

# DR05 Digital Readout Display

## Extra Customer Instructions

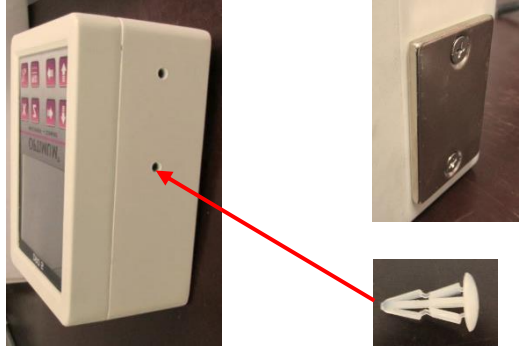

### To be used in conjunction with factory manual..

Please find below information for the use and set up of your Digital DRO display.

Some Details and Functions of this unit have been modified by factory for product improvement and Manual is not suited in places.

These Instructions for units dated from 01-2020 (Spec plate on rear of Display)

**NB Always Turn off and unplug unit at the main PowerPoint when not in use.**

<p>Your DRO display is set up to fit and run                  Optimum brand # D696 DR05-RH. Or # D697 DR05-RHA Reader heads (Not supplied)                  Optimum brand # D694 DR03-MS/ magnetic scales. (Not supplied)                  RPM measuring Using 4 magnets (supplied ) See below page 5. <b>To set up to measure a Spindle RPM.</b>                  ( Bracket and Spindle magnet holder to be designed and manufactured by customer)</p>	
<p>Differences to manual <b>2. Identification</b> (Page 18)                  2.1 <i>Scope of delivery</i>                  2.2 <i>Optionally available</i></p>	<p>-Main lead is 6 Meters.. Only 1.8 Meters supplied                  - 3 pc Magnetic sensors (Are Not Supplied )                  -magnetic tapes, 1100, 2000 and bulk stock.                  (are not available)</p>
<p><b>3. Installation</b> ( Page 18 -19 )                  3.1 <i>Make absolutely sure to close not used fixing holes in the housing with an enclosed plastic caps.</i></p> <p>There are 6 tapped holes around the Body of the unit.                  The magnet to clip display onto side/top of machine screws on with 2 screws, and the other 4 holes are to be filled with the white push- in clips supplied.</p>	
<p>Display unit with magnetic plate fitted (Bottom or side) can just be attached to the steel of the machine.                  Or a separate bracket can be made and the unit mounted to it.                  If a separate bracket is manufactured and the display is mounted to it, ensure screws used to fit display to bracket are not oversized in length, intruding into the interior, fouling with electronics inside.</p>	

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There are 4 different Screen Colour Configurations (“Test Patterns”)  
 Black on Grey ( as supplied, )  
 Green on Black,  
 Blue on Grey  
 Yellow on Blue.

as well as “Contrast” and “Backlight” adjustment

If you wish to change these

In main screen

Press and hold PROG Button

until unit enters “Configuration screen”.

Will be on “LCD Setup”  
Press PROG to enter

Arrow up and down to select “Contrast” or “Backlight (doesn’t do much)” or “test Pattern”

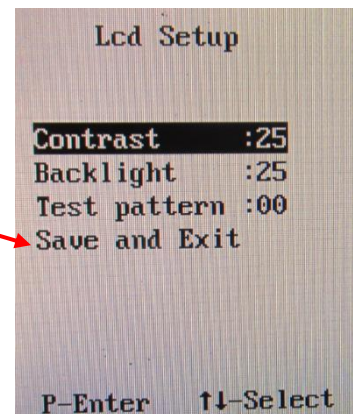
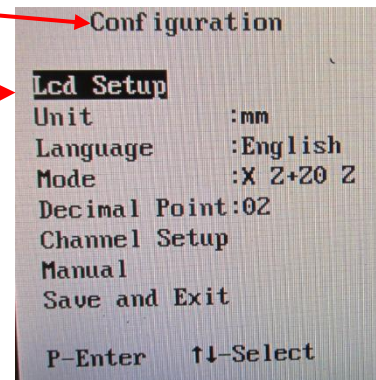
When selected . press PROG to enter it, then Arrow up or Down to select number or test Patern required.  
When Selected, press PROG button to Save it.

