



Summer Thermal Management Solutions

Stop High Temperature damage before it starts.
Get protected with Schneider Electric's fully integrated solutions.



schneider-electric.com/enclosures

Life Is On

Schneider
Electric

Without proper thermal management protection, high summertime temperatures can wreak havoc on your enclosures and equipment. With Schneider Electric solutions — you're protected!





SUN RADIATION
EFFECT +



HIGH
TEMPERATURES IN
INSTALLATIONS =



OVERHEATING ON
ELECTRONICAL/
ELECTRICAL
DEVICES

The problem

When the temperatures rise considerably, both indoor and outdoor infrastructures suffer from the sun radiation. High risks of breakdowns from overtemperatures in sensitive electric and electronic equipment pose a major threat to continuous critical applications. PLCs, speed drives, control panels, contactors, switches, batteries, solid state relays and SAI are all particularly sensitive, as they have a threshold of maximum working temperature for efficiency and performance.

The consequence

As summer sets in, high temperatures will have a toll on the equipment and on maintenance teams handling it. It could lead to costly repairs and possible Interruptions. The prolonged exposition to heat on an electrical enclosure can drastically reduce the lifetime of its components and their operation.



Fan not working due to the presence of sugar in the plant (beer production)

Effects:

- Malfunctions and dysfunctions on continuous processes
- Lifetime reduction
- Overheating on surfaces temperatures posing safety threats (>70°C)
- Low energy efficiency due to the electronics that do not work on standard conditions

Consequences:

- Shutdowns and breakdowns of machines and operations
- Risk of loss of equipment reliability
- Estimated costs of installation shut-downs:
 - 50 000 € Metalworking (foundry)
 - 40 000 € Glassworks
 - 10 000 € Motor industry
 - 6 000 € Agri-business industry
 - 35 600 000 € Microprocessor industry
 - 2 940 000 € Banking transaction services
 - 90 000 € Airline ticket-booking services
 - 47 000 € Mobile telephone operators



The concentration of variable speed drives can push the inner temperature up to 70°C or higher (with no thermal solution installed).



Schneider Electric Solution

This is where ClimaSys Thermal Management Solutions come in. Schneider Electric's fully integrated ClimaSys DT diagnostic tools and products combine intelligent dataloggers and thermal design software to evaluate, propose, and balance your system to mitigate and control damage to your equipment – before it happens!

Step 1: diagnosis

First, **ClimaSys Dataloggers** collect, measure, and track the crucial data, then the **EffiClima Software** translates that data and accurately determines real environmental conditions, sun radiation, high temperatures and overheating inside and outside your enclosures.

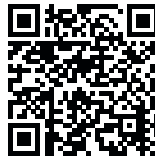
Next, **ProClima Thermal Software** analyzes the data to determine the optimal thermal solution for each of your installations based on their environmental conditions, equipment type, temperature history, etc., and proposes the most effective thermal management solutions.

Don't let summer weather creep up on your equipment. Diagnosing and stabilizing the right temperature inside your enclosures is vital for maximizing the average service life of your installed equipment while keeping your costs down.

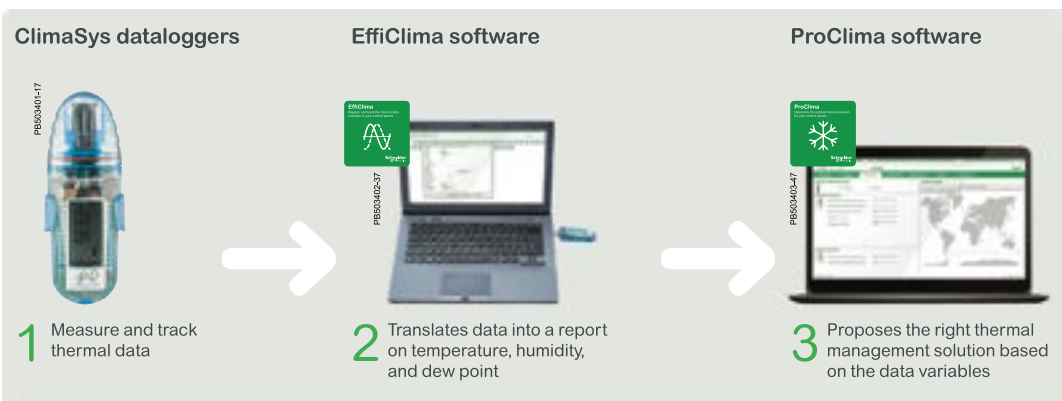
Download EffiClima Software:



Download ProClima Software:



Capture thermal data to find the right thermal solutions



Watch video:
Introducing ClimaSys
DT: diagnostic tools



Step 2: Products

Once ClimaSys Diagnostic Tools has determined your project requirements for either new (Greenfield) or existing (Brownfield) installations, Schneider Electric will provide you with the optimal ClimaSys product range that meets your needs in order to monitor, control, and balance temperature and humidity within your enclosures.

