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1 Intro

Thank you for your purchase of a Raytech Measuring Systems overhead measuring machine. You have purchased a versatile and high quality system that will provide you with years of quality measurements.

We have tried to supply essential information to assist the operator in getting up to speed as soon as possible. It is strongly advised that you keep this manual with the machine as a reference guide. It is possible for anyone to learn the basic functions of this machine in a matter of minutes. This assures you that everyone can be making measurements and assuring your customers of quality.

If you have any questions, comments, or requests, please feel free to call us at 1-800-852-6403 or visit our website at <http://www.raytech-measuring.com>.

2 Measuring

The following section covers the basic day to day operation of the measuring machine. This section will cover everything that an average user will need to know in order to operate this machine.

2.1 Startup

1. Flip the power switch on the back of the DRO.
2. Press the ENTER key.
3. Move the probe until the numbers begin to move on both axes and the *REF* light comes on.

If the reference (REF) light is not on, then the non-linear error correction is not active and the accuracy of the machine may be compromised.

2.2 Establishing a Datum

1. Press the SPECIAL FUNCTION key.
2. Press the UP/DOWN ARROW key until you see Probing Function.
3. Press the ENTER key.

4. Press the UP/DOWN ARROW key until you see Probe Edge.
5. Press the ENTER key.
6. Press the X/Y key for the axis you want to set the datum for.
7. Using the probe, touch the datum location.
8. Press the 0 key.
9. Press the ENTER key.
10. When you are finished, press the SPECIAL FUNCTION key.

2.3 Determining a Midpoint

Determining a midpoint can be useful for checking a part's length along the centerline of the part.

1. Press the SPECIAL FUNCTION key.
2. Press the UP/DOWN ARROW key until you see Probing Function.
3. Press the ENTER key.
4. Press the UP/DOWN ARROW key until you see Probe Midpoint.
5. Press the ENTER key.
6. Press the X/Y key for the axis you want the midpoint of.
7. Using the probe, measure 2 points, one on each side of the part.
8. Press the 0 key.
9. Press the ENTER key.

You now have established the midpoint of the part as 0.000. You can now move the appropriate axis and lock it into position.

2.4 Measuring Length and Width

1. Press the SPECIAL FUNCTION key.
2. Press the UP/DOWN ARROW key until you see Probing Function.
3. Press the ENTER key.
4. Press the UP/DOWN ARROW key until you see Probe Edge.
5. Press the ENTER key.
6. Press the X/Y key for the axis in which you want to measure.
7. Using the probe, touch one end of the part.
8. Press the 0 key.
9. Press the ENTER key.
10. Using the probe, touch the opposite end of the part.
11. The reading shown in the DRO window will be the length of the part.
12. Press the SPECIAL FUNCTION key to exit.

2.5 Measuring Hole Locations

1. Establish a datum for your readings. See section 2.2 on page 2.
2. Press the SPECIAL FUNCTION key.
3. Press the UP/DOWN ARROW key until you see Probing Function.
4. Press the ENTER key.
5. Press the UP/DOWN ARROW key until you see Probe Circle.
6. Press the ENTER key.
7. Using the probe, touch 2 points in the X axis on opposite sides of the circle, and 2 points in the Y axis on opposite sides of the circle.

8. The reading shown in the DRO window will be the position of that hole from the datum location.
9. Press the CL key to continue measuring holes, or press the SPECIAL FUNCTION key to exit the probing mode.

2.6 Measuring Hole to Hole Distances

1. Press the SPECIAL FUNCTION key.
2. Press the UP/DOWN ARROW key until you see Probing Function.
3. Press the ENTER key.
4. Press the UP/DOWN ARROW key until you see Probe Circle.
5. Press the ENTER key.
6. Using the probe, touch 2 points in the X axis on opposite sides of the circle, and 2 points in the Y axis on opposite sides of the circle.
7. The DRO will prompt you for an X axis datum. Press the 0 key.
8. Press the ENTER key.
9. The DRO will prompt you for a Y axis datum. Press the 0 key.
10. Press the ENTER key.
11. Using the probe, touch 2 points in the X axis on opposite sides of the circle, and 2 points in the Y axis on opposite sides of the circle.
12. The readings displayed in the DRO window are the X and Y axis distances from one hole center to the other.

At this point you can do one of two things. You can measure more holes to the original “master” hole. Or, you can measure a new hole from the last hole.

2.6.1 Measuring more holes to the “master” hole

1. Press the CL key.
2. Using the probe, touch 2 points in the X axis on opposite sides of the circle, and 2 points in the Y axis on opposite sides of the circle.
3. The readings displayed in the DRO window are the X and Y axis distances from one hole center to the other.
4. Repeat section 2.6.1 for each hole to be measured.
5. When you are finished, press the SPECIAL FUNCTION key.

2.6.2 Measuring a new hole from the last hole

1. The DRO will prompt you for an X axis datum. Press the 0 key.
2. Press the ENTER key.
3. The DRO will prompt you for a Y axis datum. Press the 0 key.
4. Press the ENTER key.
5. Using the probe, touch 2 points in the X axis on opposite sides of the circle, and 2 points in the Y axis on opposite sides of the circle.
6. The readings displayed in the DRO window are the X and Y axis distances from one hole center to the other.
7. Repeat section 2.6.2 for each hole to be measured.
8. When you are finished, press the SPECIAL FUNCTION key.

3 Setup

This section contains information on setting up the readout to perform certain functions. Most things listed here are not going to be used on a day to day basis.

3.1 Changing English to Metric

1. Press the MODIFY PARAMETER key.
2. Press the ENTER key.
3. Press the MINUS key.
4. Press the ENTER key.
5. Press the MODIFY PARAMETER key.

3.2 Setting Probe Diameters

1. Press the MODIFY PARAMETER key.
2. Press the UP/DOWN ARROW key until you see CODE NUMBER=.
3. Using the numeric keypad, key in 95148.
4. Press the ENTER key.
5. Press the GOTO BLOCK key.
6. Using the numeric keypad, key in 25.
7. Press the ENTER key.
8. Using the numeric keypad, key in the diameter of your probe.
9. Press the ENTER key.
10. Press the MODIFY PARAMETER key when you are finished.

3.3 Changing Resolution

1. Press the MODIFY PARAMETER key.
2. Press the UP/DOWN ARROW key until you see CODE NUMBER=.
3. Using the numeric keypad, key in 95148.
4. Press the ENTER key.

5. Press the GOTO BLOCK key.
6. Using the numeric keypad, key in 32.
7. Press the ENTER key.
8. Press the MINUS key to change the subdivision value. The subdivision value affects the resolution as follows:

Subdivision	Resolution
20	0.0001"
8	0.0002"
4	0.0005"
2	0.001"

9. When you have selected the appropriate subdivision for your resolution, press the ENTER key.
10. Press the MODIFY PARAMETER key.