APPLICATION GUIDE

Longstroke position/displacement sensor

Designed for Refrigeration by
Refrigeration engineers

approvals

ATEX/IECEx

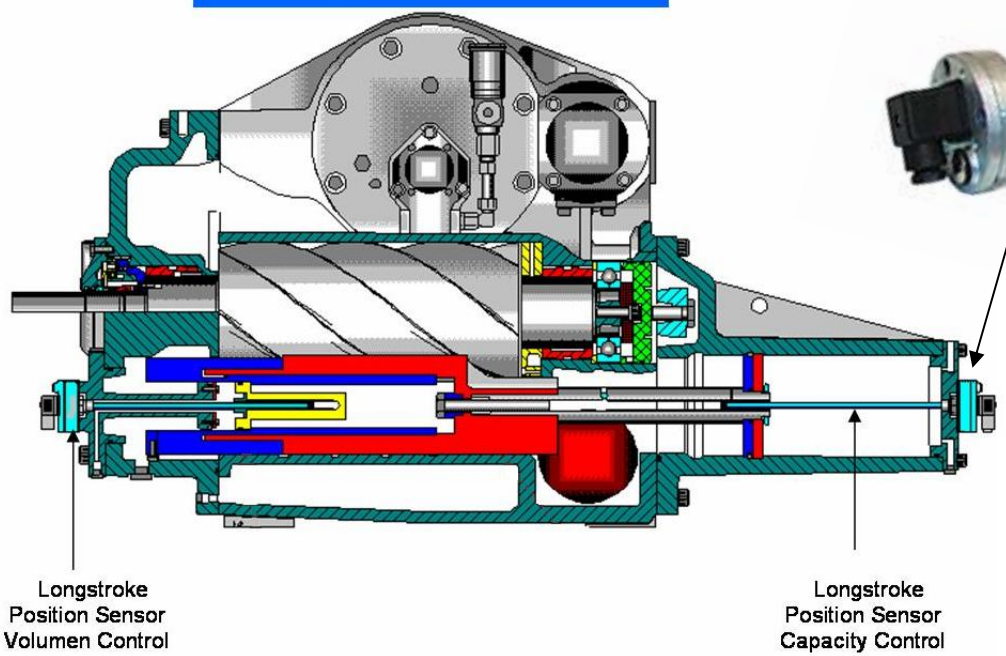
LISTED

A12808

Your Sensor Specialist www.hbproducts.dk

HB Products
POSITION & LEVEL SENSORS

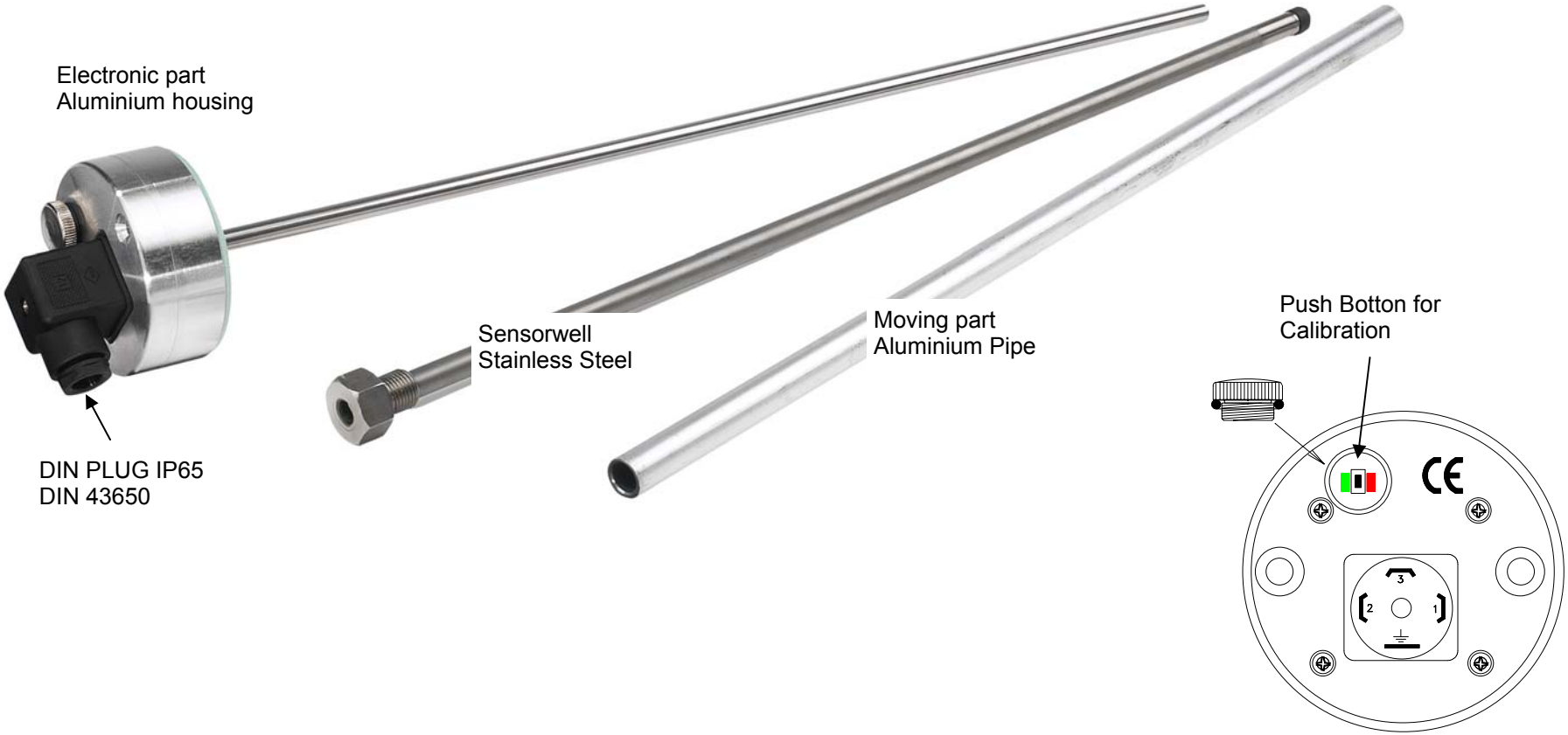
SMART
Capacity Control of
Screw Compressors



