

# Microstat Series Digital Electronic Micrometers Operating Instructions



## ORIGIN SETTING

The Origin value is used only for large micrometers and for bore gauges which reset to a value other than zero. Basically it is the measurement value expected at the instrument's natural resting position – with no workpiece in place.

For example, a 25-50mm micrometer is typically reset on a 25mm slip block and should show 25.000 after zeroing. But if this is done and the micrometer jaws are allowed to close on to fresh air the display will show something less than 25mm. This value is repeatable but peculiar to each individual micrometer.

Setting the Origin requires that you have already programmed in the value of a Setting Master that you will use to check your instrument. See "Calibration Mode" for details.

1. Switch on the micrometer while holding down **C**. i.e. press and hold **C** then press **Z**.

The display shows "Cal O".

2. Press **C**.

The display shows the programmed Setting Master value.

3. Insert the Setting Master, obtain a repeatable (but incorrect) measurement of it, and press **Z** to reset the display to the master.
4. Remove the Setting Master and allow the jaws to close to their natural resting position. Ensure you have a repeatable measurement of this position, then press **D** to save it as the new Origin Value.
5. Insert the Setting Master again and check that the display shows the Setting Master value. If necessary repeat steps (4) and (5) until a repeatable and accurate Origin Value is obtained.

After calibrating the Origin Value in this way you can reset the instrument at its natural resting position instead of having to find the Setting Master each time.

Note that calibrating the Origin Value also selects Origin, rather than Zero, in the Configuration Settings. Changing this setting back to Zero does not delete the Origin Value and you can change back to Origin again later and use the same Origin Value again. See "Configuration Settings" for details.

## BATTERY CARE

When the battery is close to empty the micrometer will flash the decimal digits of the display. You should connect the battery charger as soon as possible to recharge the battery.

If the battery becomes totally discharged the micrometer will display the message "Lo BA" and will turn off.

To charge the battery connect the round plug on the battery charger to the round socket on the back of the micrometer and push home. (Note that the plug will only fit at the correct orientation so you may have to rotate it slowly while pushing gently.)

Next connect the battery charger to your mains supply.

The charger will fully charge the battery in about 14-16 hours if the micrometer is switched off. You should disconnect the charger after this time.

The battery will be trickle charged if the micrometer is switched on while connected to the charger and can be left trickle charging for much longer periods

Operating the micrometer with a battery that is close to discharge can occasionally cause a malfunction ("Flt 1" message). If this happens remove battery by unscrewing the rear case cover, wait 10-15 seconds and replace the battery ensuring the positive terminal is nearest the charger socket.

## CALIBRATION CERTIFICATES

All micrometers are checked and calibrated before leaving our factory but if you require a NAMAS calibration certificate please telephone the number on the outside of this leaflet, or check our web site, for up to date prices.

## REPAIRS

In the unlikely event of your micrometer requiring service please return it, in it's original packaging to the address shown on the outside of this leaflet.

## END OF LIFE ARRANGEMENTS

Under the Waste Electrical and Electronic Equipment (WEEE) Directive due to become law in Europe in July 2006, manufacturers of electronic equipment are obliged to take back used electronic equipment at the end of its life for disposal or recycling in an environmentally friendly manner.

Digital Micrometers(DML) has already made arrangements for this and will be pleased to take back for disposal any DML Micrometers or Bore Gauges at the end of their useful life. This is free of charge and DML will arrange shipping if required – also free of charge.

To arrange collection please telephone the number shown on the outside of this leaflet or check our web site.

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## IMPORTANT INFORMATION ABOUT THE BATTERY...

This micrometer contains a NiMH rechargeable battery which is fully charged during manufacture but may require further charging by the time you receive it. Use only the battery charger supplied with the micrometer. Using chargers other than the one supplied could result in permanent damage!

## DO NOT USE THE CHARGER WITHOUT A BATTERY FITTED!

## LIMIT MODE

Use Limit Mode to measure such things as ovality or parallelism.

1. Switch on the micrometer.
2. Press and hold down **Z** and press **D**. Release both buttons.

**L** ↑ appears in the display and the measurement shown is the maximum reached.

3. Place the workpiece in the anvils and press **C** to clear the display to the current measurement.
4. Carefully rotate or move the workpiece between the anvils and then press **D** to hold the display before removing the workpiece.
5. The display shows the maximum measurement.
6. Press **S** to show the minimum.
7. Press **S** again to show the maximum.
8. Repeat from (4) to measure another workpiece.
9. Press and hold **Z** and press **D** to leave Limit Mode.

