Servo Products

• Three drive series to cover a wide range of motors
• Common features and control options
• Common software tools for configuration and programming
• Multiple communication options, including: Ethernet, EtherNet/IP, RS-232/485 and CANopen
• Easy system commissioning and tuning using preconfigured setup files
• Point-and-click programming with Si Programmer™
• Complex motion, multi-tasking, and third-party HMI support with Q Programmer™
• Motors with NEMA and Metric frame sizes
• Torques from 0.84 to 64 in-lb

Servo Drives
• SV7
• SVAC3
• BLuAC5

Servo Motors
• M Series
• V Series

Applied Motion Products
SVAC3
400W AC Powered Servo Drive

- Operates from 120 or 220 VAC
- Digital PID servo control
- Velocity and acceleration feedforward minimize position error throughout every move
- Digital DQ current loop provides wide bandwidth, precise current control
- Sine commutation for smooth, quiet motion
- PID output filter + derivative filter eliminate system resonances
- Jerk filter provides jerk free “S curve” motion
- Built-in regeneration (power dump) circuit
- 100 Mbit Ethernet
- Flexible control options
- Q Programmable™ version

Control Options*

- Pulse & direction
- CW/CCW pulse
- A/B quadrature
- Velocity (oscillator) mode
- Analog +/-10V torque, velocity, position
- Host commands (SCL)
- Quick Tuner™ software for setup
- Stand-alone operation
- Q Programmer™ for complex motion
- Quick Tuner™ software for setup
- Conditional processing
- Math functions
- Multi-tasking
- Register manipulation
- Encoder following
- Third-party HMI compatibility

- EtherNet/IP
- Connects to industry’s most popular PLC’s
- Same functions as Q model

Communications

**Ethernet Port**

- The Ethernet port on all SVAC3 drives is used for configuration, programming, and streaming SCL and Q commands to one or more drives across 100 Mbit Ethernet networks (TCP and UDP).

**EtherNet/IP option: SV7 IP-EE**

- Allows drives to be commanded and queried over EtherNet/IP industrial networks.

*See back page for complete list of available model numbers.

For more information, visit: www.applied-motion.com/SVAC3
SVAC3 Dimensions

Dimensions in inches
Not to scale

Inputs and Outputs

- 4 digital inputs
- 2 digital outputs
- 1 analog input

- 12 digital inputs
- 6 digital outputs
- 1 analog input

- 12 digital inputs
- 6 digital outputs
- 1 analog input

ENCODER EXTENSION CABLE FOR V SERIES MOTORS
- VA-ENC-CA-06 - 6 ft
- VA-ENC-CA-10 - 10 ft

ENCODER EXTENSION CABLE FOR M SERIES MOTORS
- BLUENC-CA-04 - 4 ft
- BLUENC-CA-10 - 10 ft
- BLUENC-CA-20 - 20 ft

MOTOR EXTENSION CABLE FOR V SERIES MOTORS
- VA-MTR-CA-06 - 6 ft
- VA-MTR-CA-10 - 10 ft

MOTOR EXTENSION CABLE FOR M SERIES MOTORS
- BLUMTR-FA-04 - 4 ft
- BLUMTR-FA-10 - 10 ft
- BLUMTR-FA-20 - 20 ft

MOTOR EXTENSION CABLE FOR M SERIES MOTORS
- BLUMTR-CA-04 - 4 ft
- BLUMTR-CA-10 - 10 ft
- BLUMTR-CA-20 - 20 ft
### Servo Motor Data

