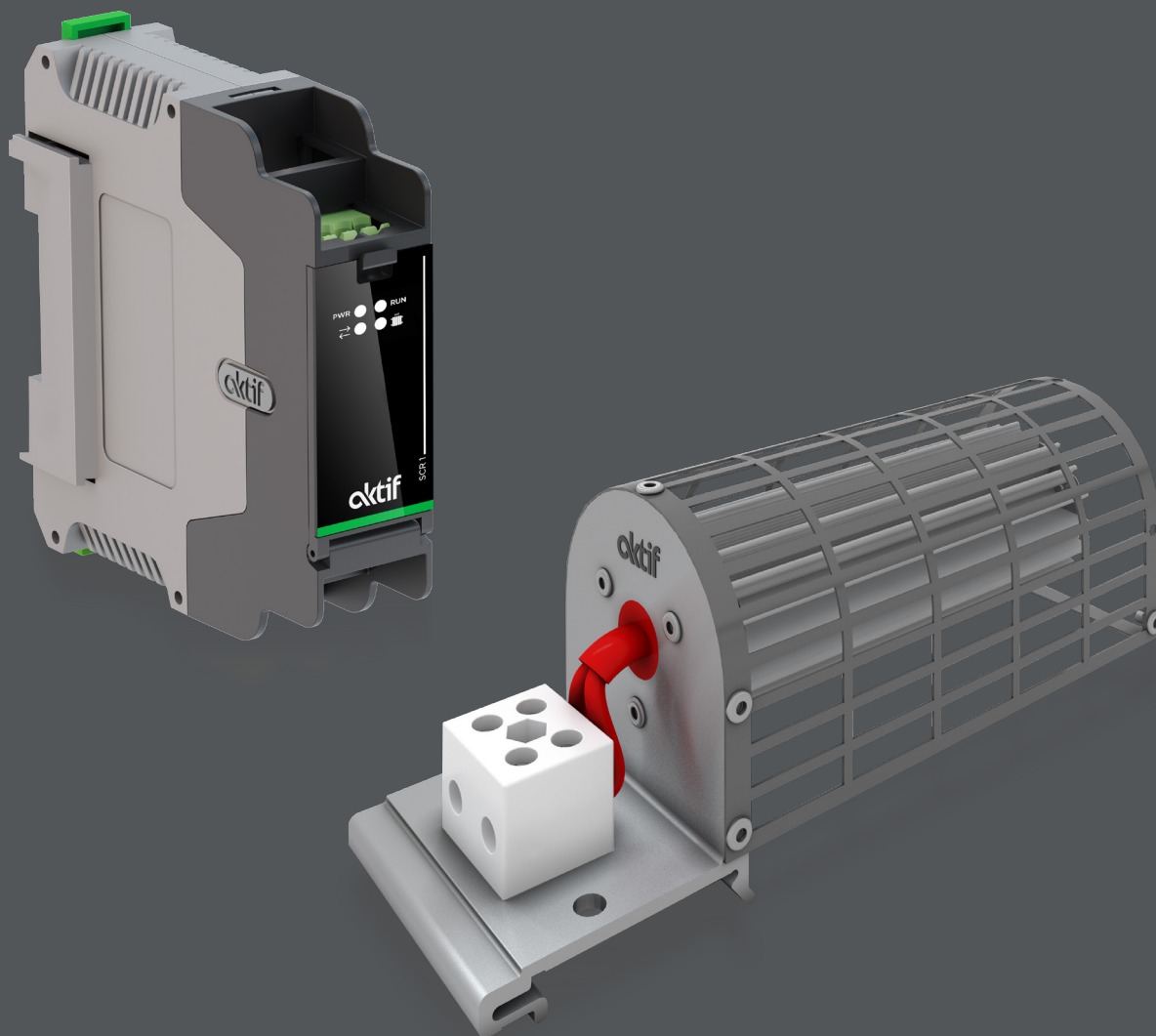


# Anti-Condensation Solutions



SCR & PR Series

SCR 1 | PR 50 ... PR 300

Switching Life to  
**Infinity** 

**aktif**  
ELEKTROTEKNIK

# Smart Condensation Relay

## SCR Series

### Smart Condensation Relay

The SCR1 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 : -40 °C / + 125 °C (Accuracy  $\pm 0.2^{\circ}\text{C}$ )  
Measurement Range
- Humidity : 0 - 100 %RH (Accuracy  $\pm 2\%$ )  
Measurement Range
- 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

