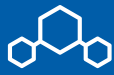


PRODUCTS
FOR CO₂
SYSTEMS



Solutions for optimal and safe operation of CO₂ systems





PRODUCTS
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SYSTEMS

Level Sensors and Switches for CO₂

Liquid Level Sensors

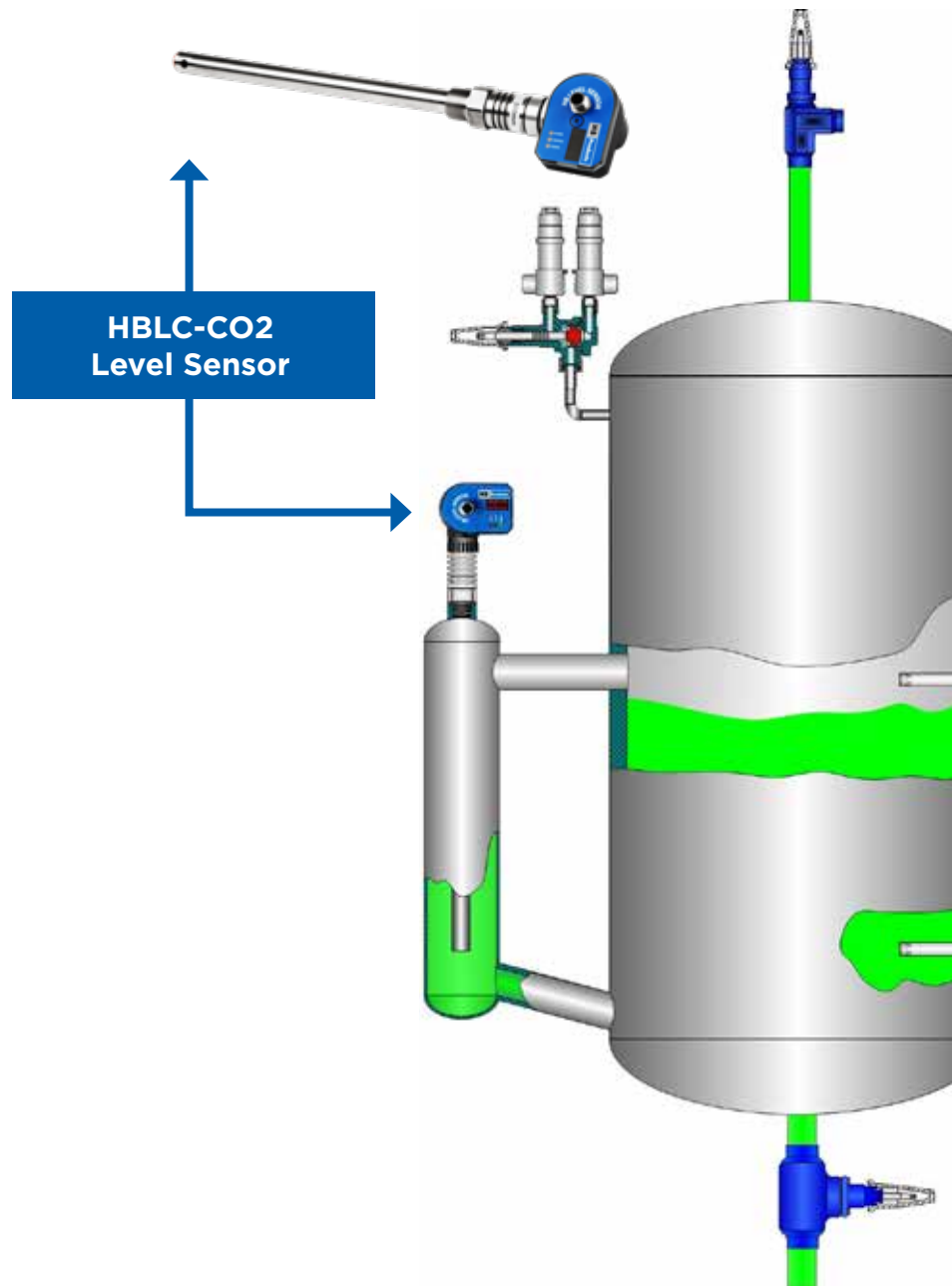
HBLC-CO₂ is a Level Sensor specially designed for CO₂ and available in lengths from 200 to 3000 mm. (7.8"-118"). The sensor provides an analog signal 4-20 mA for a PLC and is available with an LCD display and an integrated controller for direct control of a valve via integrated cable.