<table>
<thead>
<tr>
<th>Part #</th>
<th>Supply</th>
<th>Voltage</th>
<th>Frame Size</th>
<th>Rated Power (Watts)</th>
<th>Cont.</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>M0100-103-3-000</td>
<td>24 VDC</td>
<td>40 mm</td>
<td>100</td>
<td>2.8</td>
<td>8.4</td>
<td>3000</td>
</tr>
<tr>
<td>M0100-103-4-000</td>
<td>24 VDC</td>
<td>60 mm</td>
<td>100</td>
<td>2.8</td>
<td>8.4</td>
<td>3000</td>
</tr>
<tr>
<td>V0050-214-A-000</td>
<td>48 VDC</td>
<td>NEMA 17</td>
<td>50</td>
<td>0.84</td>
<td>2.6</td>
<td>5000</td>
</tr>
<tr>
<td>V0100-214-B-000</td>
<td>48 VDC</td>
<td>NEMA 23</td>
<td>100</td>
<td>1.68</td>
<td>5.0</td>
<td>5000</td>
</tr>
<tr>
<td>V0200-214-B-000</td>
<td>48 VDC</td>
<td>NEMA 23</td>
<td>200</td>
<td>3.36</td>
<td>10</td>
<td>5000</td>
</tr>
<tr>
<td>V0250-214-B-000</td>
<td>48 VDC</td>
<td>NEMA 23</td>
<td>200</td>
<td>5.0</td>
<td>15</td>
<td>3350</td>
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<tr>
<td>M0200-104-4-000</td>
<td>48 VDC</td>
<td>60 mm</td>
<td>200</td>
<td>5.7</td>
<td>17</td>
<td>3000</td>
</tr>
<tr>
<td>M0400-105-4-000</td>
<td>60 VDC</td>
<td>60 mm</td>
<td>400</td>
<td>11</td>
<td>34</td>
<td>3000</td>
</tr>
<tr>
<td>V0050-211-A-000</td>
<td>120 VAC</td>
<td>NEMA 17</td>
<td>50</td>
<td>0.84</td>
<td>2.6</td>
<td>5000</td>
</tr>
<tr>
<td>V0100-211-B-000</td>
<td>120 VAC</td>
<td>NEMA 23</td>
<td>100</td>
<td>1.68</td>
<td>5.0</td>
<td>5000</td>
</tr>
<tr>
<td>M0100-101-3-000</td>
<td>120 VAC</td>
<td>40 mm</td>
<td>100</td>
<td>2.8</td>
<td>8.4</td>
<td>3000</td>
</tr>
<tr>
<td>M0100-101-4-000</td>
<td>120 VAC</td>
<td>60 mm</td>
<td>100</td>
<td>2.8</td>
<td>8.4</td>
<td>3000</td>
</tr>
<tr>
<td>V0200-211-B-000</td>
<td>120 VAC</td>
<td>NEMA 23</td>
<td>200</td>
<td>3.36</td>
<td>10</td>
<td>5000</td>
</tr>
<tr>
<td>V0300-211-B-000</td>
<td>120 VAC</td>
<td>NEMA 23</td>
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<td>5.0</td>
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<tr>
<td>M0200-101-4-000</td>
<td>120 VAC</td>
<td>60 mm</td>
<td>200</td>
<td>5.7</td>
<td>17</td>
<td>3000</td>
</tr>
<tr>
<td>V0400-211-C-000</td>
<td>120 VAC</td>
<td>NEMA 34</td>
<td>400</td>
<td>6.7</td>
<td>20</td>
<td>5000</td>
</tr>
<tr>
<td>M0400-101-4-000</td>
<td>120 VAC</td>
<td>60 mm</td>
<td>400</td>
<td>11</td>
<td>34</td>
<td>3000</td>
</tr>
<tr>
<td>V0300-212-B-000</td>
<td>220 VAC</td>
<td>NEMA 23</td>
<td>300</td>
<td>5.0</td>
<td>15</td>
<td>5000</td>
</tr>
<tr>
<td>M0200-102-4-000</td>
<td>220 VAC</td>
<td>60 mm</td>
<td>200</td>
<td>5.7</td>
<td>17</td>
<td>3000</td>
</tr>
<tr>
<td>V0400-212-C-000</td>
<td>220 VAC</td>
<td>NEMA 34</td>
<td>400</td>
<td>6.7</td>
<td>20</td>
<td>5000</td>
</tr>
<tr>
<td>M0400-102-5-000</td>
<td>220 VAC</td>
<td>80 mm</td>
<td>400</td>
<td>11</td>
<td>34</td>
<td>3000</td>
</tr>
<tr>
<td>M0750-102-5-000</td>
<td>220 VAC</td>
<td>80 mm</td>
<td>750</td>
<td>21</td>
<td>64</td>
<td>3000</td>
</tr>
</tbody>
</table>

#### Torque Curves for 120 Volt SVAC3

**SVAC3-120**

- V0400-211 Peak
- V0400-211 Continuous
- V0300-211 Peak
- V0300-211 Continuous
- V0200-211 Peak
- V0200-211 Continuous
- V0100-211 Peak
- V0100-211 Continuous
- V0050-211 Peak
- V0050-211 Continuous

