

-°cool expert MIC Sensor Pt1000



**For the Benefit of the Customer
In Harmony with the Environment**

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v1.0-en

Installation Instructions

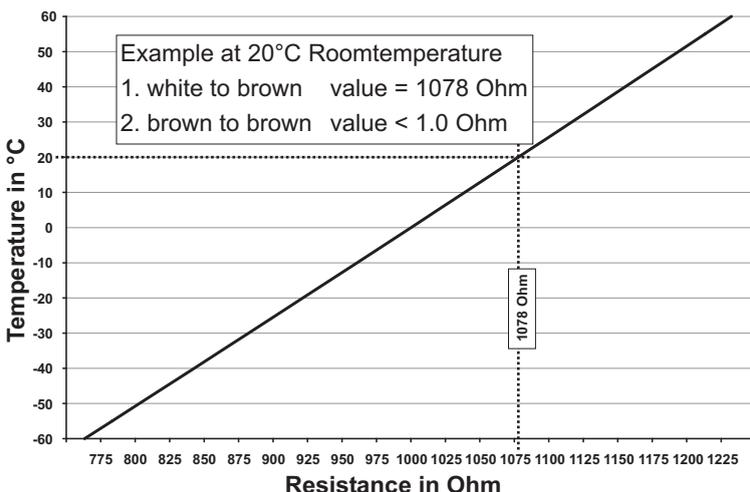
The sensors S1 (air entry temperature) and S2 (cooler block temperature) follow the three-wire measurement technique and become evaluated by the control MIC QKL mini. When the line for the temperature sensors is extended, calibration is automatically done even over longer distances, up to 2000 m. Cool expert multifunction controller possess discrete Soft- and Hardware filter to protect from EMV fence. There is no need to screen the sensor lines or to separate them from the remaining mains.

The Pt 1000 sensor unit is permanent elastic and absolutely moisture-proof, mounted in a stainless steel housing, it is protected against external impact. The Pt 1000 unit is protected against extraction out of the stainless steel housing with a strain-relief until 500 N (50 kg). Because of the elasticity of the silicone connection cable, it is suited for a steady use in temperature range of -60°C to 105°C.

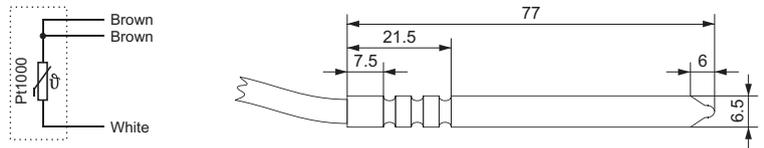
Technical Data

Sensor	Pt 1000, DIN IEC 751 Cl.B in stainless steel housing	
Measurement range	-60 °C to 105 °C	
Ambient temperatures	in storage	-50 °C to 70 °C
	during transport	-50 °C to 70 °C
	in operation	-60 °C to 105 °C
Protection class	IP 68, according to EN 60529	
Wires	three-wire, 0.6 mm diameter each	
Cable length	3 m	
Cable sheath	silicone notch-resistant	
Colour coding	white, brown, brown	

Conversion diagram Resistance / Temperature



Electrical Connection and Dimensions



Safety and work instructions

Prior to beginning all work on the MIC QKL mini control, disconnect the device from the mains and secure it from switching on again inadvertently.

As a matter of principle, electrical installations are to be done by authorized specialist companies only. The VDE 0100/0700 and DIN 8975 Part 7.33 as well as the provisions of the local electric power utility and all other safety and protection regulations, including the performance specifications of the components connected, must be observed.

For use in potentially explosive rooms, the applicable guidelines for this must be observed. For this, ask our application service.

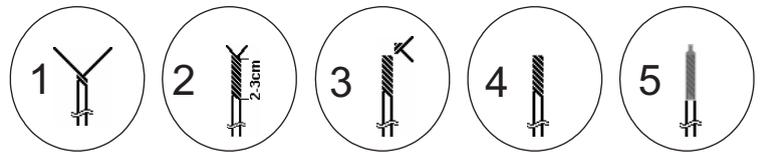
Laying the sensor wire shall take reasonable care. Prevent damaging the sensor wire, otherwise moisture can infiltrate, this causes uncontrollable measurements, and has to circumvent in any case.

