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# OEMZL Series



## Advanced Microstepping Technology for High-Volume Applications

The OEMZL is a packaged microstepping drive with the needs of the OEM in mind. The connections are on removable screw terminals and a standard 25-pin header allowing simple installation and cable routing without having to cut off and reattach a connector.

The OEMZL4 microstepping drive incorporates two advanced damping technologies, Anti-Resonance and Electronic Viscosity ™. These unique circuits increase the performance of stepper motors by damping the resonance and ringing usually seen after quick moves. The OEMZL4 drive is perfect for multi-axis applications and allows control by any standard step and direction or clockwise/counter-clockwise controller.

The OEMZL6104 combines the OEMZL4 drive with the power and reliability of the 6000 family of controllers into one convenient package. The OEMZL6104 uses the popular 6000 Series command language. This easy-to-learn language is powerful enough to implement complex motion control applications yet simple enough not to overwhelm a novice programmer. To speed application development, Motion Architect® is compatible with the OEMZL6104 and contains many tools which make application development and implementation easy. The OEMZL6104 is also compatible with DDE6000 Server and Motion Builder software packages.

The OEMZL builds upon the reputation and reliability of one of the best selling, most robust, and highest performing microstepping drives in Compumotor history. With years of successful application experience behind it, the OEMZL's tried and true design is ideally suited to meet the needs of OEMs and high-volume users.

Compumotor offers a full breadth of stepper motors carefully selected to mate with our OEMZL drives. Every motor we offer meets a series of performance and quality standards. A full description of the motors we offer is provided on our Web site (www.compumotor.com). From this site, reference the *OEMZL Product Brochure* for motor specifications and performance curves.

## OEMZL4/6 Drive Features

### Performance

- OEMZL4: 4 Amp @ 120VAC (170 VDC bus voltage)
- OEMZL6: 6 Amp @ 120VAC (170 VDC bus voltage)
- Standard step-and-direction input or CW/CCW input
- Operates with standard 1.8" hybrid step motors
- Electronic Viscosity benefits:
  - Reduce settling time
  - Increase slow speed smoothness (reduce velocity ripple)
  - Reduce audible noise
- Anti-resonance eliminates mid-range instability and provides damping ratios of up to 0.2
- CE marked for LVD compliance
- UL recognized

### Protection Circuit

- Motor short circuits (phase-to-phase and phase-to-ground)
- Overtemperature of internal devices and power supply
- Undervoltage (protects against low AC line or brownout)
- Power dump (dissipates excess energy caused by load regeneration)

### Physical

- 120VAC (170VDC bus voltage) operation
- Wide selection of available motors
- Removable connectors for easy installation
- Four diagnostic LEDs to confirm proper operation

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# OEMZL6104 Microstepping Drive/Controller

## OEMZL6104 Drive/Controller —

The OEMZL6104 drive/controller combines the OEMZL drive with the flexibility of Compumotor's 6000 Series of controllers. This advanced design makes the OEMZL6104 drive/controller the highest value single-axis system in the industry.



### All The Features of the OEMZL4 Plus:

#### I/O

- Encoder channel configurable as hardware up/down counter
- Incremental encoder input for stall detect, position maintenance
- Home and end-of-travel limit inputs
- Two fast (trigger) inputs for position capture, registration, etc.
- 16 programmable inputs and 8 programmable outputs (Opto-22 compatible)
- One auxiliary programmable output

#### Language

- 150,000 bytes of non-volitile memory for storing programs and paths
- Interrupts program execution on error conditions
- Encoder and motor position capture (using trigger inputs)
- Registration (using trigger inputs)
- Selectable damping (programmable) to optimize performance for changing loads
- Variable storage, conditional branching and math capability
- Program debug tools – single-step and trace modes, breakpoints, error messages and simulation of I/O

#### Software

- Motion Architect™, Microsoft® Windows™-based application development software
- Dynamic Link Library (DLL) provided for use with Microsoft® Windows™ and Microsoft Windows™ NT software development kits
- Compatible with Compumotor DDE server

#### Interface Capabilities

- Direct interface to RP240 Remote Operator Panel
- Operates standalone or interfaces to PCs, PLCs, and thumbwheels
- One RS-232C communications port
- One RS-232C/485 communications port

## Motion Architect™ Makes It Easy

#### Terminal Emulator

Download and upload 6000 programs to and from the controller. Go on-line and determine controller status.

