Technical Manual

DISPLACEMENT TRANSDUCERS
GT SERIES

Doc. Ref CD1063E

Affirmed by Declaration
of Conformity

USA & Canada

RDP Electrosense Inc.

2216 Pottstown Pike
Pottstown, PA 19465
U.S.A.

Tel (610) 469-0850
Fax (610) 469-0852
E-mail info@rdpe.com
www.rdpe.com

All other countries

RDP Electronics Ltd

Grove Street, Heath Town,
Wolverhampton, WV10 0PY
United Kingdom

Tel: +44 (0) 1902 457512

E-mail: sales@rdpe.com
www.rdpe.com

OPERATION MANUAL FOR THE GT SERIES OF DISPLACEMENT TRANSDUCERS

1. INTRODUCTION

Our standard range of AC energised LVDTs are for use in many applications including those where ambient temperature or vibration are too high to allow the option of integrated electronics. These A-C-LVDTs are a compact short stroke series and can be used whenever physical space is limited.

The 'GT' series gauging transducer employs precision linear bearing to optimise the LVDT's measurement precision and repeatability.

The 'GT' requires separate signal conditioning and will deliver its optimum performance when energised with between 0.5V and 7V rms at 5 kHz using a high quality carrier amplifier, such as those available from RDP.

2. HANDLING PRECAUTIONS

2.1 The precision linear bearing may be protected from the ingress of moisture or dirt. Ensure the rubber gaiter is correctly located and is undamaged.

2.2 Do NOT pull the cable.

2.3 The cable should be positioned away from moving components.

2.4 If the cable is flexed, then a minimum bend radius of 150 mm should be maintained.

2.5 Protect the transducer from extreme shock or vibration.

2.6 Ensure any side loading on the probe tip is minimal.

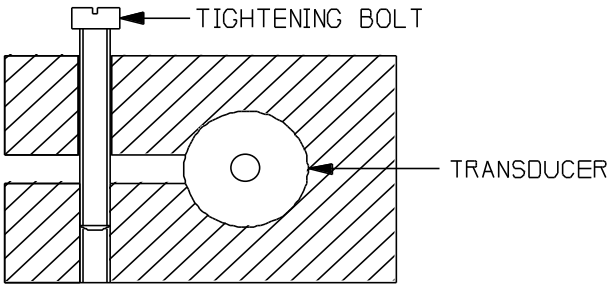
2.7 Do not energise with a voltage higher than 7 volts rms.

2.8 Do not use below -40ºC or above 100ºC.

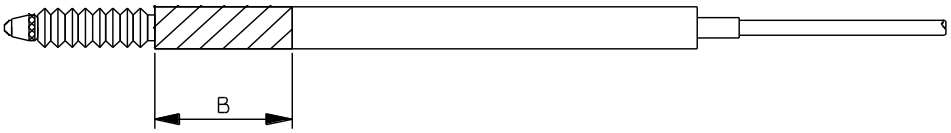
3. INSTALLATION

3.1 Mount the body of the transducer so that the spring-loaded probe tip is positioned against the part to be gauged.

3.2 A suitable mounting method is with the body clamped by a split block type of clamp.



3.3 Avoid clamping the body over the bearing area. See no-clamp area B.

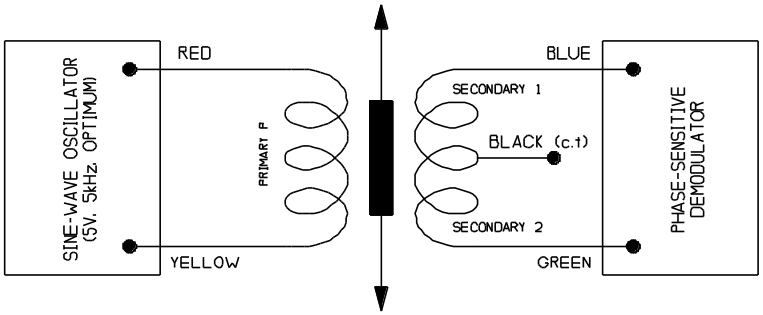


MODEL	B
GT500	5.5mm
GT1000	14mm
GT2500	18mm
GT5000	30mm

3.4 The standard cable has a polyurethane sheath (jacket) with an overall copper screen (shield) and a length of 2m (unless ordered with special cable length).

4. ELECTRICAL CONNECTIONS

4.1 The GT transducer requires an oscillator – demodulator type instrument such as one of the following RDP instruments: S7AC, S7M, S7TW, 621, DR7AC, E309, E725-AC.



Note: the black wire is not used when connecting to RDP instrumentation. Ensure that this wire is insulated: it must not be allowed to short to other connections or screen.

The yellow and green are in-phase when the probe is fully extended.

4.2 The cable screen (shield) is not connected to the body of the transducer. It should be grounded at the instrument.

4.3 If it is ever required to change the phase relationship eg change from standard positive display or signal voltage for a probe movement outward from null to a negative display, then simply reverse the energisation connections at the instrument connector.

5. CALIBRATION

Full calibration details of a GT transducer with an RDP instrument are contained in the Technical Manual for the particular instrument.

The general principles are:

5.1 Zero the instrument.

5.2 Move the transducer actuator (probe tip) to its centre stroke (null) position. The instrument will read zero or output zero voltage (depending on type).

5.3 Move the actuator to the full stroke position by using a micrometer, slip gauge or similar precision method.

5.4 Adjust the gain (span) of the instrument to obtain the requested full-scale display, or output, from the instrument.

6. MAINTENANCE AND INSPECTION

6.1 The transducer is fairly well protected from water splash, oil and dust by the rubber gaiter. This gaiter should be regularly inspected to ensure it is functioning correctly and is not torn or holed.

6.2 Check that the cable is undamaged.

6.3 The insulation resistance, between primary and secondary coils and between coils and case, should be a minimum of 100M ohm.

6.4 Check that the black core, when not used, is correctly insulated.