

Motorized Solutions



- Hall-Effect solid-state sensor technology integrated into motorized zoom lenses.
- Hall-Effect sensors are unaffected by ambient light, environmental contamination, and variations in line voltage.
- Motorized zoom and focus, or just motorized zoom.
- Motorized controllers feature single or dual axis control via serial RS-232 or USB.
- Control systems available as table top or board level for the OEM.
- Software includes Windows interface and National Instruments "VI."

Motorized

Zoom Lenses



Hall-Effect Solid State Sensor Technology

- Unaffected by ambient light.
- Unaffected by environmental contamination.
- Unaffected by line voltage.



More Robust Design

Navitar's motorization design, available on the 12X and Zoom 6000 systems, integrates magnetic Hall-Effect sensors to reference position location. Hall-Effect sensors are solid state devices with no moving parts. They are based on the Hall-Effect, named after its discoverer Edwin Hall in 1879. The Hall-Effect sensing mechanism utilizes a magnetic field to trigger a pulse in a semiconductor circuit. Compared to photo-electric sensors, the Hall-Effect sensors are not affected by harsh, dirty or dusty environments, ambient room light, or variation in system voltages.

Our motorized zoom lenses include LabView "VI" and Windows user interface. They can be controlled via serial RS-232 or USB. The control system is available as either table top or board level.

Users can choose to motorize the zoom and focus axis, or just the zoom. We have three different motor types available:

- 2 Phase Stepping Motor (Faulhaber)
- 5 Phase Stepping Motor (Oriental, Vexta)
- DC Servo with Encoder (Faulhaber)



Zoom 6000 and 12X Zoom Hall-Effect system diagrams can be found on our website at www.machinevision.navitar.com



Motorized Options

- 12X or 6.5X:1 zoom ratio.
- Standard or UltraZoom.
- Motor type (3 choices).
- Motorized zoom and focus, or manual fine focus.
- Fine focus type: 12 mm, 3 mm with coax, or no fine focus (F.F.).
- Coaxial illumination or ring light configuration. (Fiber or LED based coaxial illumination. Standard or parallel coaxial inputs.)

* Coaxial illumination input must be ordered separately. Specifically, lenses with coaxial illumination must be ordered with the correct option. See coaxial illumination options on the following page.

Motorized Lens Options

Outline drawing for all lenses are available on our website at www.machinevision.navitar.com

Motorized 6X Zoom Options

| Fine Focus Type | Motor Type | | |
|------------------------------------|--------------------|--------------------|---------------|
| | 2 σ Stepper | 5 σ Stepper | Encoded/Servo |
| 12 mm Motorized Fine Focus | 1-62318 | 1-62314 | 1-62310 |
| 3 mm Motorized Fine Focus w/ Coax* | 1-62319 | 1-62315 | 1-62311 |
| 12 mm Manual Fine Focus | 1-62523 | 1-62521 | 1-62522 |
| 3 mm Manual Fine Focus w/ Coax* | 1-62525 | 1-62526 | 1-62524 |
| Non Fine Focus, Non Coax | 1-62605 | 1-62604 | 1-62606 |
| Non Fine Focus w/ Coax* | 1-62608 | 1-62607 | 1-62609 |

Motorized 6X UltraZoom Options

| Fine Focus Type | Motor Type | | |
|------------------------------------|--------------------|--------------------|---------------|
| | 2 σ Stepper | 5 σ Stepper | Encoded/Servo |
| 12 mm Motorized Fine Focus | 1-62316 | 1-62312 | 1-62308 |
| 3 mm Motorized Fine Focus w/ Coax* | 1-62317 | 1-62313 | 1-62309 |
| 12 mm Manual Fine Focus | 1-62517 | 1-62519 | 1-62516 |
| 3 mm Manual Fine Focus w/ Coax* | 1-62639 | 1-62645 | 1-62633 |
| Non Fine Focus, Non Coax | 1-62637 | 1-62643 | 1-62631 |
| Non Fine Focus w/ Coax* | 1-62638 | 1-62644 | 1-62632 |

