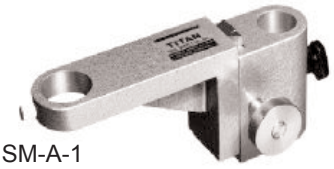
HLML Long Working Distance Video Objective Microscope

The art of Micro-Miniaturization in the Electronics Industry as well as Quality Control functions necessitates higher and higher Video Magnifications. The short -comings of these high magnifications has always been the extremely short working distances that were associated which greatly limited their applications. The HLML VIDEO OBJECTIVE SERIES COMPLETELY eliminates this problem. The lenses magnifications of 3X to 20X are possible with 6.36" working distance for the 3X and 5.042" for all others from 4X to 20X. A Special Adapter has been developed that will double all primary magnifications and even allow, if so ordered separately, for a reticle that can be calibrated to each magnifications in MM or inch. This reticle is also rotatable to align with a workpiece or worktable up to 90°. The order number for the plain 2X adapter without reticle is #2XL, and with the Reticle order #RARP-3.

The HLML Video Objectives mount easily in the C Mount of any Video Camera, and the 2X Adapter can be mounted between the C Mount and the objectives. The use of the 2X Adapters 2XL or RARP-3 maintains the same working distance and cuts the Field of View in half.

It is absolutely necessary to have sufficient illumination for this objective series for which we recommend the RI-34 Fibre Optic Ring Illuminator and FOI-150 Halogen Light Source. To calculate the magnification of the Video System , the formula used is OPTICAL MAGNIFICATION x ELECTRONIC MAGNIFICATION = TOTAL MAGNIFICATION. Electronic Magnification is the Diagonal of the Video Monitor divided by the Diagonal of the Video Sensor. (Example: 9" Monitor divided by a 1/2" Sensor = 9 divided by .50 = 18X Electronic Magnification.) with a 10X Video Objective , total magnification would be 180X or if the Magnification Adapters 2XL or RARP-3 are used it would be 10 x 2 x 18 or 360X total magnification for the system.

The total overall length of the HLML Video Lenses is 11.3". The system uses a C Mount to adapt to the Video Camera. The Length of the 2X remagnification adapters is 3.56". The diameter for both is 1.25".



SM-A-1
Mounting Bracket

The Mounting Bracket is 3.54" long in the back for rigidity, with a 1.00" mounting hole. The fine adjustment allows 2.93" travel: 1.25" above and 1.68" below zero position. The center distance of the post mounting hole to the microscope frame mounting hole is 5.62".

TABLE OF MAGNIFICATIONS

Order No.	Magnification	Working Distance	Field of View***	Field of View with 2XL or RARP-3 Adapter***	Reticle Values in inches with RARP-3
HLML-3	3X	6.362"	0.1875"	0.090"	0.001"
HLML-4	4X	5.042"	0.0875"	0.0438"	0.0005"
HLML-5	5X	5.042"	0.072"	0.036"	0.00038"
HLML-10	10X	5.042"	0.0363"	0.018"	0.000194"
HLML-20	20X	5.042"	0.0175"	0.0088"**	0.000098"**

** This high magnification is only usable with Back Dark Field Illumination.
*** All values for Field of View in above table were figured for a 2/3" format Camera.
For 1/2" Format, multiply these values by .72 and for 1/3" forrmat, multiply by .54.

Reticle for
RARP-3 Adapter

HLML Video Objective
Microscope

RARP-3 & 2XL
Adapter

HLML Ordering Information

Model Number	Description	Price
HLML-3	3X Video Objective	$ 400.00
HLML-4	4X Video Objective	$ 400.00
HLML-5	5X Video Objective	$ 420.00
HLML-10	10X Video Objective	$ 440.00
HLML-20	20X Video Objective	$ 460.00
	Accessories & Options	
FOI-150	150 W Fibreoptic Illuminator	$ 305.00
FOI-250	250 W Fiberoptic Illuminator	$ 595.00
RI-34	Fiberoptic Ring Light	$ 340.00
FOI-1	Bi-Furcatred 18" Light Guides	$ 245.00
Q1250	150 Watt 21 Volt Lamp for FOI-150	$ 24.90
Q2250	250 Watt 21 Volt Lamp for FOI-250	$ 27.90
RARP-3	2X Doubler w/rotatable reticle	$ 425.00
2XL	2X Doubler	$ 205.00
SM-A-1	Mounting Bracket w/focusing	$ 440.00

Titan Tool Supply, Inc. • 68 Comet Avenue, Buffalo NY 14216
Phone: 716-873-9907 • Fax: 716-873-9998 • E-mail: info@titantoolsupply.com • www.TitanToolSupply.com