 flash/second - FBSIZE setting does not match network configuration	--
		Red	4 flashes/second - hardware failure	--

Profibus Connector Pin Out

Pin	Name	Function
Housing	Shield	Protective earth
1	Not connected	--
2	Not connected	--
3	B-Line	Positive Rx/TxD
4	RTS	Request to send*
5	GND BUS	Isolated GND*
6	+5V BUS	Isolated +5V*
7	Not connected	--
8	A-Line	Negative Rx/TxD
9	Not connected	--

Profibus Baud Rate

The GV6 will automatically detect the baud rate of the Profibus network. For a complete list of supported baud rates, see the CMTR090E.GSD file, which accompanies the Gemini product.



Gemini GV6 with DeviceNet Option

DeviceNet LED Indicators

LED	Steady	Flash	Function	Status
FB1	--	--	Not used	--
FB2	Off		Not powered/not online	--
	Green		Network link is OK	FBS bit #4= 1
	Red		Network critical link failure	FBS bit #5= 1
		Green	1 flash/second - network link not connected	FBS bit #6= 1
		Red	1 flash/second - network connection timeout	FBS bit #7= 1
FB3	Off		No power	--
	Green		Module device operational	FBS bit #8= 1
	Red		Unrecoverable fault	FBS bit #9= 1
		Green	1 flash/second - module in standby	FBS bit #10= 1
		Red	1 flash/second - module minor fault	FBS bit #11= 1
FB4	--	--	Not used	--

DeviceNet Connector Pin Out

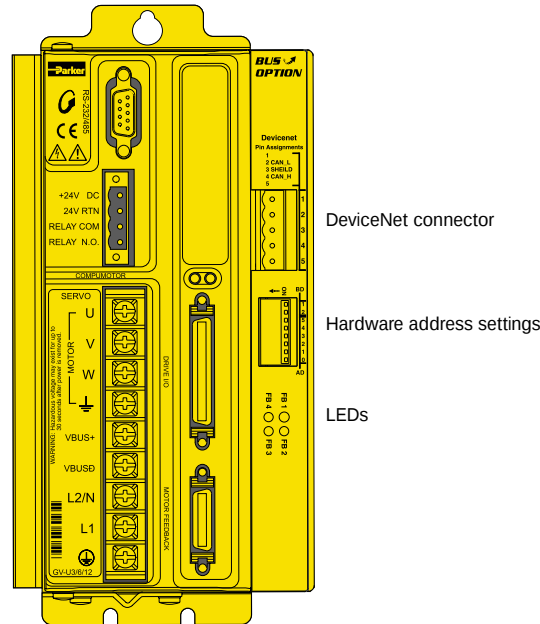
Pin	Name	Function
1	V-	DC Return
2	CAN_L	CANBUS LOW
3	SHIELD	Protective earth
4	CAN_H	CANBUS HIGH
5	V+	+24 VDC Power*

* 30mA in standby and 100mA in rush

DeviceNet Baud Rate

To configure baud rate via hardware, dip switches are provided to set a baud rate of 125, 250 or 500kb. Setting the dip switches to 0xFF (all ON) enables software configuration of baud rate.

Baud rate (Bit/sec)	BD1	BD2
125k	OFF	OFF
250k	OFF	ON
500k	ON	OFF
Reserved	ON	ON

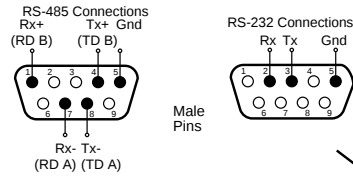


See Also:

The Profibus or DeviceNet
User Guide
for complete specifications

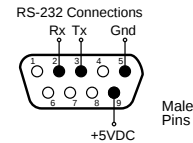
RS-232/485 Connector – COM1 – Port 1

To configure drive parameters, connect a PC to this port.
Use Motion Planner for drive configuration.
Enabling Ethernet will disable the COM1 port.



RS-232 Connector – COM2 – Port 2

Connect an RP240, or use this port for RS-232.
Download OS through this port only.
Ethernet and COM2 can both be active at the same time.

GV6K
Digital Controller/Drive

+24VDC/Relay Connector

Required +24VDC input.
19.2 — 28.8 VDC,
500 mA maximum.

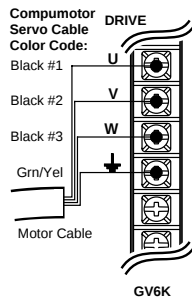
When drive is enabled, it
holds relay closed.

Relay rating: 5A at 24VDC or RELAY COM
120VAC.

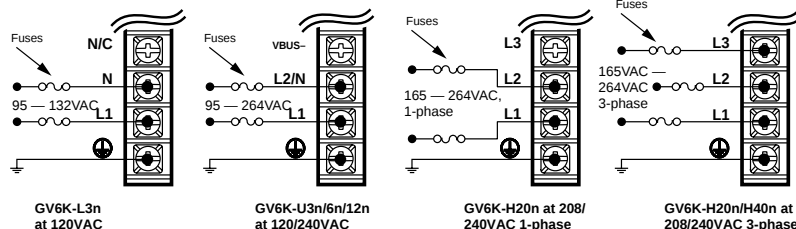
If drive is faulted or disabled,
relay will open. (Typical use:
control of motor brake.)



