



### Overview

The VCS-10H Voice Coil Stage is a high performance compact positioning system. It was specifically developed for applications requiring both high precision and high-speed positioning over a short to medium stroke. The VCS-10H is well suited for optical focusing and other micropositioning applications in markets such as semiconductor, medical, optical testing, scanning microscopy, circuit board assembly and micro manufacturing.

### Stage

The VCS-10H Voice Coil Stage is guided along a single axis by a high precision ball bearing slide. The use of a linear slide within the design produces a compact and light package. The stage structure has been optimized for reduce weight. This stage architecture allows it to be oriented in either a vertical or horizontal position. Multiple sets of mounting holes along various surfaces are included for convenient mounting.

### Voice Coil

The VCS-10H Voice Coil Stage has a high force voice coil motor to move the stage. Like the stage structure, the moving mass has been optimized to be as light as possible. This characteristic is extremely important to provide minimum response time. The voice coil motor adds no additional friction to the stage. It also provides superior responsiveness over micropositioners with conventional screw drives. A voice coil motor produces the least amount of electrical noise of any motor type available today.

### Positioning Feedback Sensor

The VCS-10H Voice Coil Stage includes a sub-micron resolution linear displacement sensor. This sensor has high bandwidth and low noise to provide for responsive and precise movements. The sensor uses a frictionless, non-contact optical technology. Its small package maintains the compact nature of the system. The scale, which is attached to the moving mass, has extremely low mass to avoid limiting system performance.

## Equipment Solutions, the Company

Equipment Solutions, Inc.(ESI) prides itself in giving OEMs and VARs precisely the tools they need to make the best system possible. We believe in long term relationships. We pledge our undivided attention to our customers. After all, your success ensures ours. Applications support is our highest priority. When you deal with ESI, knowledgeable engineers will help you analyze your problem and reach the best solution, even before you become a customer.

### FEATURES:

- Sub-micron resolution positioning
- High speed positioning
- Compact packaging
- Integrated position feedback sensor
- Medium force generation
- Ball bearing slide
- Horizontal or vertical operation
- Simple electrical interfacing
- Clean room compatibility
- Patent Pending technologies
- Low Cost

### VCS-10H SPECIFICATIONS:

|                           |                           |
|---------------------------|---------------------------|
| Range of Motion:          | 10mm                      |
| Positioning Resolution:   | 150nm                     |
| Peak Force:               | 3lbs, 10sec               |
| Max Continuous Force:     | 1.5lbs                    |
| Motor Constant            | 0.6lbs./Amp               |
| Coil Resistance           | 4 ohms                    |
| Coil Inductance           | 200 $\mu$ H               |
| Non-linearity:            | < $\pm$ 0.5%              |
| Repeatability, short term | 200nm                     |
| Repeatability, long term: | 50ppm/1000hrs.            |
| Temperature stability:    | $\pm$ 250nm/ $^{\circ}$ C |
| Hysteresis:               | None                      |
| Deadband:                 | None                      |
| Travel non-straightness:  | <10 $\mu$ m               |
| Max bandwidth:            | 1kHz                      |
| Footprint:                | 1.5" x 3.0" x 1.6"        |
| Total Mass:               | 255 grams                 |
| Moving Mass:              | 25 grams                  |