series 55

POSITION INDICATOR
-with Microprocessor Control
POSITION INDICATOR
SERIES 55

Important Features

The fully electronic Series 55 Counter provides 10mm red LED indication. The integrated microprocessor enables the following features to be provided as standard.

Switching between Absolute/Incremental dimensions

The importance of this feature can be shown in the following example:

Let us say that the preset position is 1928.7. It is desired to move to a point 325.9mm in the negative direction.

In normal circumstances, the Operator has to calculate the new position (ie 1602.8) and then move to that indicated value.

This is unnecessary if the 55 Counter is employed. The operator presses the button marked "INCR" and the indicator display automatically sets to zero. The operator now moves the machine (in negative direction) the distance 325.9. He can then again press the button "INCR" and the display once more resets to indicate the actual absolute value, ie 1602.8 in this example.
Selection mm/inch

It is possible to switch from one to the other without redatuming. This is achieved by pressing the button "INCH".

Other features

- Entry of desired datum is made by means of front pushbuttons.

- Entry and memorising of a second datum with immediate access is available.

- Solid, robust front panel with integrated pushbuttons in compact metal enclosures and integrated power supply.

- Special software can be provided to solve many applications.

FUNCTIONS AND OPERATION DESCRIPTION

Datuming of Unit

The indicator can be set to any or a fixed datum using 2 pushbuttons.

This button selects the decade to be set. The selected decade is identified by means of the flashing decimal point.

This button enables the operator to set the required digital value of the selected decade. The numbers clock upward on each activation.
NB:
Both buttons can be inhibited externally via terminal 17. In this way it possible to prevent operator accidently changing the datum.

A1) Setting to any datum

Example:

The mechanical position is in say a position 12345.6mm.

1. Press \( \textcircled{2} \) \[ \cdot \ \ \cdot \ \cdot \ \cdot \ \cdot \ ] decimal point flashes in 1st decade

2. Press \( \textcircled{2} \) Until the digit 1 appears in display

3. Press \( \textcircled{2} \) \[ 1 \ \cdot \ \cdot \ \cdot \ \cdot \ ] decimal point flashes in 2nd decade

4. Press \( \textcircled{2} \) Until the digit 2 appears in display

5. Press \( \textcircled{2} \) \[ 1.2 \ \cdot \ \cdot \ \cdot \ ] decimal point flashes in 3rd decade

6. Press \( \textcircled{2} \) Until the digit 3 appears in display

\[ \vdots \] etc

13 until all 6 digits have been set.

Now press \( \textcircled{2} \) again. The flashing decimal point is extinguished and the correct fixed decimal point appears. The system is now datumed.

\[ 12345.6 \]
A2) Setting to a Fixed Datum Value

Proceed as above up to point 13.
Close contact across terminals 1 and 6 (min 1 sec). This will store the desired value in the memory. Then press \[\text{to return to operating mode.}\]

Thereafter, whenever the contact 1 - 6 is closed the memorised value is displayed.

B) Reset

The display can be set to zero by activating terminal 7.

C) Selection of Absolute and Incremental indication

This feature enables the operator to set the display to zero at any position, without losing the actual absolute position, which is internally continuously monitored.

**Incremental**

Press button \[\] LED "INCR" illuminates
Display sets to zero
The machine can now be moved +ve or -ve direction from this pseudo-zero.

**Absolute**

When the LED "INCR" is not illuminated, the indication is in absolute mode. Should the LED "INCR" be illuminated pressing the button \[\] will return the display to absolute dimension.

**Sign Symbol**

The counter counts + and - about zero. An LED in extreme left of display illuminates as negative symbol.
D) Selection of mm/inch

The system operates in metric resolution mode where 1 pulse equals 0.1 mm (or 0.01 mm on special request).

The processor is designed to provide indication in metric or imperial dimensions.

It is possible to switch at any time from one mode to the other without the need for resetting datum.

**Selection of imperial dimensions**

Press the button INCH
The LED "INCH" illuminates
The indicator provides display in imperial mode. Standard resolution: 0.001 inch

**Selection of metric dimensions**

Press the button INCH
The LED "INCH" is extinguished
The indicator provides display in metric mode. Standard resolution 0.1 mm

E) Input of other correction factors

Instead of converting to imperial dimensions, any other multiplication factor can be used. This factor can be provided by alteration of the software according to customer requirements.
F) Encoder pulse multiplication and direction selection

Pulse multiplication of x1, x2 or x4 can be selected by means of the pushbuttons. The counter can also be made unidirectional.

This is only required during commissioning and the feature is protected by a security code. The code number is 250565 and must be set in the same way as the Datum value, as given in section A).