#### Torque Curves for 220 Volt SVAC3

**SVAC3-220**

- V0400-212 Peak
- V0400-212 Continuous
- V0300-212 Peak
- V0300-212 Continuous
- V0200-211 Peak
- V0200-211 Continuous
- V0100-211 Peak
- V0100-211 Continuous
- V0050-211 Peak
- V0050-211 Continuous

### Notes
- **M Series Motors:**
  - High torque density
  - Metric frame sizes
  - 2000 line (8000 count) incremental encoder

- **V Series Motors:**
  - Economical package
  - NEMA frame sizes
  - 2048 line (8192 count) incremental encoder
### SVAC3 Technical Specifications

**POWER AMPLIFIER**

<table>
<thead>
<tr>
<th>AMPLIFIER TYPE</th>
<th>Digital MOSFET 16 kHz PWM</th>
</tr>
</thead>
</table>

**CURRENT CONTROL**

4 quadrant d-q method

**OUTPUT CURRENT**

- **SVAC3-120**: 0.5 to 3.5 A rms continuous, 0.5 to 7.4 A rms peak (2 seconds max, 0.2% limiting)
- **SVAC3-220**: 0.5 to 1.8 A rms continuous, 0.5 to 5.4 A rms peak (2 seconds max, 0.2% limiting)

**INPUT POWER**

- **SVAC3-120**: 108-132 VAC, 50-60 Hz
- **SVAC3-220**: 108-242 VAC, 50-60 Hz

**PROTECTION**

Over-voltage, under-voltage, over-temp, motor/wiring shorts (phase-to-phase, phase-to-ground)

**REGENERATION**

Built-in regeneration circuit, 10 watts max

**AMBIENT TEMPERATURE**

0 to 40 ºC (32 to 104 ºF), must be mounted to suitable heatsink with adequate ventilation

**HUMIDITY**

90% max, non-condensing

**WEIGHT**

22.4 oz

**CONTROLLER**

Drive configuration and Q program stored in non-volatile memory

**NON-VOLATILE STORAGE**

Drive configuration and Q program stored in non-volatile memory

**INPUTS/OUTPUTS: S models**

<table>
<thead>
<tr>
<th>X1, X2 Inputs:</th>
<th>Optically isolated, differential, 5-24 VDC, minimum pulse width = 250 ns, maximum pulse frequency = 2 MHz, Function: step &amp; direction, CW/CCW step, A/B quadrature encoder</th>
</tr>
</thead>
<tbody>
<tr>
<td>X3 Input:</td>
<td>Optically isolated, differential, 5-24 VDC, Function: motor enable</td>
</tr>
<tr>
<td>X4 Input:</td>
<td>Optically isolated, differential, 5-24 VDC, Function: alarm reset</td>
</tr>
<tr>
<td>Y1 Output:</td>
<td>Optical Darlington, sinking or sourcing, 30 VDC max, 100 mA max. Function: brake relay</td>
</tr>
<tr>
<td>Y2 Output:</td>
<td>Optical Darlington, sinking or sourcing, 30 VDC max, 100 mA max. Function: fault, motion or tach</td>
</tr>
</tbody>
</table>