When all done, arrow down to “Save and Exit”

Press PROG button to back to main “Configeration screen”

Arrow down to “Save and Exit”

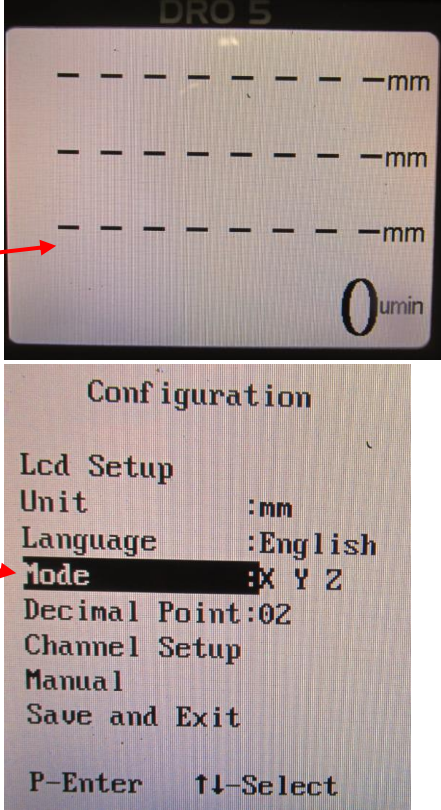
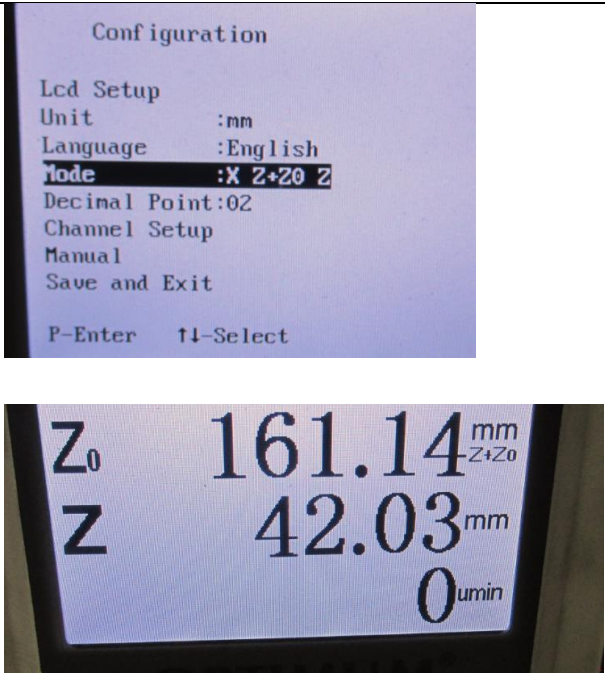
Press PROG button to escape back to “Main Screen”



