

Life Is On

Schneider  
Electric



# ClimaSys

Thermal management system



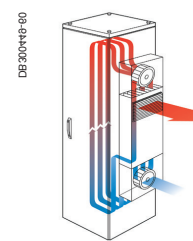
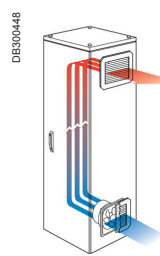
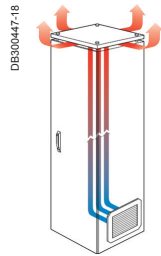
[schneider-electric.us](http://schneider-electric.us)

# ClimaSys thermal management system

Schneider Electric understands an exceptional enclosure alone is not enough. The world is becoming more digital, and the demand for energy is growing. Consequently, equipment is under more stress and at risk of failing. In fact, 80% of failures in electronic devices are due to unmanaged heat, humidity, and condensation.

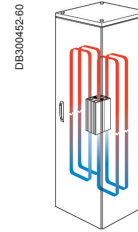
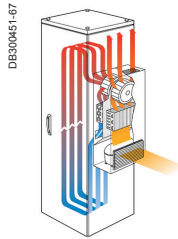
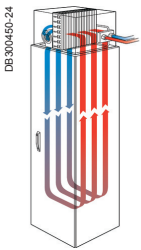
## ClimaSys offer includes:



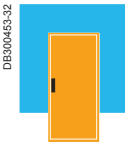



- Ventilation
- Exchangers
- Cooling units
- Heaters
- Controls
- Diagnostic tools
- Solution Determining Software



System	Airing	Ventilating	Air-air exchanger
	Natural convection causes the temperature to drop inside the enclosure. Simple solutions for this case include installing grilles (without filter) or lifting the top.	Fans with filters are designed to evacuate a large amount of heat economically.	Air-air exchangers are equipped with an aluminium exchange cassette which separates the internal and external air circuits and prevents the entry of dust.
When should it be used?	This solution can only be used when the power to be dissipated is low, in an environment with small amounts of dust.	When larger amounts of heat need to be evacuated in a polluted environment.	The air-air exchangers are used in highly polluted environments or when it is necessary to evacuate large amounts of heat while guaranteeing the independence of the internal and external air circuits. It is important to have a difference of temperature of at least 10°C.
Ta: Ambient temperature Td: Desired temperature	<p>Ta &lt; Td</p>	<p>Ta &lt; Td</p>	<p>Ta &lt; Td</p>
Advantages	<ul style="list-style-type: none"> <li>• Economic solution.</li> <li>• No maintenance.</li> <li>• Quick and easy installation.</li> </ul>	<ul style="list-style-type: none"> <li>• Economic solution.</li> <li>• Easy maintenance.</li> <li>• Quick and easy installation.</li> <li>• Even temperature inside the enclosure.</li> <li>• High protection rating: IP54 or IP55.</li> </ul>	<ul style="list-style-type: none"> <li>• The internal and external air circuits are independent.</li> <li>• Easy maintenance.</li> <li>• High protection rating: IP55.</li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>• Small amount of heat evacuated.</li> <li>• Reduction of the IP protection rating.</li> <li>• Risk of entry of dust particles.</li> </ul>	<ul style="list-style-type: none"> <li>• The temperature inside the enclosure is always higher than the external temperature.</li> <li>• The internal and external air circuits are in contact.</li> </ul>	<ul style="list-style-type: none"> <li>• The temperature inside the enclosure is always higher than the external temperature.</li> </ul>
Solutions	<p>Ventilation devices</p>	<p>Fans and outlet grilles</p>	<p>Air-air exchangers</p>

Utilizing ClimaSys™ devices and software enables outstanding thermal performance that will keep equipment operating reliably, cut energy consumption, and extend equipment life. We make it simple with innovative software and diagnostic tools that help you properly size and optimize your thermal solution to ensure continuity of service.



Air-water exchanger	Cooling	Heating
<p>Air-water exchangers reduce the temperature inside the enclosure by means of a water-cooled exchange cassette. Temperature control inside the enclosure is performed by a thermostat which opens and closes an electro-valve.</p>	<p>Air-conditioning device providing efficient cooling of the enclosure, regardless of the outside air, and prevention against hot spots.</p>	<p>The resistance heaters prevent the formation of condensation and guarantee the ideal temperature for the correct operation of the electronic components.</p>
<p>The air-water exchangers are used to evacuate large amounts of heat. They require a cold-water circuit with stable temperature and flow rate. They are specially recommended in difficult, highly polluted environments where there is no external air circuit.</p>	<p>The cooling units can be used in the harshest environments, where the temperature can reach up to 55°C. These devices control the temperature inside the enclosure and include an alarm function for signalling operational anomalies.</p>	<p>The resistance heaters are used to reheat the industrial control panel when the ambient temperature is too low or to prevent the formation of condensation.</p>
 <p>Ta &gt; Td</p>	 <p>Ta &gt; Td</p>	 <p>Ta &lt; Td</p>
<ul style="list-style-type: none"> <li>The temperature inside the enclosure does not depend on the external temperature.</li> <li>The internal and external air circuits are independent.</li> <li>Security device against possible leaks.</li> <li>High protection rating: IP55 or IP54 according to model.</li> </ul>	<ul style="list-style-type: none"> <li>Even temperature inside the enclosure.</li> <li>High protection rating: IP55 or IP54 according to model.</li> <li>Use of an environmentally friendly gas.</li> </ul>	<ul style="list-style-type: none"> <li>Small dimensions.</li> <li>Available in 3 versions:                             <ul style="list-style-type: none"> <li>insulated with low surface temperature,</li> <li>in aluminium when the surface temperature is limited to 75°C,</li> <li>ultra thin heaters.</li> </ul> </li> <li>The fan-equipped resistances guarantee an even temperature inside the enclosure.</li> </ul>
<ul style="list-style-type: none"> <li>A cold-water supply source is required.</li> <li>Specific pumping installation.</li> </ul>	<ul style="list-style-type: none"> <li>Installation of a drain is recommended.</li> <li>Maintenance required: filter replacement.</li> </ul>	
 <p>Air-water exchangers</p>	 <p>Cooling units</p>	 <p>Resistance heaters</p>