Ventilation and airing



Airing and Forced Ventilation Systems

ClimaSys CV ventilation systems

In some ambients, due to the large amount of heat from electrical devices, it will be necessary to combine heating and ventilation systems. ClimaSys CV is recommended in those cases thanks to its exceptional flow rate efficiency, high protections rating, and ease of installation and maintenance.

Thermal architecture using innovative ultra-thin resistance heater

Cooling



Cooling units

ClimaSys CU cooling units

Choose cooling units for the harshest environments, where ambient temperatures can reach up to 55°C. Efficient air-conditioning keeps enclosures cool, regardless of the outside air temperature, while preventing internal hot spots and overheatings.

Controlling



Thermal control accessories

ClimaSys CC mechanical and electrical thermostats

Whether you prefer mechanical or electrical thermostats, ClimaSys CC Controllers are compact, easy to set up on any variety of rails and mounting plates, and feature easily accessible terminals. They also provide a high energy efficiency of the complete thermal system.



Control Panel



SAFETY

Product selector

ClimaSys DT diagnostic tools



Temperature recorder

Temperature recorder			
Temperature	RH ⁽¹⁾	Reference	Model
-40°C...+80°C	-	NSYDTEF32T	DTT

(1) RH : Relative humidity (%)



Single-use temperature recorder

Single-use temperature recorder			
Temperature	RH ⁽¹⁾	Reference	Model
-40°C...+80°C	-	NSYDTEF32T	DTMinilog

(1) RH : Relative humidity (%)



Temperature, humidity and dew point recorder

Temperature, humidity and dew point recorder			
Temperature	RH ⁽¹⁾	Reference	Model
-40°C...+80°C	5% to 95%	NSYDTEF32TRH	DTH

(1) RH : Relative humidity (%)

Thermal accessories for outdoor Heavy Duty enclosures



Fanbox	
Voltage (V)	Reference
24 DC	NSYCVF550M24FB
48 DC	NSYCVF550M48FB
115 AC	NSYCVF550M115FB
230 AC	NSYCVF550M230FB



Filter
Reference
NSYCAF223T



Roof filter for fanbox
Reference
NSYCAF190



IP55 HD Metal Grid
Reference
NSYCAG223LFHD



Anti-vandalism kit for HD metal grid
Reference
NSYCAAPVHD

ClimaSys CV Ventilation Systems

	Fan flow rate (m³/h)			Voltage (V)	Forced ventilation				
	Free with filter	With 1 outlet grille	With 2 outlet grilles		Fan with filter	Standard Outlet grille	Outdoor cover	Stainless-steel	EMC cover
	50 Hz	50 Hz	50 Hz		IP54 - RAL 7035	IP54 - RAL 7035	IP55 - RAL7035	304L cover - IP 55	IP55 - RAL7035
	38	25	33	230	NSYCVF38M230PF	NSYCAG92LPF	-	-	-
	38	27	35	115	NSYCVF38M115PF				
	58	39	47	24 DC	NSYCVF38M24DPF				
	44	34	41	48 DC	NSYCVF38M48DPF				
	85	63	71	230	NSYCVF85M230PF	NSYCAG125LPF	NSYCAP125LZF	NSYCAP125LXF	NSYCAP125LE
	79	65	73	115	NSYCVF85M115PF				
	80	57	77	24 DC	NSYCVF85M24DPF				
	79	59	68	48 DC	NSYCVF85M48DPF				
	165	153	161	230	NSYCVF165M230PF	NSYCAG223LPF	NSYCAP223LZF	NSYCAP223LXF	NSYCAP223LE
	164	153	161	115	NSYCVF165M115PF				
	188	171	179	24 DC	NSYCVF165M24DPF				
	193	171	179	48 DC	NSYCVF165M48DPF				
	302	260	268	230	NSYCVF300M230PF				
	302	263	271	115	NSYCVF300M115PF				
	262	221	229	24 DC	NSYCVF300M24DPF				
	247	210	218	48 DC	NSYCVF300M48DPF				
	562	473	481	230	NSYCVF560M230PF	NSYCAG291LPF	NSYCAP291LZF	NSYCAP291LXF	NSYCAP291LE
	582	485	494	115	NSYCVF560M115PF				
	838	718	728	230	NSYCVF850M230PF				
	983	843	854	115	NSYCVF850M115PF				
	931	798	809	400	NSYCVF850M400PF				