Motor Output Connections



AC Input Connections



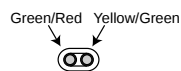
Protective Circuits

Short Circuit Protection
Inrush Current Protection
Drive Overtemperature Protection
Motor Overtemperature Protection
Undervoltage Protection
Overvoltage Protection
Current Foldback
Regeneration Protection

Environmental Specifications

Operating Temperature Still Air: 45°C (113°F)
Moving Air: 50°C (122°F)
Storage Temperature: -40°C — 85°C (-40°F — 185°F)
Humidity: 0 — 95%, non-condensing

LEDs



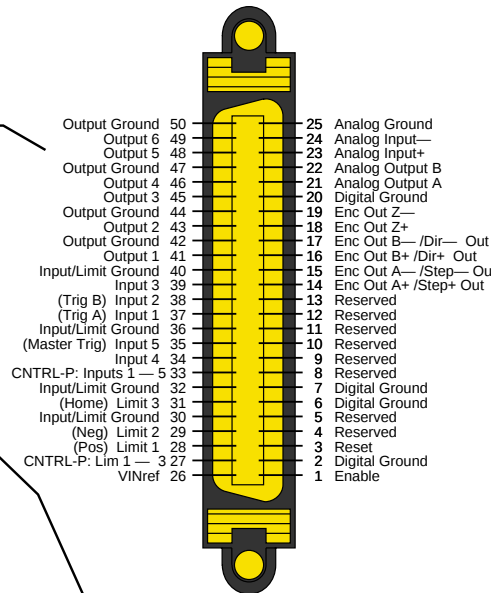
LED Color: Left Right
Red Grn
Yel
Red Grn (flash)
Grn Yel/Grn (flash)
Off Off

Indicated State
+24VDC only
AC only
Motion in progress
Auton mode
Drive not enabled; or
Drive faulted
Initializing
Drive ready

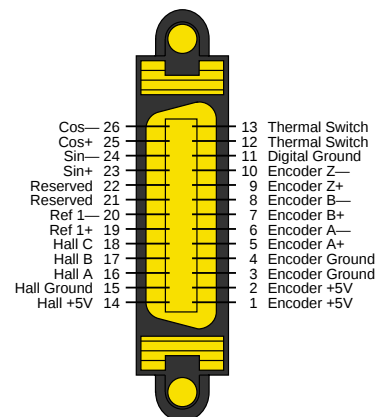
Expansion I/O Connector

Connect as many as eight EVM32-II I/O modules in series,
for up to 256 additional I/O points.

50 Pin DRIVE I/O Connector



26 Pin MOTOR FEEDBACK Connector



Ethernet Connector

RJ-45 connector for 10Base-T (10Mbps twisted pair) TCP/IP
protocol. Default address is 192.168.10.30. Green LED on =
Connection OK; Amber LED on = Transmitting

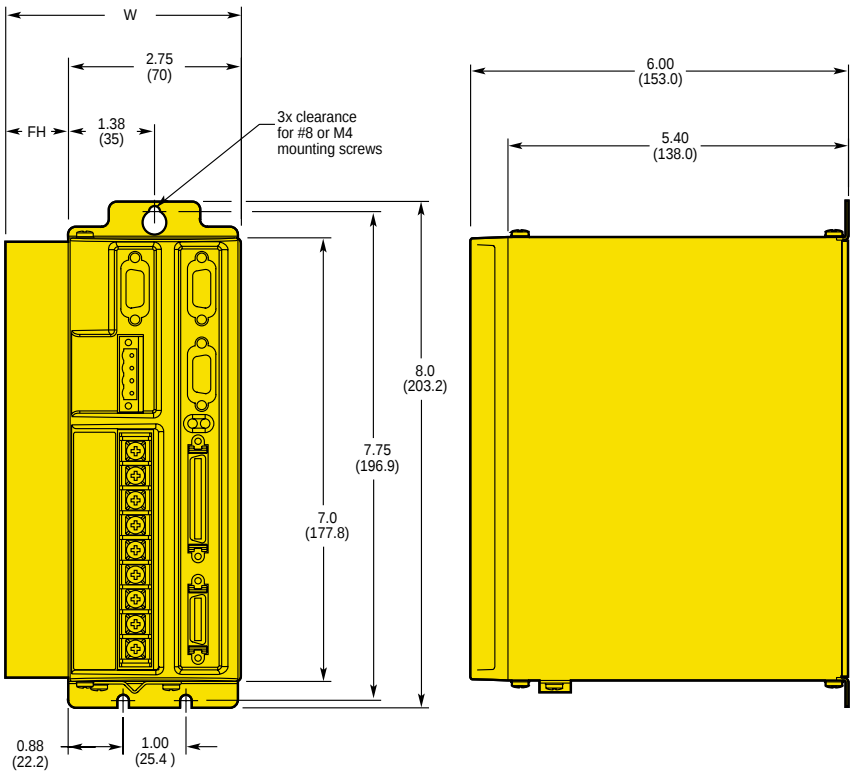
Master Encoder Connector

Connect an encoder for Following. Not for servo feedback or
stepper stall detect.

See Stepper Drive section for the full line of Gemini stepper drives and drive/controllers.

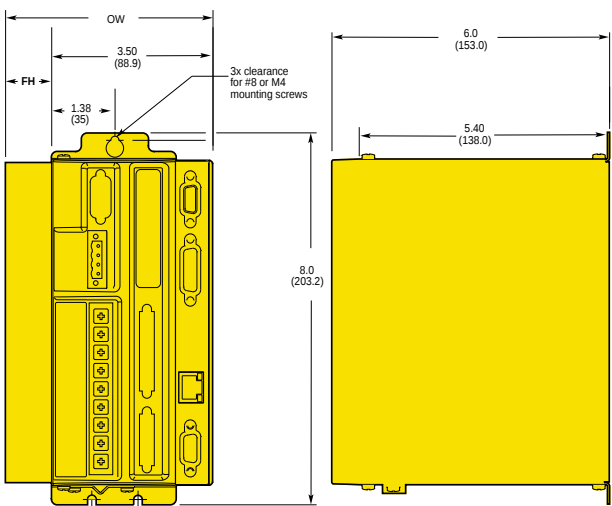
Gemini Dimensional Drawings

GV/GV6 Dimensions in inches (mm)