On completion of this entry, the indicator will display

![Decade for multiplication factor]

Decade for direction

Flashes

Now the required values can be entered using button and according to the following table:

<table>
<thead>
<tr>
<th>Display</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>To select multiplication factor</td>
<td></td>
</tr>
<tr>
<td>Code 0</td>
<td>0</td>
</tr>
<tr>
<td>Code 2</td>
<td>0</td>
</tr>
<tr>
<td>Code 3</td>
<td>0</td>
</tr>
<tr>
<td>To select direction of count</td>
<td></td>
</tr>
<tr>
<td>Code 0</td>
<td>1</td>
</tr>
<tr>
<td>Code 0</td>
<td>2</td>
</tr>
</tbody>
</table>
Connections

Connections are by means of screw terminal plug-in block, providing a simple means of installation and service.

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Symbol</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>Zero</td>
</tr>
<tr>
<td>2</td>
<td>+12V</td>
<td>Encoder supply</td>
</tr>
<tr>
<td>3</td>
<td>A(NPN)</td>
<td>Pulse input</td>
</tr>
<tr>
<td>4</td>
<td>B(NPN)</td>
<td>Pulse input</td>
</tr>
<tr>
<td>5</td>
<td>NPN</td>
<td>Count inhibit</td>
</tr>
<tr>
<td>6</td>
<td>NPN</td>
<td>Set datum</td>
</tr>
<tr>
<td>7</td>
<td>NPN</td>
<td>Reset to zero</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>220 v +/-15% Power input</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>not used</td>
</tr>
<tr>
<td>10-16</td>
<td></td>
<td>Inhibit setting buttons</td>
</tr>
</tbody>
</table>

As standard, the inputs 3 to 7 are NPN switching, which are connected to 0V (Pin 1) to activate.

By swapping over the internal opto coupler, PNP switching is possible. In this case the input is activated by connection to +12v (Pin 2).

Other power supply voltages are available to order.

Dimensions

[Diagram of dimensions]
Technical Data

Power input : 220 or 110 v+/−15% 50/60Hz.

Load : 4VA (excluding Encoder)

Operating frequency : 15KHz. Higher on request.

Pulse input : 2 channel 90° el spaced
  high : >8.5v
  low : <2.5v
  Duration : >50 μ sec

Encoder power supply : 12v, 100mA dc stabilised

Indication : 6 decade red LED 10mm high

Actual position memory : Battery backed on mains switch off.
  Battery life is about 5 years.

Input signals : Potential free pulsed contact (10 Hz max).

Enclosures : Extruded black aluminium

Fixing : Side mounted screws

Input buttons : Robust tactile clearly marked and can be operated with gloved hands.
Hints for integration into electrical panels.

The Series 55 Position indicator is designed and constructed for use in arduous industrial applications and as immune to electrical interference as possible.

Care should however be taken when fitting electronic equipment into machinery.

1. Electronic units should be mounted away from inductive and capacitive interference.
2. Protect against over voltage.
3. Protect against over temperature.
4. Run low voltage cables separate to high voltage/high power cables.
5. Screen encoder cables and input signal cables. Tie screen to zero (terminal 1) at controller; leave insulated at other end.
6. Suppress all relays, contactors, solenoids, brakes and other coils in cabinet and on machine. Fit diodes across dc coils. Fit 0.1 uF + 100 ohms across ac coils.

Failure to follow the above simple instructions could lead to maloperation of the electronic unit.
Liability exclusion / Guarantee

We have checked the contents of this instruction manual carefully, to the best of our knowledge and belief for conformity with the described hardware and software. Nevertheless errors, mistakes or deviations can not be excluded, therefore we do not guarantee complete conformity. Necessary corrections will be included in the subsequent editions. We appreciate your ideas and improvement suggestions very much.

Reprint, duplication and translation, even in extracts, are only allowed with a written authorization by the company ELGO Electric GmbH. We constantly strive for improving our products, therefore we keep all rights reserved for any technical modifications without any notice. ELGO Electric does not assume any liability for possible errors or mistakes.

The guarantee period is two calendar years (EC-Directive) from the date of delivery and includes the delivered unit with all components. ELGO Electric GmbH will at its option replace or repair without charge defects at the unit or the included parts, verifiable caused by faulty manufacturing and/or material in spite of proper handling and compliance to the instruction manual.

Damages verifiably not caused by ELGO Electric GmbH and due to improper handling are excluded from any guarantee e.g. by applying faulty voltage, diffusion of liquid into the interior of the engine, using force, scratching the surface, chemical influences etc.!