

# Piezo Motor Driven Optical Mounts



- Convenient hands-off remote adjustment
  - Impressive 0.2 arc-s adjustment sensitivity
  - Ultra-compact — ideal for space constrained setups and system integration
  - Set-and-forget long-term stability
  - Manual control and USB interface
  - Models with integrated precision limit switches provide absolute positioning capability. These enable registering and returning to a set position with better than 0.05° repeatability anytime and anywhere
- ...All this at a price comparable to a high quality manual mount.

Agilis Optical Mounts – Newport’s piezo motor driven optical mounts take a new approach to the adjustments needed for many laser setups. Agilis provides the ultra-high adjustment sensitivity and convenient remote operation of a motorized component at the price and size of a manual mount!

## Why Agilis?

Mechanical friction and the effects of human operation limit the precision of many optical adjustments. In theory, it is possible to achieve sub arc-s adjustment sensitivity with very fine mechanics and differential screws. However, in practice, the lateral forces applied to a component during an adjustment often have an excessive effect, making alignments lengthy and frustrating. Also, many optical experiments are extremely sensitive to environmental factors and provide consistent results only when well shielded against external influences.

Motorized mounts overcome the limits of manual components, but are typically costly and bulky, restricting their use for systems integration or simple remote operation in tight spaces. Agilis mounts provide a lower cost solution in a miniature size, without compromising adjustment sensitivity, speed, or position stability.



Agilis AG-M100N Mount and 2-axis controller.

Agilis features Newport's new, proprietary, non-resonant piezo direct motors. These highly integrated motors are directly coupled to the moving platen. When idle, spring forces lock the mirror's position for true set and forget long term stability. Agilis mounts have a faster adjustment speed than alternative screw driven designs and are free of the problems associated with backlash or hysteresis. In contrast to ultrasonic motors, the Agilis non-resonant motor makes small adjustments more predictable with its 50 nm incremental motion capability, ideal for ultra-sensitive optical alignments.

**NEW:** For repeatable absolute positioning, the AG-M050L and AG-M100L feature precision electrical limit switches. These switches act not only as safety devices, they also allow repeatable absolute positioning without the need for expensive encoder feedback. This is accomplished by measuring the average step size from the left to the right travel limits and vice versa. Under consistent conditions, the step size is fairly repeatable. Together with high level commands integrated into the AG-UC2 electronics, it is possible to register and return to a set position with better than 0.05° repeatability, anytime and anywhere. 0.05° repeatability is approximately equivalent to 1/12 of a turn of a micrometer screw on a manual mount of comparable size.

The Agilis AG-UC2 controller provides convenient push button remote control and USB computer control of Agilis mounts. For each axis, the AG-UC2 controller features two rows of push buttons for step size settings, precise low speed adjustments and fast coarse motion. Power is supplied through the USB port and if this is not available, an power supply is available to independently power the Agilis controller.

A software utility that comes with the controller, allows the user to mimic the remote operation of the controller buttons through the computer and the ability to select and operate a specific Agilis mount, as needed. A Windows DLL and LabView VI's for all functions are provided as well.

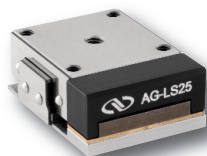
For OEM solutions of control electronics, please call Newport.

Complementary to the Agilis mirror mounts, Newport offers the AG-LS25 Agilis linear stages and AG-PR100 Agilis rotation stage, plus many more Agilis components that will be introduced in the next months. Stay tuned with Newport and get the latest news on upgrades and new compact, piezo-driven components at [www.newport.com](http://www.newport.com)

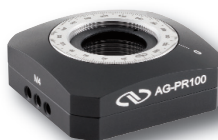
## Specifications for Agilis Mounts

	AG-M050	AG-M100
Optic Diameter	0.5 in (12.7 mm)	1.0 in (25.4 mm)
Angular Range	±2°	±2°
Adjustment Sensitivity	2 μrad	1 μrad
Absolute Positioning Accuracy/Repeatability <sup>(1)</sup>	0.05°	0.05°
Max. Speed	1.5 °/s	0.75 °/s
Thermal Tilt	7 μrad/°C	4 μrad/°C
Weight	25 g	85 g
Cable Length	1.2 m length, 4-wire mini-DIN connector. Can extend cable length using AG-MD4-1.5 extension cable.	

<sup>(1)</sup> Max. position deviation before an MA command (measure absolute current position) and after a PA command (move to absolute position). Available with models AG-M050L and AG-M100L only.



AG-LS25  
Agilis linear stage.



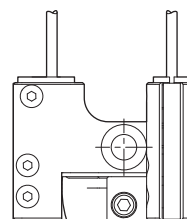
AG-PR100  
Agilis rotation stage.