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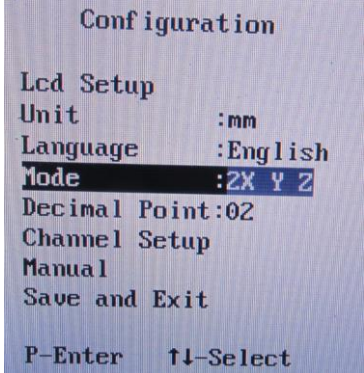
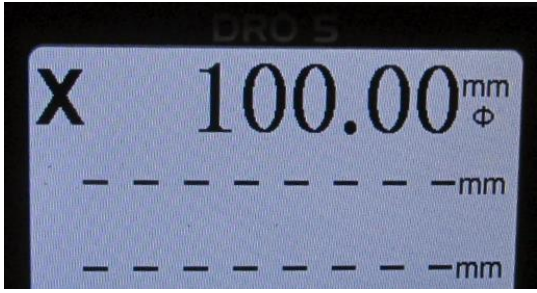
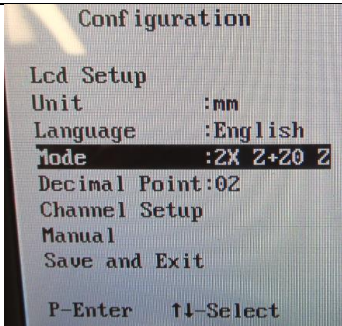
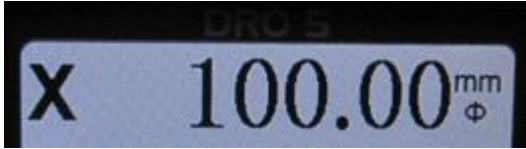
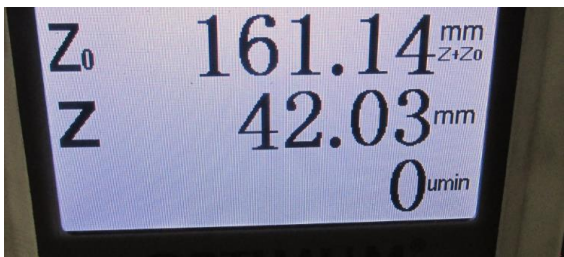
<p><b>5. Menu</b> (Page 21)</p> <p><b>Working Mode</b> (ARE SHOWN DIFFERENT IN MANUAL)</p> <p><b>1<sup>ST</sup> Option as supplied when turned on</b></p> <p><u>Mode "X . Y . Z"</u></p> <p>This is basic use for 3 axis Normal reading of movements of Reader Heads over scales. Normally Used for Mills</p> <p>Shown in "Configuration"</p> <p>There are 2 other options made generally for Lathe use.</p> <p><b>Option 2</b> <u>"X . Z+ Z0 . Z"</u>  <b>Option 3</b> <u>"2X . Y . Z"</u>  <b>Option 4</b> <u>"2X. Z+Z0. Z"</u></p> <p>To Change these Modes see page 5 of these instructions</p>	
<p><b>2nd optional Setting</b></p> <p><u>Mode "X . Z+ Z0 . Z"</u></p> <p>In this mode, "X" measures normally (fit on Cross slide)</p> <p><b>"Z+Z0"</b> When " Z " Axis is moved. ("Z" Scale fitted on Compound slide travel), Its movement is added to middle display "Z0" movement. ("Z0" Scale fitted on Saddle slide travel)</p> <p>Used to show full movement of tool tip on "Z0" axis</p> <p>le: Move Saddle "Z0" (say 119.11mm) then wind compound slide "Z". (say 42.03 mm ) The measurements shown on Middle "Z0" display line ( = 161.14 mm Position of tool tip.)</p>	



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<p><b>3rd optional setting</b></p> <p><u>Mode "2X . Y . Z"</u></p> <p>In this mode generally for use on a lathe</p> <p><b>"2X"</b></p> <p>Half the movement of Cross Slide "X" axis measurement of scale to measure off Diameter of workpiece.</p> <p>Axis "Y" and "Z" measure normally</p> <p>Fitting scale and reader head to Cross slide "X" of a lathe moving the cross slide in 20mm shows 40mm on display (the actual new diameter of workpiece will be after machining at that setting)</p>	 
<p><b>4th optional setting</b></p> <p><u>Mode "2X. Z+Z0. Z"</u></p> <p>In this mode <b>option 3 and 2</b> are combined.</p> <p><b>"2X"</b></p> <p>Half the movement of Cross Slide "X" axis measurement of scale to measure off Diameter of workpiece.</p> <p><b>"Z+Z0"</b></p> <p>When " Z " Axis is moved. ( "Z" Scale fitted on Compound slide travel), Its movement is added to middle display <b>"Z0"</b> movement. ( "Z0" Scale fitted on Saddle slide travel)</p> <p>Used to show full movement of tool tip on <b>"Z0"</b> axis</p> <p>le: Move Saddle <b>"Z0"</b> (say 119.11mm) then wind compound slide <b>"Z"</b>. (say 42.03 mm ) The measurements shown on Middle <b>"Z0"</b> display line ( = 161.14 mm Position of tool tip.)</p>	  

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To change this modes of "X, Y, Z" to one of the others.

