## Control cabinet planning with ELECTRIX and Thermal analysis with ProClima from Schneider Electric

More and more components in the control cabinet, which are also constantly in operation, increase the power loss, which is reflected in the form of heat. Electronic components in particular react to this with a reduced lifetime and even failures. Humidity and condensation also have a negative impact on the reliability of the components. Proper air conditioning therefore helps to ensure operational reliability and increases the availability of the system as a whole. Therefore, planners are well advised to consider - and calculate - the heat balance in the control cabinet. ProClima from Schneider Electric offers a simple way to calculate and select thermal components used in control cabinets for electrical or electronic switching and control systems.

Schneider Electric's ProClima widget is now an integral part of ELECTRIX Professional. The technical data of the components assembled with the control cabinet layout in ELECTRIX are thereby transferred to the widget.



ProClima is called up via the menu **Interfaces** directly from the electrical planning software of WSCAD.



Values for the power dissipation of the planned components and the dimensions of the control cabinet are taken from the manufacturer-independent article database of WSCAD via ELECTRIX and form the basis of the thermal calculation in ProClima.

н	Heat calculation Schneider Electric ProClima						
	Overview Power dissipation						
	Ref. name of control cabinet	=A1+ST-U1		-			
	Part	9680.606					
	Height in mm	2000					
	Width in mm	600					
	Depth in mm	600					
	Total power dissipation in watts	546 230					
	Voltage in V						
	Frequency in Hz	50					
	Language	EN		-			
			Transfer	Cancel			

Missing values can be added manually and saved in the WSCAD article database for future projects. This helps with article maintenance and saves time.

Heat calculation Schneider Electric ProClima						
Overview Power dissipation						
Ref. name	Part number	Manufacturer	Power dissipation	^		
=005+S-F0	BDL36125LU	Schneider Electric	8			
=250+S-F1	GV3L50	Schneider	5			
=250+S-Q11	LC1D32BNE	Schneider Electric	4			
=250+S-Q13	LC1D32BNE	Schneider Electric	4	11		
=250+S-Q15	LC1D32BNE	Schneider Electric	4			
=250+S-F2	LR9D32	Schneider Electric	3	11		
=270+S-F1	GV4	Schneider Electric	6	11		
=260+S-F1	GV3P65	Schneider	7			
=260+S-Q1	LC1D65ABBE	Schneider Electric	3			
=310+S-T1	ATV320U15N4B	Schneider	27			
=030+S-C1	ABL8BPK24A03	Schneider Electric	13	$\mathbf{v}$		
		Save in part database	<u>C</u> ancel			

The thermal balance is calculated in six steps. ProClima takes into account the temperature specifications and the climatic conditions at the installation site.

In the first step, the project data is transferred from ELECTRIX.

The second step is the type of installation. The dimensions of the control cabinet are automatically transferred from ELECTRIX to the widget. The widget automatically queries any missing values.

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Life Is On Schneider	E Life Is On Schneider
1. Project Data         2. Enclosure         3. Temperatur         4. Dissipated         5. Thermal solution         6. Results	1. Project     2.     3.     4.     5. Thermal     6. Results       Data     Temperatur     Dissipated     Solution     6. Results
Validate and go to the next screen >	< Back
	Validate and go to the next screen >
Installation information Type of installation Indoor installation Outdoor installation	
Electrical Data	
Rated voltage (V) of control system	Select one of the two options
230V	Enclosure dimensions
Network frequency (Hz)	
50 Hz	Enclosure dimensions
Ŗ	Height (mm) 2000

Then, in step 3, the climatic conditions at the installation site and the allowed temperature range for the components in the control cabinet are recorded.

In the fourth step, the power loss is displayed. This value is calculated on the basis of the article data and can still be adjusted at this point if necessary.