Product selector

ClimaSys CU Cooling units



Side-mounting models - IP55				
Cooling power L35-L35 W (Btu/h)	Voltage (V AC)	References		
		Steel*	Stainless-steel*	Outdoor Heavy Duty
300 (1024)	230	NSYCU300H**	-	-
380 (1297)	230	NSYCU400	NSYCUX400**	NSYCUHD400
640 (2184)	230	NSYCU600	NSYCUX600	NSYCUHD600
820 (2798)	230	NSYCU800	NSYCUX800	NSYCUHD800
1000 (3412)	230	NSYCU1K	NSYCUX1K	NSYCUHD1K
1000 (3412)	400	NSYCU1K2P4	NSYCUX1K2P4	NSYCUHD1K2P4
1250 (4265)	230	NSYCU1K2	NSYCUX1K2	-
1600 (5459)	230	NSYCU1K6	NSYCUX1K6	NSYCUHD1K6
1600 (5459)	400	NSYCU1K62P4	NSYCUX1K62P4	NSYCUHD1K62P4
2000 (6824)	230	NSYCU2K	NSYCUX2K	-
2000 (6824)	400	NSYCU2K3P4	NSYCUX2K3P4	NSYCUHD2K3P4
2900 (9895)	400	NSYCU3K3P4	NSYCUX3K3P4	NSYCUHD3K3P4
3850 (13137)	400	NSYCU4K3P4	NSYCUX4K3P4	NSYCUHD4K3P4

* For UL version add UL to the end of the reference.

** No UL version available.



Floor-standing models - IP54		
Cooling power L35-L35 W (Btu/h)	References	
	Voltage (V AC)	Steel*
5800 W (19790)	3 x 400	NSYCU6K3P4
6050 W (20643)	3 x 460	NSYCU6K3P460
7600 W (25932)	3 x 400	NSYCU8K3P4
7950 W (27126)	3 x 460	NSYCU8K3P460
9400 W (32074)	3 x 400	NSYCU10K3P4
9850 W (33610)	3 x 460	NSYCU10K3P460
14800 W (50500)	3 x 400	NSYCU15K3P4
15150 W (51694)	3 x 460	NSYCU15K3P460



Top-mounting models - IP54			
Cooling power L35-L35 W (Btu/h)	Voltage (V)	References	
		Steel*	Stainless-steel
410 (1399)	230	NSYCU400R	NSYCUX400R
820 (2798)	230	NSYCU800R	NSYCUX800R
1150 (3924)	230	NSYCU1K2R	NSYCUX1K2R
1550 (5289)	230	NSYCU1K5R	NSYCUX1K5R
2050 (6995)	230	NSYCU2KR**	NSYCUX2KR
2050 (6995)	400	NSYCU2K3P4R	NSYCUX2K3P4R
2900 (9895)	400	NSYCU3K3P4R	NSYCUX3K3P4R
3850 (13137)	400	NSYCU4K3P4R	NSYCUX4K3P4R



SLIM models - IP55			
Cooling power L35-L35 W (Btu/h)	Voltage (V)	References	
		UL Steel	UL Stainless-steel
1100 (3753)	230	NSYCUS1K1UL	NSYCUSX1K1UL
1100 (3753)	400	NSYCUS1K12P4UL	NSYCUSX1K12P4UL
1500 (5118)	230	NSYCUS1K5UL	NSYCUSX1K5UL
1500 (5118)	400	NSYCUS1K52P4UL	NSYCUSX1K52P4UL
2000 (6824)	230	NSYCUS2KUL	NSYCUSX2KUL
2000 (6824)	400	NSYCUS2K3P460UL	NSYCUSX2K3P4UL
2500 (8530)	230	NSYCUS2K5UL	NSYCUSX2K5UL
2500 (8530)	400	NSYCUS2K53P4UL	NSYCUSX2K53P4UL
3200 (10919)	230	NSYCUS3K2UL	NSYCUSX3K2UL
3200 (10919)	400	NSYCUS3K23P4UL	NSYCUSX3K23P4UL

Product selector

ClimaSys CC: thermal control

Mechanical controllers



NC thermostat

Control a resistance heater or an alarm	
Setting range	Reference
0...+60°C	NSYCCOTHC
+32...+140 °F	NSYCCOTHCF



