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# NEWALL Spherosyn & Microsyn Quick Installation Guide

For the complete installation manual, please download from:  
<http://newall.com>. Click Technical Support to access the download page.

## Preparation

Prior to beginning the installation the machine should be studied to determine the Encoder(s) position and to ensure the brackets are suitable or if custom brackets are required.

In order to reduce erroneous readings caused by machine wear, it is recommended that the encoder be fitted as close to the machine lead screw or axial drive shaft as possible.

## Warnings

If for any reason the machine axis travel is greater than the actual scale travel 'mechanical stops' should be fitted to the machine to avoid damage caused by over travel. Newall will not accept responsibility for encoder damage caused by machine over travel.

It is important the Scale be kept at least 13mm (0.5") away from any magnetic sources such as magnetic bases or chucks.

## Assembly Diagrams

Figure 1 - Spherosyn Encoder Assembly

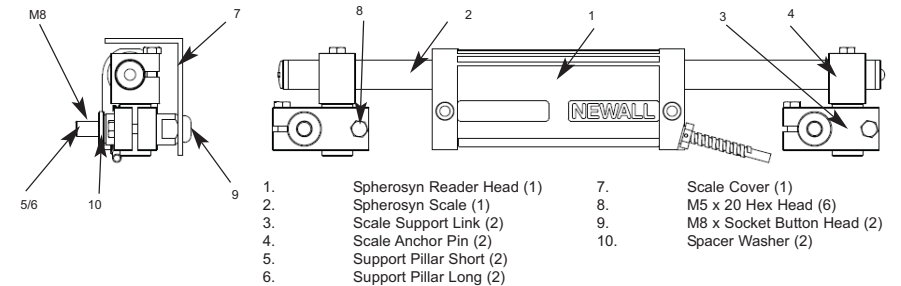
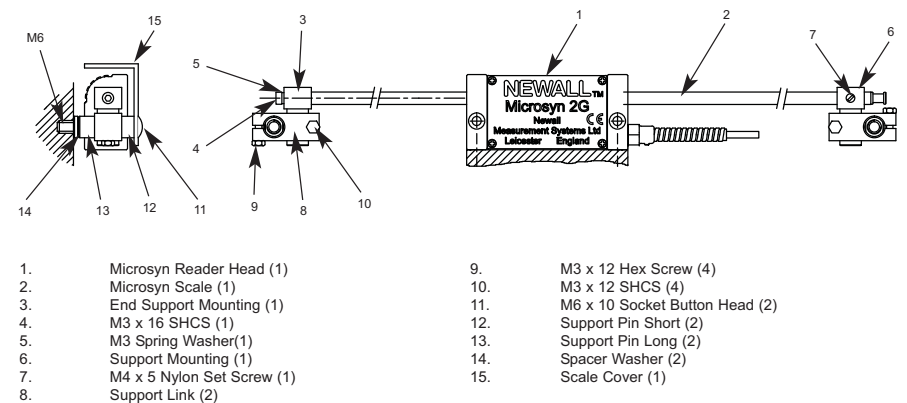


Figure 2 - Microsyn Encoder Assembly



## Reader Head Alignment

### Mounting Faces

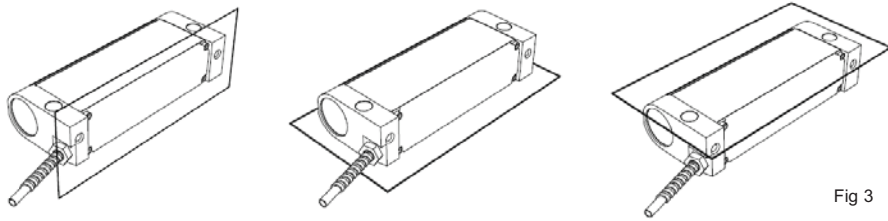


Fig 3

The Reader Head can be mounted on any 3 of the faces shown in fig 3.