# Ventilation Systems

## Forced ventilation

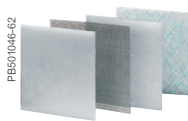


Characteristics									
	The fans comprise an axial motor, a protective housing on the front and rear surfaces and a filter designed to retain dust particles. This filter can be replaced during operation without risk of contact with the rotating element.								
Material	Injected thermoplastic (ASA PC), self-extinguishing according to UL 94 V-0								
Color	RAL 7035 as standard, with the option of RAL 7032								
Conditions of use	<ul style="list-style-type: none"> <li>The outside temperature (Te) must be 5°C lower than the desired temperature (Ts) inside the enclosure</li> <li>The filters that equip the fans must be cleaned and replaced regularly</li> <li>The surrounding environment must be relatively clean and overfrequent filter replacement should be avoided</li> <li>Bear in mind the pressure losses caused by the outlet element (grille with filter, ventilation louvre or simple opening) when determining the fan flow rate</li> <li>Storage Temperature: -40...+ 70°C</li> </ul>								
Ingress protection rating	IP54								
Installation	The cut-out template supplied with the device avoids the need for marking and protects the surface of the enclosure during handling								
Options	The device can be equipped with a filter that provides even more efficient protection for your sensitive facilities against dust particles								
References	Free flow rate with standard filter (m <sup>3</sup> /h)	Flow rate with outlet grille(s)(m <sup>3</sup> /h)		Voltage range (nominal voltage)	Absorbed power (max. intensity)	Noise level	External dimensions/cut-out mm (inches)	Weight (kg)	Max. static pressure
		1	2						
<b>NSYCVF38M230PF*</b>	38 (50 Hz) 39 (60 Hz)	25 (50 Hz) 26 (60 Hz)	33 (50 Hz)	150 V...250 V (230 V)	4.5/4.8 W (0.16/0.17 A)	40/41 dB (A)	137(5.4) x 117(4.6) x 49(1.9)/ 92(3.6) x 92(3.6)	0.220	29 Pa
<b>NSYCVF38M115PF*</b>	38 (50 Hz) 39 (60 Hz)	27 (50 Hz) 28 (60 Hz)	35 (50 Hz)	75 V...125 V (115 V)	3.3/3.5 W (0.16/0.16 A)	40/41 dB (A)	137(5.4) x 117(4.6) x 49(1.0)/ 92(3.6) x 92(3.6)	0.220	29 Pa
<b>NSYCVF38M24DPF</b>	58	39	47 (50 Hz)	10 V...27.6 V (24 V DC)	3.6 W (0.18 A)	40/41 dB (A)	137(5.4) x 117(4.6) x 49(1.0)/92(3.6) x 92(3.6)	0.230	29 Pa
<b>NSYCVF38M48DPF</b>	44	34	41 (50 Hz)	36 V...56 V (48 V DC)	3.6 W (70 mA)	40/41 dB (A)	137(5.4) x 117(4.6) x 49(1.0)/92(3.6) x 92(3.6)	0.230	29 Pa
<b>NSYCVF85M230PF</b>	85 (50 Hz) 98 (60 Hz)	63 (50 Hz) 72 (60 Hz)	71 (50 Hz)	175 V...253 V (230 V)	17/15 W (0.121/0.097 A)	46/49 dB (A)	170(6.7) x 150(6.0) x 62(2.4)/125(4.9)	0.780	50 Pa
<b>NSYCVF85M115PF</b>	79 (50 Hz) 92 (60 Hz)	65 (50 Hz) 74 (60 Hz)	73 (50 Hz)	75 V...126 V (115 V)	16/15 W (0.207/0.179 A)	46/49 dB (A)	170(6.7) x 150(6.0) x 62(2.4)/125(4.9)	0.780	50 Pa
<b>NSYCVF85M24DPF</b>	80	57	77 (50 Hz)	10 V...27.6 V (24 V DC)	7.6 W (0.30 A)	46/49 dB (A)	170(6.7) x 150(6.0) x 62(2.4)/125(4.9)	0.480	50 Pa
<b>NSYCVF85M48DPF</b>	79	59	68 (50 Hz)	25 V...55.2 V (48 V DC)	8 W (0.173 A)	46/49 dB (A)	170(6.7) x 150(6.0) x 62(2.4)/125(4.9)	0.480	50 Pa
<b>NSYCVF165M230PF</b>	165 (50 Hz) 193 (60 Hz)	153 (50 Hz) 171 (60 Hz)	161 (50 Hz) 175 (60 Hz)	175 V...253 V (230 V)	16.3/14.3 W (0.12/0.094 A)	50/51 dB (A)	268(10.6) x 248(9.8) x 104(4.1)/ 223(8.8) x 223(8.8)	1.140	50 Pa
<b>NSYCVF165M115PF</b>	164 (50 Hz) 193 (60 Hz)	153 (50 Hz) 171 (60 Hz)	161 (50 Hz) 179 (60 Hz)	75 V...126 V (115 V)	15.5/14.4 W (0.20/0.18 A)	50/51 dB (A)	268(10.6) x 248(9.8) x 104(4.1)/ 223(8.8) x 223(8.8)	1.140	50 Pa
<b>NSYCVF165M24DPF</b>	188	171	179	10 V...27.6 V (24 V DC)	8 W (0.3 A)	50/51 dB (A)	268(10.6) x 248(9.8) x 104(4.1)/223(8.8) x 223(8.8)	0.810	50 Pa
<b>NSYCVF165M48DPF</b>	193	171	179	25 V...55.2 V (48 V DC)	8.7 W (0.18 A)	50/51 dB (A)	268(10.6) x 248(9.8) x 104(4.1)/223(8.8) x 223(8.8)	0.810	50 Pa
<b>NSYCVF300M230PF</b>	302 (50 Hz) 350 (60 Hz)	260 (50 Hz) 307 (60 Hz)	268 (50 Hz)	145 V...253 V (230 V)	36/37 W (0.17/0.16 A)	55/56 dB (A)	268(10.6) x 248(9.8) x 104(4.1)/ 223(8.8) x 223(8.8)	1.3	158 Pa
<b>NSYCVF300M115PF</b>	302 (50 Hz) 350 (60 Hz)	263 (50 Hz) 307 (60 Hz)	271 (50 Hz)	75 V...126 V (115 V)	36/36 W (0.35/0.32 A)	55/56 dB (A)	268(10.6) x 248(9.8) x 104(4.1)/ 223(8.8) x 223(8.8)	1.3	158 Pa
<b>NSYCVF300M24DPF</b>	262	221	229 (50 Hz)	12 V...30 V (24 V DC)	13 W (0.53 A)	55/56 dB (A)	268(10.6) x 248(9.8) x 104(4.1)/223(8.8) x 223(8.8)	1.1	158 Pa
<b>NSYCVF300M48DPF</b>	247	210	218 (50 Hz)	25 V...60 V (48 V DC)	11 W (0.24 A)	55/56 dB (A)	268(10.6) x 248(9.8) x 104(4.1)/223(8.8) x 223(8.8)	1.1	158 Pa
<b>NSYCVF560M230PF</b>	562 (50 Hz) 586 (60 Hz)	473 (50 Hz) 477 (60 Hz)	481 (50 Hz)	207 V...244 V (230 V)	68/85 W (0.52/0.370 A)	59/59 dB (A)	336(13.2) x 316(12.4) x 161(6.3)/ 291(11.5) x 291(11.5)	3.2	140 Pa
<b>NSYCVF560M115PF</b>	582 (50 Hz) 586 (60 Hz)	485 (50 Hz) 477 (60 Hz)	494 (50 Hz)	103 V...122 V (115 V)	65/83 W (0.60/0.72 A)	59/59 dB (A)	336(13.2) x 316(12.4) x 161(6.3)/ 291(11.5) x 291(11.5)	3.2	140 Pa
<b>NSYCVF560M115PF</b>	838 (50 Hz) 803 (60 Hz)	718 (50 Hz) 568 (60 Hz)	728 (50 Hz)	207 V...244 V (230 V)	150/195 W (0.65/0.85 A)	76/75 dB (A)	336(13.2) x 316(12.4) x 161(6.3)/ 291(11.5) x 291(11.5)	4.1	170 Pa
<b>NSYCVF850M230PF</b>	983 (50 Hz) 944 (60 Hz)	843 (50 Hz) 642 (60 Hz)	854 (50 Hz)	103 V...122 V (115 V)	145/182 W (1.279/1.6 A)	78/77 dB (A)	336(13.2) x 316(12.4) x 161(6.3)/ 291(11.5) x 291(11.5)	4.1	170 Pa
<b>NSYCVF850M400PF</b>	931 (50 Hz) 803 (60 Hz)	798 (50 Hz) 568 (60 Hz)	809 (50 Hz)	396 V...466 V (400 V)	126/126 W (0.226/0.232 A)	77/75 dB (A)	336(13.2) x 316(12.4) x 161(6.3)/ 291(11.5) x 291(11.5)	4.1	170 Pa

