Technical Manual

DISPLACEMENT TRANSDUCERS
D5 & D6 SERIES

Doc. Ref CD1064E

Affirmed by Declaration of Conformity

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OPERATION MANUAL FOR THE D5 AND D6 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 AC LVDTs are a compact short stroke series and can be used whenever physical space is limited.

The D5 and D6 requires separate signal conditioning and will deliver its optimum performance when energised with between 0.5V and 7V rms at 5kHz using a high quality carrier amplifier, such as those available from RDP.

The D5 and D6 are available as either unguided or spring return versions.

Type	Suffix	Outline Drawing
D5, unguided, no cable	K	D12654
D5, unguided, end exit cable	HK	D12657
D6, unguided, end exit cable	U	D16236
D5, unguided, side exit cable	HKRA	D13427
D6, unguided, side exit cable	URA	D16572
D5, spring return, end exit cable	AG	D11662
D6, spring return, end exit cable	A	D16566/D16568/D16340
D5, spring return, side exit cable	AGRA	D12346
D6, spring return, side exit cable	ARA	D16567/D16569/D16341

2. HANDLING PRECAUTIONS

2.1 Do NOT pull the cable.

2.2 The cable should be positioned away from moving components and correctly protected and supported.

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

2.4 Protect the transducer from extreme shock or vibration.

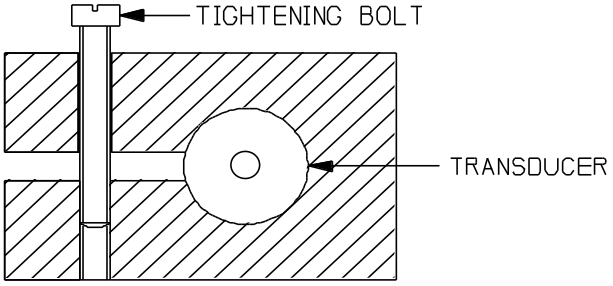
2.5 Ensure the transducer pressure rating is not exceeded.

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

2.7 Do not use below -20ºC or above 100ºC.

3. INSTALLATION

3.1 Mount the transducer by clamping the body. A suitable mounting method is with the body clamped by a split block type of clamp as shown below:



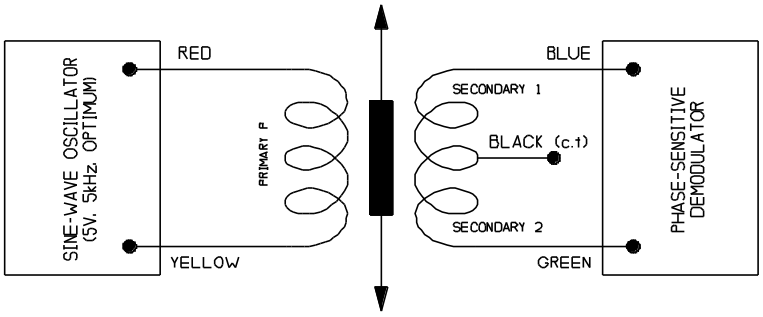
3.2 On a free armature version, the armature (probe) should be mounted on the moving part to be measured so that the armature moves centrally in the bore of the transducer body.

3.3 On a spring return version, the probe tip is positioned against the part to be measured.

3.4 The standard cable has a polyurethane sheath (jacket) with an overall copper screen (shield). It has a diameter of 2.9/3.25 mm and a length of 2m (unless ordered with special cable length).

4. ELECTRICAL CONNECTIONS

4.1 The D5 and D6 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 D5 and D6 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, where fitted. 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.