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Specification

Reading	0,005 mm
Accuracy	± 0,005 mm
Power	240 V
Temperature operation	0 – 45 °C
Temperature storage	-30 – 70 °C
Humidity max	90 %

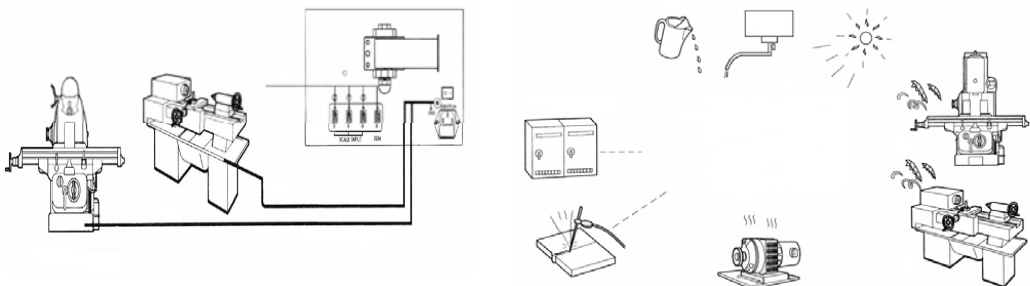
CE Low voltage directive 73/23/EEC samt 89/336/EEC.

Warning / Maintenance

- Protect scales and Display from water, oil, metal chips, dust etc.
- Do not use in atmosphere with flammable gases and exposed in direct sunlight.
- High voltage and strong magnetism can damage the equipment.
- Turn off the power if the device not will be used for a long time.
- The Display have a charged lithium battery for save data. If the device not have been used for a long time, the battery can have been damaged.
- Keep the equipment clean. Clean with clean and soft rag, dipped in alcohol or similar cleaning fluid.










Installation

- The length of the scales have to be longer than machine movement.
- Check the scale are turned correct so reading value will be increasing in correct direction. See coordinate system page 4.
- Parallelism between the scales and machine guide rails is not more than 0,15 mm.
- Parallelism between the sides of the scales and the reading head is not more than 0,1 mm
- The span between the scale surface and the reading head 0,8 – 1,0 mm.
- The scale and reading head should be assembled in center of machine movement.
- If the scale are longer than 1000 mm, mounting pads should be installed to ensure the parallelism.
- The open side of scales should be installed to avoid contact from water, oil, cutting chips etc. The dustproof cover must have minimum distance to the scale 0,5 mm.
- Signal wires and power cable must be proper fixed to avoid damage and hindered operation
- The Display must be installed with a separate ground wire.



Display

Display buttons

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	Radius axis	4
	Axial axis	4
X0 Z0	Zero set axis.	5
	Toggle between absolute and incremental value	5
	Store X and Z positions	5
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Tool/R/D	Transfer allocate tool Radius/Diameter	5 - 6 5
CALL	Input tool base	7
	Stroll up and down to select.	
	Enter	

- On / Off / Restart** Press **1/0** button on backside of display
- Zero set** The scales value can be zero in any position. Press **X0** or **Z0**.
- Return** Terminate any function press same function button again.
- Preset value** Select any axis. Example X-axis. Press **X**.
Press selected value with figure buttons. Confirm press **ENT**.
- Absolute/Incremental value** Press **ABS/INC** or **↑** **↓** for toggle between absolute and incremental value.
- Store coordinate position** 200 coordinate positions can be stored. **SDM** Second Data Memory
- Store coordinate positions** 200 coordinate positions can be stored. **SDM** Second Data Memory
Press **SDM** or **↑** **↓** for toggle between absolute, incremental or SDM1, SDM2 ...SDM200.
- Store an coordinate position** Press **SDM**. Select a number with figure buttons. Example 50. Adjust machine table in selected position. Press **X0** or **Z0**. Confirm **ENT**
The position is stored as *SDM50*
- Search a stored Coordinate position** Press **SDM** Press **50**. Confirm **ENT**
The display shows *SDM50* position.
- Axis compensation setting** Linear error compensating is to rectify a system error.
For instance, machine table movement are not parallel to the scale.
This can be checked with gage blocks or similar.
An error can be compensated with a coefficient.
Example. Machine table movement is 400,000 mm. The display shows *399,990*.
The error is 0,010 mm in 400 mm = 0,030 mm/m.
Coefficient = (Measured value – Display value) / (Measured value/1000)
Press **X** Press **mm/in** Press coefficient **0,03**. Press **ENT**.

Radius / Diameter

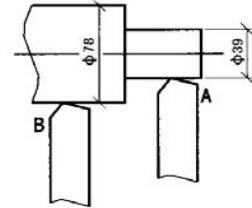
X axis can be set in diameter value.