## Grilles & filters



RAL 7035



PB501046-62

Characteristics				IP54 outlet grilles		Filters							
				Delivered with G2 M1 synthetic standard filter.		G2 M1 synthetic standard filters		Filters for greasy environments G2 M1		G3 M1 synthetic fine filters		Stainless-steel anti-insect filters	
Material	Injected thermoplastic (ASA PC), self-extinguishing according to UL 94					For fans and grilles.							
Color	RAL 7035												
Ingress protection rating	IP54												
Height mm(in)	Width mm(in)	Depth mm(in)	Cut-out mm(in)	References		Pack.	References	Pack.	References	Pack.	References	Pack.	References
137(5.4)	117(4.6)	13(0.5)	92(3.6) x 92(3.6)	NSYCAF92LPF		5	NSYCAF92	-	-	-	-	1	NSYCAF92M
170(6.7)	150(5.9)	15(0.6)	125(4.9) x 125(4.9)	NSYCAF125LPF		5	NSYCAF125	5	NSYCAF125O	5	NSYCAF125T	1	NSYCAF125M
268(10.6)	248(9.8)	18(0.7)	223(8.8) x 223(8.8)	NSYCAF223LPF		5	NSYCAF223	5	NSYCAF223O	5	NSYCAF223T	1	NSYCAF223M
336(13.2)	316(12.4)	18(0.7)	291(11.5) x 291(11.5)	NSYCAF291LPF		5	NSYCAF291	5	NSYCAF291O	5	NSYCAF291T	1	NSYCAF291M

# Thermal control

## Mechanical thermostats



Characteristics	Thermostat	Thermostat	Thermostat	Double Thermostat				
	<b>With NC contact</b>	<b>With NO contact</b>	<b>With NO/NC contact</b>					
	Thermostat with NC Contact: <ul style="list-style-type: none"> <li>to control the stopping of a resistance heater when the temperature exceeds the displayed value.</li> </ul> Thermostat with NO Contact: <ul style="list-style-type: none"> <li>to control the starting up of a fan when the temperature exceeds the displayed maximum value,</li> <li>to control the temperature inside the enclosure by only starting up the fan when necessary, thus increasing the service life of the fan and reducing the clogging of the filter.</li> </ul>							
Color button	Red	Blue	Black	Red and blue				
Ingress protection rating	IP20	IP20	IP20	IP20				
Sensor element	Bimetal	Bimetal	Bimetal	Bimetal				
Contact	NC, forced rupture	NO, forced rupture	Inverse, forced rupture	NO / NC, forced rupture				
Contact resistance	< 10 mW	< 10 mW	< 10 mW	< 10 mW				
Service life	> 100,000 cycles	> 100,000 cycles	> 100,000 cycles	> 100,000 cycles				
Switching capacity	250 V AC; 10 A (resistive load) 120 V AC; 15 A (resistive load) 250 V AC/120 V AC 2 A (inductive load cos φ = 0.6) 30 W DC	250 V AC; 10 A (resistive load) 120 V AC; 15 A (resistive load) 250 V AC/120 V AC 2 A (inductive load cos φ = 0.6) 30 W DC	250 V AC; 10 A (resistive load)	250 V AC; 10 A (resistive load) 120 V AC; 15 A (resistive load) 250 V AC/120 V AC 2 A (inductive load cos φ = 0.6) 30 W DC				
Connection	Two 2.5 mm <sup>2</sup> terminals	Two 2.5 mm <sup>2</sup> terminals	Four 2.5 mm <sup>2</sup> terminals	Six 2.5 mm <sup>2</sup> terminals				
Mounting	By clip on 35 mm DIN rail	By clip on 35 mm DIN rail	By clip on 35 mm DIN rail	Clip on 35 mm DIN rail				
Enclosure	UL 94 V-0 plastic, light grey	UL 94 V-0 plastic, light grey	UL 94 V-0 plastic, light grey	UL 94 V-0 plastic, light grey				
Dimensions	60(2.4) x 33(1.3) x 43(1.7) mm (in)	60(2.4) x 33(1.3) x 43(1.7) mm (in)	67(2.6) x 50(2.0) x 44(1.7) mm (in)	60(2.4) x 33(1.3) x 43(1.7) mm (in)				
Weight	40 g	40 g	100 g	40 g				
Operating temperature	-20...+80°C (-4...+176°F)	-20...+80°C (-4...+176°F)	-20...+80°C (-4...+176°F)	-20...+80°C (-4...+176°F)				
Temperature setting range	0...+60°C	0...+60°C	+5...+60°C	0...+60°C				
Display	°C      °F	°C      °F	°C      °F	°C      °F				
Max. command intensity	10 A 250 V		(NO) 5 A (NC) 10 A	(NO) 5 A (NC) 10 A				
<b>References</b>	<b>NSYCCOTHC</b>	<b>NSYCCOTHCF</b>	<b>NSYCCOTHO</b>	<b>NSYCCOTHOF</b>	<b>NSYCCOTHI</b>	<b>NSYCCOTHIF</b>	<b>NSYCCOTHD</b>	<b>NSYCCOTHDF</b>