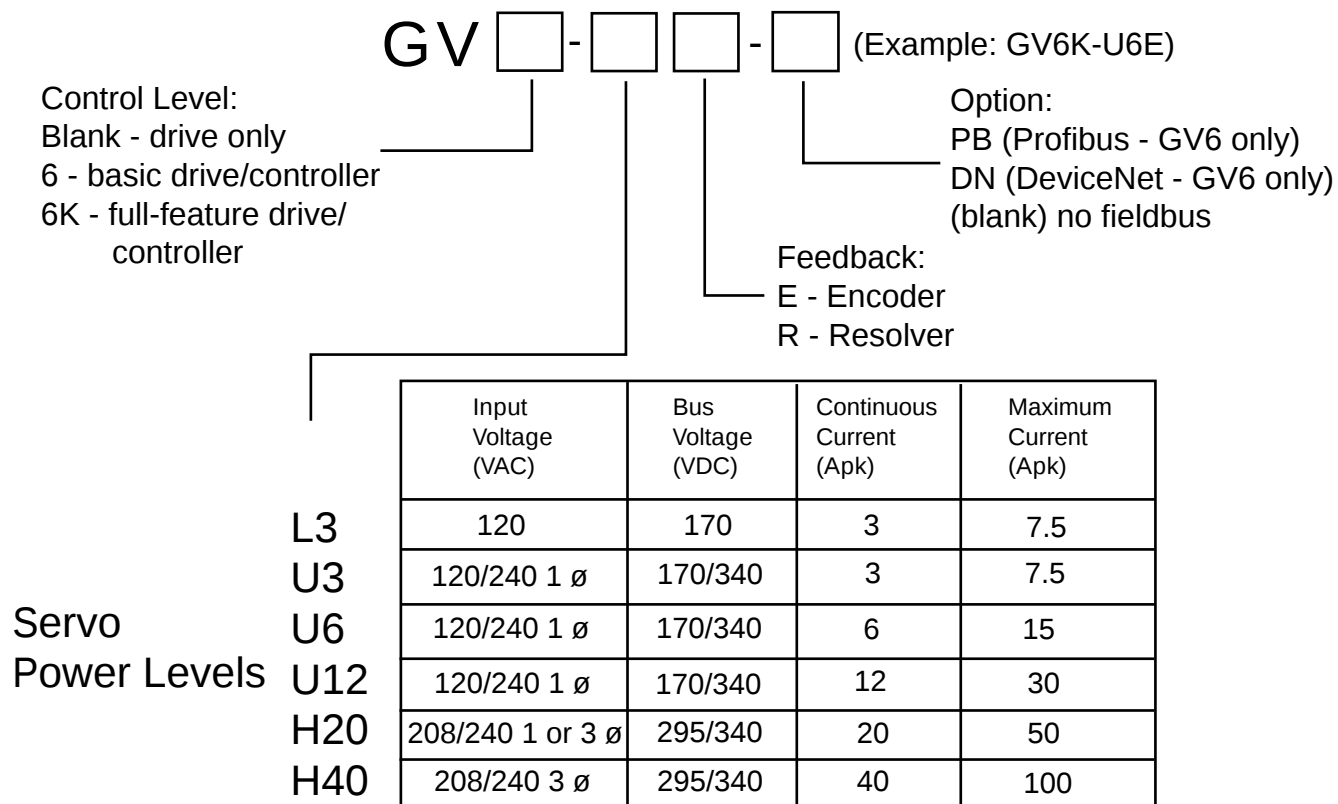
Power Level	W Width IN (mm)	FH FIN Height IN (mm)
L3	3.13 (79.4)	0.38 (9.5)
U3	3.13 (79.4)	0.38 (9.5)
U6	3.75 (95.3)	1.00 (25.4)
U12	3.75 (95.3)	1.00 (25.4)
H20	5.00 (127)	2.25 (57.2)
H40	5.00 (127)	2.25 (57.2)
GPDM	2.75 (70.0)	0.00 (0.0)

GV6K/GV6-PB/GV6-DN Dimensions in inches (mm)



Power Level	OW Overall Width IN (mm)	FH Fin Height IN (mm)	OL Overall Length IN (mm)	OH Overall Height IN (mm)
L3	3.88 (98.6)	0.38 (9.5)	8.0 (203.2)	6.0 (153.0)
U3	3.88 (98.6)	0.38 (9.5)	8.0 (203.2)	6.0 (153.0)
U6	4.50 (114.3)	1.00 (25.4)	8.0 (203.2)	6.0 (153.0)
U12	4.50 (114.3)	1.00 (25.4)	8.0 (203.2)	6.0 (153.0)
H20	5.75 (146.1)	2.25 (57.2)	9.9 (251.5)	6.0 (153.0)
H40	5.69 (144.6)	N/A	12.5 (317.5)	8.49 (215.7)

Gemini Ordering Nomenclature



Compatible Servo Motors

- SM Series (in 16 and 23 frame sizes)
- BE Series (in 16, 23 and 34 frame sizes)
- NeoMetric Series (in 34, 70mm and 92 frame sizes)
- J Series (in 34, 70mm and 92 frame sizes)
- M Series (in 105mm - 205mm frame sizes)

Motor Cabling Options

- CE(LVD & EMC) compliant MS connector option
- Flying lead option (with GFB-Kit)
- 10' cable option (with GFB-Kit)
- C1 quick connection option (Coming Soon)

See Also:

The Gemini Family of
Digital Stepper Drive
Products in the
Stepper Section

See Stepper Drive section for the full line of Gemini stepper drives and drive/controllers.

Cables and Accessories

Gemini to
6K Controller
(GV only)**Part Number**

71-016966-10
71-016987-10
71-018183-10
71-019862-04
71-019863-04

Product Description

Gemini to 6K Step & Direction command cable, 10', CE(LVD&EMC) (position mode)
Gemini to 6K Analog command cable, 10', CE(LVD&EMC) (torque or velocity mode)
Gemini to 6K Step & Dir or Analog command cable, 10', CE(LVD&EMC) (all modes)
Gemini to 6K Step & Direction command cable, 4', (non CE) (position mode)
Gemini to 6K Step & Dir or Analog command cable, 4', (non-CE) (all modes)

50-Pin
High Density
(Entire Family)**Part Number**

GEM-VM50
71-016943-10
71-019861-04
71-019861-10
GC-50
GC-SDA

Product Description

Gemini 50-pin screw terminal breakout board with 3' cable
10' cable, 50-pin high density to flying leads, CE(LVD&EMC)
4' cable, Gemini 50-pin high density to flying leads (non-CE)
10' cable, Gemini 50-pin high density to flying leads (non-CE)
50-pin Gemini connector with terminal strips
Gemini connector with 11-pin terminal strips (drive commands only)

26-Pin
High Density
(Entire Family)**Part Number**

GC-26
GFB-KIT

Product Description

Gemini connector with 26-pin terminal strips
26-pin Gemini connector kit

Additional
Accessories
(Entire Family)**Part Number**

71-016939-10
GPDM

Product Description

10' cable, RS232/485 null modem, CE(LVD&EMC)
Gemini Power Dissipation Module

Selecting a Servo Motor and Cables

The following cable sets are recommended when combining the shown Gemini GV, GV6 and GV6K power levels with the following Compumotor servo motors.