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< Back	< Back
Valuate and go to the next screen 2	Choose one of the two possible methods to specify the thermal data.
etect the temperature range         ° Centigrade         ° Fahrenheit	Known power
Dutside the enclosure	Dissipated power
Dutside the enclosure Highest temperature expected outside the enclosure (°C)	Dissipated power Known dissipated power (W) (459W)
Dutside the enclosure Highest temperature expected outside the enclosure (°C) 30.00	CDissipated power Known dissipated power (W) (459W) 546
Dutside the enclosure Highest temperature expected outside the enclosure (°C) 30.00 Lowest temperature expected outside the enclosure (°C)	Dissipated power Known dissipated power (W) (459W) 546
Highest temperature expected outside the enclosure (°C) 30.00 Lowest temperature expected outside the enclosure (°C) 10.00	C Dissipated power Known dissipated power (W) (459W) 546 C Sack
Dutside the enclosure         Highest temperature expected outside the enclosure (°C)         30.00         Lowest temperature expected outside the enclosure (°C)         10.00         Relative humidity (%)	C Dissipated power Known dissipated power (W) (459W) 546 C C C C C C C C C C C C C C C C C C C
Dutside the enclosure         Highest temperature expected outside the enclosure (°C)         30.00         Lowest temperature expected outside the enclosure (°C)         10.00         Relative humidity (%)         70	C Dissipated power Known dissipated power (W) (459W) 546 C C Back Validate and go to the next screen >
Highest temperature expected outside the enclosure (°C)         30.00         Lowest temperature expected outside the enclosure (°C)         10.00         Relative humidity (%)         70         Height above sea level (m)	C Dissipated power Known dissipated power (W) (459W) 546 C C Back Validate and go to the next screen >

With this information, the software now determines possible measures and suggests temperature control components for balancing the environment and the devices installed in the switchgear.

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Life Is On Schneider	Life Is On Schneider		Ξ
1. Project 2. 3. 4. 5. Thermal 6. Results			
Data Enclosure Temperatur Dissipated solution		< Back	
	Ċ	Last step and finish plugin	
< Back	<	1	>
Validate and go to the next screen >	Thermal solution New ventilation	⊥ n solution with automatic filter change dete	ction
	Part Number List		
	Necessary Performa	264.45 m³/h	
	Provided Performar	412.00 m³/h	
	% Reservation perc	55.79%	
Fans -		Signatur	
	Dimension compatibility check		*
	:At least 1 device Door fits:0 devices fit	Sides Back Roof	
	Mounting	$\odot$	
Filter type	Characteristics		*

Based on the selected air conditioning solution, in the last step the article data of the components are transferred from ProClima to the Electrical-CAD software ELECTRIX and proposed as "new material" for transfer to the project.

New	materia	I							-		×
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		Symbol type	Ref. name	Part	Symbol name	Function text	Manufacturer				
Þ	• 1	Standard	-S8	NSYCVF560M23	Filterstat fan						
	2	Standard	-S9	NSYCAG291DG	Filterstat grid						
	3	Standard	-S10	NSYCCOFST902	Filterstat contro						
	4	Standard	-S11	NSYCCA400MFST	Filterstat com						
	5	Standard	-S12	NSYCCA400MFST	Filterstat com						
	6	Standard	-S13	NSYCCA400MFST	Filterstat com						
	7	Standard	-S14	NSYCCOTH230	Electronical The						
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If the selection is confirmed, the component data are transferred to ELECTRIX. The components can now be added to the WSCAD project via the Material Explorer.

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P										
	Tech Tj Reference designation ▲			Symbol name	Function text	Part	^			
-			-S8		Filterstat fan		NSYCVF560M230			
-			-S9		Filterstat grid		NSYCAG291DG			
-			-S10	) Filterstat controller			NSYCCOFST9025			
-			-S11		Filterstat communicatio		NSYCCA400MFST			
-			-S12		Filterstat communicatio		NSYCCA400MFST			
-			-S13		Filterstat communicatio		NSYCCA400MFST			
-			-S14		Electronical Thermosta		NSYCCOTH230VID			

With the integration of ProClima in ELECTRIX, users simply and quickly take advantage of Schneider Electric's experience and knowledge already during project planning. The otherwise time-consuming manual data collection as a basis for thermal caculation is eliminated and the project planning time is significantly reduced. In addition, the automatic selection of the correct and coordinated components by the widget provides security for configuring a reliable control cabinet.