

TECHNICAL VIDEO, LTD.
P.O. BOX 693
WOODS HOLE, MA. 02543

FINE PRODUCTS and ACCESSORIES for VIDEO MICROSCOPY

FIBEROPTIC LIGHT SCRAMBLER COMPONENTS

MOD4ZIN The Input Module (lamphouse end) is machined from a solid block of aluminum and is black anodized. The body of the Input Module is deeply finned to aid in dissipating heat. The nose of the Input Module has a circular recess, designated either -L (large) The body weighs 568 grams, it is 99mm long and 69mm in diameter. The Input Module is secured by three thumbscrews to the lamphouse mounting dovetail. The Input Module accepts the Input lens and has an adjusting knob for positioning the lens in the Z-axis. The Input Module has a Fiber holder and adjusting knobs to move the fiber holder in the X -Y plane to center it precisely at the focal point of the lens.

MOD4ZOT The Output Module (microscope end) is machined from a solid block of aluminum and is black anodized. The nose of the Output Module has a circular dovetail, which is designated either -L (large)) to fit the Axioline (L) lamphouse, or -S (small) to fit the Standard (S) lamphouse. It is 99mm long and 69mm diameter and weighs 596 grams. It holds the Output lens, or the Delrin holder with its lens, and has an adjusting knob for positioning the lens in the Z-axis. The Output Module has a Fiber holder and adjusting knobs to move the fiber in the X-Y plane to center it precisely at the focal point of the lens.

MOD4NIN Input Module (see above) used for Nikon and Olympus microscopes. Similar size.

MOD4NOT Output Module (see above) used for Nikon and Olympus microscopes. Similar size.

DX4 Mini Module with quartz lenses used as an Output Module on certain Nikon microscopes, and also as a Laser Input Module. Can be supplied with glass lenses.

DX5 Mini Module with quartz lenses and a special form used as an Output Module on Nikon Diaphot for epi-fluorescence work. Can be supplied with glass lenses.

FIBER 1.5 The fiberoptic is made of fused silica with optically polished ends. It is encased in a Tefzel jacket, which is then covered by black shrink tubing over the entire length. The standard length is 1.5 meters. Extra length fiberoptics may be ordered in increments of 1 meter. Each end is terminated within a 3mm by 57mm stainless steel sleeve. Transmittance is 95% at 280nm to 98% at 1100nm. Transmittance is about 80% at 180nm. Maximum attenuation is about 8.9 db/kilometer, measured using 820nm light. Operating temperature range is -65° C. to 300° C. The fiberoptic is guaranteed for life when used as directed.

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CCR A Curve Calibrator Rod is supplied with every fiberoptic. The CCR is Delrin and is 9mm diameter by 115mm long, with holes located at the ends. When the fiberoptic is properly threaded through the CCR it causes the fiberoptic to go through three 90° bends relative to itself, thus further scrambling the light for even more uniform illumination to the edge of the field.

LOP The Light Output Photodiode is supplied with every Scrambler system. It requires a VOM or Multimeter to operate. It facilitates rapid setup and alignment of the lamphouse and Input Module. The output end of the fiberoptic inserts into the LOP which then plugs into the VOM or Multimeter. Maximum light throughput is achieved by observing the Ohms reading on the meter while adjusting the lamphouse and Input Module controls.

FINTIP A small device that is attached to the tip of the fiberoptic to dissipate heat from the tip.

AUX1 This lens is mounted in a holder which is threaded to fit into the existing threads under the mirror on the Axiovert. It provides the correction necessary to fill the entire back aperture of the 1.4 condenser when the microscope is set up for transmitted light.

AUX2 This lens is not mounted and is placed directly on one of the swing-out filter holders above the condenser on the IM-35 line of microscopes. It provides correction necessary to fill the back aperture of the 1.4 condenser when the microscope is set up for transmitted light.

ADAPTERS Various adapters of solid black anodized aluminum as needed for attaching the Light Scrambler to specific microscopes.

EXT This tube extends the light path length and is required for transmitted light on the Axiovert, Axioskop and Axioplan when a Dual Lamp Mount is not installed.

DOH The Delrin Objective Holder holds the Output lens for certain Scrambler systems.

STAND This sturdy table-top tripod supports the Input Module and the lamphouse. The Scrambler Input Module has a 1/4-20 tapped hole into which the STAND fits. In use, the Input Module is secured to the STAND and the lamphouse is attached to the Input Module. It cannot be used when a filter wheel is to be installed between the lamphouse and the Input Module, so is not included as a standard item for fluorescent light systems.

LENSES Various Input and Output lenses as required by the Scrambler for different microscopes.

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ADDITIONAL PRODUCTS AND ACCESSORIES

DFS The Dual Fiber Switch is available as a manual or an automated switch for computer control. It can be retrofit to any existing Scrambler. The DFS is a linear bearing device that precisely positions either one of two fiberoptics at the focal point of the light in a Scrambler Input or Output Module. The manual DFS switch has a small bat handle which is readily moved by finger pressure. One arc lamp can then be used to source two Output Modules, each connected to a port on the same or on different microscopes. Or, two illumination sources of different wavelengths can be alternately directed into the same microscope port. Installation and alignment of the DFS is provided by Technical Video, Ltd. for retrofit to your existing Light Scrambler for shipping costs only

DIAPH The diaphragm has a 30mm or 34mm aperture and attaches between the lamphouse and the Scrambler Input Module to attenuate the light throughput. Made of black anodized aluminum. Comes with adapters for your microscope.