When using HBPs position sensors a Screw compressors performs heigh efficiency under varying loads and operating conditions. Volumizer/Automatic Variable
Volume Ratio Control adjusts the compressor volume ratio during operation to the most efficient point, corresponding to actual system requirements. This reduces energy waste caused by under-or overcompression.
Infinite capacity and Vi control from 100% to minium load provided by a slide valve and a feed back position sensor, control-the most efficient method of capacity control for screw compressors.

HBPs Long Stroke and Short Stroke position sensors are designed for stepless Capacity/Volumen control on Screw Compressors, where it detects the position of the slide valves inside the Compressor, the output is standard analog 4 to 20mA corrosponding to 0- 100% movement of the slide valves.

HB Products
POSITION & LEVEL SENSORS



Construction details:

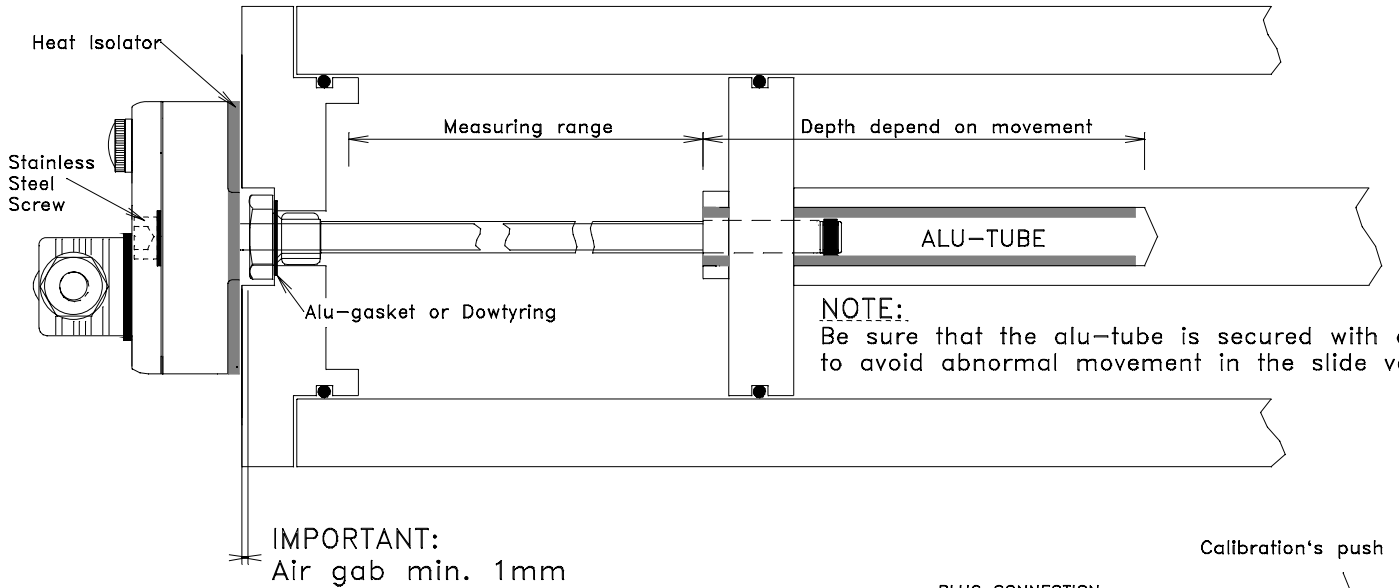
The position transmitters are NON CONTACT types and they are specially designed for screw compressors in the refrigeration industry. Both are SPLIT types, which means it is possible to separate the sensor tube from the electronic part without taken the pressure of the system.