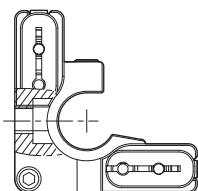
AG-UC2 controller  
for all Agilis devices.

# Dimensions

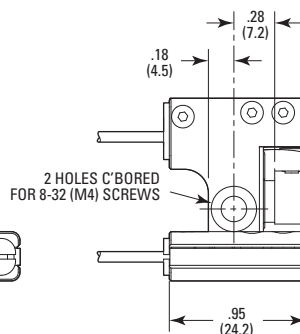
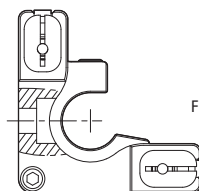
## Models AG-M050



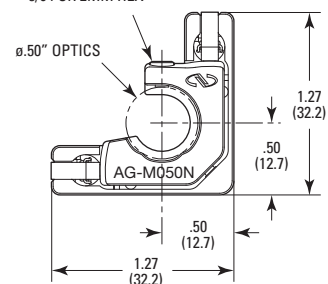
**Rear View  
AG-M050L  
(2 x 2-cable)**



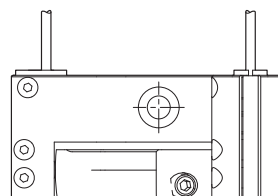
**Rear View  
AG-M050N  
(2 x 1-cable)**



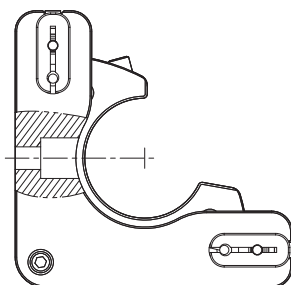
OPTIC MOUNTING  
NYLON TIP SET SCREW  
5/64 OR 2MM HEX



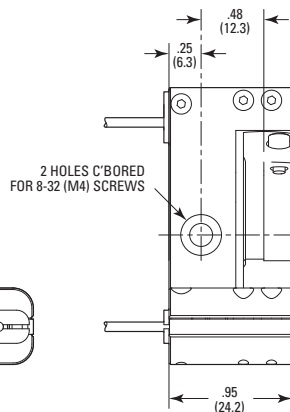
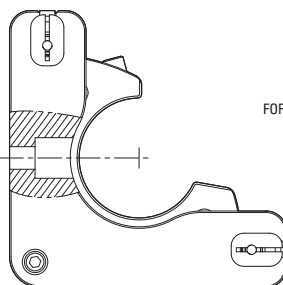
## Models AG-M100



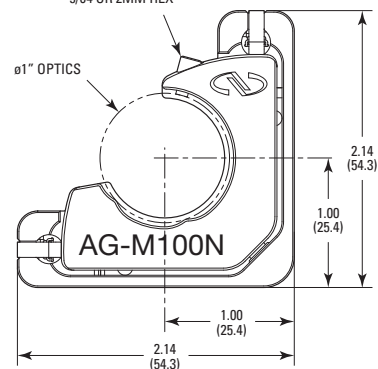
**Rear View  
AG-M100L  
(2 x 2-cable)**



**Rear View  
AG-M100N  
(2 x 1-cable)**



OPTIC MOUNTING  
NYLON TIP SET SCREW  
5/64 OR 2MM HEX



# Ordering Information

Model	Description
AG-M050N	Agilis mount, 0.5-inch (12.7 mm)
AG-M100N	Agilis mount, 1.0-inch (25.4 mm)
AG-M050NV6	Agilis mount, 0.5-inch (12.7 mm), vacuum compatible to 10 <sup>-6</sup> hPa
AG-M100NV6	Agilis mount, 1.0-inch (25.4 mm), vacuum compatible to 10 <sup>-6</sup> hPa
AG-M050L	Agilis mount with limit switches, 0.5-inch (12.7 mm)
AG-M100L	Agilis mount with limit switches, 1.0-inch (25.4 mm)
AG-M050LV6	Agilis mount with limit switches, 0.5-inch (12.7 mm), vacuum compatible to 10 <sup>-6</sup> hPa <sup>(1)</sup>
AG-M100LV6	Agilis mount with limit switches, 1.0-inch (25.4 mm), vacuum compatible to 10 <sup>-6</sup> hPa <sup>(1)</sup>
AG-UC2	Agilis hand-held controller, 2-axis, USB interface
AG-MD4-1.5	Extension cable, 1.5 m, 4-wire mini-DIN connector
USB-CH	Universal USB power supply, includes clips for US, EU, UK and Australia and 2-m USB cable

<sup>1)</sup> Available May 2008.



Agilis Mounts for 1" and 0.5" diameter optics.



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