OCM-DIC Objective as Condenser Mount for Zeiss, replaces the condenser and holds an objective in place of the condenser. Use of a duplicate objective results in perfectly matched optics. Accepts DIC slider. This unit is made of black anodized aluminum with a precision brass RMS thread and seat. This can also be supplied with M27 thread. Specify which microscope this is for.

CCM-Z Cold Cube prevents heat from reaching the specimen. It mounts between the lamphouse and the Scrambler Input Module. Heat reaching the specimen can be reduced by 40% or more. Used for wavelengths above 400 nm.

DLM Dichroic Lamp Mount The DLM has a customer selected dichroic so that two illumination sources and wavelengths may be directed into the microscope, one reflected and one straight through. It is made of solid aluminum and has two input ports and an output port that mounts to the microscope. Specify microscope.

DCMSL-Z Dual Camera Mount This device accepts 3, 4 or 5 position Zeiss filter holders with customer selected dichroics, and allows true simultaneous acquisition of specimen images at two different wavelengths. A means of parfocalizing the cameras is provided. It mounts directly in place of the Trinoc head, or on the side port of an Axiovert with an adapter. Filter holder & dichroics are not included.

TLM Triple Lamp Mount Three separate light sources can provide easy to change illumination to a microscope port by selecting Left, Right or Up positions. When the rod is up the light source goes straight through into the port. When the rod is down and rotated to either the Left or Right position a first surface mirror reflects the selected source into the microscope port. Appropriate adapters can be provided for all microscopes. An automated model of the TLM is also available and can be operated by your computer through either our uController or Super uController.

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STEP 6 Stepper Filter Wheel The filter wheel accepts six 25mm diameter filters, up to 9mm thick. The clear aperture is 23mm. The wheel is fabricated from black anodized aluminum and is 12mm thick. The wheel is fully supported by both annular and thrust ball bearings. A quiet and positive stepper drive is achieved by the use of cog belt and pulleys. The wheel comes with appropriate adapters for your microscope or fits directly between the lamphouse and Scrambler Input Module.

PELTIER-W Peltier Water Cooled Cooling Stage This sterling silver cooling/heating stage can be used with a 1" x 3" microscope slide or 3" Petri dish. It will maintain specimen temperature as low as -10° C, with an ambient tap water flow of 0.25 liter per minute through 1/8" tubing to remove heat from the dual Peltier junctions. The under surface is relieved to accommodate a 1.4 n/a condenser or an objective when it is used on an inverted microscope. Teflon strips isolate the unit from the microscope stage. Power supply included. Heats to 50° C+ in heating mode.

PELTIER-A Peltier Air-Cooled Cooling Stage At an ambient air temperature of 20° C, will maintain a 1" X 3" slide at 12°-13° C. Heats to 50° C+ in heating mode. Sterling silver heat transfer plates quickly exchange heat to an annular black anodized aluminum heat-dissipating disc which is 14 cm. diameter by 18 mm. thick. The finned disc sits on the microscope stage. Not suitable for high n/a inverted microscope use. Power supply included.

CONTROL/A A stand-alone manual control box for the DFS that also accepts direct TTL input through a DB9 connector.

uCONTROLLER A state-of-the-art microcontroller which is computer controlled through an RS-232 port. The uController can operate 2 filter wheels, 3 Dual Fiber Switches, and 3 Uniblitz shutters using your image processing software. Three additional switched outputs are provided for operating the Triple Lamp Mount.

SUPER uCONTROLLER A powerful microcontroller with an optional stand-alone control panel that uses the latest chip and IC technology to provide computer or manual control of all of the uController functions (see above), plus 8 additional stepper motors. Custom control modules can be designed and added to satisfy your special requirements. Please email us for complete specifications and capabilities of this brand new product.

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SPIN CLEAN Spin Clean is used as the final step in a cleaning protocol to provide coverslips that are consistently free of the residuals and micro-debris that are found on most commercially available boxed "clean" coverslips. For the most demanding applications where coverslips free of debris are a must, so is Spin Clean.

Size: 4" deep by 6 ¼" wide by 3 ¼" high.

Weight 1 ¾ lbs, (800 grams) remote power supply ½ lb (227 grams).

Rotor Speed: 6k RPM

Power Supply: Remote wall pack providing 12VDC to power jack on Spin Clean.

Material: SS air filters in the cover provide drying air passage, SS hinge. Rotor base is marine polymer and the rotors are non-wetting acetal. Rubber feet for countertop operation.

Timer: Solid state electronic, momentary push to start; indicator light and cover safety interlock. Cycle time about 10 seconds per load.

Coverslip size: Each of 8 rotors will accommodate either an 18mm or a 22 mm square coverslip

Cleaning rate: Approximately 400 coverslips per hour

see: www.technicalvideo.com/NewProducts for complete cleaning protocol

SLIDE CLEAN Slide Clean, the companion product to SPIN CLEAN, is for drying 1" by 3" microscope slides. The acetal rotor accommodates two 1" by 3" microscope slides per load. Operation is accomplished by holding the cover down which actuates a microswitch. Drying takes about 5 or 6 seconds. An electronic safety brake stops the rotor before the cover is lifted.

Size: 4" wide by 4.5" high by 8" long.

Weight: 2 lbs (900 grams) remote power supply about 1.2 lbs (550 grams).

Rotor speed: 3k RPM

Power Supply: Remote wall pack providing 30VDC to the power jack.

Material: Plastic case, acetal rotor, ball bearing heavy duty motor. Rotor base is marine polymer. Rubber feet for countertop operation.