#### Test Panel

Create your own test panel to exercise your programs and check I/O, motion, system status and timers.

#### Context Sensitive Help

Access help on 6000 programming commands or how to use a menu option.

#### Online User Guides

- 6000 Series Software Reference Guide
- 6000 Series Programmers Guide






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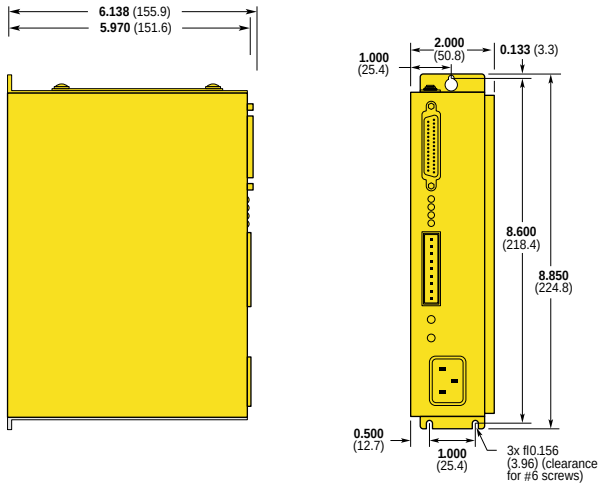
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## Ordering Information

| | Part No. | Description |
|---|---|---|
| **Drive** | OEMZL4 | Packaged 4Apk, 170VDC bus microstepping drive |
| | OEMZL6 | Packaged 6Apk, 170VDC bus microstepping drive |
| **Drive/Controller** | OEMZL6104 | Packaged 4 Apk, 170VDC bus microstepping drive/controller |
| **Accessories** | VM24S | 24V input/output module (for use with OEMZL6104) |
| | VM50 | 50-pin header-to-screw terminal breakout board (for use with OEMZL6104) |
| **Software** | DDE6000 | DDE server for 6000 Series |
| **Motors** | See Web site for full description of available motors | |