The moving part is an aluminum tube, which is built into the compressors capacity slide.

Output signal is 4 to 20mA corresponds to 0 to 100% capacity (display). The measuring range can be changed via a calibration button (built-in push button and 2 LED)

The long stroke transmitter has the sensor coil arranged in a coil tube outside the electronic top part with a measuring length of 70 to 1200mm.

Mounting Instruction

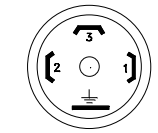


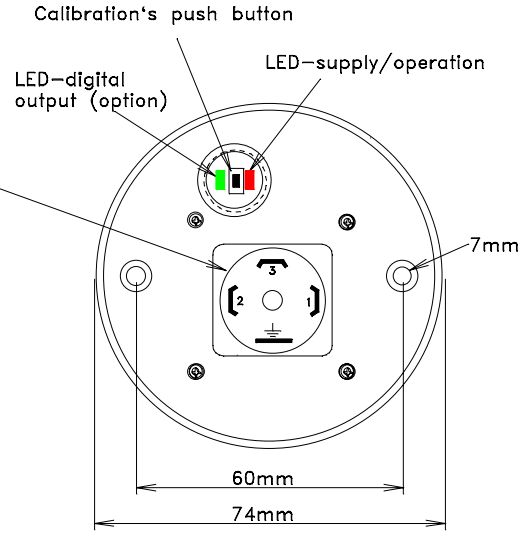
NOTE:
Be sure that the alu-tube is secured with a safety device to avoid abnormal movement in the slide valve.

IMPORTANT:
Air gab min. 1mm

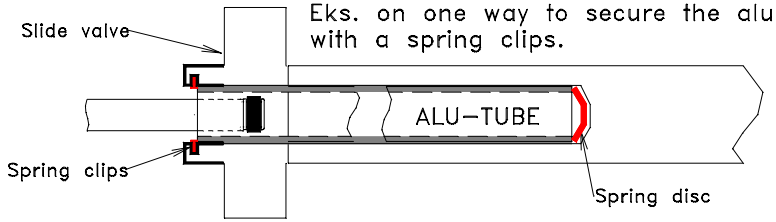
PLUG CONNECTION:

1 = SUPPLY, +11 to 32V DC
2 = COMMON -, 0V DC
3 = OUT, 4-20mA
⏚ = GND





NOTE:
Heat isolator should be mounted between kompressor and alu-housing, fixed with M6 stainless stell Head Cap Screw, to avoid heat transmission from the compressor to the transmitter housing. (Isolator is supplied with the transmitter.)



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Calibration Instruction Longstroke position sensor.

When starting up a new transmitter Calibration must be done before operation.
The Calibrated positions 0 and 100% is safe in an Eeprom memory.

Apply Supply voltage min. 2 min. before Calibration.