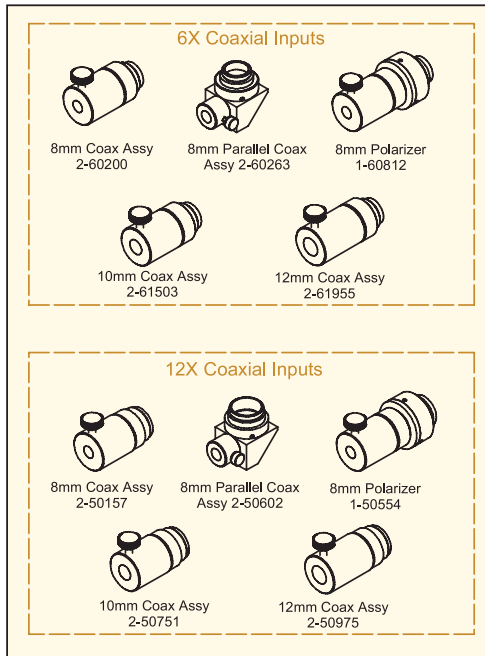
Motorized 12X Zoom Options

| Fine Focus Type | Motor Type | | |
|------------------------------------|--------------------|--------------------|---------------|
| | 2 σ Stepper | 5 σ Stepper | Encoded/Servo |
| 12 mm Motorized Fine Focus | 1-51188 | 1-51206 | 1-51190 |
| 3 mm Motorized Fine Focus w/ Coax* | 1-51200 | 1-51204 | 1-51202 |
| 12 mm Manual Fine Focus | 1-51319 | 1-51316 | 1-51337 |
| 3 mm Manual Fine Focus w/ Coax* | 1-51311 | 1-51315 | 1-51338 |
| Non Fine Focus, Non Coax | 1-51314 | 1-51317 | 1-51335 |
| Non Fine Focus w/ Coax* | 1-51318 | 1-51306 | 1-51336 |

Motorized 12X UltraZoom Options

| Fine Focus Type | Motor Type | | |
|------------------------------------|--------------------|--------------------|---------------|
| | 2 σ Stepper | 5 σ Stepper | Encoded/Servo |
| 12 mm Motorized Fine Focus | 1-51192 | 1-51208 | 1-51194 |
| 3 mm Motorized Fine Focus w/ Coax* | 1-51196 | 1-51210 | 1-51198 |
| 12 mm Manual Fine Focus | 1-51325 | 1-51322 | 1-51333 |
| 3 mm Manual Fine Focus w/ Coax* | 1-51326 | 1-51321 | 1-51334 |
| Non Fine Focus, Non Coax | 1-51320 | 1-51323 | 1-51331 |
| Non Fine Focus w/ Coax* | 1-51324 | 1-51327 | 1-51332 |