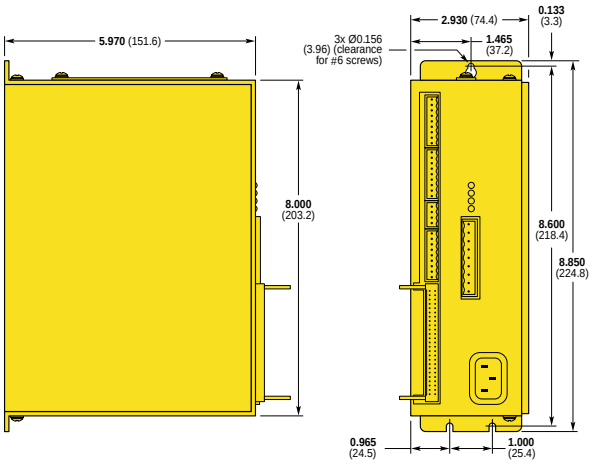
## OEMZL4/6 Dimensions

### Dimensions in inches (mm)




## OEMZL6104 Dimensions

### Dimensions in inches (mm)




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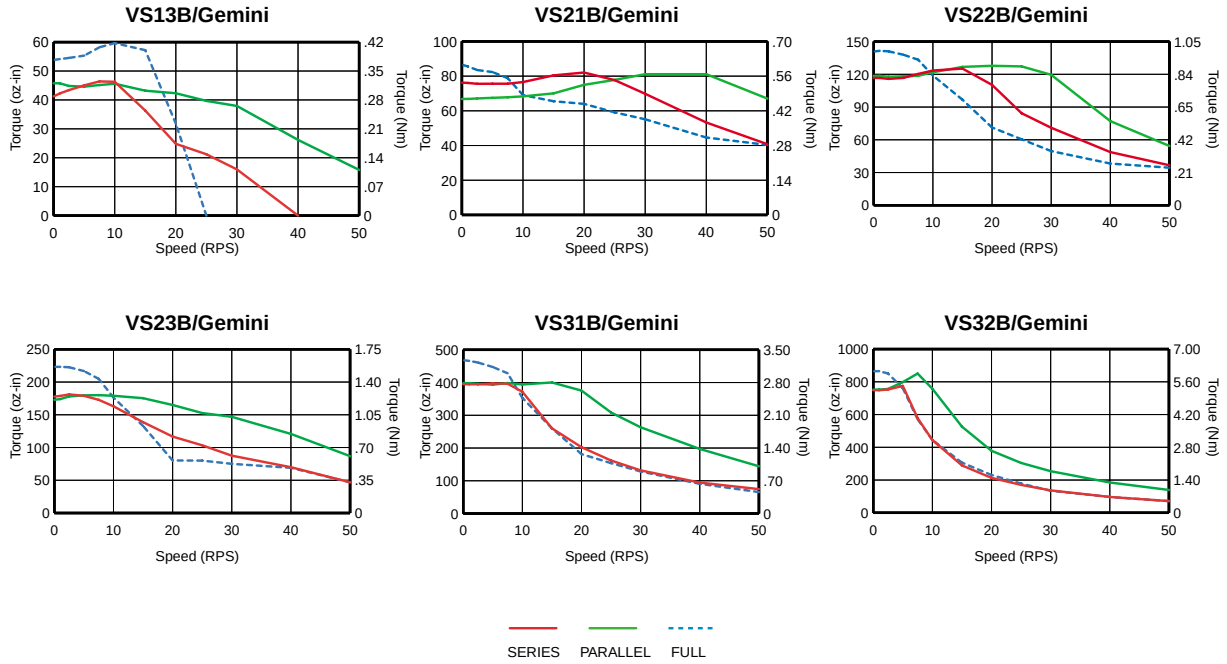


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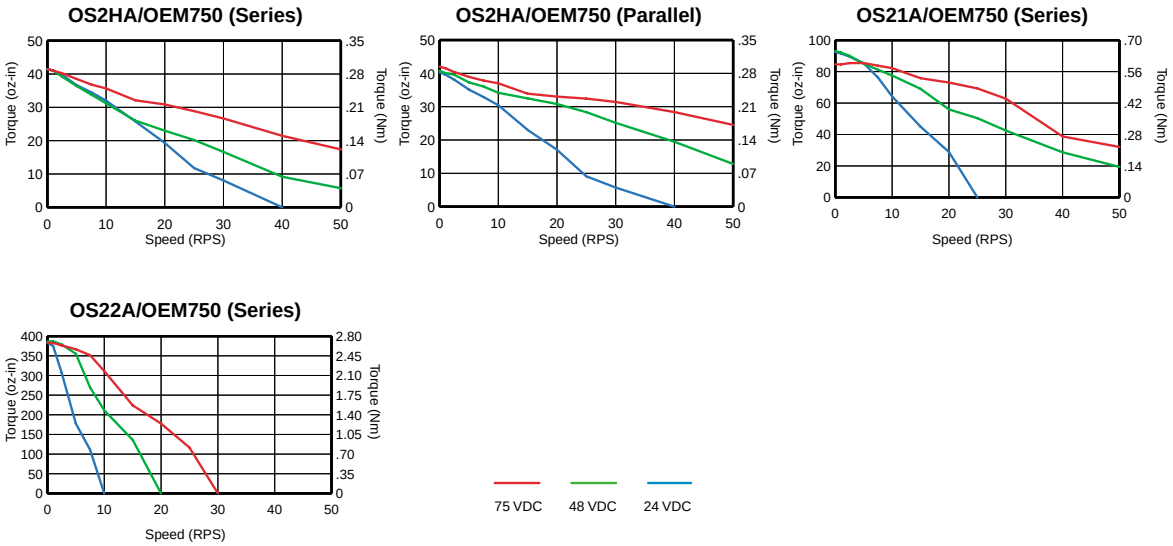
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# Stepper Speed-Torque Performance Curves