Power Level Motor Cable Sets

L3E	BE161CJ-NMSN	BE-GS CABLE-nn
	BE162CJ-NMSN	
	BE163CJ-NMSN	
	BE162CJ-NMSN	23GS CABLE-nn
	SM161AE-NGSN	
	SM162AE-NGSN	
	SM231AE-NGSN	
	SM232AE-NGSN	

L3R	SM231AR-NMSN	23GR CABLE-nn
	SM232AR-NMSN	
	SM233AR-NMSN	

U3E	BE161CJ-NMSN	BE-GS CABLE-nn
	BE162CJ-NMSN	
	BE163CJ-NMSN	
	BE164CJ-NMSN	BE-GS CABLE-nn
	BE230CJ-NMSN	
	BE231DJ-NMSN	
	BE232DJ-NMSN	
	BE233DJ-NMSN	

U3R	BE230DR-NMSN	BE-GR CABLE-nn
	BE231DR-NMSN	
	BE232DR-NMSN	

U6E	BE232FJ-NMSN	BE-GS CABLE-nn
	BE233FJ-NMSN	
	BE341FJ-NMSN	
	BE342FJ-NMSN	70GS CABLE-nn
	N/J0701DE-NMSN	
	N/J0702EE-NMSN	
	N/J0703FE-NMSN	
	N0704FE-NMSN	

U6R	BE232FR-NMSN	BE-GR CABLE-nn
	BE233FR-NMSN	
	BE341FR-NMSN	
	BE342FR-NMSN	70GR CABLE-nn
	N/J0701DR-NMSN	
	N/J0702ER-NMSN	
	N/J0703FR-NMSN	
	N0704FR-NMSN	92GR CABLE-nn
	N/J0921FE-NMSN	

U12E	BE341JJ-NMSN	BE-GS CABLE-nn
	BE342JJ-NMSN	
	BE232JJ-NMSN	
	N/J0701FE-NMSN	70GS CABLE-nn
	N/J0702FE-NMSN	
	N/J0703GE-NMSN	
	N/J0704GE-NMSN	
	N/J0921GE-NMSN	92GS CABLE-nn
	N/J0922GE-NMSN	
	N/J0922JE-NMSN	
	N/J0923HE-NMSN	
	N0924JE-NMSN	105GS CABLE-nn
	M1053KJ-NMSN	
	M1054KJ-NMSN	

For complete motor and cable information, please refer to the Motor Cable Table at the end of the Servo Motors section.

Power Level Motor Cable Sets

U12R	BE341JR-NMSN	BE-GR CABLE-nn
	BE342HR-NMSN	
	BE343JR-NMSN	
	BE344JR-NMSN	70GR CABLE-nn
	N/J0701FR-NMSN	
	N/J0702FR-NMSN	
	N/J0703GR-NMSN	
	N0704GR-NMSN	92GR CABLE-nn
	N/J0921GR-NMSN	
	N/J0922GR-NMSN	
	N/J0923HR-NMSN	105GR CABLE-nn
	N0924JR-NMSN	
	M1053KR-KMSN	
	M1054KR-KMSN	

H20E	BE342KJ-NMSN	BE-GS CABLE-nn
	BE343LJ-NMSN	
	N/J0923KE-NMSN	92GS CABLE-nn
	N0924KE-NMSN	
	M1053KJ-KMSN	105GS CABLE-nn
	M1054KJ-KMSN	
	M1453LJ-KMSN	145GS CABLE-nn
	M1454NJ-KMSN	
	M1455PJ-KMSN	205GS CABLE-nn
	M2052PJ-KMSN	

H20R	BE342KR-NMSN	BE-GR CABLE-nn
	BE343LR-NMSN	
	N/J0923KR-NMSN	92GR CABLE-nn
	N0924KR-NMSN	
	M1053KR-KMSN	105GR CABLE-nn
	M1054KR-KMSN	
	M1453LR-KMSN	145GR CABLE-nn
	M1454NR-KMSN	
	M1455PR-KMSN	205GR CABLE-nn
	M2052PR-KMSN	

H40E	M1053KJ-KMSN	105GS CABLE-nn
	M1054KJ-KMSN	
	M1453LJ-KMSN	145GS CABLE-nn
	M1454NJ-KMSN	
	M1455PJ-KMSN	205GS CABLE-nn
	M2052PJ-KMSN	

