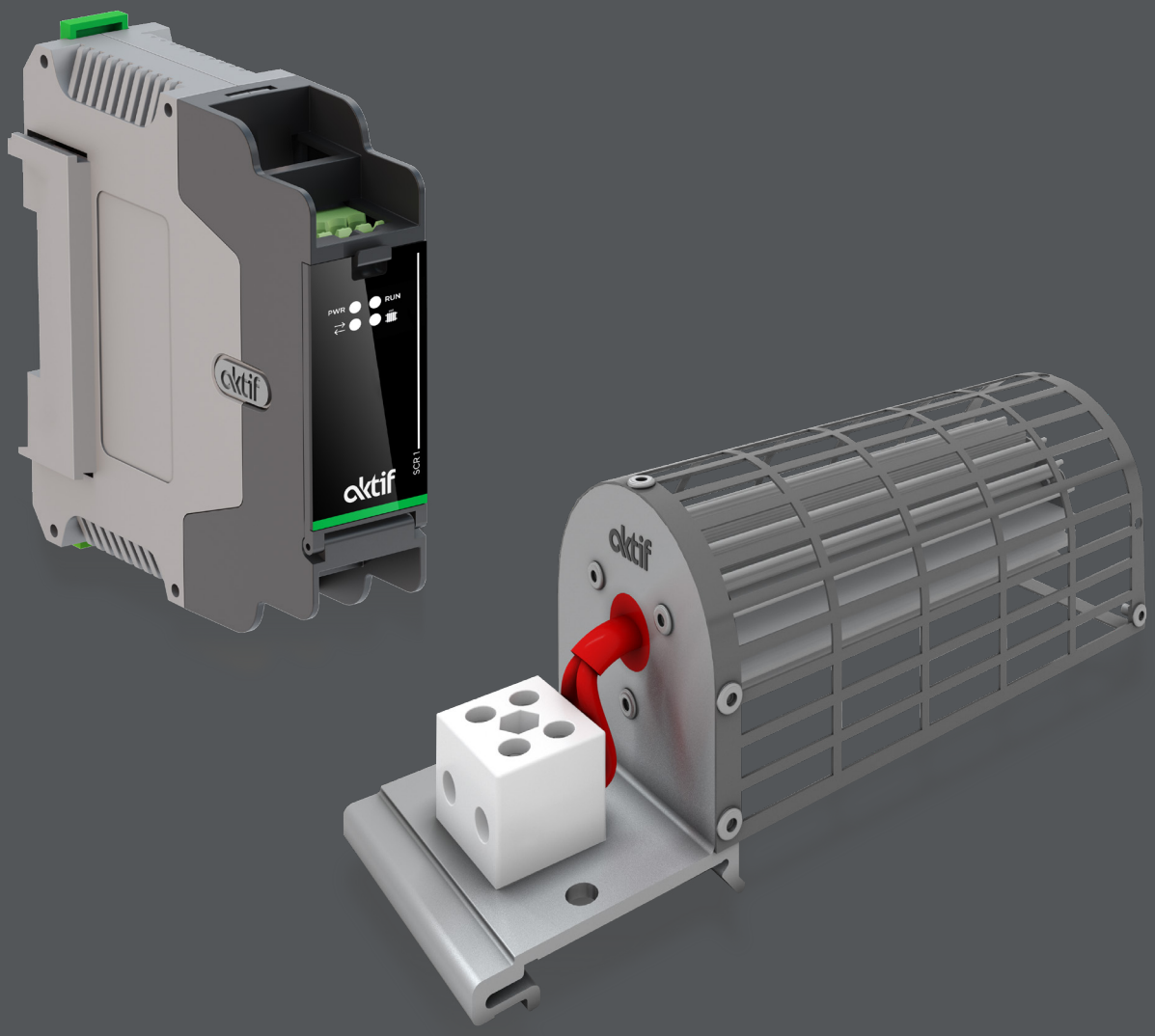
Anti-Condensation Solutions



SCR & PR Series

SCR 1 | PR 50 ... PR 300

Switching Life to Infinity

aktif ELEKTROTEKNİK

Smart Condensation Relay
SCR Series

Smart Condensation Relay

The SCR 1 is an intelligent condensation relay designed to regulate heaters using its advanced predictive algorithm. It actively monitors both temperature and humidity to optimize energy consumption by preventing the heater from remaining on unnecessarily. Additionally, the optional Modbus RTU communication enables remote control of the heaters and real-time monitoring of critical parameters such as temperature, relative humidity, and heater operation status.

