

Instruction Manual

HBPS – PRESSURE SENSOR

4..20 mA with M12 connection

For analog pressure measurement of refrigerants





Table of Contents

Safety Instructions 3
Introduction 4
Briefly About Pressure Sensors 4
Design and Function 4
Technical Data 4
Application Examples 5
Installation Guidelines 5
Power Connection 5
Dimensions 6
Sensor Repair 6
Further Information 6



Safety Instructions

CAUTION! Always read the instruction manual before commencing work! Pay attention to all warnings to the letter! Installation of the sensor requires technical knowledge of both refrigeration and electronics. 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.

If changes are made to type-approved equipment, this type approval becomes void. The product's input and output, as well as its accessories, may only be connected as shown in this guide. HB Products assumes no responsibility for damages resulting from not adhering to the above.

Explanation of the symbol for safety instructions. In this guide, the symbol below is used to point out important safety instructions for the user. It will always be found in places in the chapters where the information is relevant. The safety instructions and the warnings, must always be read and adhered to.

	<p>CAUTION! Refers to a possible limitation of functionality or risk in usage.</p> <p>NOTE! Contains important information about the product and provides further tips.</p> <p>The person responsible for operation must commit to adhering to all the legislative requirements, preventing accidents, and doing everything so as to avoid damage to people and materials.</p>
--	--

Intended use, terms of use. The pressure sensor is designed for continuous measurement of liquid pressure on the refrigeration system. If the sensor is to be used in a different way and if the operation of the product in this function is determined to be problematic, prior approval must be obtained from HB Products.

Prevention of collateral damage Make sure that qualified personnel assess any faults and take necessary precautions before attempting to make replacements or repairs, to avoid collateral damage.

Disposal instructions: The sensor is constructed so that the modules can easily be removed and sorted for disposal.



Introduction

HBPS is an intelligent sensor with an in-built microprocessor. It is designed for continuous pressure measurement of liquid refrigerants in refrigeration systems.

The sensor's measurement area depends on the type.

With several variants, they cover from -1 to 200 bar.

The sensor emits a 4-20 mA analog signal which is proportional with the pressure level.

Briefly About Pressure Sensors

A pressure sensor measures pressure, typically of gases or liquids. The pressure is an expression of the force necessary to stop a liquid from expanding, and it is normally stated in force per unit of area. A pressure transmitter normally works as a transducer, which generates a signal as a function of the applied pressure.

Design and Function

The sensor consists of an assembled device. It is designed with waterproof rating IP67 and to resist vibrations.

It is produced in AISI304 and tested to withstand high pressure.

The sensor is designed for measurement of refrigerant pressure in industrial and commercial refrigeration systems.

Technical Data

Supply:

Voltage: 9 - 32 V DC
Connector: M12x1 – DIN 0627

Output:

Analog output: 4-20 mA
Accuracy: ≤ 0,50% of the range

Installation conditions:

Ambient temperature: -40...+105°C
Refrigerant temperature: -40...+125°C
Max. operational pressure: 5/6/9/25/40/100/200 bar
Waterproof rating: IP67
Vibrations: IEC 68-2-6 (20 g)
Certifications:
EMC Emission: EN61000-3-2
EMC Immunity: EN61000-4-2

Mechanical specifications:

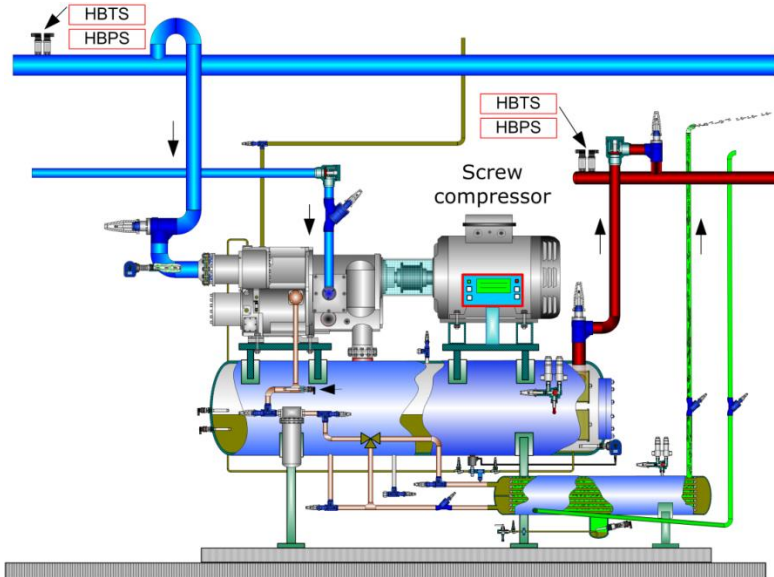
Thread connection: ¼" G Form E or ¼" NPT



Materials – mechanical parts: AISI304

Application Examples

The sensor is designed for refrigerant pressure measurement in industrial refrigeration systems:



Installation Guidelines

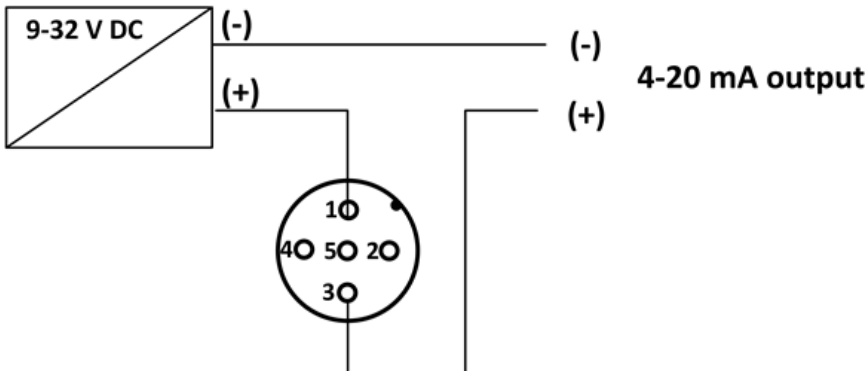
The following applies to system design:

- 1) Can be installed both horizontally and vertically
- 2) The sensor must be installed and supplied with a standard non-shielded cable. If the EMC is higher than described in EN 61326, a shielded cable must be used.

CAUTION! In case of welding on the system, make sure that a correct offset earthing has been performed, so that the electronics are not damaged during welding.

Power Connection

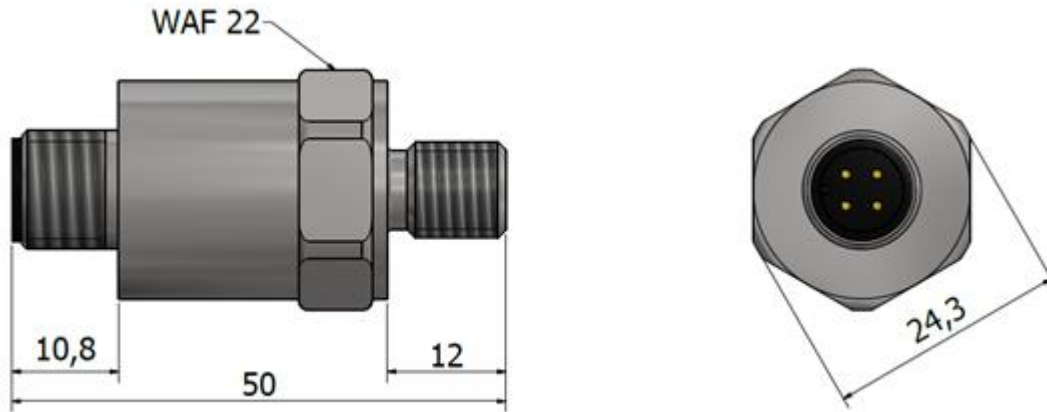
The sensor is loop powered with 24 V at terminal 1 & 3. Analog output signal is as well in the loop.



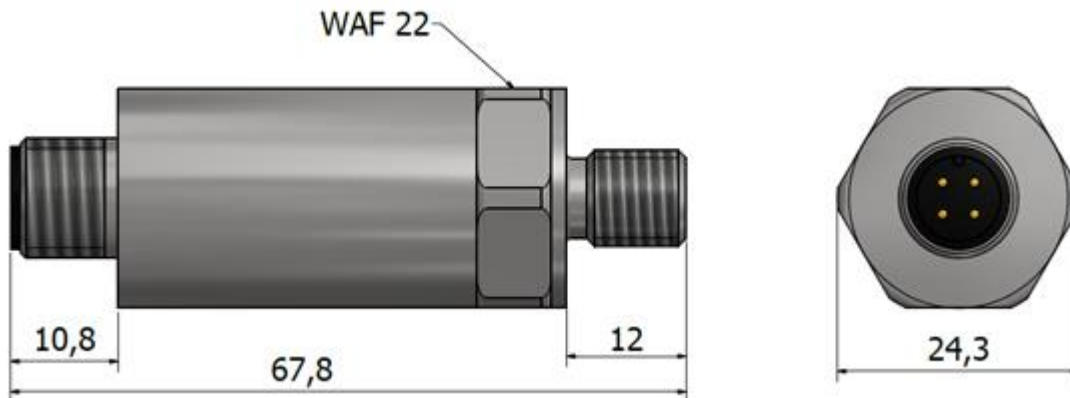


Dimensions

The sensor dimensions depend upon the size as shown below.



HBPS-5-1/4, HBPS-6-1/4, HBPS-9-1/4, HBPS-25-1/4 & HBPS-40-1/4



HBPS-100-1/4 & HBPS-200-1/4

Sensor Repair

The sensor electronics is completely enclosed and sealed and can therefore not be repaired.

Complaints are processed by HB Products' dealers/distributors.

Please consider their complaint procedures before returning the sensor.

Further Information

For further information, please visit our website, www.hbproducts.dk, or send an email to: support@hbproducts.dk.

HB Products A/S – Bøgekildevej 21 – DK8361 Hasselager – support@hbproducts.dk – www.hbproducts.dk