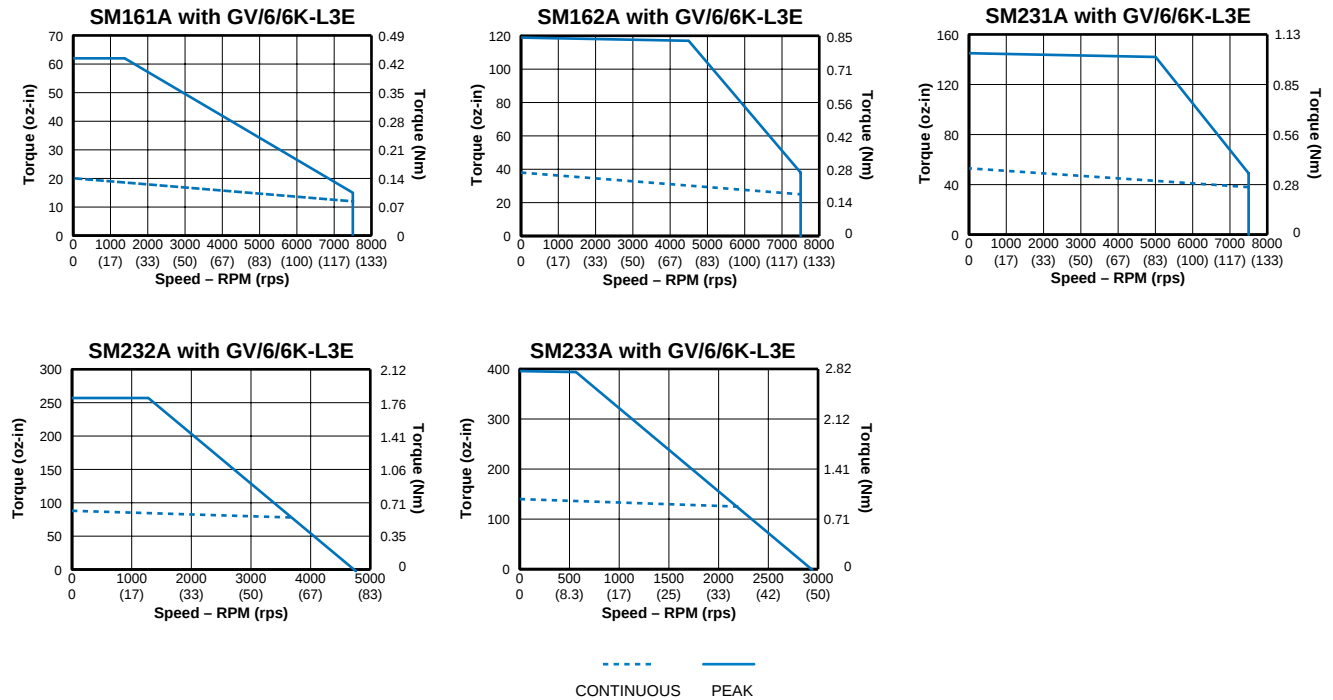
H40R	M1053KR-KMSN	105GR CABLE-nn
	M1054KR-KMSN	
	M1453LR-KMSN	145GR CABLE-nn
	M1454NR-KMSN	
	M1455PR-KMSN	205GR CABLE-nn
	M2052PR-KMSN	
	M2053RR-KPTN	
	M2054SR-KPTN	

ADDITIONAL CABLE INFORMATION

- Each cable set comes with 1 motor cable and 1 feedback cable.
- All cables have MS connectors and are CE(LVD&EMC) compliant.
- Motors may also be purchased with either flying leads or non-removable cables if GC-26 or GFB KIT are purchased.
- Motor and/or feedback cables may also be purchased individually.
- Cable sets: nn denotes cable lengths. Cables available in selected lengths. Call for details.
- For motors with brake option, refer to the motor/cable table for appropriate cable part numbers.

Motor Speed-Torque Performance Curves

Gemini with SM motors, 16 and 23 frame, encoder feedback, 120 VAC*



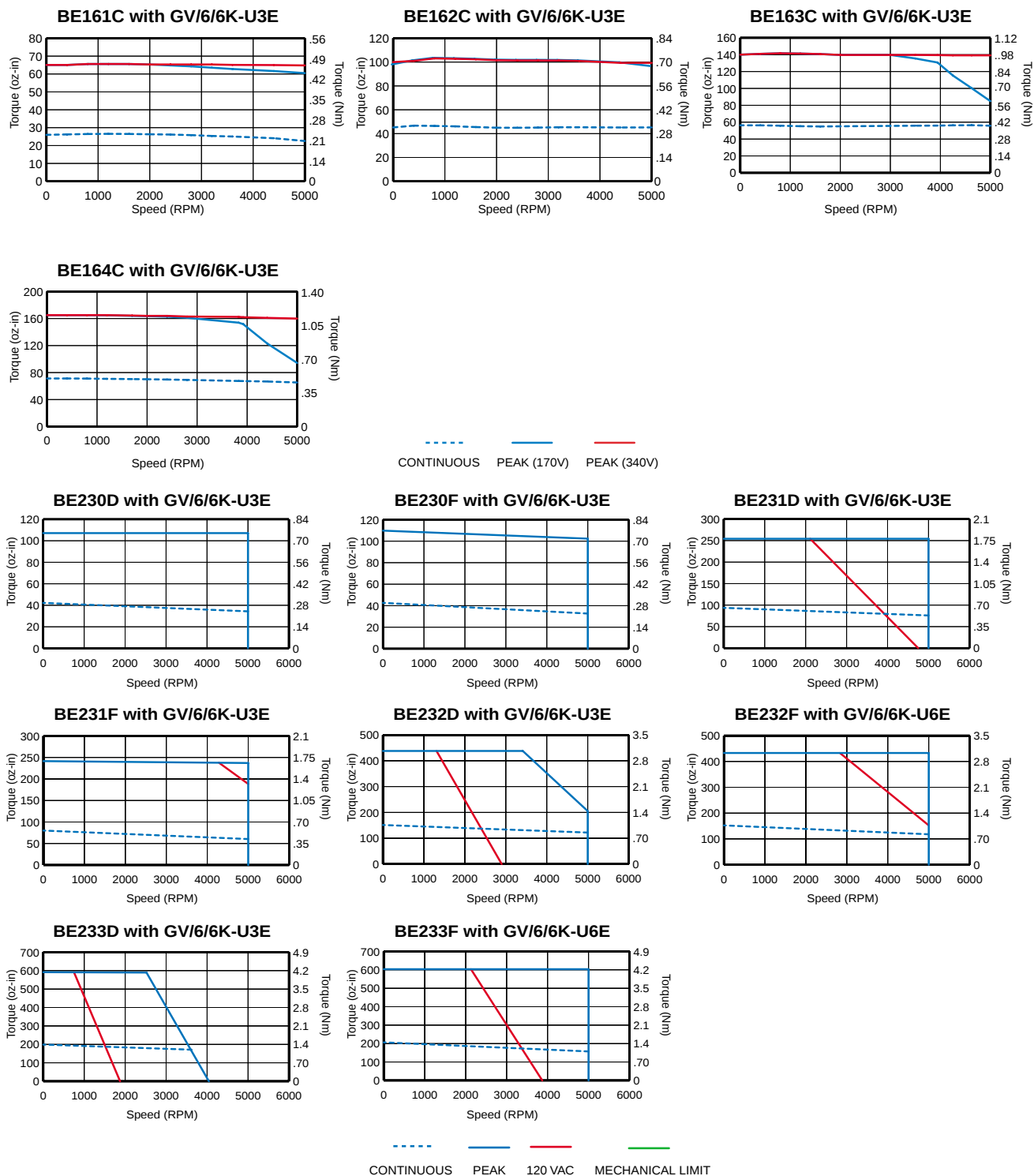
NOTES:

- Speed-torque curves limited to 7,500 rpm (motor mechanical limit).
- Curves represent 120VAC (nominal) operation.
- Actual speed-torque curves may vary $\pm 10\%$.
- Speed-torque curves are based on motor current values listed in *Motor Parameter Table*, available on the Motion Planner CD and on the Compumotor Web site, www.compumotor.com.
- For speed-torque curves of motors that may have been released after this catalog was published, see the *Gemini Motor Reference* section of the Compumotor Web site.

*Encoder feedback performance shown. Resolver-based systems provide up to an 8% increase of continuous and peak torque at all speeds over encoder-based systems. Refer to the Servo Motors section for more information on resolver motors.

Motor Speed-Torque Performance Curves

Gemini with BE motors, 16 and 23 frame, encoder feedback, 120/240 VAC*

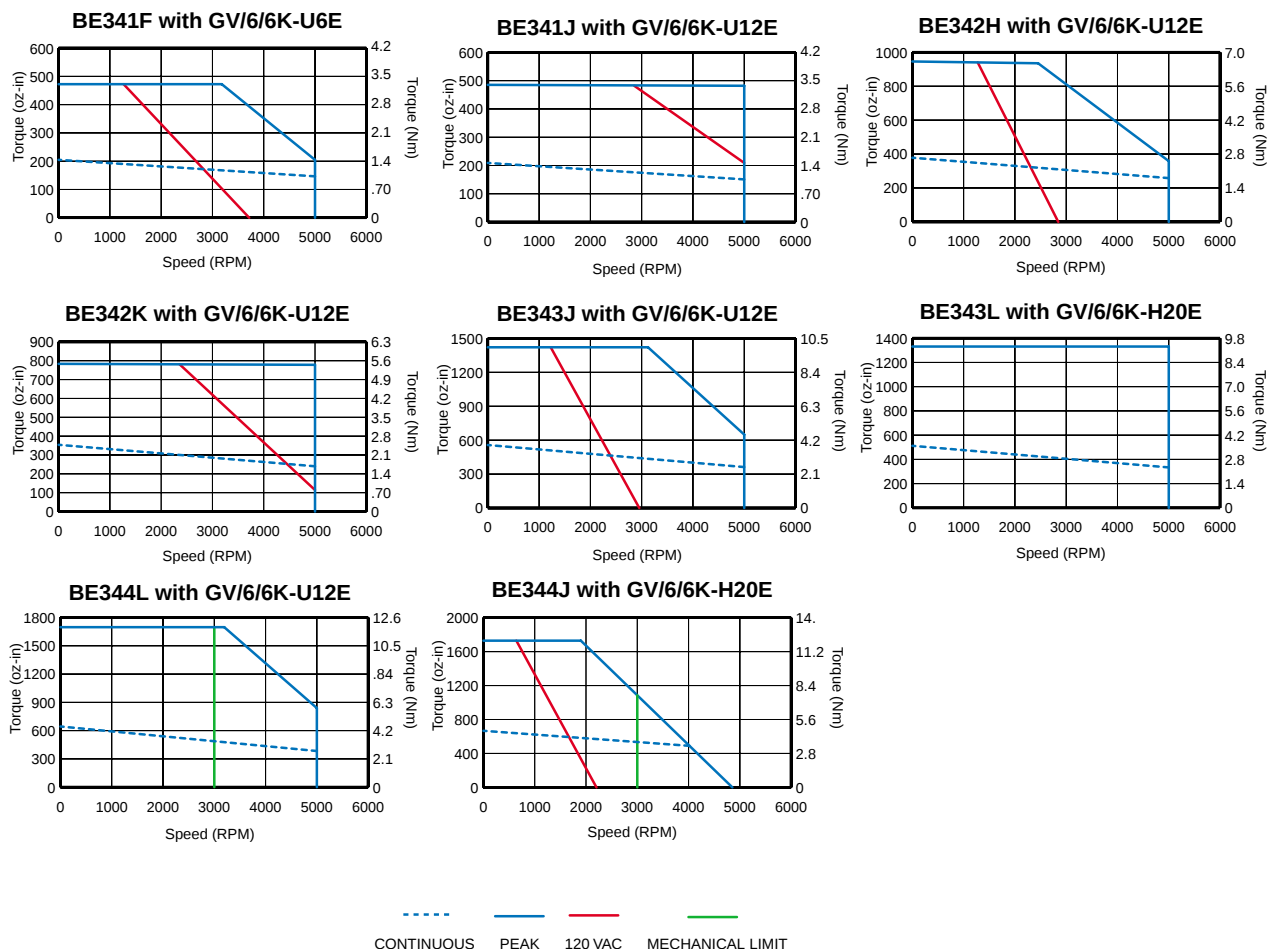


*Encoder feedback performance shown. Resolver-based systems provide up to an 8% increase of continuous and peak torque at all speeds over encoder-based systems. Refer to the Servo Motors section for more information on resolver motors.

See Stepper Drive section for the full line of Gemini stepper drives and drive/controllers.