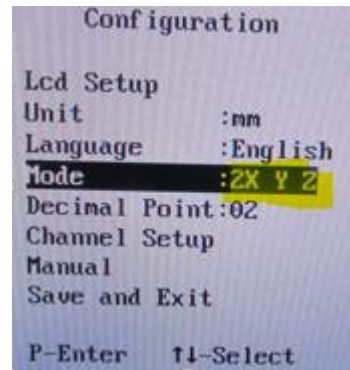
In main screen  
Press and hold "PROG"  
Button

until unit enters  
"configuration screen."

Arrow down to "Mode" and press "PROG" button  
this selection area will flash.

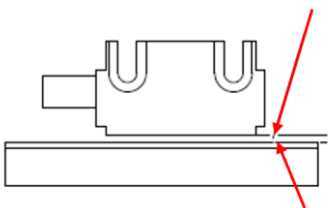
"Arrow up or down" to find the selection Mode you  
require.

Then press "PROG" button to save it.  
Then Arrow down to "Save and Exit", and press "PROG"  
button to escape back to "Main screen".



For **Scale and reader head fitting**  
see "5.2 Magnetic sensor and magnetic strip "details  
in Factory Manual Pages 23- 25

NB For Digital Readout to work.  
The Gap needed between Reader head and Cover strip  
of scale is **0.7mm**  
( not 0.2mm as per factory Manual)



Magnetic Scales(# D694) DR03-MS or (Not Supplied)  
need to be fitted to a flat machined surface parrallell to  
slide movement.  
Reader heads (# D696) DR05-RH  
or (#D967) DR05-RHA (Not supplied)  
need to be fitted to rigid brackets made by customer.

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To be used in conjunction with factory manual..

### To set up to measure a Spindle RPM.

The unit is supplied with a "Proximity Sensor" that works when the "south end" of a "magnet" passes it.

In this case the Display Unit is set for counting 4 magnets (supplied) per revolution.

Magnets need to be set up under guarding in case they come loose and fitted in a ring of some sort mounted to the spindle. With each magnet well secured into that ring.

Example show here, the magnets are fitted in round holes drilled evenly spaced around an existing "spindle bearing Lock Nut"

Small grub screws are fitted into tapped holes in the lock nut side to screw onto magnet to secure it in.

A bracket is then made to hold the proximity Sensor close as possible to the magnets passing it.

(Sensor will work up to 5mm from magnet)

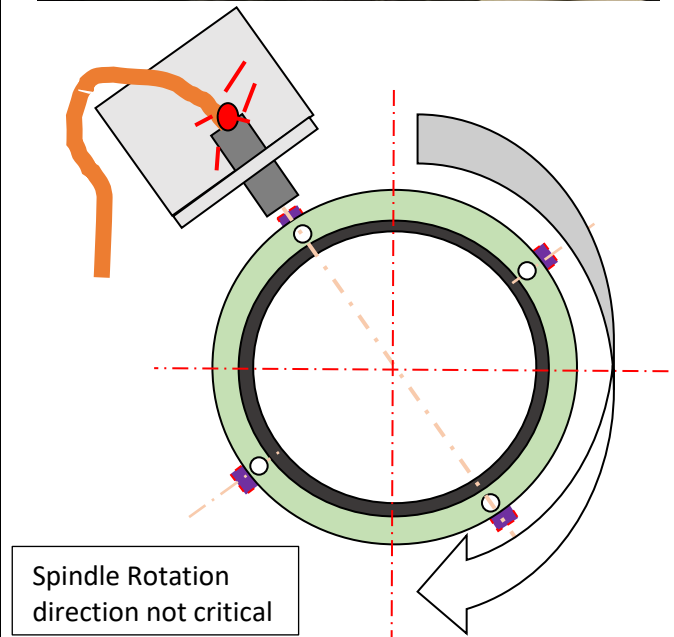
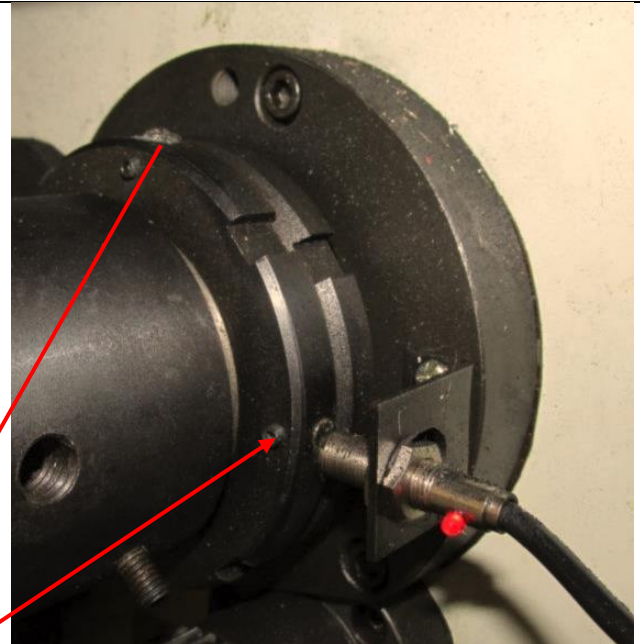
NB; "South end" of magnet needs to be facing Sensor for it to work.