## Electrical thermostats

New



Characteristics	Electronic thermostat	Electronic hygrotherm	Electronic hygostat
	<b>With LED screen</b>	<b>With LED screen</b>	<b>With LED screen</b>
	Electronic temperature controller.		
	Electronic temperature and humidity controller.		Electronic humidity controller.
Ingress protection rating	IP20	IP20	IP20
Certification	UL / UR	UL / UR	UL / UR
Internal sensor element	Temperature sensor	Temperature sensor and humidity sensor	Humidity sensor
Contact	Free with zero potential	Free with zero potential	Free with zero potential
Connection	2 x 2.5 mm <sup>2</sup> (input voltage) + 2 relays (2 x 2.5 mm <sup>2</sup> + 2 x 2.5 mm <sup>2</sup> )	2 x 2.5 mm <sup>2</sup> (input voltage) + 2 relays (2 x 2.5 mm <sup>2</sup> + 2 x 2.5 mm <sup>2</sup> )	2 x 2.5 mm <sup>2</sup> (input voltage) + 1 relay (2 x 2.5 mm <sup>2</sup> )
Mounting	4 different methods: by DIN rail, Spacial SF profile, on VDI cross-rail or on mounting plate	4 different methods: by DIN rail, Spacial SF profile, on VDI cross-rail or on mounting plate	4 different methods: by DIN rail, Spacial SF profile, on VDI cross-rail or on mounting plate
Enclosure	UL 94 V-0 plastic, light grey	UL 94 V-0 plastic, light grey	UL 94 V-0 plastic, light grey
Operating temperature	-40°C...+80°C	-40°C...+80°C	-40°C...+80°C
Temperature setting range	-40°C...+80°C	-40°C...+80°C	-
Humidity setting range	-	20 %...80 %	20 %...80 %
Display	°C or °F	°C or °F or % RH	% RH
Max. command intensity	8 (5) A 230 V AC / 5 A 30 V DC	8 (5) A 230 V AC / 5 A 30 V DC	8 (5) A 230 V AC / 5 A 30 V DC
<b>Voltage (type of current)</b>	<b>References</b>		
9-30 V (AC/DC)	<b>NSYCCOTH30VID</b>	<b>NSYCCOHT30VID</b>	<b>NSYCCOHT30VID</b>
110-127 V (AC)	<b>NSYCCOTH120VID</b>	<b>NSYCCOHT120VID</b>	<b>NSYCCOHT120VID</b>
220-240 V (AC)	<b>NSYCCOTH230VID</b>	<b>NSYCCOHT230VID</b>	<b>NSYCCOHT230VID</b>

# Cooling units

Cooling units for extremely hot environments

➤ Choose cooling units for harsh environments, where ambient temperatures can reach up to 55°C. The unit's integrated alarm system will signal you in the event of any operational anomaly.

New



PB502631



### Many mounting options give you the right fit

Cooling units range offer roof and side mounting options as well as slim models for efficient and space-saving installation on control panel doors.



### Extended ratings to meet any challenge

Provide options for up to 15 kW of cooling power.

PB502661-33



### Protection through improved design

A new internal grill design protects components and personnel during operation, while also making ClimaSys products easier to clean and maintain.

PB502613



### Fast access to settings and status

A new HMI screen enables quick viewing to all configuration parameters and sensor readings within the enclosures (not on outdoor Heavy Duty models).

PB502654-12



### New material options adapt to any application

ClimaSys cooling units offer new outdoor and stainless steel versions, ideal for clean, hygienic environments such as food and beverage plants.



### Accurate thermal control

To keep motor drives and controls running within safe thermal boundaries, all ClimaSys cooling units offer a precise electronic thermostat control. This ensures high cooling precision (+/- 1.5°C).



### Extended ratings to meet any challenge

ClimaSys CU outdoor Heavy Duty version can withstand extreme environments, with operating temperature ratings from -20° to +55°C.

DB123816-26



### New certifications and declarations

- UL
- CE

PB502660-32



### Simplicity

No tools needed to replace the filter. It just takes a few seconds.