**INPUTS/OUTPUTS: Q and IP models**

<table>
<thead>
<tr>
<th>X1, X2 Inputs:</th>
<th>Optically isolated, differential, 5-24 VDC, minimum pulse width = 250 ns, maximum pulse frequency = 2 MHz, Function: step &amp; direction, CW/CCW step, A/B quadrature encoder</th>
</tr>
</thead>
<tbody>
<tr>
<td>X3 Input:</td>
<td>Optically isolated, differential, 5-24 VDC, Function: motor enable</td>
</tr>
<tr>
<td>X4 Input:</td>
<td>Optically isolated, differential, 5-24 VDC, Function: alarm reset</td>
</tr>
<tr>
<td>IN1, IN2 Inputs:</td>
<td>Optically isolated, differential, 5-24 VDC, Function: jogging</td>
</tr>
<tr>
<td>IN3, IN4 Inputs:</td>
<td>Optically isolated, sinking w/ shared common, 12-24 VDC</td>
</tr>
<tr>
<td>IN5, IN6 Inputs:</td>
<td>Optically isolated, differential, 5-24 VDC, Function: CW and CCW limits</td>
</tr>
<tr>
<td>Y1 Output:</td>
<td>Optical Darlington, sinking or sourcing, 30 VDC max, 100 mA max. Function: brake relay</td>
</tr>
<tr>
<td>Y2 Output:</td>
<td>Optical Darlington, sinking or sourcing, 30 VDC max, 100 mA max. Function: fault</td>
</tr>
<tr>
<td>OUT1 Output:</td>
<td>Optical Darlington, sinking, 30 VDC max, 100 mA max. Function: motion or tach</td>
</tr>
<tr>
<td>OUT2, OUT3 Outputs:</td>
<td>Optical Darlington, sinking, 30 VDC max, 100 mA max.</td>
</tr>
<tr>
<td>OUT4 Output:</td>
<td>Optical Darlington, sinking or sourcing, 30 VDC max, 100 mA max.</td>
</tr>
</tbody>
</table>

**COMMUNICATION INTERFACE**

- All models: Ethernet 100BASE-T, supports TCP and UDP
- IP models only: EtherNet/IP industrial networking

**ENCODER INTERFACE**

Differential line receivers for incremental encoder (A/B quadrature) feedback, up to 2 MHz, 400 cpr min to 32,768 cpr max (1600 quadrature counts min to 131,072 quadrature counts max)

**AGENCY APPROVALS**

- RoHS
- UL 508C
BLuAC5
1000W AC Powered Servo Drive

- Operates from 100 to 240 VAC, 1 or 3 phase
- Digital PID servo control
- Velocity and acceleration feedforward minimize position error throughout every move
- Digital DQ current loop provides wide bandwidth, precise current control
- Sine commutation for smooth, quiet motion
- PID output filter + derivative filter eliminate system resonances
- Built-in regeneration (power dump) circuit
- Dynamic braking
- RS-232, RS-485
- Flexible control options
- SI and Q Programmable™ versions

Control Options*
- Pulse & direction
- CW/CCW pulse
- A/B quadrature
- Velocity (oscillator) mode
- Analog +/-10V torque, velocity, position
- Host commands (SCL)
- SiNet hub compatible
- Quick Tuner™ software for setup
- Stand-alone operation
- Q Programmer™ for complex motion
- Quick Tuner™ software for setup
- Conditional processing
- Math functions
- Multi-tasking
- Register manipulation
- Encoder following
- Third-party HMI compatibility
- QE adds additional I/O

Communications
RS-232 port
- Standard on all drives
- The RS-232 port is used for configuration, programming, and sending SCL and Q commands to a single drive.

RS-485 port
- Standard on all drives
- The RS-485 port can be used to stream SCL and Q commands to one or more drives across a serial network.

For more information, visit: www.applied-motion.com

*See back page for complete list of available model numbers.
**BLuAC5 Technical Specifications**