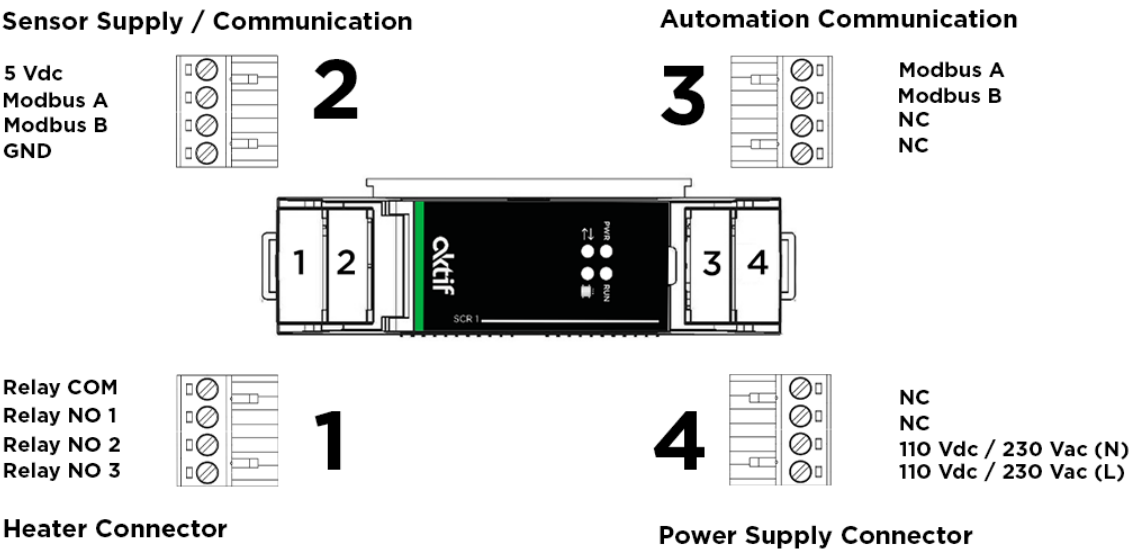
Technical Specifications

- Supply Voltage : 70 - 255 Vac
  100 - 360 Vdc
  20 - 36 Vdc
  (Specified in the Order)
- Frequency : 50/60 Hz
- Contact Power : Up to 0,8 kW
- Communications : Modbus RTU (Optional)
- Temperature Measurement Range : -40 °C / + 125 °C (Accuracy ±0.2°C)
- Humidity Measurement Range : 0 - 100 %RH (Accuracy ±2%)
- Contact Type : Change-over contact (relay)
- Indicators : Power, run, com., heater
- Enclosure : Plastic according to UL94 V-0
- Mounting Type for Main Unit : DIN Rail
- Mounting Type for Sensor Unit : Wall-mounted
- Dimensions for Main Unit : 120,6 x 107,3 x 35,3 mm
- Dimensions for Sensor Unit : 100 x 34 x 54,5 mm
- Main Unit IP Protection Degree : IP20
- Sensor Unit IP Protection Degree : IP40

Advantages

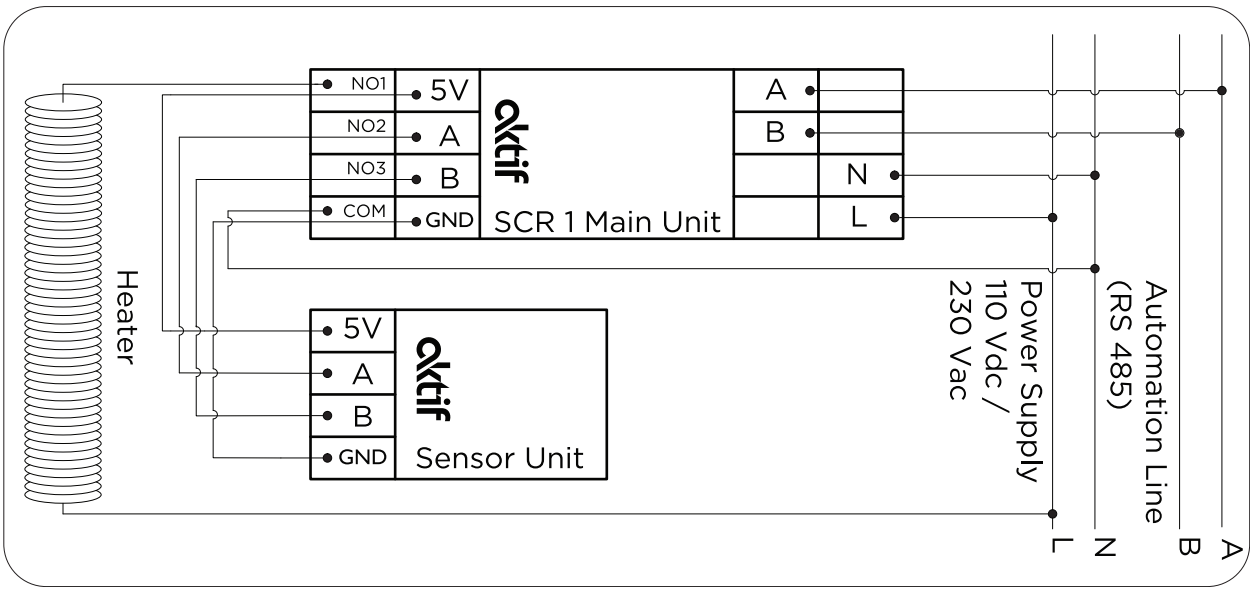
- Smart predictive control principle
- Relative humidity & temperature measurement
- No settings required
- Prevents personnel mistakes
- Efficient thanks to predictive variable time working and duty cycle
- Remote monitoring and control via Modbus RTU (optional)

Terminals



- It is the terminal used for the connection of the heater.
- It is the terminal used for the sensor power supply and communication connection.
- It is the terminal used for connecting to the central management system.
- It is the terminal used for the power input connection.