New



Side-mounting models										
Characteristics	Cooling units for electrical control panels. <ul style="list-style-type: none"> <li>• Respect for the environment by using environmentally friendly gas R134a (HFC).</li> <li>• Electronic thermostats in all models.</li> <li>• Alarm signal for door contact included in all models.</li> <li>• Eyebolts included.</li> <li>• Among best in class components.</li> <li>• The external filter, not included as standard, is strongly recommended for harsh environments.</li> <li>• HMI screen.</li> </ul>									
Material	RAL 7035 grey painted zinc-coated steel or stainless steel									
Certifications	<ul style="list-style-type: none"> <li>• CE declaration</li> <li>• UL (<b>only references ending with UL</b>)</li> </ul>									
Installation	Indoor									
Cooling characteristics										
Cooling power L35-L35	380 W (1297 Btu/h)	640 W (2184 Btu/h)	820 W (2798 Btu/h)	1000 W (3412 Btu/h)	1000 W (3412 Btu/h)	1600 W (5459 Btu/h)	2000 W (6824 Btu/h)	2000 W (6824 Btu/h)	2900 W (9895 Btu/h)	3850 W (13137 Btu/h)
Cooling power L35-L50	240 W (819 Btu/h)	470 W (1604 Btu/h)	680 W (2320 Btu/h)	790 W (2696 Btu/h)	790 W (2696 Btu/h)	1230 W (4197 Btu/h)	1510 W (5152 Btu/h)	1510 W (5152 Btu/h)	2250 W (7677 Btu/h)	2870 W (9793 Btu/h)
Air flow of the internal circuit (enclosure)	280 m³/h	330 m³/h	330 m³/h	330 m³/h	330 m³/h	570 m³/h	860 m³/h	860 m³/h	1450 m³/h	1450 m³/h
Air flow of the external circuit (ambient)	280 m³/h	570 m³/h	570 m³/h	570 m³/h	570 m³/h	1050 m³/h	1050 m³/h	1050 m³/h	1450 m³/h	1450 m³/h
Thermostat type	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic
Temperature setting range	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C
Maximum outside temperature	+55°C (+50°C)**	+55°C (+50°C)**	+55°C (+50°C)**	+55°C (+50°C)**	+55°C (+50°C)**	+55°C (+50°C)**	+55°C (+50°C)**	+55°C (+45°C)	+55°C (+45°C)	+55°C (+45°C)
Temperature range external circuit (ambient)	+20 ... +55°C* (+20 ... +50°C)**	+20 ... +55°C* (+20 ... +50°C)**	+20 ... +55°C* (+20 ... +50°C)**	+20 ... +55°C* (+20 ... +50°C)**	+20 ... +50°C (+20 ... +50°C)**	+20 ... +55°C* (+20 ... +50°C)**	+20 ... +55°C* (+20 ... +50°C)**	+20 ... +50°C (+20 ... +45°C)*	+20 ... +50°C (+20 ... +45°C)*	+20 ... +50°C (+20 ... +45°C)*
Type of cooling gas	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
Cooling gas weight	0.16 kg	0.23 kg	0.23 kg	0.23 kg	0.23 kg	0.45 kg	0.54 kg	0.59 kg	0.84 kg	1.14 kg
Maximum pressure cooling circuit	26 bar (28 bar)**	25 bar (28 bar)**	25 bar (28 bar)**	25 bar (28 bar)**	25 bar (28 bar)**	25 bar (28 bar)**	25 bar (28 bar)**	25 bar (28 bar)*	25 bar (28 bar)*	25 bar (28 bar)*
Electric characteristics										
Input voltage	1 x 230 V / 50-60 Hz**	1 x 230 V / 50-60 Hz**	1 x 230 V / 50-60 Hz**	1 x 230 V / 50-60 Hz**	2 x 400-440 V / 50-60 Hz**	1 x 230 V / 50-60 Hz**	1 x 230 V / 50-60 Hz**	3 x 400-460 V / 50-60 Hz**	3 x 400-460 V / 50-60 Hz*	3 x 400-460 V / 50-60 Hz*
Starting / Rated Intensity	6.0 A / 1.6 A	8.1 A / 2.1 A	10.8 A / 2.6 A	10.5 A / 3 A	8 A / 2 A	18 A / 5.4 A	24 A / 6.5 A	10 A / 2.5 A	14 A / 2.6 A	18 A / 3.6 A
Power consumption absorbed L35-L35	280 W	400 W	440 W	570 W	590 W	850 W	1080 W	970 W	1220 W	1780 W
Power consumption absorbed L35-L50	330 W	470 W	490 W	650 W	670 W	970 W	1290 W	1150 W	1440 W	2050 W
Energy efficiency ratio (EER) L35-L35	1.4	1.6	1.9	1.8	1.7	1.9	1.9	2.1	2.4	2.2
Thermal protection recommended (fuse)	T4 A	T6 A	T6 A	T6 A	T4 A	T10 A	T10 A	T6 A	T6 A	T8 A
Physical characteristics										
External dimensions (H x W x D) mm(in)	460(18.1) x 285(11.2) x 180(7.1)	606(23.9) x 316(12.4) x 212(8.4)	783(30.9) x 348(13.7) x 215(8.5)	783(30.9) x 348(13.7) x 215(8.5)	783(30.9) x 348(13.7) x 215(8.5)	999(39.3) x 405(16.0) x 237(9.3)	999(39.3) x 405(16.0) x 237(9.3)	999(39.3) x 405(16.0) x 237(9.3)	1270(50) x 500(19.7) x 336(13.2)	1270(50) x 500(19.7) x 336(13.2)
Protection degree IP internal/external	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34
Noise level	60 dB	65 dB	65 dB	65 dB	65 dB	65 dB	65 dB	65 dB	70 dB	70 dB
Weight of unit	17 kg	21 kg	27 kg	28 kg	29 kg	40 kg	52 kg	54 kg	84 kg	85 kg
References										
Steel	NSYCU400	NSYCU600	NSYCU800	NSYCU1K	NSYCU1K2P4	NSYCU1K6	NSYCU2K	NSYCU2K3P4	NSYCU3K3P4	NSYCU4K3P4
Stainless steel	NSYCUX400	NSYCUX600	NSYCUX800	NSYCUX1K	NSYCUX1K2P4	NSYCUX1K6	NSYCUX2K	NSYCUX2K3P4	NSYCUX3K3P4	NSYCUX4K3P4
Steel UL	NSYCU400UL	NSYCU600UL	NSYCU800UL	NSYCU1KUL	NSYCU1K2P4UL	NSYCU1K6UL	NSYCU2KUL	NSYCU2K3P4UL	NSYCU3K3P4UL	NSYCU4K3P4UL
Stainless steel UL	-	NSYCUX600UL	NSYCUX800UL	NSYCUX1KUL	NSYCUX1K2P4UL	NSYCUX1K6UL	NSYCUX2KUL	NSYCUX2K3P4UL	NSYCUX3K3P4UL	NSYCUX4K3P4UL

\* 50°C at 60 Hz.