<table>
<thead>
<tr>
<th>POWER AMPLIFIER:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AMPLIFIER TYPE</td>
<td>3-phase sinusoidal PWM switching at 16 kHz</td>
</tr>
<tr>
<td>CURRENT CONTROL</td>
<td>4 quadrant d-q method</td>
</tr>
<tr>
<td>OUTPUT CURRENT</td>
<td>Up to 5 A rms continuous, up to 15 A rms peak (2 seconds max, I²t limiting)</td>
</tr>
<tr>
<td>INPUT POWER</td>
<td>90-260 VAC, 50/60 Hz, 1-phase or 3-phase</td>
</tr>
<tr>
<td>PROTECTION</td>
<td>Over-voltage (400 VDC on DC bus, under-voltage (100 VDC on DC bus), over-temp (75 °C), motor/wiring shorts (phase-to-phase, phase-to-ground), regeneration error (based on regeneration values input by user), encoder failure (differential encoders only), Hall sensor failure</td>
</tr>
<tr>
<td>REGENERATION</td>
<td>50 Watt internal shunt resistor, connector for external high-power shunt resistor</td>
</tr>
<tr>
<td>AMBIENT TEMPERATURE</td>
<td>0 to 40 °C (32 to 104 °F), must be mounted to suitable heatsink with adequate ventilation</td>
</tr>
<tr>
<td>HUMIDITY</td>
<td>90% max, non-condensing</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>S and Q models: 35.1 oz, QE and Si models: 44 oz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTROLLER:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NON-VOLATILE STORAGE</td>
<td>Drive configuration and programs stored in non-volatile memory</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INPUTS/OUTPUTS: S and Q models</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>X1, X2 inputs:</td>
<td>Optically isolated, differential, 5 VDC</td>
</tr>
<tr>
<td>X3-X7 inputs:</td>
<td>Optically isolated, single-ended w/ shared common, 12-24 VDC</td>
</tr>
<tr>
<td>Y1-Y3 outputs:</td>
<td>Optical Darlington, sinking w/ shared common, 30 VDC max, 100 mA max</td>
</tr>
<tr>
<td>Analog Inputs:</td>
<td>Two single-ended inputs can be wired together as one differential input. Range is software selectable 0-5 VDC, +/-5, 0-10 VDC, or +/-10 VDC. Software configurable offset, deadband and filtering on differential input only</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INPUTS/OUTPUTS: QE and Si models</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>X1, X2 inputs:</td>
<td>Optically isolated, differential, 5 VDC</td>
</tr>
<tr>
<td>X3-X7 inputs:</td>
<td>Optically isolated, single-ended w/ shared common, 12-24 VDC</td>
</tr>
<tr>
<td>IN1-IN6 inputs:</td>
<td>Optically isolated, single-ended w/ shared common, 12-24 VDC</td>
</tr>
<tr>
<td>IN7, IN8 inputs:</td>
<td>Optically isolated, single-ended w/ shared common, 12-24 VDC</td>
</tr>
<tr>
<td>Y1-Y3 outputs:</td>
<td>Optical Darlington, sinking w/ shared common, 30 VDC max, 100 mA max</td>
</tr>
<tr>
<td>OUT1-OUT4 outputs:</td>
<td>Optical Darlington, sinking or sourcing, 30 VDC max, 100 mA max</td>
</tr>
<tr>
<td>Analog Inputs:</td>
<td>Two single-ended inputs can be wired together as one differential input. Range is software selectable 0-5 VDC, +/-5, 0-10 VDC, or +/-10 VDC. Software configurable offset, deadband and filtering on differential input only</td>
</tr>
<tr>
<td>Note: SI Programming does not support the analog inputs.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMMUNICATION INTERFACE</th>
<th>RS-232 for configuration, programming and serial communications to a single drive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RS-485 for serial communications to one or more drives on a serial network</td>
</tr>
</tbody>
</table>

| ENCODER INTERFACE | Differential line receivers for incremental encoder (A/B quadrature) feedback, up to 2 MHz, 50 cpr min to 8192 cpr max (200 quadrature counts min to 32,768 quadrature counts max) |

<table>
<thead>
<tr>
<th>AGENCY APPROVALS</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CE</td>
</tr>
</tbody>
</table>
SV7
300W DC Powered Servo Drive

- Operates from 24 to 80 VDC
- Digital PID servo control
- Velocity and acceleration feedforward
- Sine commutation for smooth, quiet motion
- Digital DQ current loopProvides wide bandwidth, precise current control
- PID output filter + derivative filter
- Eliminate system resonances
- Jerk filter provides jerk free "S curve" motion
- RS-232, RS-485, CANopen, Ethernet
- Flexible control options
- Si and Q Programmable™ versions

Control Options*

- Pulse & direction
- CW/CCW pulse
- A/B quadrature
- Velocity (oscillator) mode
- Analog +/−10V torque, velocity, position
- Host commands (SCL)
- SiNet Hilt compatible
- Quick Tuner™ software for setup
- Stand-alone operation
- Q Programmer™ for complex motion
- Quick Tuner™ software for setup
- Conditional processing
- Math functions
- Multi-tasking
- Register manipulation
- Encoder following
- Third-party HMI compatibility
- Si Programmer™ with built-in Quick Tuner™
- Point-and-click indexing software
- User-friendly GUI
- I/O and motion programming
- Operator interface available (MMI-01 or MMI-02)
- CANopen protocols DS301 and DSP402
- Profile Position, Profile Velocity, and Homing modes
- Up to 127 axes per channel
- Execute stored Q programs
- EtherNet/IP
- Connects to industry’s most popular PLC’s
- Same functions as Q model

Communications

Ethernet option: SV7-Q-EE
- The Ethernet option board allows the SV7-Q-EE to be commanded and queried over standard 100Mbit Ethernet using the SCL and Q languages.