Illumination Options for Motorized Lenses

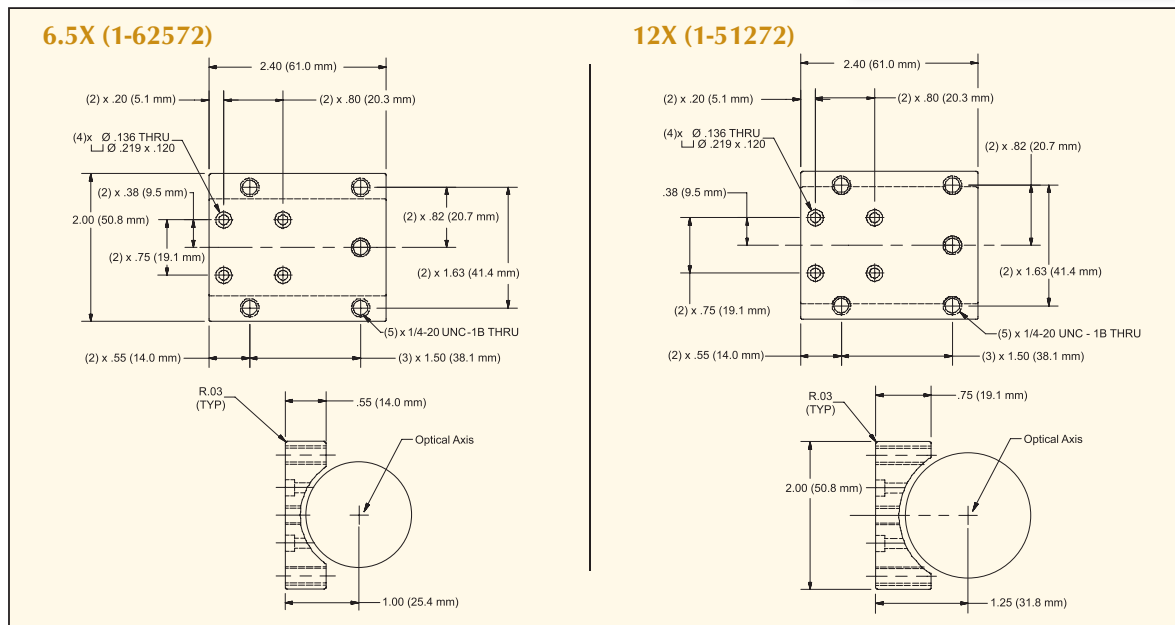


| BrightLight LED* | Description and Fiber Input Size |
|------------------------------|----------------------------------|
| 1-62400 | white |
| 1-62401 | red |
| 1-51212 | white |
| 1-51213 | red |
| Coaxial Inputs for Zoom 6000 | Description and Fiber Input Size |
| 2-60200 | 8 mm diameter |
| 2-61503 | 10 mm diameter |
| 2-61955 | 12 mm diameter |
| 2-60263 | 8 mm parallel coaxial |
| 1-60812 | 8 mm polarizer |
| Coaxial Inputs for 12X Zoom | Description and Fiber Input Size |
| 2-50157 | 8 mm diameter |
| 2-50751 | 10 mm diameter |
| 2-50975 | 12 mm diameter |
| 2-51602 | 8 mm parallel coaxial |
| 1-50554 | 8 mm polarizer |

*LED illumination is recommended. See page 91 for details.

Mounting Options for Motorized Lenses

Navitar also offers flat mounting assemblies for easy integration of our motorized zoom lenses into any application. The flat mounts securely attach to the zoom body using 4 hex screws. Four additional 1/4-20 thru holes are integrated into the mounts to provide a robust attachment point to any machine surface.



Controllers

Motorized Controllers

All Navitar 12X and Zoom 6000 motorized systems can be ordered with a fully integrated control system. Navitar's control systems feature single or dual axis control via serial RS-232 or USB. Software includes LabView™ VI and Windows Graphical User Interface "GUI" for simple axis control. Connections are made via two 15-pin high density d-sub connectors. Arrangements can be made for supplying the underlying software code for OEM platform assimilation.

System Requirements

Operating Systems Supported for Serial RS-232:

- Windows 98, ME, NT, 2000, and XP.

Operating Systems Supported for USB:

- Windows 98, ME, 2000, and XP.

Computer Requirements:

- Windows Operating System.
- Port: 1 serial or 1 USB port (can be a hub).
- Hard Disk: 1 M bytes.
- RAM: Same as Operating System (if OS works, controller will work).
- Display: Any will work.

Available Control Systems

| Part # | Description |
|---|--|
| Board Level | |
| 2-62577 | 2 phase stepper PCB |
| 2-62590 | 5 phase stepper PCB |
| 2-62509 | Servo with encoder PCB |
| Enclosures | |
| 1-62420 | 2 phase enclosure |
| 1-62506 | 5 phase enclosure |
| 1-62508 | Servo with encoder enclosure |
| Accessories & Power Supplies | |
| 1-62504 | Universal power supply, 90-264Vac, 47-63Hz |
| 8-62503 | Domestic power supply, 120 Vac, 60Hz |
| 8-62501 | USB cable (6 feet) |
| 8-62502 | RS-232 cable (6 feet) |

* Required accessories include a power supply (domestic or international) and either a USB or RS-232 communication cable.

Manual Controllers

Navitar's HE manual motor controller (1-62823) is designed to allow manual operation of any of the new Navitar Hall Effect motorized lenses.

- Manually operates both zoom and focus with individual speed control.
- No computer required.
- Allows trouble-shooting of lens operation without the variables of software or operating systems.
- Permits quick bench top set-up and operation.

Our HE manual motor controller can be easily used in conjunction with standard Navitar packaged remote controllers or OEM circuit boards.

- Compatible Enclosures: 1-62420, 1-62506, and 1-62508
- Compatible OEM Boards: 2-62577, 2-62590, and 2-62509