Extending the sensor lines

You have the possibility to extend the sensor lines with phone cable J-Y (ST) Y 0.6 mm, up to 2000 m, in consideration of the following instructions:

The undisturbed operation of the measurement technique is only guaranteed, when the sensor-connection wires are tight spliced and the splice-ends become soldered. Isolate the soldered splice-ends each with shrinkable tubing, and then shrink it.

Prevent to install the connection box, where the aforesaid connections are done, within the moisty / warm area of the cooler, otherwise moisture can infiltrate and cause uncontrollable measurements.

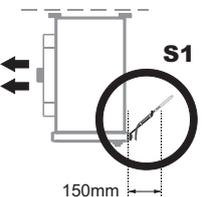


- splice the connection wires tight
- length of splice approx. 2 - 3 cm
- cut extra long splice-ends
- solder the splice-ends
- isolate each with shrinkable tubing and then shrink it

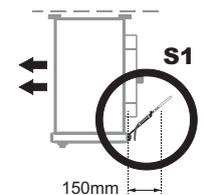
Installation of Sensor S1, air entry temp.

Basically install the Sensor S1, air entry temperature- sensor, within the air entry of the cooler.

In case of suctioning coolers, a sensor-mount has to be fixed or screwed at the draining trough, in front of the cooler fin package. Therefore drill a hole of 4.2 mm diameter approx. centric at the draining trough. Pay attention that the minimum distance of 150 mm to the cooler block, with the fin package, is observed, so that the sensor S1 cannot be affected by exhausting cold air after machine off (reaching the setpoint).



In case of blowing coolers, the easiest way of assembling is to lock one screw of the fan fixing, bring in the sensor-mount, and tight the screw again. Install the sensor mount that way, the sensor S1 is fastened below the fan motor, so that sensor S1 cannot be affected by the fan motor heat emission.



Afterwards hook the sensor S1 into the (like aforesaid) fixed sensor-mount. Please make sure, that stainless steel housing of sensor S1 has no heat-conductive connection to metal- ceramik- or plastic parts. The cabel of Sensor S1 has to be fixed at the sensor-mount with a cable tie.

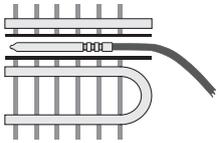


These aforesaid positionings for sensor S1 are valid for all cooler types, as well as for electrical defrosting, hot gas defrosting, (also pumping system), recirculating air defrosting or brine defrosting.

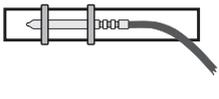
Installation of Sensor S2, cooler block temp.

Here it is necessary (except in case of recirculation air defrosting), to find out which part of the cooler is reaching a defrost end temperature of 10°C last. If this part is located, it serves as measurement point for the cooler block temperature sensor S2.

Over its total length, the stainless steel housing of Sensor S2, must build a constant, safe heat-conducting connection with the cooler block. To bring in the Sensor S2 sideways into the punched voidage of the cooler block is not permissible, because of the insufficient heat-conductivity. To bring in the Sensor S2 across the cooler core tubing is not advisable.



If the cooler manufacturer has defined the placement for the cooler block temperature Sensor by a so called dip tube, the Sensor S2 becomes inserted 100 mm deep inside of the provided dip tube, and the sensor cable gets fastened at one bent tube, using a cable tie.



In case of brine defrosting, the sensor S2, can directly get fixed at the tubing, where the defrosting brine is leaving the cooler again, using a pipe clip. Pay attention to a good heat-conductivity.