## VS motors – 17, 23 and 34 frame




## OS motors – 23 frame






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## OS & VS Series Stepper Motor Specifications Size 17, 23 & 34 Frame Sizes

| Parameters | | Size 23 Frame | | | Size 23 Frame | | | Size 34 Frame | |
|---|---|---|---|---|---|---|---|---|---|
| | | OS2HB | OS21B | OS22B | VS21B | VS22B | VS23B | VS31B | VS32B |
| **Static torque** | oz-in | 61 | 127 | 235 | 99 | 170 | 267.5 | 559 | 1211 |
| | (Nm) | (0.4) | (0.9) | (1.7) | (0.7) | (1.2) | (1.9) | (3.9) | (8.6) |
| **Rotor inertia** | oz-in$^2$ | 0.39 | 0.66 | 1.39 | 0.66 | 1.64 | 2.62 | 7.65 | 14.8 |
| | (kg-cm$^2$) | (0.07) | (0.12) | (0.25) | (0.12) | (0.3) | (0.48) | (1.4) | (2.7) |
| **Drive Current (Apk)(Arms)** | Series | 1.7 (1.2) | 1.8 (1.3) | 2.4 (1.7) | 1.8 (1.3) | 1.7 (1.2) | 1.4 (1.0) | 3.0 (2.1) | 3.0 (2.1) |
| | Parallel | 3.4 (2.4) | 3.6 (2.6) | 4.8 (3.4) | 3.6 (2.6) | 3.4 (2.4) | 2.8 (2.0) | 6.0 (4.2) | 6.0 (4.2) |
| **Phase Inductance (mH)** | Series | 8.6 | 12 | 16.6 | 5 | 12.0 | 15.4 | 15.8 | 25.0 |
| | Parallel | 2.2 | 3 | 4.2 | (1.25) | (3.0) | (3.85) | 3.95 | 6.25 |
| **Drive Bus Voltage** | (VDC) | 170 | 170 | 170 | 170 | 170 | 170 | 170 | 170 |
| **Detent Torque** | oz-in | 2.5 | 4.0 | 7.0 | 2.7 | 3.3 | 6.0 | 14.0 | 28.0 |
| | (N-m) | (0.02) | (0.03) | (0.05) | (0.02) | (0.02) | (0.04) | (0.1) | (0.2) |
| **Bearings Information Thrust Load** | lb | 13 | 13 | 13 | 17.6 | 17.6 | 17.6 | 35.3 | 35.3 |
| | (kg) | (5.9) | (5.9) | (5.9) | (8) | (8) | (8) | (16) | (16) |
| **Radial Load** | lb | 20 | 20 | 20 | 15.0 | 15.0 | 15.0 | 30.9 | 30.9 |
| | (kg) | (9.1) | (9.1) | (9.1) | (6.8) | (6.8) | (6.8) | (14) | (14) |
| **End Play** | in | 0.001 | 0.001 | 0.001 | 0.003 | 0.003 | 0.003 | 0.0032 | 0.0032 |
| | (mm) | (0.025) | (0.025) | (0.025) | (0.075) | (0.075) | (0.075) | (0.080) | (0.080) |
| **Radial Play (Per 0.5 lb load)** | in | 0.0008 | 0.0008 | 0.0008 | 0.001 | 0.001 | 0.001 | 0.0008 | 0.0008 |
| | (mm) | (0.02) | (0.02) | (0.02) | (0.025) | (0.025) | (0.025) | (0.020) | (0.020) |
| **Motor Weight** | lb | 1 | 1.5 | 2.5 | 1.03 | 1.54 | 2.2 | 3.86 | 6.18 |
| | (kg) | (0.5) | (0.7) | (1.1) | (0.47) | (0.7) | (1.0) | (1.75) | (2.8) |
| **Certifications** | UL recognized | Pending | Pending | Pending | No | No | No | No | No |
| | CE (LVD) | Yes | Yes | Yes | No | No | No | No | No |
| | CE (EMC & LVD)* | No | No | No | No | No | No | No | No |

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