## TOLERANCE MODE

Here the arrows in the display indicate whether the measurement is above, below or between two tolerance limits previously programmed into the micrometer.

The tolerance limit values may be entered from reference gauges or programmed from drawing dimensions - see 'Calibrate Mode'.

1. Switch on the micrometer.
2. Press and hold down **C** and press **D**. **T** appears in the display.
3. Measure the workpiece. If ↑ appears the measurement is above the upper tolerance limit. If ↓ appears it is below the lower limit.
4. Press and hold down **C** and press **D** again to leave Tolerance Mode.

## STATISTICS MODE

Here statistical results can be calculated from the displayed measurements. The statistics available are: the count of measurements entered, the average, standard deviation, range, maximum and minimum. You can plot mean and range or mean and sigma charts directly from the display!

1. Press and hold down **S** and press **D**. **S** appears in the display.
2. Press **C-C** to clear any previous results.
3. Place the first workpiece between the anvils and press **D** to enter the measurement into the statistics.
4. Repeat (3) for further workpieces.
5. Press **S** to scroll through the results. First count, then average, then range, maximum, minimum and finally back to live measurements.
6. Note that while you hold down **S** the micrometer shows the name of the result that will appear next. The value appears when you release the button.

## CONFIGURATION SETTINGS

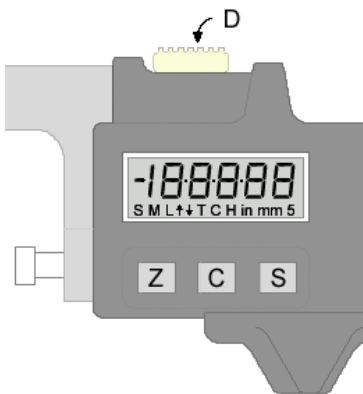
You can change a number of settings on your micrometer using Settings Mode.

1. Switch the micrometer on while holding down **S**. i.e. press and hold **S** and press **Z**.  
The display shows "Sys *n*" where *n* is the version of software in your micrometer.
2. Press **S** to scroll through the list of settings...

Sys <i>n</i>	software version
Zero or Orig	zero point
ASO or nASO	(no) Auto Switch Off
00000 or 0000	digits in display
3. To change the currently selected setting press **C**.
4. Press **Z-Z** to return to normal operation.

The Origin point (Orig setting) is used in large micrometers and bore gauges that 'zero' to a value other than 0.000. See "Setting the Origin" for details. 0-25mm/1" micrometers should always use the Zero setting.

## BASIC OPERATION



1. To switch on: press the **Z** key.
2. To zero: press the **Z** key.
3. To turn off: press **Z** twice quickly (**Z-Z**).  
If left inactive for 1 minute or more the micrometer will switch off automatically.
4. To swap from mm to in: press **S**.  
Press **S** again to swap back.
5. To freeze (hold) the display: press **D**.  
Press **D** again to unfreeze the display.
6. To make comparative measurements (ie. to zero the micrometer temporarily): press **C-C** (ie. double press **C**).  
Press **C** again to return to absolute measurements.

## CALIBRATION MODE

This mode does not affect the calibration of the micrometer, unless you use the Origin Setting but allows you to program in tolerance limits, comparator value and reset master value (for Origin setting only).

1. Switch the micrometer on while holding down **C**. i.e. press and hold down **C** and press **Z**.  
The display shows "Cal O".
2. Press **S** to scroll through the programmable values...

Cal O	Origin
Cal S	Setting master
Cal C	Comparator value
Cal H	High tolerance limit
Cal L	Low tolerance limit.
3. Press **C** to change the selected value.  
All except Origin...
4. The display shows the current value.
5. Press **C** to increase the value, or **S** to decrease it, by 0.001mm (0.0001").  
Hold down **C** or **S** to change the value continuously. The rate of change gets faster the longer you hold the button down.  
Press **C-C** or **S-S** to change the value by 1mm (0.1"). Hold down the **S** or **C** button after the second press to change the value continuously.
6. When the display shows the required value press **D** to save it.  
The display reverts to Cal S, Cal C etc.
7. Repeat from (2) above to change other values.
8. Press **Z-Z** to return to normal operation.