Double thermostat

Control a resistance heater and a fan	
Setting range	Reference
0...+60°C	NSYCCOTHHD
+32...+140 °F	NSYCCOTHDF



NO thermostat

Control a fan or an alarm	
Setting range	Reference
0...+60°C	NSYCCOTHOD
+32...+140 °F	NSYCCOTHOF



Thermostat with inverse contact

Control a resistance heater or a fan	
Setting range	Reference
0...+60°C	NSYCCOTHID
+32...+140 °F	NSYCCOTHIF

Electronic Controllers



Electronic thermostat

Control a resistance heater or a fan		
Setting range	Display	Reference
+5°C...+50°C	°C ou °F	NSYCCOTH30VID
		NSYCCOTH120VID
		NSYCCOTH230VID

7 different operating modes.
Option of installing one or two external sensors.



Electronic hygostat

Control relative humidity		
Setting range	Display	Reference
20% ...80%	% RH	NSYCCOHY30VID
		NSYCCOHY120VID
		NSYCCOHY230VID

2 different operating modes.



Electronic hygrotherm

Control temperature and relative humidity		
Setting range	Display	Reference
+5°C...+50°C	°C ou °F ou %RH	NSYCCOHYT30VID
		NSYCCOHYT120VID
		NSYCCOHYT230VID

3 different operating modes.
Option of installing an external sensor.

Sensors



Temperature sensor

External temperature sensor (double insulation)	
Reference	
NSYCCASTE	

Product selector

ClimaSys CR Heating Systems



Insulated resistance heater with fan		
Power (W)	Voltage (V)	Reference
177	230 CA	NSYCR170W230VVC



Thermofans		
Power (W)	Voltage (V)	Reference
400/550	120 AC	NSYCRP1W120VTVC
400/550	230 AC	NSYCRP1W230VTVC



Ultra thin resistance heaters			
Power (W)	Voltage (V)	Dimensions (mm)	Reference
10	120	130 X 250 X 1.6	NSYCRS10W120V
10	240	130 X 250 X 1.6	NSYCRS10W240V
25	120	130 X 250 X 1.6	NSYCRS25W120V
25	240	130 X 250 X 1.6	NSYCRS25W240V
50	120	200 X 320 X 1.6	NSYCRS50W120V
50	240	200 X 320 X 1.6	NSYCRS50W240V
100	120	280 X 450 X 1.6	NSYCRS100W120V
100	240	280 X 450 X 1.6	NSYCRS100W240V
200	120	400 X 650 X 1.6	NSYCRS200W120V
200	240	400 X 650 X 1.6	NSYCRS200W240V



Resistance heaters aluminium		
Power (W)	Voltage (V)	Reference

Power cord		
10	12-24 DC	NSYCR10WU1
10	110-250 AC	NSYCR10WU2
20	12-24 DC	NSYCR20WU1
20	110-250 AC	NSYCR20WU2

Terminal block		
20	270-420 AC	NSYCR20WU3
55	12-24 DC	NSYCR55WU1
55	110-250 AC	NSYCR55WU2
55	270-420 AC	NSYCR55WU3
90	12-24 DC	NSYCR100WU1
90	110-250 AC	NSYCR100WU2
90	270-420 AC	NSYCR100WU3
150	12-24 DC	NSYCR150WU1
150	110-250 AC	NSYCR150WU2
150	270-420 AC	NSYCR150WU3



Insulated PTC heaters		
Power (W)	Voltage (V)	Reference
10	12-24 DC	NSYCR10WU1C
10	110-250 AC	NSYCR10WU2C
20	12-24 DC	NSYCR20WU1C
20	110-250 AC	NSYCR20WU2C
55	12-24 DC	NSYCR50WU1C
55	110-250 AC	NSYCR50WU2C
55	270-420 AC	NSYCR50WU3C
100	12-24 DC	NSYCR100WU1C
100	110-250 AC	NSYCR100WU2C
100	270-420 AC	NSYCR100WU3C
147	12-24 DC	NSYCR150WU1C
147	110-250 AC	NSYCR150WU2C



Resistance heaters with fan		
Power (W)	Voltage (V)	Reference

250	115 AC	NSYCR250W115VV
250	230 AC	NSYCR250W230VV
400	115 AC	NSYCR400W115VV
400	230 AC	NSYCR400W230VV
200	115 AC	NSYCRS200W115V
200	230 AC	NSYCRS200W230V

More information

Control Panel Technical Guide

How to reduce damage to components through effective thermal management

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Control Panel Technical Guide:

How to reduce damage to components through effective thermal management



Reference: CPTG001_EN

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Learn more about ClimaSys thermal management solutions
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