

A New Breed Of

**Contactless Inductive LVDT Based
Position Transmitter**



OPERATING AND CALIBRATION PROCEDURES FOR CONTACTLESS INDUCTIVE LVDT BASED POSITION TRANSMITTER

Model No.: KR-2W

INTRODUCTION

The Contactless Inductive LVDT Based Position Transmitter is a 24VDC operated 2 wire system, which uses LVDT as its sensing element and accepts angular movements ranging from 15° to 90° and converts into a 4-20mA signal when suitable back lever and linkages are used. Refer the connection diagram on the last page.

While mounting the Position Transmitter to a power cylinder, care has to be taken not to put any strain on the slotted back lever. The slot in the back lever should allow the pin attached to the stem of the power cylinder to move or slide smoothly during the operations. Before taking any linearity or hysteresis readings ensure the back lever is held horizontal and perpendicular to the stem of the PC at 50% of the desired stroke. Adjust the mounting position of the PT noting the marking on the back lever so that at this point the lever moves symmetrically down and up in equal angular displacements.

The Position Transmitter accepts a wide supply voltage range i.e. from 10VDC to 60VDC and has a load impedance drive capability of 700 Ohms at 24VDC.

OPERATING PROCEDURES

Once the linkage and fixing of the PT are satisfactory, basic calibration can begin.

- Switch ON the 24VDC supply to the PT and note that the meter indicates some current in milliamps.
- Check whether the power cylinder under calibration is a direct action or a reverse action type, accordingly select the settings on the DIP switch where it is marked 'FWD' for direct action and 'REV' for reverse action.
- Once you bring the back lever to the minimum downward position after the initial horizontal positioning where the PT was suitably mounted to the power cylinder, the current read in the meter will be around 3.00mA. Now ensure the power cylinder is fully at one of the end positions and adjust the output current to 4.00mA using 'ZERO' trimpot. Take the power cylinder to the 'OPEN' position or the other end position where the Position Transmitter should indicate a current around 20.00mA. When the power cylinder is moving from 'CLOSE' to 'OPEN' the reading in the meter will also change. It would read an increasing current from 4-20mA. After reaching the fully OPEN position, if the current does not read 20.00mA adjust the 'SPAN' trimpot and set it for 20.00mA. Now go back to the 'CLOSE' position and observe the 'ZERO' reading. If it has changed readjust it to 4.00mA. Take the value again to the fully 'OPEN' position and note the current output in mA, which should be 20.00mA. Repeat the above procedures few times so that you get 'SPAN' and 'ZERO' readings consistently, 20.00mA and 4.00mA respectively.
- Once the above steps are satisfactorily carried out one can begin to take linearity / hysteresis measurements.

Technical Specification

Input	Angular movements ranging from 15° to 90°
Output	4-20mA
Power supply range	10VDC to 60VDC
Type of transmitter	Two wire
Type of sensor	Inductive, non contact LVDT
Load impedance	Max 700 at 24VDC
Operating temp range	-20°C to 80°C
Linearity error	<0.5% of I _{max}
Hysteresis	<0.50% of I _{max}
ZERO adjustment	±5% of SPAN
SPAN adjustment	±15% SPAN
Effect of temp.	<3.5% of I _{max}
Built in protection	Sensor and the converter are housed in nylon moulded enclosures and epoxy moulded for protection from moisture and vibration. Isolation at 500V DC is >500MΩ. Dielectric strength between chassis and shorted input is >1.5KV rms for 1 minute
Enclosures & finish	Al. casting enamel painted & oven baked.
Enclosure Protection (Safety & Sealing)	IP 65 as per IS : 13947(Part-1) 1993 Certificate No. 056EATDIP04S0023 Dt. 16.6.04
External Dimension	Ø130 x 110 depth

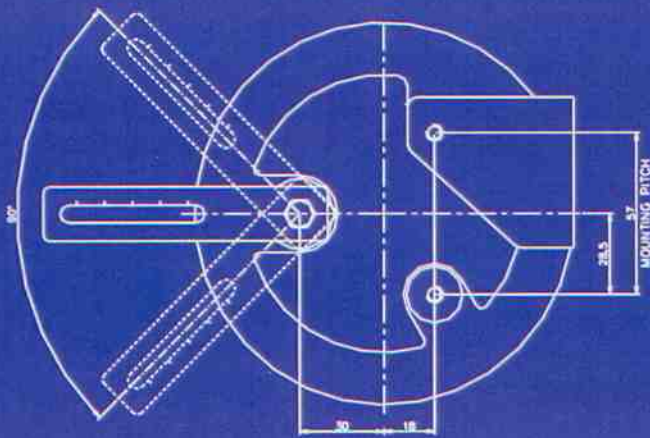
General Precautions Recommended

- The Position Transmitter is reverse polarity protected. If polarity is reversed the unit will not work.

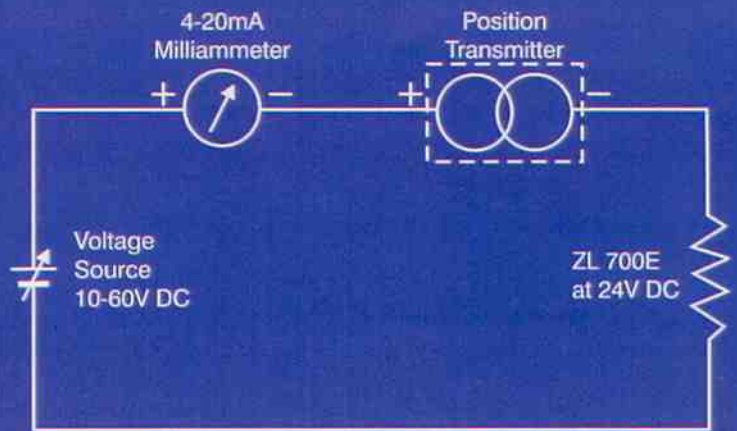
- Use small size screw drivers with thin blades to adjust the trimpots 'ZERO' and 'SPAN'. Bigger screw drivers could spoil the trimpots.

- The unit works satisfactorily over a wide temperature range i.e. from -20°C to +80°C. In case the ambient temperature is beyond this, the readings may not be within the specified limits.

- Whenever a PT is used for position indication on a direct action power cylinder or valve and then removed and fitted to a reverse action type and vice versa, one may occasionally encounter a problem that the ZERO reading of the PT is stuck at a higher value than 4.00mA. In such cases, when the power cylinder is in its mechanically ZERO position, adjust 'ZERO' trimpot to bring it down to 4.00mA. Then repeat the procedures as in para. no. 3 of "OPERATING PROCEDURES" until SPAN and ZERO reading are obtained consistently.



Mounting Details & Dimensions



Typical Connection Diagram

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