\*\* Certification UL only 60 Hz.

\* Certification UL only 60 Hz.

\*\* Available from 2016.

# Slim cooling units



Characteristics	Side-mounting models							
	Cooling Units designed for control panels and switchboards. <ul style="list-style-type: none"> <li>Respect for the environment by using environmentally friendly gas R134a (HFC).</li> <li>Electronical thermostat included.</li> <li>3 mounting positions (surface, half-flush and flush).</li> <li>Alarm Signal for contact door.</li> <li>Eyebolts included.</li> </ul>							
Material	RAL 7035 grey painted zinc-coated steel							
Certifications	<ul style="list-style-type: none"> <li>CE declaration</li> <li>UL</li> </ul>							
Installation	<ul style="list-style-type: none"> <li>Indoor</li> <li>There is one unique cutout for all mounting positions and all slim models</li> </ul>							
Cooling characteristics								
Cooling power L35-L35	1100 W (3753 Btu/h)	1100 W (3753 Btu/h)	1500 W (5118 Btu/h)	1500 W (5118 Btu/h)	2000 W (6824 Btu/h)	2000 W (6824 Btu/h)	2500 W (8530 Btu/h)	3200 W (10919 Btu/h)
Cooling power L35-L50	860 W (2934 Btu/h)	860 W (2934 Btu/h)	1150 W (3924 Btu/h)	1150 W (3924 Btu/h)	1550 W (5289 Btu/h)	1550 W (5289 Btu/h)	1850 W (6312 Btu/h)	2500 W (8530 Btu/h)
Air flow of the internal circuit (enclosure)	860 m³/h	860 m³/h	860 m³/h	860 m³/h	860 m³/h	860 m³/h	1450 m³/h	1450 m³/h
Air flow of the external circuit (ambient)	860 m³/h	860 m³/h	860 m³/h	860 m³/h	1050 m³/h	1050 m³/h	1450 m³/h	1450 m³/h
Thermostat type	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic
Temperature setting range	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C
Maximum outside temperature	+55°C* (+50°C)**	+50°C	+55°C* (+50°C)**	+50°C	+50°C	+55°C* (+50°C)**	+50°C	+55°C* (+50°C)**
Temperature range external circuit (ambient)	+20 ... +55°C* (+20 ... +50°C)**	+20 ... +50°C	+20 ... +55°C* (+20 ... +50°C)**	+20 ... +50°C	+20 ... +50°C	+20 ... +55°C* (+20 ... +50°C)**	+20 ... +50°C	+20 ... +55°C* (+20 ... +50°C)**
Type of cooling gas	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
Cooling gas weight	0.5 kg	0.5 kg	0.46 kg	0.46 kg	0.51 kg	0.59 kg	1.2 kg	1.25 kg
Maximum pressure cooling circuit	28 bar	28 bar	28 bar	28 bar	28 bar	28 bar	28 bar	28 bar
Electric characteristics								
Input voltage	1 x 230 V / 50-60 Hz**	2 x 400-460 V / 50-60 Hz**	1 x 230 V / 50-60 Hz**	2 x 400-460 V / 50-60 Hz**	1 x 230 V / 60 Hz	3 x 400 V / 50 Hz (3 x 460 V / 60 Hz)*	1 x 230 V / 60 Hz	3 x 400 V / 50 Hz (3 x 460 V / 60 Hz)*
Starting / Rated Intensity	11 A / 4.8 A	8.5 A / 2.7 A	18 A / 5.7 A	11 A / 3.2 A	24 A / 6.5 A	10 A / 2.4 A (10 A / 2.1 A)*	35 A / 10.5 A	18 A / 3.5 A (18 A / 3.1 A)*
Power consumption absorbed L35-L35	660 W	660 W	840 W	840 W	1020 W	1060 W	1340 W	1650 W
Power consumption absorbed L35-L50	790 W	790 W	970 W	970 W	1160 W	1270 W	1580 W	1980 W
Energy efficiency ratio (EER) L35-L35	1.7	1.7	1.8	1.8	2.0	1.9	1.9	1.9
Thermal protection recommended (fuse)	T6 A	T4 A	T10 A	T6 A	T10 A	T6 A	T16 A	T6 A
Physical characteristics								
External dimensions (H x W x D) mm(in)	495(19.5) x 1696(66.8) x 195(7.7)	495(19.5) x 1696(66.8) x 195(7.7)	495(19.5) x 1696(66.8) x 195(7.7)	495(19.5) x 1696(66.8) x 195(7.7)	495(19.5) x 1696(66.8) x 195(7.7)	495(19.5) x 1696(66.8) x 195(7.7)	495(19.5) x 1696(66.8) x 235(9.3)	495(19.5) x 1696(66.8) x 235(9.3)
Protection degree IP internal / external	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34	IP55 / IP34
Noise level	64 dB	64 dB	66 dB	66 dB	67 dB	67 dB	69 dB	69 dB
Weight of unit	50 kg	52 kg	55 kg	57 kg	63 kg	65 kg	78 kg	80 kg
References								
Steel UL	NSYCUS1K1UL	NSYCUS1K12P4UL	NSYCUS1K5UL	NSYCUS1K52P4UL	NSYCUS2KUL	NSYCUS2K3P460UL	NSYCUS2K5UL	NSYCUS3K23P4UL
Stainless steel UL	NSYCUSX1K1UL	NSYCUSX1K12P4UL	NSYCUSX1K5UL	NSYCUSX1K52P4UL	NSYCUSX2KUL	NSYCUSX2K3P4UL	NSYCUSX2K5UL	NSYCUSX3K23P4UL

\* 50°C at 60 Hz.

\*\* Certification UL only 60 Hz.