### Sensor Supply / Communication

5 Vdc  
Modbus A  
Modbus B  
GND



**2**

### Automation Communication

Modbus A  
Modbus B  
NC  
NC



**3**



Relay COM  
Relay NO 1  
Relay NO 2  
Relay NO 3



**1**

**4**

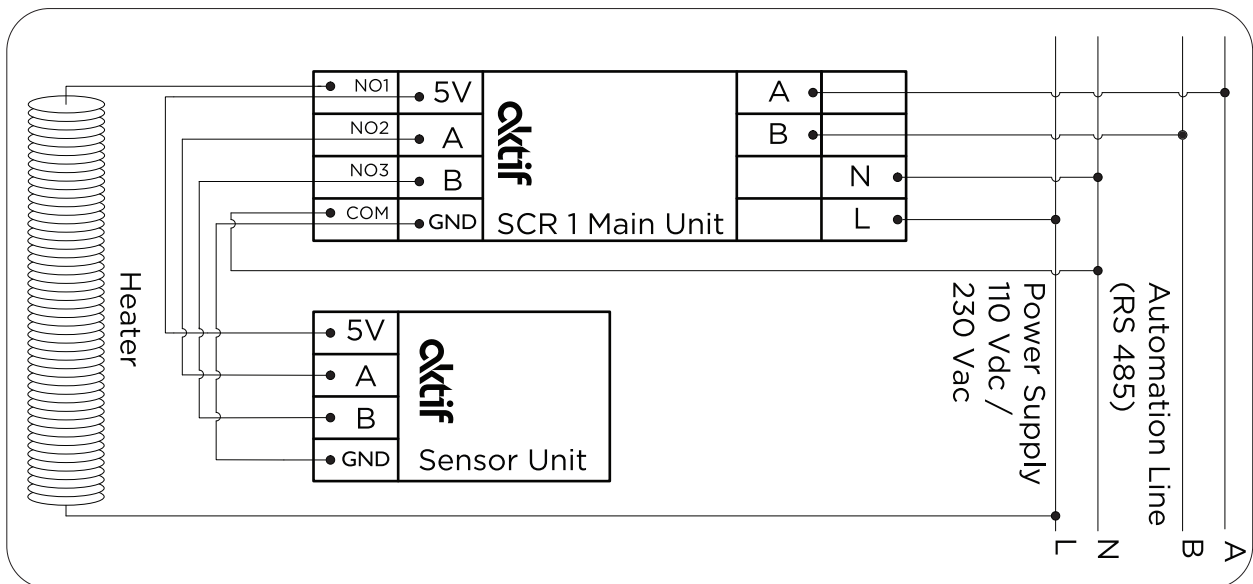
NC  
NC  
110 Vdc / 230 Vac (N)  
110 Vdc / 230 Vac (L)

### Heater Connector

### Power Supply Connector

- 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

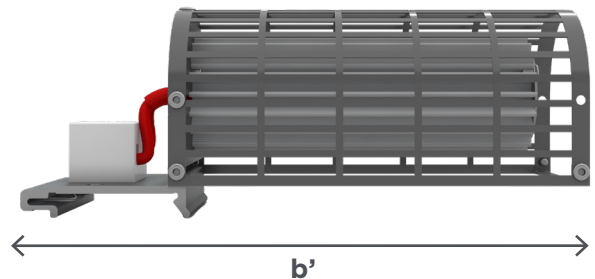
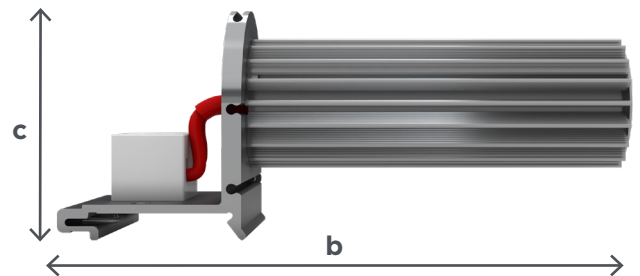
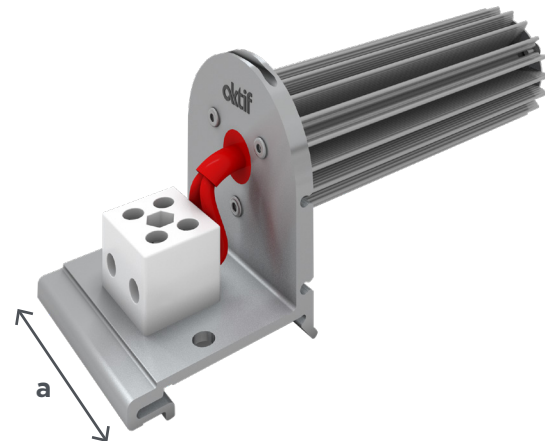
- IEC 60664-1
- IEC 60529

