

ASI Video Auto-Focus

ASI's video auto-focus provides a simple microscope focus control solution when using the MS-2000 XYZ stage or the MFC-2000 Z-drive. The auto-focus system uses the spatial information present in an analog video signal to determine a "focus value". Firmware algorithms attempt to maximize the "focus value" by adjusting the focal position with the MS-2000 Z-drive. All that is required to use this system with an ASI stage is a standard (NTSC, CCIR or RS-170) video signal from a microscope CCD camera.

ASI Auto-Focus Features:

- Fast focusing – Typical focus operation takes ~1-2 sec.
- Accurate focusing – Where there is a "best focus" plane, ASI's auto-focus will find it as well as any human operator.
- Objective lens protection – Once zeroed, auto-focus will not move more than 0.2mm further toward the slide.
- Focus value readout – The focus value is always displayed on the LCD readout so you can easily verify correct operation.
- Video region select – Rectangular subsection of the video frame may be selected as the active focus region. Selection highlighted on monitor output.
- Focus algorithms to fit your need – Auto-focusing can be accomplished via push-button on the controller or with commands from the host computer.

Auto-focus commands:

AF X=mode Y=speed Z=range

The AF command allows for several methods of command driven focusing to be initiated. The mode value specifies whether a coarse or fine focus is to be performed and movement pattern. The speed value allows you to adjust the z-drive speed for optimum performance. The range determines the depth of the focus scan.

SF X=on Y=rate Z=magnification

The SF command turns on/off automatic auto-focusing. This method attempts to find a best focus following movement of the XY stage via small up or down moves, rather than in the single scan that the AF command uses. The magnification value should be set to the same value as the objective lens so that the movement ranges are appropriate.