# Air-water exchangers

New

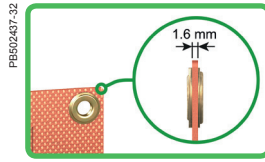
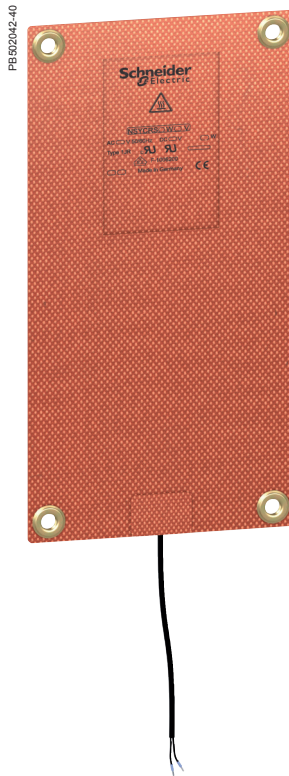


Characteristics	Side-mounting models					
	Available in two installation versions: Top-mounting model and side-mounting model. Main components: thermostat adjustment system, Exchange cassette, fans for internal circuits of the enclosure, protection device against possible leaks. Eyebolts included in all models.					
Material	RAL 7035 grey painted zinc-coated steel or stainless steel					
Certifications	<ul style="list-style-type: none"> <li>CE declaration</li> <li>UL (only references ending with UL)</li> </ul>					
Installation	Indoor					
<b>Cooling characteristics</b>						
Cooling power W10A35	1000 W	1750 W	2500 W	3500 W	4500 W	6000 W
Hydraulic circuit maximum pressure	5 bar	5 bar	5 bar	5 bar	5 bar	5 bar
Air flow of the external circuit (ambient)	330 m³/h	570 m³/h	860 m³/h	1050 m³/h	1450 m³/h	1450 m³/h
Thermostat type	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical
Temperature setting range	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C	+20 ... +46°C
Temperature range external circuit (ambient)	+1 ... +70°C	+1 ... +70°C	+1 ... +70°C	+1 ... +70°C	+1 ... +70°C	+1 ... +70°C
Type of fluid	Filtered water or glycolised water	Filtered water or glycolised water	Filtered water or glycolised water	Filtered water or glycolised water	Filtered water or glycolised water	Filtered water or glycolised water
Water flow	150 l/h	150 l/h	500 l/h	500 l/h	500 l/h	800 l/h
Pressure drop	0.1 bar	0.1 bar	0.3 bar	0.2 bar	0.2 bar	0.5 bar
Hydraulic connection	1/2" G	3/4" G	3/4" G	3/4" G	3/4" G	3/4" G
<b>Electric characteristics</b>						
Input voltage	1 x 230 V / 50-60 Hz*	1 x 230 V / 50-60 Hz*	1 x 230 V / 50-60 Hz*	1 x 230 V / 50-60 Hz*	1 x 230 V / 50-60 Hz*	1 x 230 V / 50-60 Hz*
Rated Intensity	0.17 A	0.36 A	0.33 A	0.55 A	0.71 A	0.71 A
Power consumption absorbed W10A35	29 W	75 W	80 W	130 W	160 W	160 W
Thermal protection recommended (fuse)	T2 A	T2 A	T2 A	T2 A	T2 A	T2 A
<b>Physical characteristics</b>						
External dimensions (H x W x D) mm(in)	450(17.7) x 310(12.2) x 115(4.5)	901(35.5) x 398(15.7) x 137(5.4)	901(35.5) x 398(15.7) x 137(5.4)	1148(45.2) x 398(15.7) x 163(6.4)	1148(45.2) x 398(15.7) x 163(6.4)	1500(59.1) x 450(17.7) x 163(6.4)
Protection degree IP internal / external	IP55 / IP55	IP55 / IP55	IP55 / IP55	IP55 / IP55	IP55 / IP55	IP55 / IP55
Noise level	55 dB (A)	58 dB (A)	58 dB (A)	64 dB (A)	69 dB (A)	69 dB (A)
Weight of unit	12 kg	18 kg	19 kg	29 kg	30 kg	40 kg
<b>References</b>						
Steel	NSYCEW1K	NSYCEW1K8	NSYCEW2K5	NSYCEW3K5	NSYCEW4K5	NSYCEW6K
Stainless steel	NSYCEWX1K	NSYCEWX1K8	NSYCEWX2K5	NSYCEWX3K5	NSYCEWX4K5	NSYCEWX6K
Steel UL	NSYCEW1KUL	NSYCEW1K8UL	NSYCEW2K5UL	NSYCEW3K5UL	NSYCEW4K5UL	NSYCEW6KUL
Stainless steel UL	NSYCEWX1KUL	NSYCEWX1K8UL	NSYCEWX2K5UL	NSYCEWX3K5UL	NSYCEWX4K5UL	NSYCEWX6KUL

\* 60 Hz only for UL versions.

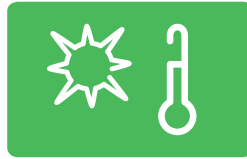
# Ultra thin heaters

> Ultra thin resistance heaters have been designed to resolve condensation problems in the most complex installations. Is your enclosure short of space? Does your mounting plate make it impossible to install a conventional resistor? Do you not want to take out the equipment? Discover the benefits of this new offer and its numerous mounting solutions.



## Minimum thickness

They are extremely slim: 1.6 mm. As a result the usable space in the cabinet has been optimised for installing equipment. This can increase the usable space by up to 30 %!



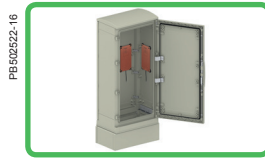
## Heat and safety

The heat is distributed over the whole surface and does not exceed 70°C. This temperature allows devices next to the heater to be handled safely.



## Multiple options for mounting

Innovative quick-mounting system using Velcro pads (no need for a tool!) or with basic mounting accessories (screw + spacer). These systems make it easy to move the heater if necessary.



## Numerous positions for installation

These heaters are so slim and flexible they can be installed in a variety of positions:

- Vertically on side panels
- On the mounting plate.



## Low starting current: Energy Efficiency

Ultra thin resistance heaters are ohmic: they therefore have a low starting current.



## No interference emissions

These resistors can be installed near electronic equipment to guarantee optimum heat without the risk of electromagnetic interference.