Motor Speed-Torque Performance Curves

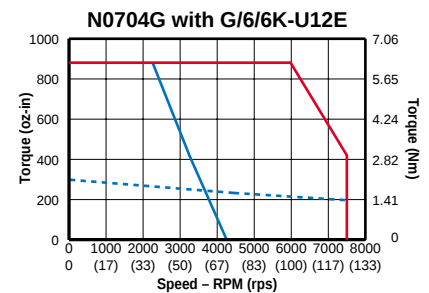
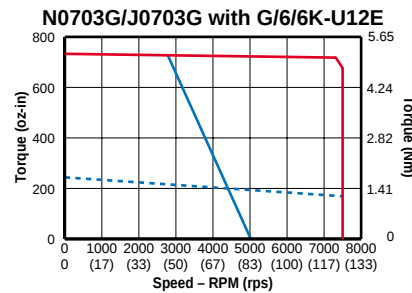
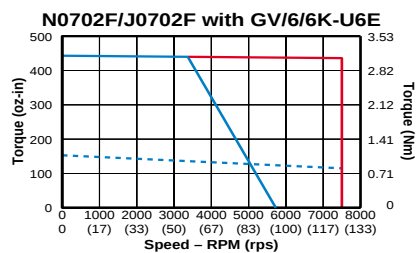
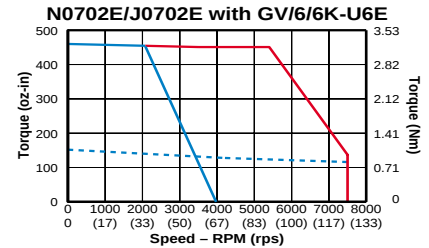
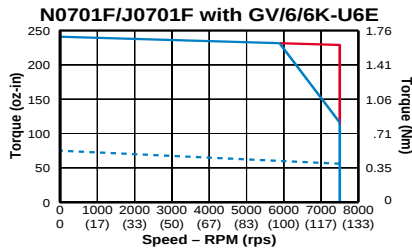
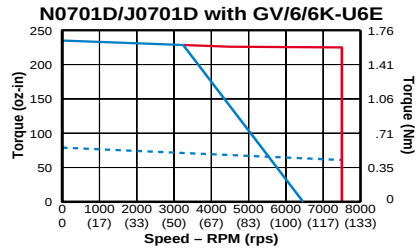
Gemini with BE motors, 34 frame, encoder feedback, 120/240 VAC*



*Encoder feedback performance shown. Resolver-based systems provide up to an 8% increase of continuous and peak torque at all speeds over encoder-based systems. Refer to the Servo Motors section for more information on resolver motors.

Motor Speed-Torque Performance Curves

Gemini with NeoMetric and J series motors, 70mm and 34 frame, encoder feedback, 120/240 VAC*



--- CONTINUOUS — 120V Limit — PEAK

NOTES:

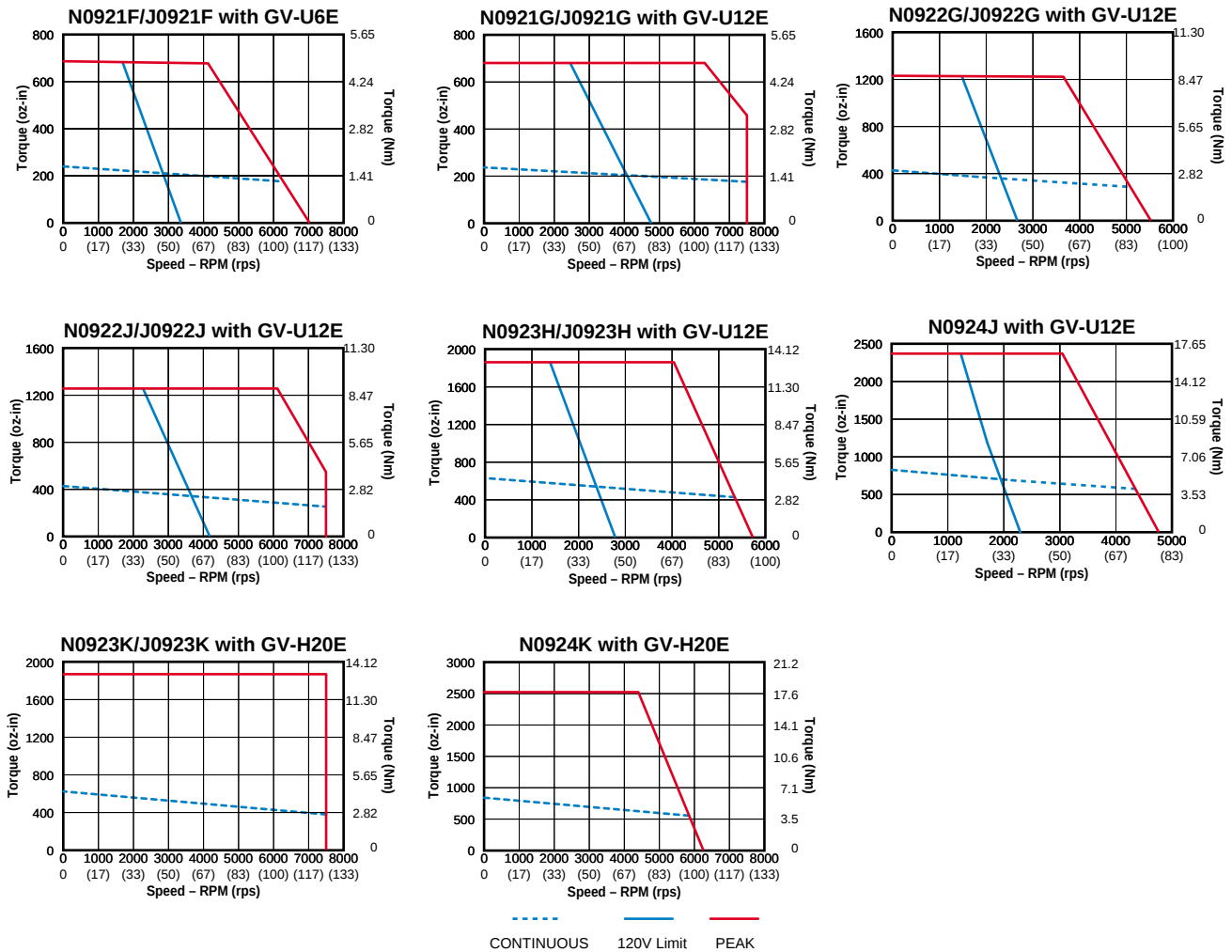
- Speed-torque curves limited to 7,500 rpm (motor mechanical limit).
- Curves represent 120VAC (nominal) and 240VAC (nominal) operation.
- Actual speed-torque curves may vary $\pm 10\%$.
- Speed-torque curves are based on motor current values listed in *Motor Parameter Table*, available on the Motion Planner CD and on the Compumotor Web site, www.compumotor.com.
- For speed-torque curves of motors that may have been released after this catalog was published, see the *Gemini Motor Reference* section of the Compumotor Web site.

