

INSTRUCTIONS

t5instfilar.cal

FOR LASICO DIGITAL FILAR EYEPIECES, DMP / Z-AXIS ADAPTERS AND CUSTOM CONVERTERS WITH M2 AND XM2 PROCESSORS

Model 1602 Filar Eyepieces can be readily attached to microscopes with a 23.14 mm tube diameter and via a special adapter (No. 1605-1) to instruments with 30mm tubes.

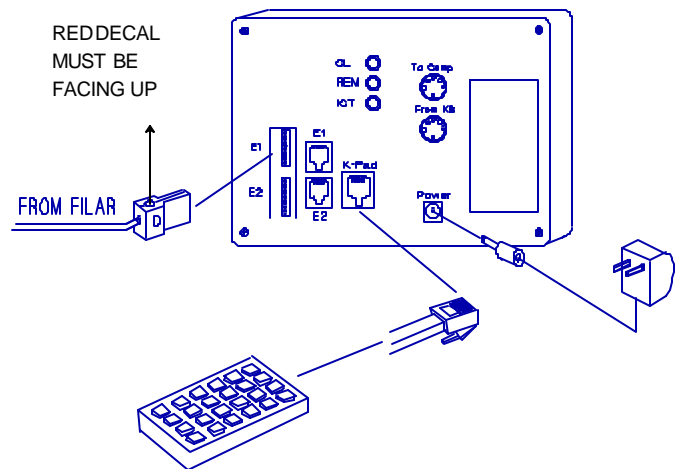
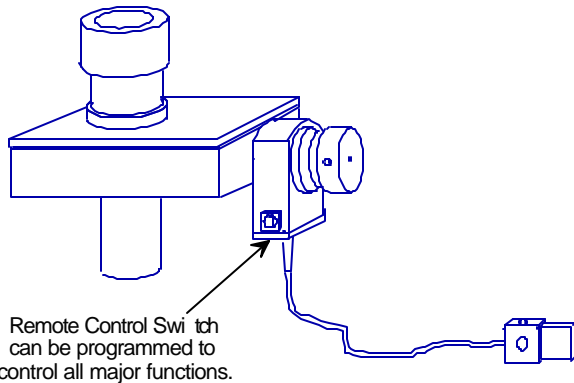
If the large field of view of a 30mm eyepiece system must be maintained, a Model 1603 Filar Eyepiece should be purchased.

Important:

If a binocular or trinocular microscope without automatic tube length compensator is used, make sure to always set the interpupillary distance of your tube to a specific index point for both calibration and measurements.

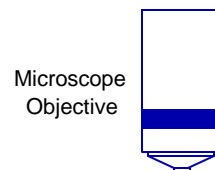
THE FILAR EYEPIECE

STEP 1 Connect the filar eyepiece to the E1 or E2 input receptacle.



STEP 2

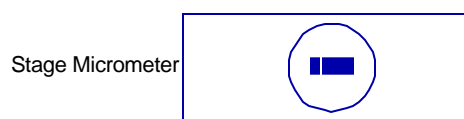
Select the microscope objective to be used.



Microscope Objective

STEP 3

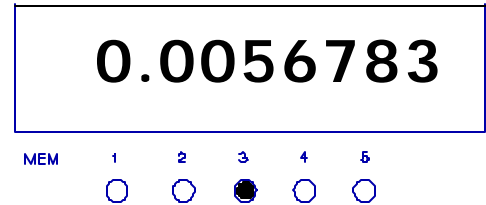
Place a stage micrometer or an object of known dimensions on your microscope stage and focus the objective on it.



Stage Micrometer

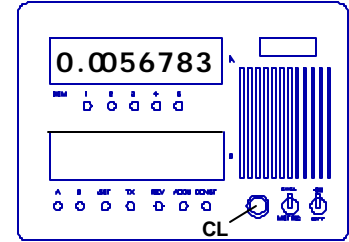
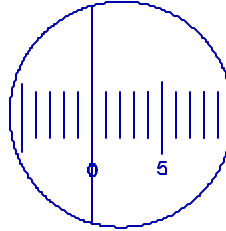
STEP 4

Select the scaler you want to use for this objective.
 Example: Select scaler 3 by pushing the SC→ button of the keypad until the No.3 LED is illuminated.



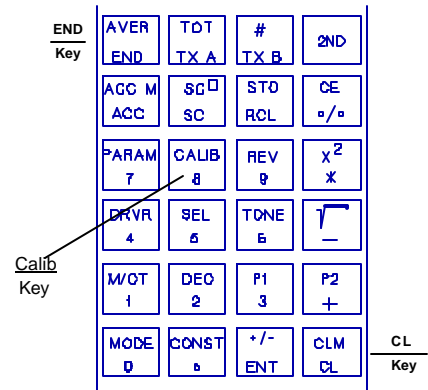
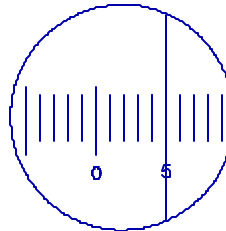
STEP 5

- Align the filar reticle with the beginning of the measuring interval (designated 0 in this example) and clear the display with the **CL** button of the processor, the **CL** button of the keypad or a remote switch assigned to the **CL** function .



STEP

- Move the filar reticle to the end of the measuring interval. (For this example : Divisions are in 0.001" intervals. Therefore 5 x 0.001" = 0.005")



STEP

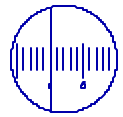
- Now press : **2ND CALIB**
- Enter the length of the measuring interval (Example : 0.005) **0.005**
- and finish by pressing **ENT**

Scaler 3 is now programmed for this particular objective and all results will be displayed directly with automatic scale compensation.

