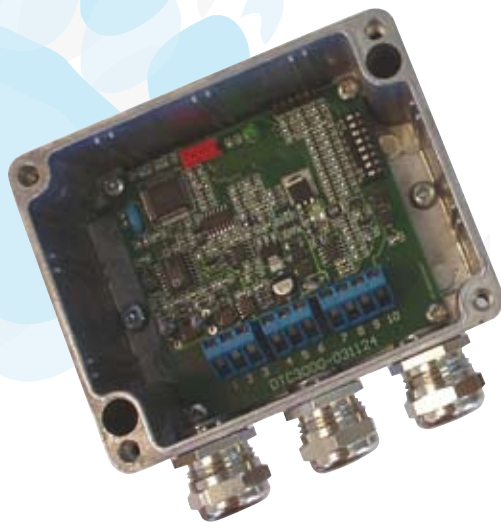


Condensing pressure optimiser for R717



Many R717 refrigeration systems that feature an evaporative condenser are operated using a fixed set point, in order to maintain a constant condensing pressure. This is rarely ideal, as the energy consumption of the compressors typically increases by 3% for every °C the condensing pressure increases.

There is no benefit in maintaining the condensing pressure at the minimum level possible, as this also requires energy, and may be undesirable as regards efficient operation of the refrigeration plant.

The condensing pressure can now be optimised using a small Sabroe CP Optimiser control unit that constantly calculates the ideal condensing pressure and converts it to a 4–20 mA/0–10 VDC signal for use by the condenser control unit.

Easy to install and operate

The Sabroe CP Optimiser unit is a small box that is easy to mount on a wall, in a control panel or in virtually any other convenient location. The unit is operational as soon as a temperature sensor 4–20 mA/ 0–50°C, a relative humidity sensor 4–20 mA/0–100% RH, and a 24 VDC voltage supply are connected, and when the output function on the dip switch has been selected.

Significant advantages

The advantages of installing the Sabroe CP Optimiser unit include

- easy to install, no special requirements for mounting.
- the output signal can be connected directly to a PLC or a frequency converter.
- no programming or complicated set-up.
- no special operator skills required.

Maximum reliability

The Sabroe CP Optimiser unit is supplied in a robust aluminium box, and is intended for external mounting or for mounting on a DIN rail in a control panel. The unit has a built-in self-adjusting heater element that prevents condensation from forming inside the box.

Advanced control

Continuous operation at a condensing pressure that is too high results in the refrigeration compressors using too much energy, which affects overall plant efficiency. The condensing pressure can therefore be reduced to improve compressor efficiency. However, this in itself also requires energy. This means that reducing the condensing pressure requires finding the best possible balance between the energy used by the compressor itself and the energy used to reduce the condensing pressure. The CP Optimiser calculates this energy balance and converts it into a 4–20 mA set point for the condenser control. This normally makes it possible to achieve considerable energy savings.

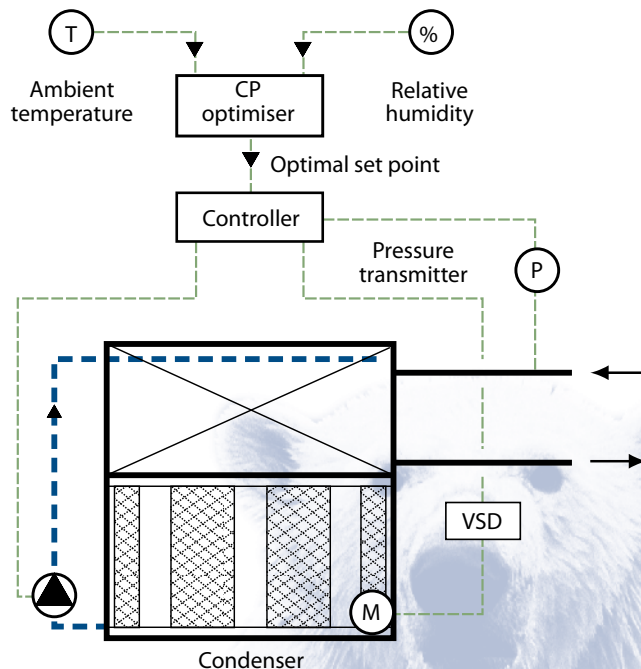
Customer benefits

Customer benefits include

- ▶ optimisation of condensing pressure.
- ▶ potential for considerable savings on operating costs.
- ▶ automatic, maintenance-free system.
- ▶ no need for comprehensive integration into plant control systems.

Sabroe product description

Circuit diagram



Technical data

Supply voltage	24 VDC
Power consumption transmitter	Max. 80 mA excl. heater element
Power consumption heater element	Max. 100 mA, separate supply
Inputs	Temperature 4–20 mA/0–50°C Relative humidity 4–20 mA/0–100% RH
Outputs	Set point signal (bar) 4–20 mA or Set point signal (bar) 0–10 VDC or Set point signal (°C saturated) 4–20 mA or Set point signal (°C saturated) 0–10 VDC Output signal setting (bar or °C saturated)
Dip switch block no. 1	Output signal type
Dip switch block no. 2	
Dimensions	H x W x D = 115 x 90 x 55 mm
Cable connections	4 x PG7

Temperature and relative humidity sensors are not included with the Sabroe CP Optimiser, but are available as optional extra equipment.
Controller (PLC) not included.

All information is subject to change without previous notice