Some versions of these sensors can directly control a valve. These variants have an integrated P controller and an output cable for direct power supply and control of different valve types. The control system can operate with a fixed setpoint or receive a dynamic setpoint from a PLC. The controller can also be switched on and off remotely.

Three types of valves are supported

- Modulating valves with 4-20 mA control
- Valves with pulse width modulation
- Stepper motor valves with four-wire input

Direct valve control can lower installation costs and simplify the system's complexity.



The Level Sensors are also available in ATEX/IECEx versions for hazardous areas. These sensors have a 4-20 mA analog output and require a barrier.

Liquid Level Switches

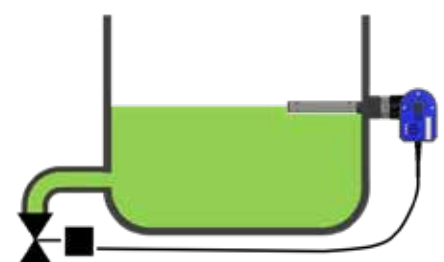
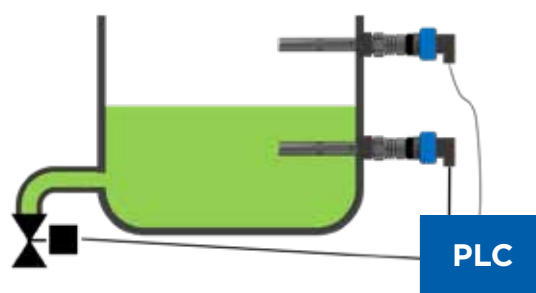
The HBSC2 is a Level Switch designed to detect liquid CO₂ in refrigeration systems. It's also compatible with butane, isobutane, and propane. The typical installation is in or on the receiver, but it can be used in any location requiring a level indication. Its unique measurement principle, along with its special construction, enables it to withstand high pressure and low refrigerant temperatures.

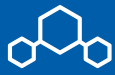
The standard switches come in two supply options: 24 V AC/DC and 90-240 V AC. For outdoor or wet environments, there are specialized versions designed to withstand moisture and condensation.



Dual switch application
High and low level

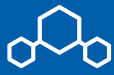
Single switch application
One smart automatic switch