### Alignment Tolerance to machine

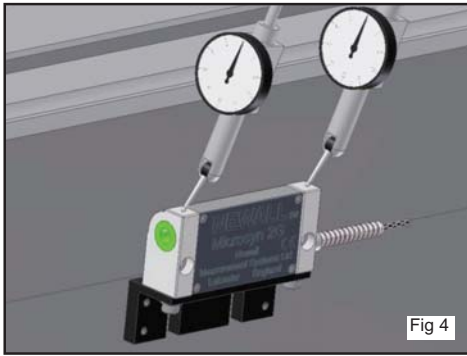


Fig 4

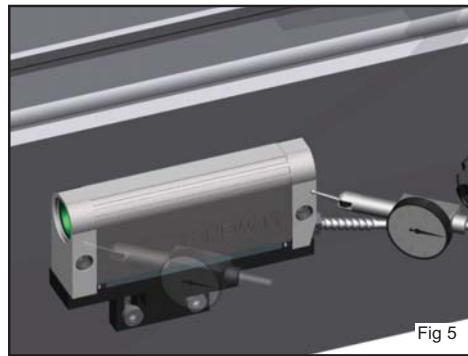
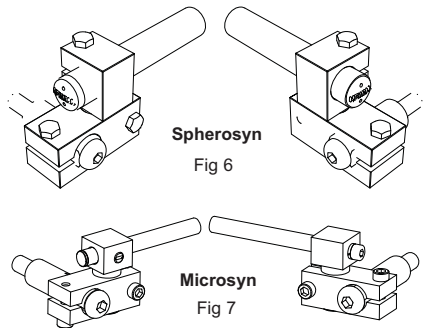


Fig 5

The reader heads should be mounted with both planes parallel to the axis of travel within  $\pm 0.05\text{mm}$  (0.002"). See fig 4 and 5.

## Scale Mounting - Double Ended



Spherosyn

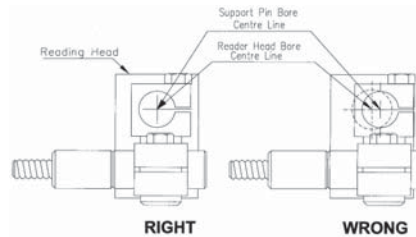
Fig 6

Microsyn

Fig 7

Traverse the machine to its maximum position towards the non cable entry side of the reader head. Slide scale through reader head and fit assembly (fig 6 & 7) onto end of scale. Mark the position of the pillar.

Drill & tap to suit pillar (fig 1 & 2). Loosely fit assembly to pillar, pass scale through, slide scale forwards and back whilst tightening the screws until it passes smoothly through head and bracket. Once aligned repeat at the other end.



RIGHT

WRONG

## Scale Mounting - Single end (300mm (12") travel or less)

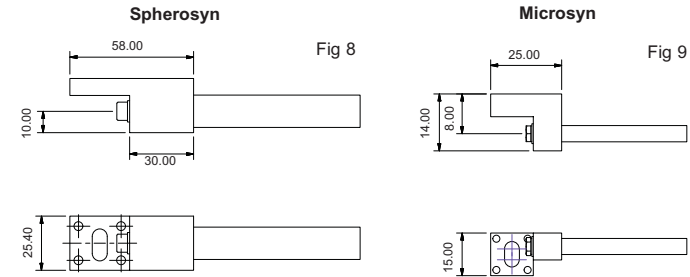


Fig 8

Fig 9

For Spherosyn remove the white nylon snap rivet from end of scale. **Do not tamper with the adjustment set screw as this will alter the calibration.**

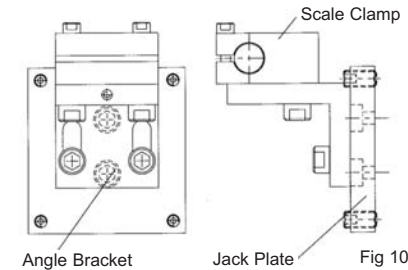
Once reader head is aligned, slide the scale through and into the single end support and secure into place.

Position the block in the correct position, mark the slot. Drill & tap to suit fixing (fig 8 & 9).

Once secured check alignment by gently sliding scale in and out through head and block. Grub screws are available for adjustment.

You can single end mount with the standard link, pillar brackets or with the optional single end mount brackets shown above.

## Long Scales (Over 2500mm (100") Spherosyn)



Angle Bracket

Jack Plate

Fig 10

Mount the reader head as before, ensuring that the rounded edge is facing downwards.

Traverse the machine to its maximum position.

Slide short blank scale through and fit assembly (fig 10) onto end of scale.

Mark the position of bracket drill and tap to suit fixings (M8).

Fix assembly to machine and align with blank scale. Slide forwards and back until scale passes smoothly through head and brackets.

Repeat for other end.

For long scale support mounting see data sheet supplied with 600-84605

## Fitting the Scale Guard

Each Encoder includes a protective guard. The guard can be attached to the machine casting or by means of the scale support pins via the button head screws provided.

For single end mounting use machine faces.

After the guard is attached, move the machine axis to both extents of its travel ensuring that the guard does not interfere with or rub against the Reader Head.

## Cable Routing

Care should be taken to ensure that all cables are routed and secured to the machine avoiding any mechanical interference with any part of the machine or encoder movement. Routing should also avoid sources of electrical noise and interference. Cable clamps are supplied.

**Note:** The armoured cable is an integrated part of the reader head. If the cable becomes damaged this will require a replacement reader head. Ensure all connectors are located in a position to avoid fluid contamination.

## Final Check

Prior to putting the linear encoder system into operation after installation, slowly traverse the machine axis to ensure that all cable routings are correct and machine over-travel cannot occur.