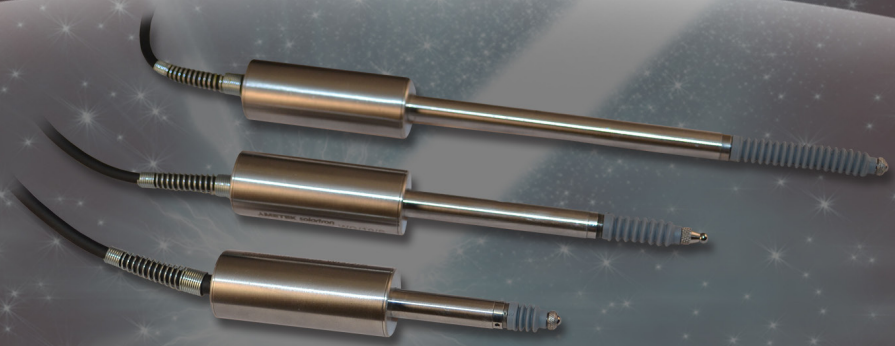
Solartron Metrology

G-TYPE

Displacement Transducers



user leaflet

AMETEK®
ULTRA PRECISION TECHNOLOGIES

Index

1.0: Introduction

The G-Type of analogue DC/DC Displacement probes are based on the LVDT sensing principle and feature a high accuracy, long life linear ball bearing (as AX-Series). All models incorporate a Linear Variable Differential Transformer (LVDT) as the measuring element, together with high performance conditioning electronics for low noise and superior linearity while being able to cope with a wide supply range.

The G-Type signal output is independent from its supply voltage making it the ideal solution for battery operated applications or wherever a stable power supply cannot be guaranteed.

The following models are available:

VG	uni-polar voltage output 0-10 VDC, 0 VDC extended, 10 VDC retracted
WG	bi-polar voltage output ± 10 VDC, -10 VDC extended, 10 VDC retracted
IG	two-wire current output, 4 mA extended, 20 mA retracted

2.0: Installation

Installation Recommendations
Location & Clamping

L.V.D.T. Displacement transducers generally are a reliable and proven technology that is well established in all areas of manufacturing and quality control. The majority of the associated problems experienced with their application and use are totally avoidable, particularly if sufficient thought is given during the initial design stages of equipment, to the position and clamping methods employed for these measuring elements.

L.V.D.T.'s being of inductive nature are susceptible to some degree to the influence of magnetic fields and therefore should be positioned well away from electric motors, relays and permanent magnets, where this is not possible then magnetic shielding should be considered as an alternative.

Clamping of the probe body should be carefully considered, ideally the body of the transducer should be clamped in a pinch or yoke type clamp, if this is not possible then the introduction of a load spreading bush between body and clamp is a preferred alternative.

Irrespective of clamping method care must be taken not to overtighten retaining screws as distortion of the body may prove damaging to the integrity of the transducer and adversely affect the geometry of the installation.

3.0: Product Description

Special Features of Displacement Transducers

These have a non rotating (2° maximum) spring return actuator running in a precision linear ball bearing. This arrangement provides a repeatability of measurement of better than 0.15 micron.

A flexible fluoroelastomer gaiter protects the bearing, permitting operation in slurries, cutting oils and most degreasing agents.

All Displacement types are fitted with a 3 mm dia tungsten carbide ball end. The ball is normally carried in a removable stylus which is mounted in an M2.5 x 6 mm deep female thread at the end of the actuator.

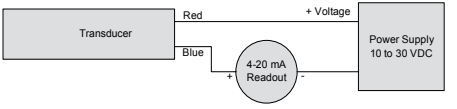
WARNING

The G-Type Transducers are not suitable for use with power supplies that generate transients. Care should be taken with this type of (switch mode) supply.

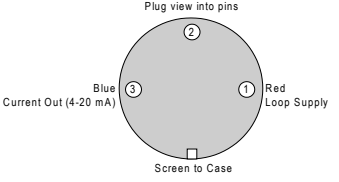
4.0: Electrical Interfaces

4.1: 4-20 mA

IG models are configured as a two wire 4-20 mA loop device, the transducer takes a current between 4 mA (fully out) and 20 mA (fully in). The transducer requires an excitation voltage between 10 VDC and 30 VDC



Standard 4-20 mA Connection 3 pin 180ºDIN



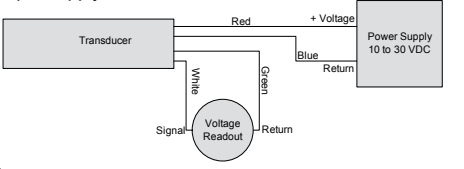
4.2: DC Voltage

The VG and WG models are configured to provide a DC voltage output as shown below:

Measurement Range	Output	Type
0-d mm	0-10 VDC	VG
-d/2 to +d/2 mm	-10 VDC to +10 VDC	WG

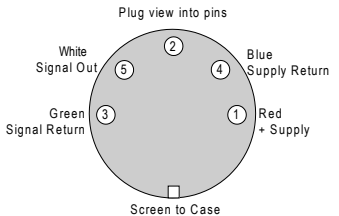
The transducer requires an excitation voltage between 10 VDC and 30 VDC.

The transducer output is electrically isolated from the input supply.

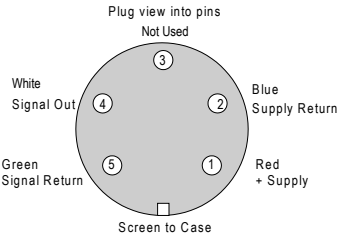


4.0: Electrical Interfaces (continued)

Standard DC Voltage Connection 5 pin 180º DIN



5 pin 240º DIN



5.0: Conditioning

The 4-20 mA and DC output versions of the G-Type transducer require no signal conditioning other than being connected to an appropriate receiver such as a voltmeter, A/D converter or current meter.

6.0: Marking

All G-Type models cary the CE mark