CANopen option: SV7-C-CE
- The CANopen option board used with the SV7-C-CE allows the drive to be connected to a CANopen network along with other CANopen drives. Drives can be controlled and interrogated over the network.

RS-485 option: SV7-Q-RE, SV7-S-RE
- The RS-485 option board adds the ability to stream SCL and Q commands to one or more drives on a serial network.

RS-232 port: standard on all but Ethernet drives
Example: SV7-S-AF
- The RS-232 port is used for configuration, programming, and serial communications with a single drive.

EtherNet/IP option: SV7-IP-EE
- Allows drives to be commanded and queried over EtherNet/IP industrial networks.

For more information go to www.applied-motion.com/SV

*See back page for complete list of available model numbers.
Recommended Motors (220V Models)

SV7 Dimensions

Inputs and Outputs

8 digital inputs
4 digital outputs
2 analog inputs

Torque Curves for SV7 at 24 VDC

More curves available at www.applied-motion.com
Si Programmer™
point-and-click indexer software with built-in Quick Tuner™

- User-friendly GUI
- I/O and motion programming
- Operator interface available (MMI-01 or MMI-02)
- Pulse & direction
  - CW/CCW pulse
  - A/B quadrature
  - Velocity (oscillator) mode
- Analog +/-10V torque, velocity, position
- Host commands (SCL)
- SiNet hub compatible
- Quick Tuner™ software for setup
- Stand-alone operation
- Q Programmer™ for complex motion
- Quick Tuner™ software for setup
- Conditional processing
- Math functions
- Multi-tasking
- Register manipulation
- Encoder following
- Third-party HMI compatibility
- QE adds additional I/O

Control Options*

BLuAC5

1000W AC Powered Servo Drive
- Operates from 100 to 240 VAC, 1 or 3 phase
- Digital PID servo control
- Velocity and acceleration feedforward minimize position error throughout every move
- Digital DQ current loop provides wide bandwidth, precise current control
- Sine commutation for smooth, quiet motion
- PID output filter + derivative filter eliminate system resonances
- Built-in regeneration (power dump)
- Dynamic braking
- RS-232, RS-485
- Flexible control options
- Si and Q Programmable™ versions

For more information, visit: www.applied-motion.com

Torque Curves for SV7 at 48 VDC

SV7 Technical Specifications

POWER AMPLIFIER: All Models
- AMPLIFIER TYPE: Digital MOSFET 16 kHz PWM
- CURRENT CONTROL: 4 quadrant d-q method
- OUTPUT CURRENT: 0.5 to 7.0 A rms continuous, 0.5 to 14 A rms peak (2 seconds max, I2t limiting)
- INPUT POWER: 24-80 VDC (external power supply required)
- REGENERATION: No internal regeneration circuit. RC-050 external regeneration clamp may be required for applications with high load inertia and/or rapid deceleration
- AMBIENT TEMPERATURE: 0 to 40 ºC (32 to 104 ºF), must be mounted to suitable heatsink with adequate ventilation
- HUMIDITY: 90% max, non-condensing
- WEIGHT: 10 oz

CONTROLLER: All Models
- NON-VOLATILE STORAGE: Drive configuration and Q program stored in non-volatile memory
- INPUTS/OUTPUTS:
  - X1, X2 inputs: Optically isolated, differential, 5 VDC, minimum pulse width = 250 ns, maximum pulse frequency = 2 MHz. Function: step & direction, CW/CCW step, A/B quadrature encoder
  - X3 input: Optically isolated, sinking or sourcing, 12-24 VDC. Function: motor enable
  - X4 input: Optically isolated, sinking or sourcing, 12-24 VDC. Function: alarm reset
  - X5, X6 inputs: Optically isolated, sinking or sourcing, 12-24 VDC. Function: CW and CCW jog inputs
- Note: inputs X3-X6 have a shared common.
  - X7, X8 inputs: Optically isolated, differential, 12-24 VDC. Function: CW and CCW limits
- Note: any input that is not assigned to a dedicated function can be used for a home or registration sensor or for program branching.
**SV7 Technical Specifications (Continued)**

**CONTROLLER (CONT): All Models**

**INPUTS/OUTPUTS (CONT)**

- **Y1 output:** Optical Darlington, NPN/sinking, 30 VDC max, 100 mA max. Function: brake relay
- **Y2 output:** Optical Darlington, NPN/sinking, 30 VDC max, 100 mA max. Function: motion or tach
- **Y3 output:** Optical Darlington, NPN/sinking, 30 VDC max, 100 mA max. Function: fault
  
  Note: outputs Y2-Y3 have a shared common.