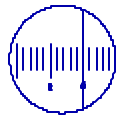
Note:

We strongly recommend to obtain an average of several measurements when calibration constants are established. To calibrate while utilizing the averaging procedure follow these instructions:

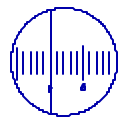
Align the filar reticle with the beginning of the measuring interval (0) and clear the display via the **CL** button.



Move the filar reticle to the end of the measuring interval. Then press the **END** button. The display resets itself to zero.



Now move the reticle back to the initial starting point (0) and press **END** again.

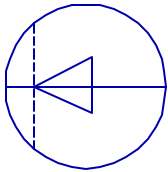


Repeat as often as desired in order to obtain a good average.

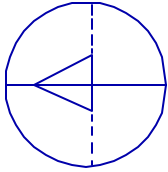
Then press **2nd AVER**

The average result is shown. Now press **2ND CALIB** key in the value of the interval measured and press **ENT ENT**

THE MEASURING PROCEDURE

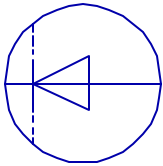


- Align the filar reticle with one edge of the specimen to be measured.
Clear the display with the Processor Clear Switch (3), with the CL key of your keypad or with the CL function assigned to the remote switch of the Filar Eyepiece. (to assign the remote switch to the clear function press: **2ND SEL CL**)

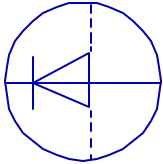


- Move the reticle to the opposite edge of the specimen by rotating the knob of the Filar Eyepiece.
Find the measuring result on display.
The result can be transmitted to a Host Computer, Printing Calculator, etc. by pressing the TXA or TXB button of the keypad.

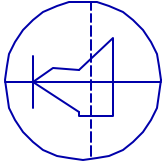
If you ordered a Filar Eyepiece with the optional stationary reticle line:



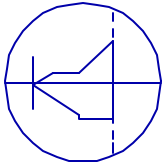
- Superimpose the moveable reticle over the stationary one and align one edge of the specimen with it by means of a mechanical stage.



- Clear the display and move the reticle to the opposite side.
Find result of the first measurement on display.



- Do not clear the display now and do not move the reticle.
Instead, using your mechanical stage, position the edge of your next object to be measured against the stationary line.



- Now move the reticle line to the opposite edge of this object and find result on display. The advantage: You do not have to scan the whole object and there is no need to clear the display.

The "METRIC" Conversion Switch of Model M2 and XM2

The Front Panel Switch labeled English / Metric can be utilized to convert results into other measuring units via a preprogrammed multiplier.

For English/Metric conversion install a Metric equivalent of the primary measuring unit used.

To program a multiplier for use with this switch, proceed as outlined:

Press: **RCL 2ND CONST 2**
enter multiplier
ENT

Example: Using the example on the previous page (step 8) we like to have results expressed in microns as well as in inches.

Since 1 inch = 25400 microns, we program:

RCL 2ND CONST 2 25400 ENT

subsequently we can obtain the micron equivalent of our measuring results simply by toggling the ENGLISH / METRIC switch.

For conversion factors please
check processor instructions on

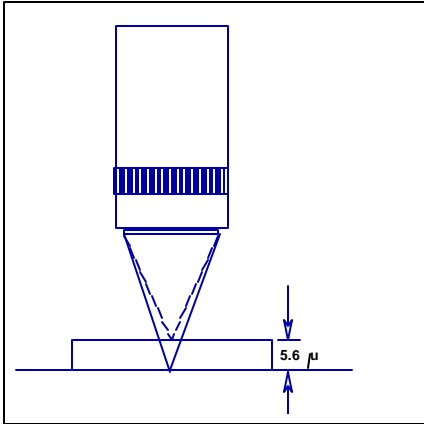
DMP ADAPTERS, Z-AXIS ADAPTERS AND CUSTOM DIGITAL CONVERTERS.

The calibration method for these devices is virtually identical to the one covered for the filar eyepieces. Simply select a scaler, clear the display and measure the known displacement or length. Then using the empirical method, press :

2ND CALIB *enter the known length* **ENT**

Example:

We are using a Z-Axis Adapter attached to the fine focus knob of the microscope.
We want to calibrate the device for thickness measurements.



Procedure:

- Locate a specimen of known thickness. We assume a thickness of 5.6 microns.
- Choose the scaler you want to program.
- Select a high power objective and focus on the bottom section of the specimen.
- Clear the processor display and use the Z-Axis Digital Adapter Knob to focus on the top of our 5.6 micron specimen.
- Now use your keypad and press:

2ND CALIB 5.6 ENT

and your device is calibrated for thickness measurements in microns.

TO PROGRAM A REMOTE SWITCH

If your instrument is equipped with a remote switch, or if you purchased an optional one, you may program it to control any major function.

Built-in Remote Switches are readily connected to the remote circuit via the transducer cable.

Optional Remote Switches are equipped with a phono plug which needs to be connected to the rear panel receptacle labeled PR (= Process Jack # 22)

To program the remote switch, use the keypad supplied with your processor and activate the following keys:

2ND SEL

Then press the function key to be assigned

EXAMPLES:

To assign:

The **Clear** function press **2ND SEL CL**

The **Averaging** function press **2ND SEL END**

The **Data Transmit** function press **2ND SEL TXA**

The **Scaler Select** function press **2ND SEL SC** →

To engage a **Constant** press **2ND CONST**

etc.

The Keypad can be removed to avoid accidental changes to measuring constants and setup parameters in an Q.C.Environment or in situations where more than one operator is involved.

The Clear function can be initiated from the processor front panel, the scaler selection via the filar remote switch .
Simply program **2ND SEL SC** → into the processor before removing the keypad . Subsequently you can change scalars (cycling through them) by activating the remote switch.