



vibro-meter

PROXIMITY AND POSITION SENSORS

Proximity and position sensors – operating principle

The Vibro-Meter UK 0100KPX and 0200KPX were developed as replacements for microswitch-based position and proximity sensors to detect the door lock actuator position for the Hurel-Hispano thrust reverser on the A318/PW6000. Both sensors utilise an air-gapped transformer to produce an electrical output as a ratio of input excitation voltage. The 0100KPX sensor produces an output dependent on axial or lateral position of a ferromagnetic target attached to the moving element of the system. The 0200KPX produces an output dependent on the position of a ferromagnetic core attached internally to the sensor plunger, which is in contact with the door lock actuator. Both sensors interface with the FADEC controller to provide multi-level sensing. By eliminating electrical switch contacts, reliability is greatly increased. This technology can be used on other applications, such as airframes and closures, where confirmation of closure or position is required.

Vibro-Meter UK is developing other sensors using similar technology, which can be influenced by non-ferromagnetic targets such as stainless steel and aluminium.

0100 KPX construction

The Vibro-Meter UK 0100KPX proximity sensor is constructed from stainless steel with the connecting lead terminating in a connector or wire ended. The electrical components within the sensor are impregnated and protected from vibration and contamination by potting.

0200 KPX construction

The Vibro-Meter UK 0200KPX position sensor is constructed of stainless steel. The plunger is sealed with a wiping action, spring energised, PTFE seal. The contacting face of the plunger is protected with nodular thin dense chromium plating providing excellent long term wear resistance and anti-galling properties. Venting is achieved by a micro-pore sintered filter that effectively eliminates fluids and contaminants.



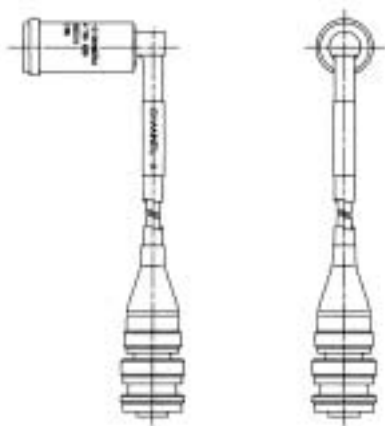
New development of proximity and position sensors

Proximity sensor – 0100KPX

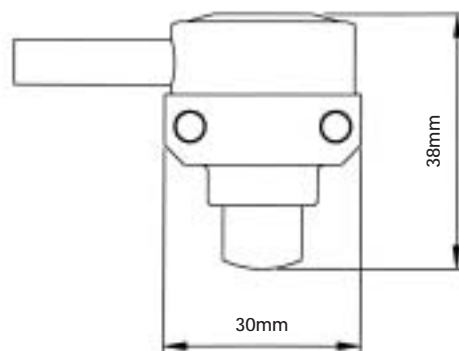
Excitation:	6 volts r.m.s. at 2950 Hz sine wave
Output:	a.c. sine wave voltage. The amplitude is proportional to the input amplitude and the lateral and axial distance of the target
Insulation resistance:	> 100 Mohms at 500 Vdc
Operating temperature:	-15°C - +100°C
Storage temperature:	-54°C - +125°C
Predicted failure rate:	Better than one failure per million hours
Size:	Sensor 50 mm long x 18.2 mm dia.
Mass:	100 gms max. (including lead and connector)

Position sensor – 0200KPX

Excitation:	6 volts r.m.s. at 2950 Hz sine wave
Output:	a.c. sine wave voltage. The amplitude is proportional to the input amplitude and the position of the plunger.
Insulation resistance:	> 100 Mohms at 500 Vdc
Operating temperature:	-15°C - +100°C
Storage temperature:	-54°C - +125°C
Predicted failure rate:	Better than one failure per million hours
Size:	Sensor 38 mm long x 28 mm dia.
Mass:	140 gms maximum (including lead and connector)



Proximity sensor – 0100KPX



Position sensor – 0200KPX

