Dynamic Auto-Focus Unit for Microscope System Integration
The Hybrid Auto-Focus has large focus range and fast tracking ability

What is Hybrid Auto-Focus (AF)?

There are two common types of auto-focus systems for microscopes:

- **Slit projection system**: projects a slit image and detects the shift in the reflected light. Useful when a large focal range is necessary. Contrast detection system: projects a slit pattern and detects the contrast of the reflected light. Useful when focus accuracy is needed. Higher accuracy is possible because this system is less affected by sample surface variation.

By combining the advantages of both systems, the Hybrid Auto-Focus makes the most of the paired potential.

**Features**

1. **Focal range**: remarkably larger than with contrast detection alone. Samples with distortions on their surface, such as a liquid crystal substrate, can be rapidly tracked, enabling speedy focusing.
2. **AF light source**: Uses a bright LED for the auto-focus light source and can automatically adjust the light volume. This enables support for samples ranging from low to high reflectivity.
3. **AF modes**: A wide range of observation methods is supported, including brightfield, darkfield, and DIC. Reflective samples and transparent samples are also both supported.
4. **AF offset feature**: The controller features the same hardware design as the LV-ECON and has a compact footprint that allows them to be stacked on top of each other and used anywhere.
5. **AF controller**: The controller features the same hardware design as the LV-ECON and has a compact footprint that allows them to be stacked on top of each other and used anywhere. The auto-adjustment program enables simple and speedy system setup with immediate auto-adjustment after the user focuses the system and starts setup. The program also automatically sets and registers optimal parameters for each type of sample and recalculates them in accordance to the sample being photographed.
6. **Can be controlled from a PC via USB or RS232C cables.**
7. **Can be combined with other LV series products.** When combined with the LV-ECON, it enables observation under the optimal conditions for each particular sample.
8. **The controller features the same hardware design as the LV-ECON and has a compact footprint that allows them to be stacked on top of each other and used anywhere.**
9. **Nikon provides a software development kit (SDK) for integrating the LV-DAF into a variety of systems.** (Compatibility is only guaranteed for Nikon products.)

**Product specifications**

- **Detection system**: Hybrid system combining slit projection with contrast detection
- **AF light source**: Near IR LED (λ=770 nm)
- **Objective lens**: CFI/CLF 0.17x-2.0x objective lenses 2.5x-100x (includes extra-long working distance (ELWD), super-long working distance (SLWD), and CR or CFI substrate inspection)**
- **AF offset feature**: Enables observation with precise adjustment of focal position while applying auto-focus
- **Minimum drive resolution**: 0.05 µm
- **External communication**: RS232C, USB, and parallel I/O cables
- **Power source**: 100-240 V AC, 1.0 A, 50/60 Hz

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Note: The LV-ECON Controller (available separately) is required when using a motorized nosepiece.

*1. Some limitations for 2.5x and 100x.
*2. Using Nikon’s standard Cr vapor deposition sample.
*3. Using the LV-IMA or LV-FMA.
Note: The LV-ECON Controller (available separately) is required when using a motorized nosepiece.