- **Y4 output:** Optical Darlington, sinking or sourcing, 30 VDC max, 100 mA max
  
  Note: any output that is not assigned to a dedicated function is general purpose programmable.

**COMMUNICATION INTERFACE**

- **SV7-x-Ax:** RS-232 for programming and serial communications
- **SV7-x-EE:** Ethernet for programming and serial communications
- **SV7-Q-EE:** EtherNet/IP industrial networking
- **SV7-C-CE:** Ethernet for programming, EtherCATopen for communications

**ENCODER INTERFACE**

- Differential line receivers for incremental encoder (A/B quadrature) feedback, up to 2 MHz. 400 cpr min to 32,768 cpr max (1600 quadrature counts min to 131,072 quadrature counts max)

**SV7 Technical Specifications (Continued)**

**Software for All Drives**

**Quick Tuner™**

Used for setup and configuration of the drive. For more information about Quick Tuner™, visit the Applied Motion Products website.

**Q Programmer™**

Q Programmer™ is used to create and edit stand-alone programs for Q version drives. These programs can include multi-tasking, math, register manipulation, encoder following, and more.

**Si Programmer™**

Intended for use in stand-alone applications, Si Programmer™ provides a user friendly, point-and-click, graphical interface that doesn’t require any previous programming experience. Currently available on SV7 and BluACS servo drives only.

All software applications run on Windows 7, Windows Vista, XP, 2000, NT, ME, 98.
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<th>Supply Voltage</th>
<th>Frame Size</th>
<th>Rated Power (Watts)</th>
<th>Cont./ Peak Torque (in-lb)</th>
<th>Rated / Peak Speed (rpm)</th>
<th>Torque Constant (in-lb/A)</th>
<th>Voltage Constant (V/krpm)</th>
<th>Rotor Inertia (oz-in-sec^2)</th>
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Servo Motor Extension Cables

ENCODER EXTENSION CABLE FOR V SERIES MOTORS
- VA-ENC-CA-06 - 6 ft
- VA-ENC-CA-10 - 10 ft

MOTOR EXTENSION CABLE FOR V SERIES MOTORS
- VA-MTR-CA-06 - 6 ft
- VA-MTR-CA-10 - 10 ft

ENCODER EXTENSION CABLE FOR M SERIES MOTORS
- BLU-ENC-CA-04 - 4 ft
- BLU-ENC-CA-10 - 10 ft
- BLU-ENC-CA-20 - 20 ft

MOTOR EXTENSION CABLE FOR M SERIES MOTORS
- BLU-MTR-FA-04 - 4 ft
- BLU-MTR-FA-10 - 10 ft
- BLU-MTR-FA-20 - 20 ft

MOTOR EXTENSION CABLE FOR M SERIES MOTORS
- for use with BluAC5 Drives
  - BLU-MTR-CA-04 - 4 ft
  - BLU-MTR-CA-10 - 10 ft
  - BLU-MTR-CA-20 - 20 ft

MOTOR EXTENSION CABLE FOR M SERIES MOTORS
- for use with SV7 and SVAC3 Drives
  - BLU-MTR-CA-04 - 4 ft
  - BLU-MTR-CA-10 - 10 ft
  - BLU-MTR-CA-20 - 20 ft

Dimensions in inches
Not to scale
Control Options*

- Pulse & direction
- CW/CCW pulse
- A/B quadrature
- Velocity (oscillator) mode
- Analog +/-10V torque, velocity, position
- Host commands (SCL)
- Quick Tuner™ software for setup
- Stand-alone operation
- Q Programmer™ for complex motion
- Quick Tuner™ software for setup
- Conditional processing
- Math functions
- Multi-tasking
- Register manipulation
- Encoder following
- Third-party HMI compatibility