Ultra thin resistance heaters*						
Power (W)	Voltage (V)	Inrush current (A)	Height - mm(in)	Width - mm(in)	Depth - mm(in)	References
10	120	0.08	130 (5.1)	250 (9.8)	1.6 (0.1)	NSYCRS10W120V
	240	0.04	130 (5.1)	250 (9.8)	1.6 (0.1)	NSYCRS10W240V
25	120	0.21	130 (5.1)	250 (9.8)	1.6 (0.1)	NSYCRS25W120V
	240	0.10	130 (5.1)	250 (9.8)	1.6 (0.1)	NSYCRS25W240V
50	120	0.42	200 (7.9)	320 (12.6)	1.6 (0.1)	NSYCRS50W120V
	240	0.21	200 (7.9)	320 (12.6)	1.6 (0.1)	NSYCRS50W240V
100	120	0.83	280 (11.0)	450 (17.7)	1.6 (0.1)	NSYCRS100W120V
	240	0.42	280 (11.0)	450 (17.7)	1.6 (0.1)	NSYCRS100W240V
200	120	1.67	400 (15.6)	650 (25.6)	1.6 (0.1)	NSYCRS200W120V
	240	0.83	400 (15.6)	650 (25.6)	1.6 (0.1)	NSYCRS200W240V

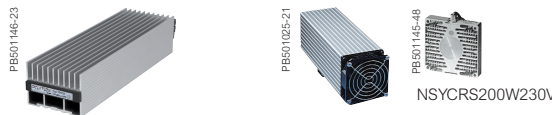
\* Ultra thin resistance heaters can be manufactured with different dimensions and power ratings than those indicated above. Please contact us.

### Insulated PTC resistance heaters



Characteristics					Insulated PTC heater	Insulated ventilated PTC heaters		
Material					Extruded aluminium body			
Conditions of use					<ul style="list-style-type: none"> <li>• Compact resistance heater preventing the formation of condensation or frost.</li> <li>• Designed to ensure good natural convection and high thermal efficiency.</li> </ul>			
Ingress protection rating					IP20			
Certifications					VDE and UL Class II (double insulated)			
Power at 0°C	Voltage	Surface temperature	Electric connection	Mounting	References			
10 W	110-250 V AC	<70°C, except for the top protection grille	2 poles, 2.5 mm²	Quick by clip on a 35-mm DIN rail	NSYCR10WU2C	-	-	
10 W	12-24 V DC				NSYCR10WU1C	-	-	
20 W	110-250 V AC				NSYCR20WU2C	-	-	
20 W	12-24 V DC				NSYCR20WU1C	-	-	
55 W	110-250 V AC	<70°C, except for the top protection grille	4 poles, 2.5 mm²	By clip on a 35-mm DIN rail	-	NSYCR50WU2C	-	
55 W	12-24 V DC				-	NSYCR50WU1C	-	
55 W	270-420 V AC				-	NSYCR50WU3C	-	
100 W	110-250 V AC				-	NSYCR100WU2C	-	
100 W	12-24 V DC				-	NSYCR100WU1C	-	
100 W	270-420 V AC				-	NSYCR100WU3C	-	
147 W	110-250 V AC				-	NSYCR150WU2C	-	
147 W	12-24 V DC				-	NSYCR150WU1C	-	
177 W	230 V AC / 50-60 HZ	Max. 50°C in the enclosure, 100°C on the top protection grille, (for an ambient temperature of 20°C / 68°F)	2 poles, 2.5 mm²	By clip on a 35-mm DIN rail	-	-	NSYCR170W230VVC	

### Aluminum PTC heaters



Characteristics		Aluminium PTC heaters							
Materials		<ul style="list-style-type: none"> <li>• Extruded aluminium body.</li> <li>• Surface temperature limited to 75°C when the ambient temperature is -5°C.</li> <li>• Heaters equipped with a power cable with a length of 500 mm with silicon insulation, or with a connection terminal block</li> </ul>							
Conditions of use		<ul style="list-style-type: none"> <li>• The heaters must be installed with a thermal controller to control the temperature or the humidity inside the enclosure</li> <li>• The enclosure must be sealed to prevent the entry of air from the outside</li> <li>• An electrical protection device must be installed on the supply side of the unit</li> </ul>							
Power (W)	Voltage (V)	References	Power (W)	Voltage (V)	References	Power (W)	Voltage (V)	References	
Power cord									
10	12-24 DC	NSYCR10WU1							
	110-250 AC	NSYCR10WU2							
20	12-24 DC	NSYCR20WU1							
	110-250 AC	NSYCR20WU2							
Terminal block									
20	270-420 AC	NSYCR20WU3	250	115 AC	NSYCR250W115VV	90	12-24 DC	NSYCR100WU1	
				230 AC	NSYCR250W230VV		150	110-250 AC	NSYCR100WU2
								270-420 AC	NSYCR100WU3
								12-24 DC	NSYCR150WU1
						110-250 AC	NSYCR150WU2		
						270-420 AC	NSYCR150WU3		
55	12-24 DC	NSYCR55WU1	400	115 AC	NSYCR400W115VV				
				230 AC	NSYCR400W230VV				
	110-250 AC	NSYCR55WU2	200	115 AC	NSYCRS200W115V				
				230 AC	NSYCRS200W230V				
270-420 AC	NSYCR55WU3								

# ClimaSys DT

## Diagnostic tools



### ClimaSys DTT

- Time stamp/start/stop with magnet key
- Low power consumption for extended two-year battery life
- Easy data download to PC via USB connection
- USB firmware update
- QR code on dataloggers for easy online access to data sheets, videos, and other technical information



### ClimaSys DTH

- Time stamp/start/stop with magnet key
- Dew point reading on LCD and software
- Fast response time for RH sensor
- USB firmware update
- Low power consumption for extended battery life (up to two years)
- QR code on dataloggers for easy online access to data sheets, videos, and other technical information

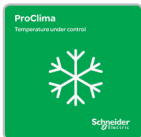


### ClimaSys DTMinilog (single use)

- Activation button to start logging and mark time stamps
- Low power consumption for extended six-month battery life
- Easy data download to PC via USB connection
- USB firmware update
- Compact and easy to use
- QR code on dataloggers for easy online access to data sheets, videos, and other technical information

## ProClima

### ProClima software



- Software package for calculating and selecting the thermal accessories required for enclosures containing electrical and electronic equipment
- Performs the calculations as well as the corrected surfaces, according to the dimensions of the enclosure and its position in relation to the walls
- Available for download on our homepage

## EffiClima

### Thermal tracking software



- A complete diagnosis in 3 steps:
  - **ClimaSys DT dataloggers** measures and track thermal data
  - EffiClima software translates data into a report on temperature, humidity, and dew point
  - **ProClima software** proposes the right thermal management solution based on the data variables

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