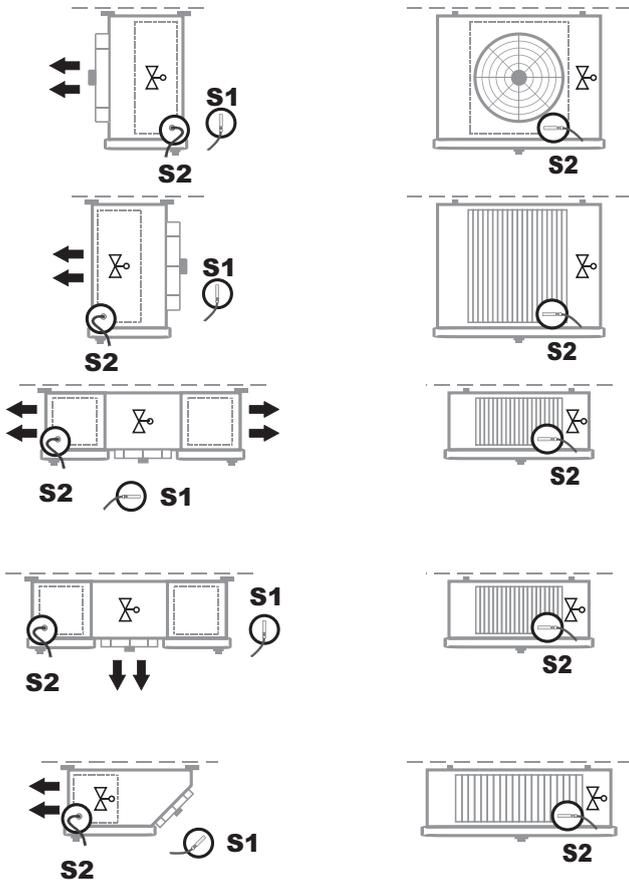
Secure the sensor S2 from falling out of the cooler block. For this, the connection cable of S2 has to be fixed safely at the bent tube.

In case of electrical defrosting, lay and fix the connection cable inside the cooler with a sufficient safe distance to the tube heating devices.

These aforesaid positions for sensor S2 are valid for all cooler types, as well as for electric defrosting hot gas defrosting (also pumping system), recirculating air defrosting or brine defrosting.

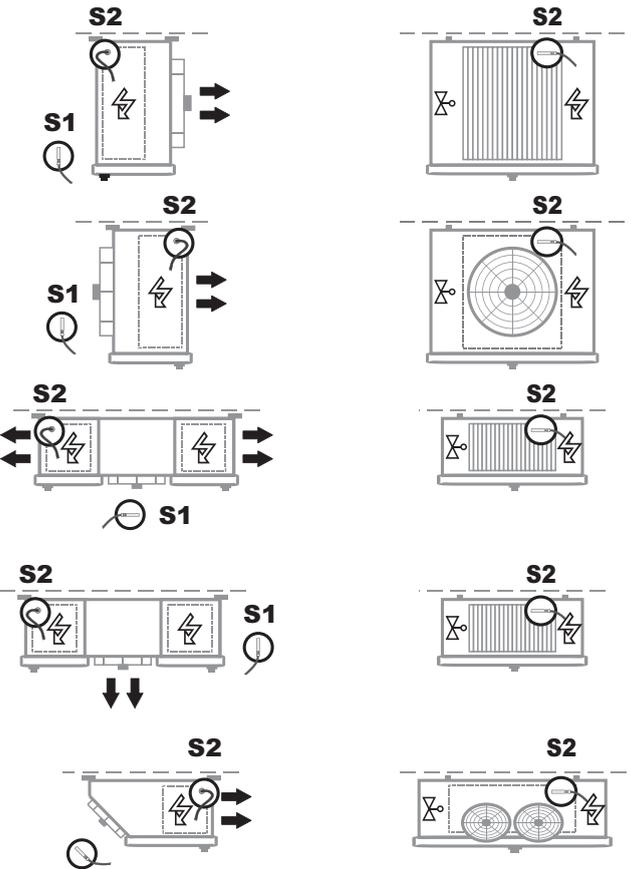
Recirculating air defrosting

In case of recirculating air defrosting, basically both sensors have to be connected. Sensor S1 to determine the air entry temperature and Sensor S2 to determine the cooler block temperature. The sensor S2 has to get fastened inside the lower range of the cooler block, at that side of refrigerant entry.



Hot gas defrosting

For coolers with hot gas defrosting, the measurement point to place sensor S2 is located in that range of the cooler block, where the refrigerant leaves the cooler again. For suctioning coolers, within the cooler block at the air entry side, for blowing coolers within the cooler block at the air exit side.



Electric defrosting

The position for sensor S2 normally is in the upper range of the cooler block, at that side, where the electric connection for the heating elements is located. For suctioning coolers within the cooler block at the air entry side, for blowing coolers within the cooler block at the air exit side.

Brine defrosting

Here the position for sensor S2 is located in that range of the cooler block, where the refrigerant leaves the cooler. For suctioning coolers within the cooler block at the air entry side, for blowing coolers within the cooler block at the air exit side.