Wiring Diagram



Anti-Condensation Panel Heaters

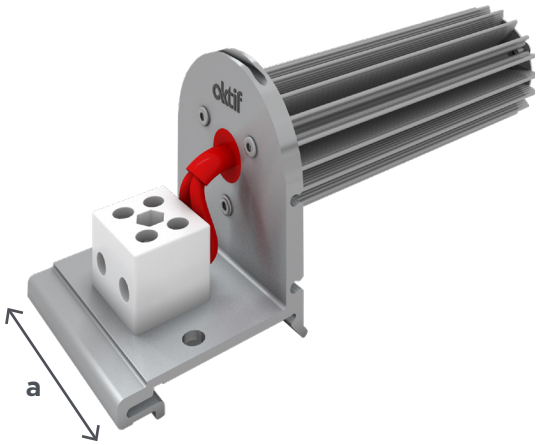
PR Series

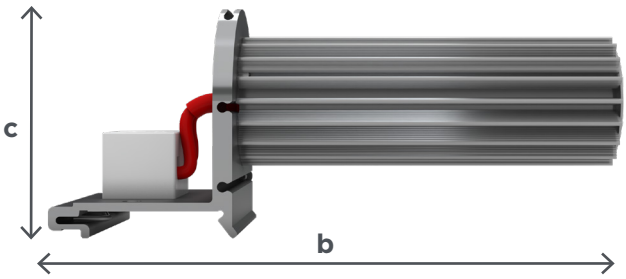
Climatic properties such as the air temperature and humidity in the environment where the electrical cubicles are installed are very important for the continuity of the system and the safety of the personnel.

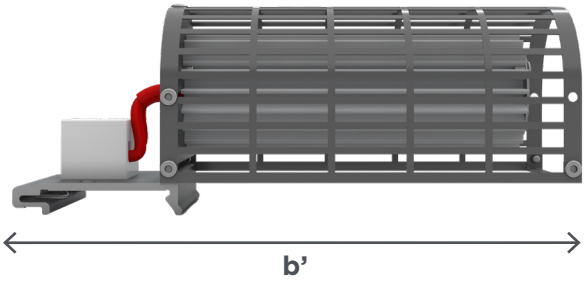
The amount of water in the air is called moisture. As the air gets warmer, the amount of water vapor it can keep in it increases. Sudden decreases in air temperature cause some of the moisture in it to become water, which is called a dew point.

Condensed water disperses into small droplets on the surfaces inside the electrical panel, and this creates great risks for the switchgear materials in the electrical panels. These water droplets on the surface of the panel, insulators, breakers and other electrical equipment, causing the leakage path length to decrease to dangerous values, which may cause partial discharge and insulation errors. The way to eliminate these risks is to use a panel heater.

The way to eliminate this risk is to use an anti-condensation panel heater.







Standards

- IEC 60664-1
- IEC 60529

Applications Areas

- LV and HV Electrical Panels

Technical Specifications

- Resistance Element : Stainless steel wire wound
- Frame Profile : High cooling surface aluminum
- Insulation : 2 kV 50/60 Hz 1 min.
- Protection Degree : IP 5X
- Installation : Screw mounting
  : DIN 35 rail mounting
- Touch-Safe Cover : Optional

Type	Power Value	Dimensions				Cover Option
	W	a [mm]	b [mm]	b' [mm]	c [mm]	
PR.50	50	50	123	138	60	✓
PR.75	75	50	148	160	60	✓
PR.100	100	50	173	182	60	✓
PR.150	150	50	165	-	60	-
PR.200	200	50	215	-	60	-
PR.300	300	50	315	-	60	-

* Standard voltage is 230 Vac. 24/48/110 Vac/dc are optional.

Advantages

- The most efficient body surface area that can be used in ambient heating is extrusion and anodizing.
- Aktif heaters' frames have 120% more surface efficiency than stainless tube heaters.
- MGO (magnesium oxide) powder, which has high electrical insulation and thermal conductivity, is used as an insulation material.

Type	Surface Area (cm^2)	Cubic Volume (cm^3)	Surface Efficiency (cm^2/cm^3)
Aluminum Heater	630	345	1.83
Tube Heater	400	468	0.85
PTC Heater	600	798	0.75

- Since stainless steel resistance wire, which has a low coefficient of resistance change with temperature, is used in its production, the power of the heater does not decrease during operation.
- PTC heaters cannot prevent condensation as their power significantly reduce while operating.
- Aktif heaters offer the best solution as moisture reduction performance. It is 60% more efficient than tube heaters and 670% more than PTC heaters.

- The dissipation of heat inside the cubicle is important for the Anti-Condensation Heaters in order to perform its task homogeneously. Temperature difference at different points of the cubicle is maximum 20 ºC for heaters.
- The rate of humidity reduction of Panel Heaters must be greater than the rate of sudden decrease in temperature. Aktif panel heaters are designed to meet this requirement with their structural and electrical features.

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