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Evaporator Control



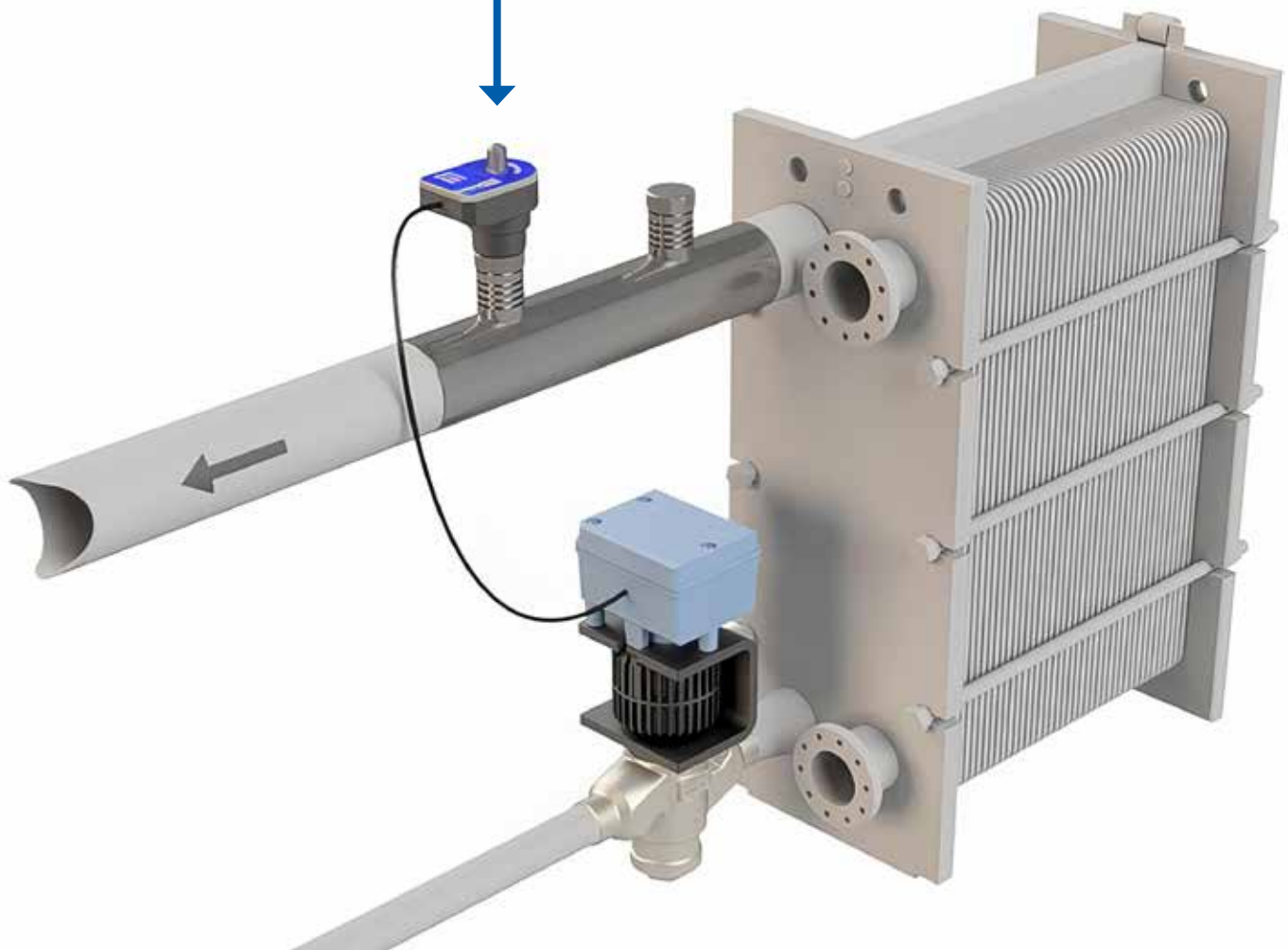
Traditionally DX CO2 systems are controlled by superheat. The superheat calculation is based on a temperature measurement and is a rather slow control system. Vapor Quality Control is an instant measurement system and allows for increased suction pressure and improved COP. A typical energy saving is 15-20%.

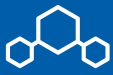
A Vapor Quality Sensor is installed at the evaporator outlet where it directly measures the amount of liquid in the gas. This measurement is used for controlling the refrigerant flow through the expansion or liquid valve.

The faster control makes it possible to operate with less superheat and offers a better protection against liquid slugging than conventional superheat control.

The Vapor Quality Sensor can be used both on air cooled evaporators as well as on plate heat exchangers. Vapor Quality Control can be used both for DX as well as for liquid overfeed systems.

**Inline Housing
Vapor Quality Sensor**





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Switches for Oil in CO₂ systems



HBOC is a special switch that automatically controls the level in an application where refrigerant or oil is constantly removed or added like in a receiver or an oil separator. This single switch has an integrated controller that controls the liquid level with a cable output for direct solenoid valve control without a PLC. This reduces the cabling cost and simplifies the system.

The switches can be used in receivers for CO₂ level control and in oil systems to control oil level in compressors and in oil separators



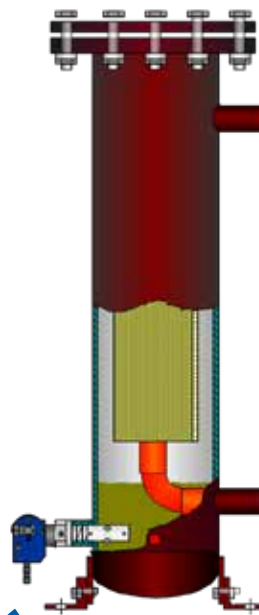
Most of the standard switches are also available in ATEX/IECEx versions for hazardous areas. These switches have a 4-20 mA analog output and require a safety-barrier.