400W AC Powered Servo Drive

- Operates from 120 or 220 VAC
- Digital PID servo control
- Velocity and acceleration feedforward minimize position error throughout every move
- Digital DQ current loop provides wide bandwidth, precise current control
- Sine commutation for smooth, quiet motion
- PID output filter + derivative filter eliminate system resonances
- Jerk filter provides jerk free "S curve" motion
- Built-in regeneration (power dump) circuit
- 100 Mbit Ethernet
- Flexible control options
- Q Programmable™ version

For more information, visit: www.applied-motion.com/SVAC3

Power Supplies

Applied Motion offers two matched power supplies for use with the SV7 drives. A 24VDC 150W (part number: PS150A24) and a 48VDC 320W version (part number: PS320A48). These power supplies have current over load capability making them ideal for use with servo drives.

Break Out Boards: BOB-1 and BOB-2

BOB-1 is for use with all drives and expands the DB25F connector to screw terminals. BOB-2 is for use with the DB25M connector on the BLuAC5-Si and -QE. A 3 foot cable included with both models.

RC-050 Regeneration Clamp (for SV7)

The RC-050 regeneration clamp is for use where regeneration from the motor may be excessive for the power supply. In these cases, the RC-050 is connected between the drive and power supply and absorbs regenerated energy.

Braking resistor assembly - RA-100

For use with BLuAC5 dynamic braking and regeneration circuits.

Communications

- Ethernet
- The Ethernet port on all SVAC3 drives is used for configuration, programming, and streaming SCL and Q commands to one or more drives across 100 Mbit Ethernet networks (TCP and UDP).
- EtherNet/IP option: SV7-IP-EE
- Allows drives to be commanded and queried over EtherNet/IP industrial networks.
- Connects to industry’s most popular PLC’s
- Same functions as Q model

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Communications

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- Connects to industry’s most popular PLC’s
- Same functions as Q model

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Braking resistor assembly - RA-100

For use with BLuAC5 dynamic braking and regeneration circuits.

Communications

- Ethernet
- The Ethernet port on all SVAC3 drives is used for configuration, programming, and streaming SCL and Q commands to one or more drives across 100 Mbit Ethernet networks (TCP and UDP).
- EtherNet/IP option: SV7-IP-EE
- Allows drives to be commanded and queried over EtherNet/IP industrial networks.
- Connects to industry’s most popular PLC’s
- Same functions as Q model
## Servo Drive Model Numbers

### SVAC3-S-E120

- **Series**: SVAC Servo Series
- **Input Voltage**: 120VAC
- **Control**: S = Basic version  
  Q = Q Programming  
  IP = EtherNet/IP
- **Feedback**: E = Encoder board

### BLuAC5-Si

- **Series**: BLuAC Servo Series
- **Output Current**: S = 5.0 cont, 15A peak
- **Control**: S = Basic Version  
  Q = Q Programming
  QE = Q with more I/O
  Si = Si Programming

### SV7-S-RE

- **Series**: SV Servo Series
- **Output Current**: 7 = 7.0 Cont, 14A Peak
- **Control**: S = Basic version  
  Q = Q Programming  
  Si = Si Programming  
  C = CANopen  
  IP = EtherNet/IP
- **Feedback**: E = Encoder board (standard)  
  F = Motion Controller Feedback (MCF) board
- **Communications**: A = RS-232 (standard)
  R = RS-485 (optional)
  C = CANopen (optional)
  E = Ethernet (optional) (requires Q or IP control option)

### Servo Drive Model Numbers Table

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<thead>
<tr>
<th>Model Numbers</th>
<th>Q Programming</th>
<th>RS-232</th>
<th>RS-485</th>
<th>EtherNet/IP</th>
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- **Model 3 headlights to cover a wide range of motors**
- **Common features and control options**
- **Common software tools for configuration and programming**
- **Multiple communication options, including:**
  - Ethernet, EtherNet/IP, RS-232/485 and CANopen
- **Easy system commissioning and tuning using preconfigured setup files**
- **Point-and-click programming with Si Programmer™**
- **Complex motion, multi-tasking, and third-party HMI support with Q Programmer™**
- **Motors with NEMA and Metric frame sizes**
- **Torques from 0.84 to 64 in-lb**