

HB Products – dedicated to optimal solutions for level measurement and control of oil and refrigerants.

HB Products is a development-oriented company, which specializes in the development and production of sensors for industrial refrigeration systems. Apart from expertise within oil and refrigerant control, we have great know-how in the design and optimization of industrial refrigeration systems. This knowledge enables us to develop and produce the best sensors!

Since its start more than 20 years ago, HB Products has attained a strong global position. This is the result of our ability to think in terms of new technological solutions, create trustworthy products, and provide a high level of service.

For further info and guidance please visit our homepage
www.hbproducts.dk



Quick guide

HBOR – Oil return switch for NH3 refrigeration and similar systems



Functionality:

The HBOR switch is made to detect oil in liquid ammonia/water and gas/air in refrigeration systems or similar. If the HBOR is to be used in a different way, prior approval must be obtained from HB Products.

Download complete manual:

For further information please download the instruction manual from our homepage: www.hbproducts.dk.

Caution:

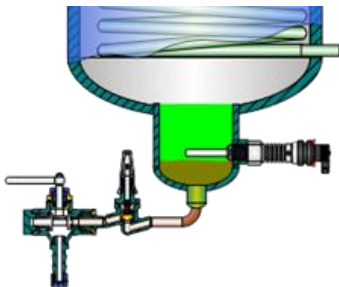
Only qualified personnel should work with the product. The technician must be aware of the consequences of an improperly installed sensor, and must be committed to adhering to the applicable local legislation.



Caution – grease on tip:

Please note that the sensor electronic is protected with silver grease to ensure proper contact. Please use gloves to protect your skin. The type of grease is CW7100 from Chemtronics.

Mechanical installation



Mechanical specifications:

Ambient temperature: -30...+50°C
 Liquid temperature: -60...+80°C
 Max. pressure: 100 bar
 Material, mechanical: AISI304/PTFE
 Thread connection: see packaging.
 Liquid: Oil in NH₃, water and alcohols

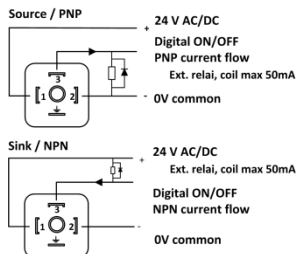
Installation guide:

In case the sensor is installed in a threaded sleeve/pipe stub, this should be welded at a 5-10° upwards angle relative to the horizontal, to prevent the formation of liquid pockets.

The installation length of the sensor must be taken into account, since there must be at least 2mm between the sensor's mechanical part and other fixed or moving parts.

Caution! In case of welding work on the unit, please make sure that proper earthing is carried out to avoid damaging the electronics.

Electrical installation



Electrical specifications:

Supply: 24 V AC/DC
 Current draw: Max 50 mA
 Plug: DIN 43650/ISO4400

LED activation:

4 x red LEDs indicate liquid at the presence of oil
 Irrespective of the output function NO/NC, LEDs are activated at oil liquid level.
 4 x green LEDs flashing indicate active sensor – no detection.
 4 x red LEDs flashing indicate no contact to mechanical part.

Function of charge output:

NC: There should be signal when it is in oil.
 NO: There should be no signal when it is in oil.

Note! All terminals are protected against improper termination with a supply voltage up to 40 V. If the supply voltage is greater than 40 V the electronics will be damaged.

Mounting of sensor



Make sure that there is ground connection with tank.

Tighten the 2 set screws with 5 Nm.

Installation of mechanical part:

The sensor must have ground connection to tank. The thread should be either sealed with conductive liquid sealing or Teflon. If Teflon is used it should only be on half part of the thread to ensure ground connection.

Tighten the mechanical part (3/4") with minimum 80 Nm.

Installation of electronic part:

- 1) Place the electronic
- 2) Tighten the 2 set screws with a torque of 5 Nm

Note! LEDs are always activated when approx. half of the sensor is covered or immersed in oil, irrespective of the sensor's output function NC/NO.

Note! Fault detection on the electronic function can be carried out without releasing pressure from the system or disassembling the mechanical part of the sensor.