Oil Level in Compressors

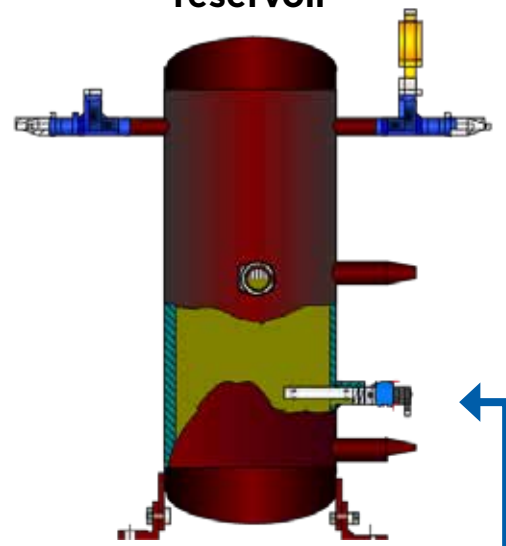


HBOC Automatic Oil Management Switch

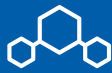
Oil Level in Oil separator



Oil Level in reservoir

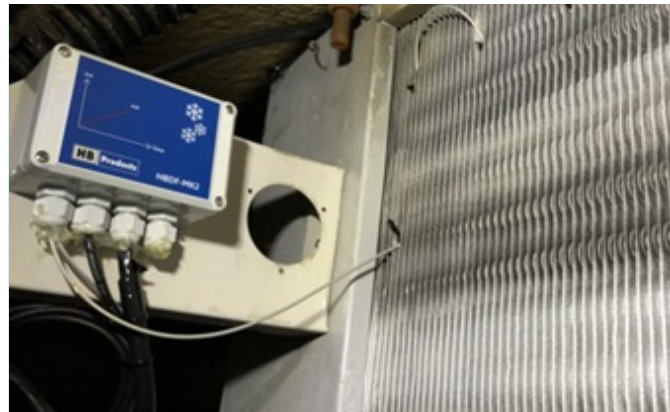


HBSO2 Oil Level Switch



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Other products for CO₂ systems



HBGS - CO₂ Gas Detector

The HBGS sensor is designed to detect ammonia gas leaks, providing safety for employees and protecting stored goods. It comes with various detection ranges, from 0-100 ppm to 15% ammonia concentration.

HBAC - Ammonia Carbamate Sensor

The HBAC sensor detects CO₂ leaks in ammonia circuits, which cause the formation of corrosive salt crystals (ammonia carbamate). These crystals can clog systems and lead to severe damage if not caught early. The sensor provides a quick alert for even small leaks, helping prevent costly repairs.

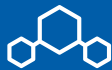
HBDF - Defrost Sensor

Ice buildup on the evaporator can significantly reduce system performance and cooling capacity. Traditionally, defrosts have been based on fixed schedules, leading to unnecessary defrosts during periods of low humidity. Our Defrost Sensor, HBDF, provides a flexible solution for automatic defrosting, initiating the process only when necessary.

HBCP - Compressor Protection Sensor

The HBCP Compressor Protection Sensors safeguard compressors from liquid slugging by detecting liquid at the compressor's suction inlet. They help prevent serious compressor damage by providing early warning and allowing for corrective action.





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Proven by the Industry

HB Products has made reliable and efficient sensors and switches for the cooling industry for over 25 years.

We know that refrigeration systems must remain up and running, and we make all our products with that requirement in mind. Therefore, we test new products in refrigeration systems or industrial applications before we add them to our product line. That way we can guarantee that your installation will run safely and efficiently.

All our products are developed and made in Denmark to ensure the highest standards of quality. We use local components widely in the production and have our own in-house QA to ensure that every item lives up to the highest standards.

CO2-M2022-V1



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We are dedicated to supply switches and sensors for industrial applications. Our focus is on refrigeration, but the sensors can as well be used in other industrial applications where robust and reliable sensors are needed.

The sensors are developed and manufactured in Denmark. The parts we use in our production is mainly sourced locally to increase flexibility and reduce long lead times. All the sensors and switches comply with the EU directive and carries the CE marking.