Adjust the tool to centre line. Zero set X axis. Press **X0**

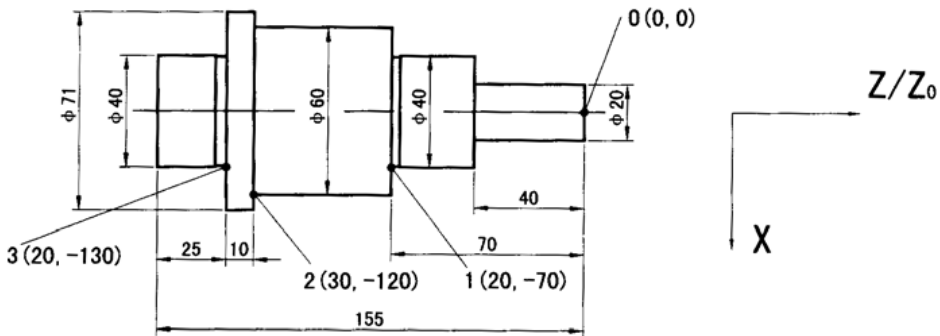
Press **X** Press **Tool/R/D**. R/D shows on the display when R/D function is on.

Example. The tool is in position A. The display shows 39,000

Move the tool from A to B. The display shows 78,000



Tool setting



图(1)

Input reference points

Not R/D function is off in following example. If R/D is on, the X value is given as diameter.

Adjust the tool to position 0. Zero set the scales in absolute reading. Press **X0 Z0**.

Reference 1. Diameter 40 mm. Length 70 mm

Input reference point 1. Toggle with **↑** until SDM 1 shows on the display.

Alternative Press **SDM** Press 1 Press **ENT** until SDM 1 shows on the display.

Press **X** Press 20 Press **SDM**. Press **Z/Z1** Press 70 Press **SDM**

Reference 2. Diametern 60 mm. Length 155 - 25 -10 mm

Input reference point 2. Toggle with  until SDM 2 shows on the display.

Alternative Press  Press 2 Press  until SDM 2 shows on the display

Press  Press 30 Press . Press  Press 120 Press 

Reference 3. Diameter 40 mm. Length 155 - 25 mm = 130 mm.

Input reference point 3. Toggle with  until SDM 3 shows on the display.




Alternative Press  Press 3 Press  until SDM 1 shows on the display






Press  Press 20 Press . Press  Press 130 Press 






Example of operation






Example with R/D function on. Press **Tool/R/D**. R/D shows on the display.






Adjust the tool until position 0. Zero set the scales. Press **X0 Z0**.






Determine this position to SDM1. Press   .


Next position Press  SDM2 Press  Press 20  Press  Press 40 .

Next position Press  SDM3 Press  Press 40  Press  Press 70 .


Next position Press  SDM4 Press  Press 60  Press  Press 120 .

Next position Press  SDM5 Press  Press 71  Press  Press 130 .

Next position Press  SDM6 Press  Press 40  Press  Press 155 .

Toggle to the reference points with  SDM1, SDM2 ...SDM6.
Adjust the tool for each step until the scales shows 0.000.

Cancel reference points

Cancel in absolute reading. Press 10 times  for cancel all SDM values.

Tool setting

Different tools are needed when processing different parts. For convenient operation up to 200 different tool base can be setup.

Adjust tool 1 as datum tool.

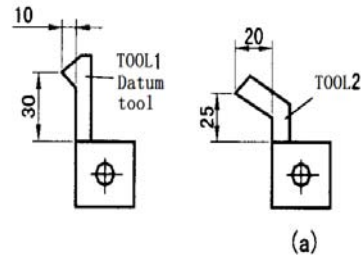
Press **Tool/R/D**. *Tool 1* shows on the display.

Press **X** **0** **ENT**. Press **Z/Z1** **0** **Z/Z1**

Input tool 2. Press **↓** **2** **ENT**. *Tool 2* shows on the display. Input the difference to tool 1.

Press **X** **-5** **ENT**. Press **Z/Z1** **10** **ENT**

Press **Tool/R/D** to quit tool setting.

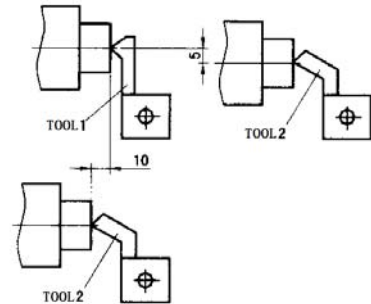


Chance of tools.

Press **CALL** for chance of tools. *CHOOSE* shows on the display.

Press tool no. Press **ENT**. Press **CALL**.

Adjust the tool until the scales shows *0,000* and continue operation with new tool.




Taper measurement

The taper can be easily measured or controlled.

Contact the surface on one point with a tool or a measurement tip.

Press **KON**. Move the tool or measurement

Tip to another point. Press 

X shows conicity on the display.

Z shows angel on the display.

Press **KON** to quit taper measurement.




Automatic find zero

When machine table has been moved in case such as outage or stop in operation, it can be difficult to find reference zero.

Memorizing and finding the reference point must be in absolute system.

Zero set axis. Press **Xo** and **Zo**.


Press  or   for absolute system.

Select Find Zero function. Press   

To find reference point of X axis. Press 

In the example is distance $A - 0 = 104$ mm.

Move tool until X-axis shows 0.

Find Z-axis reference point in same way. Press 

In the example is distance $B - 0 = 20$ mm.