To work out "South end" of the magnet, you can pass the magnet past the plugged in sensor and the "Red LED" on the end of the Sensor will "Light up" on the south end of the Magnet passing sensor.

When "South" is found, mark each magnet on the same ends with a marker or liquid paper, so you can set all up correctly in spindle holder you made. ("south" pointing out towards Sensor!)



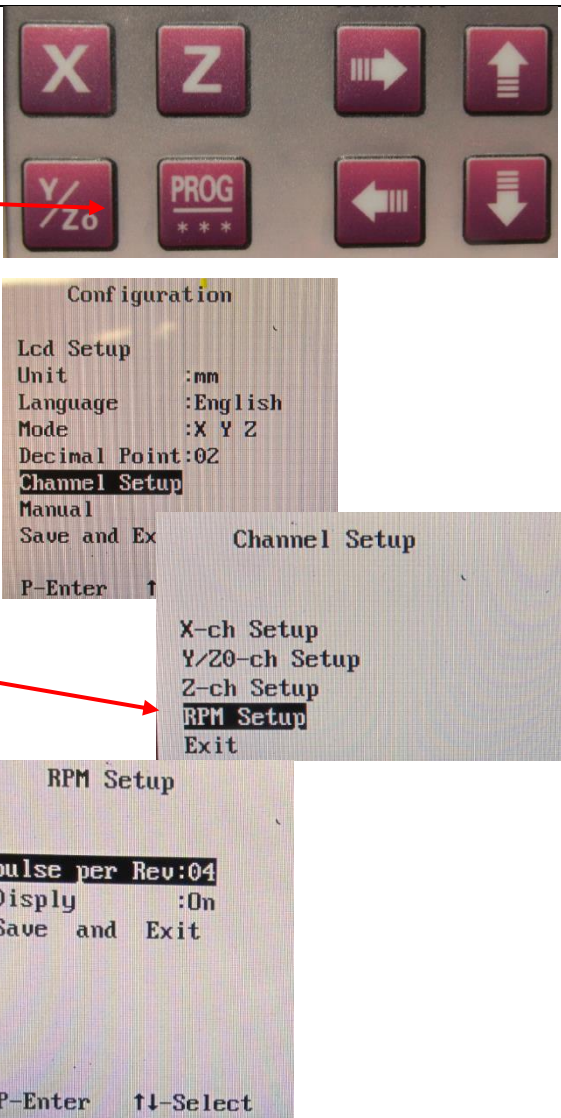
NB More or less magnets can be used, 1 to 36 off  
To change this quantity if required, see "Change Magnet QTY" further on in these instructions



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<p><u>To change Quantity of magnets used for RPM sensor set up</u></p> <p>In main screen Press and hold PROG Button until unit enters "Configuration screen".</p> <p>Arrow down to "Channel Setup" and press PROG button</p> <p>Arrow Down to "RPM Setup" and press PROG button.</p> <p>On "pulse per rev:04" press PROG button. "04" will flash. Arrow up or down to select Qty required. Then press PROG button to set it.</p> <p>Arrow down to "save and Exit" press "PROG" button. Arrow down to "Exit" Press "PROG" button Arrow down to "save and Exit" press "PROG" button to escape back to "Main Screen"</p>	
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