### 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	-

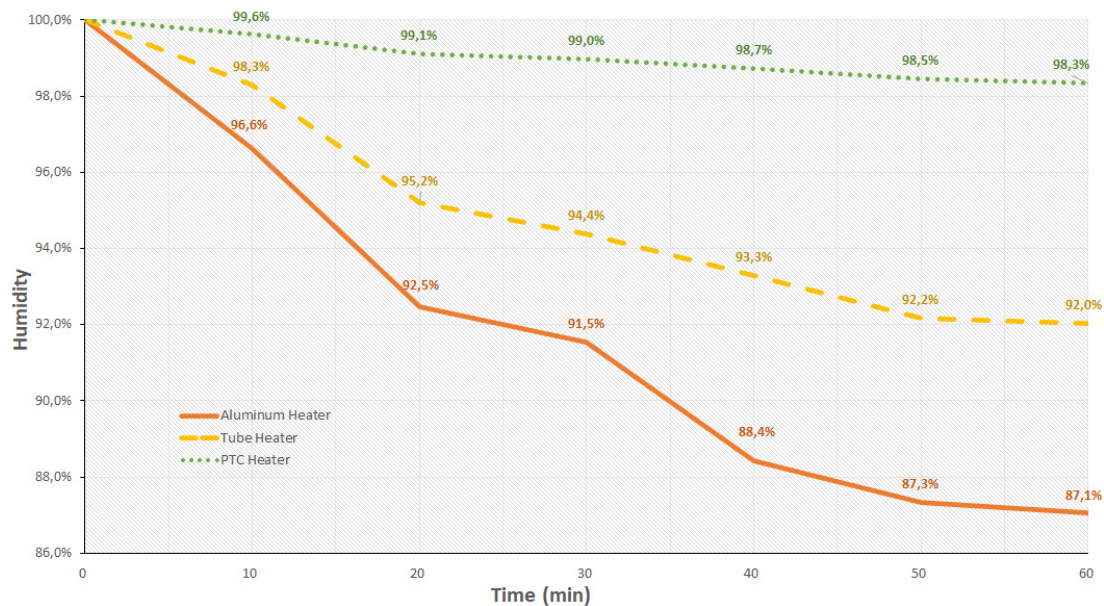
\* Standard voltage is 230 Vac. 24/48/110 Vac/dc are optional.

## 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 <sup>2</sup> )	Cubic Volume (cm <sup>3</sup> )	Surface Efficiency (cm <sup>2</sup> /cm <sup>3</sup> )
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 °C 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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## Headquarters

Bayraktar Bul. Şehit Sk. No: 5  
34775 Ümraniye, İstanbul, TR  
Phone : +90 (216) 314 93 20  
Fax : +90 (216) 314 93 60  
www.aktif.net - info@aktif.net



## Germany Office

Bahnhofstrasse 82-86  
35390 Giessen, Germany  
Phone : +49 176 60940534  
www.aktif.net  
info.de@aktif.net



## HV Factory

Akşemsettin Mah. Çatalca Sk. No: 113 06930  
Sincan, Ankara, TR  
Phone : +90 (312) 269 46 02  
Fax : +90 (312) 269 45 01  
www.aktif.net - info@aktif.net



## LV Factory

Kargalı Hanbaba Organize Sanayi, 2. Sk.,  
No: 5, Hendek, Sakarya, TR  
Phone : +90 (264) 276 64 50  
Fax : +90 (264) 276 64 52  
www.aktif.net - info@aktif.net