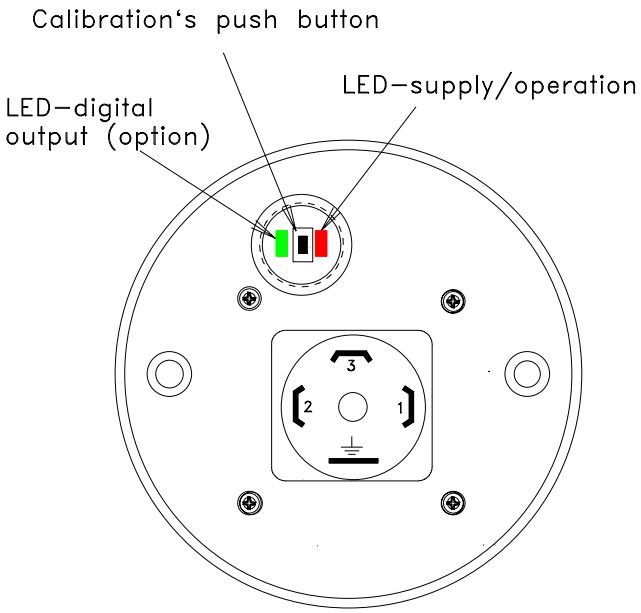
Push the Cal. Push button for 5 sec. To get the transmitter in Calibrations mode, the red LED change from normal flash to OFF.

Move the Capacity slide valve to 4mA/0% position, and then push the Calibration button once, the red LED change to light constantly in few sec., when the red LED switch OFF it is ready for 20mA/100% calibration.

Move the Capacity slide valve to 20mA position, and then push the Calibration button twice, the red LED light constantly in few sec., when the calibration is done the red LED changes to normal flash, and the transmitter is in operation mode.

Reset to factory settings:
Push the Cal. Push button and hold it down for about 30sec., the red and green LED`s flash 3 times when the reset is done.

Note: If there are problems during calibration or/and normal operation disconnect then the power supply(PLUG) in a few sec. And connect it again, this will probably bring it back to normal operation.

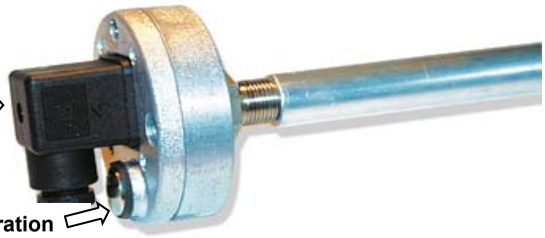


Long Stroke Non-Contact

Position/Displacement Sensor

The Long Stroke Sensor/Transmitter is designet especially to detect positions of Hydraulic systems

DIN PLUG
43650, IP65



Push botton for easy calibration

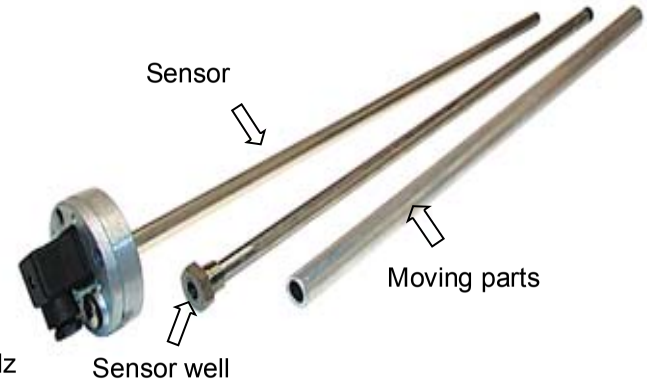
Applications:

- ¤ Pitch Control of Wind turbines
- ¤ Hydraulic Cylinder
- ¤ Valve Control
- ¤ Capacity Control of Screw Compressors
- ¤ Actuators

It´s worth to use HB Products As a partner when you require individual solutions

- ¤ The sensor is separated from the high pressure environment in a stainless steel pipe
- ¤ The transmitter can be mounted or removed from the sensor well, even with the system under pressure.
- ¤ Analog or CAN open output with optional digital signal to indicate 0-100% position
- ¤ Inductive operation according to Eddy current principle (non-contact)
- ¤ A unique dynamic temp. Compensation
- ¤ Fast response time up to 5m/sek.
- ¤ cULus/ATEX/IEC/Ex approvals, intrinsically safe

Split rod



Specifications:

Power Supply:	12-30V DC
Measuring Range:	0 - 1200mm
Output:	4-20mA/CAN open
Load:	500ohm
Resolution:	Endless (12bit)
Linearity:	Better than 0.5%/FS
Repeatability:	0.003% of FS
Temp. Range:	-30 to +100 deg.C
Temp. Coeff.:	Better than 0.25%/FS
EMC test:	EN Industrial
Vibration:	IEC 68-2-6, 4g 2 to 500Hz
Pressure:	Max. 375 bar.

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