*Encoder feedback performance shown. Resolver-based systems provide up to an 8% increase of continuous and peak torque at all speeds over encoder-based systems. Refer to the Servo Motors section for more information on resolver motors.

See Stepper Drive section for the full line of Gemini stepper drives and drive/controllers.

Motor Speed-Torque Performance Curves

Gemini with NeoMetric and J series motors, 92mm frame, encoder feedback, 120/240 VAC*



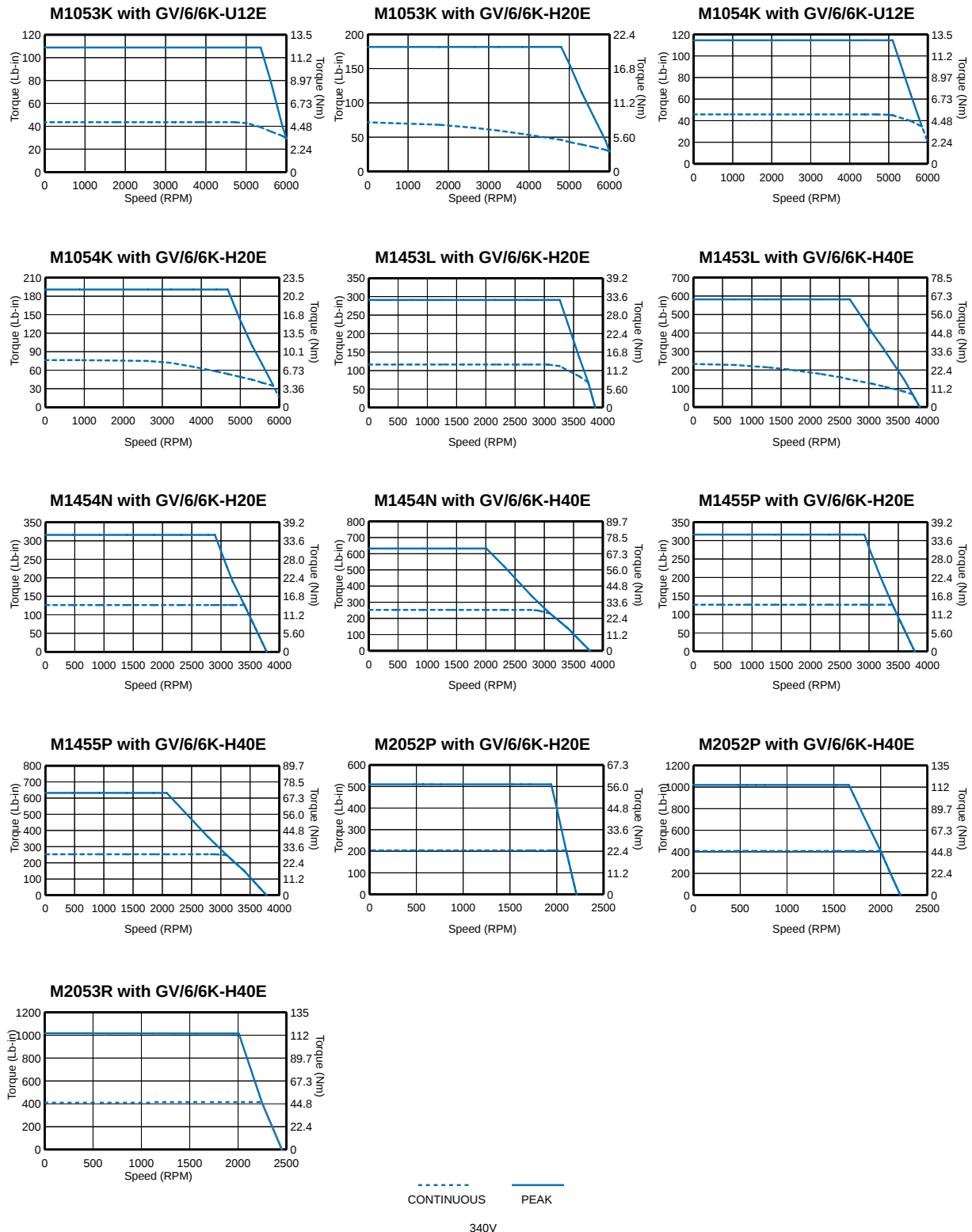
NOTES:

- Speed-torque curves limited to 7,500 rpm (motor mechanical limit).
- Curves represent 120VAC (nominal) and 240VAC (nominal) operation.
- Actual speed-torque curves may vary $\pm 10\%$.
- Speed-torque curves are based on motor current values listed in *Motor Parameter Table*, available on the Motion Planner CD and on the Compumotor Web site, www.compumotor.com.
- For speed-torque curves of motors that may have been released after this catalog was published, see the *Gemini Motor Reference* section of the Compumotor Web site.

*Encoder feedback performance shown. Resolver-based systems provide up to an 8% increase of continuous and peak torque at all speeds over encoder-based systems. Refer to the Servo Motors section for more information on resolver motors.

Motor Speed-Torque Performance Curves

Gemini with M series motors, 105, 145 and 205mm frame, encoder feedback, 240 VAC*



*Encoder feedback performance shown. Resolver-based systems provide up to an 8% increase of continuous and peak torque at all speeds over encoder-based systems. Refer to the Servo Motors section for more information on resolver motors.

See Stepper Drive section for the full line of Gemini stepper drives and drive/controllers.