

Technical characteristics

Type of power supply		ABL-7RE	ABL-7RP	ABL-7RU
Approvals		UL508, CSA 22.2 n° 950, TÜV		UL508, CSA 22.2 n° 950
Conforming to standards				
Safety		IEC 950		
EMC		EN50081- 2, IEC61000-6-2 (EN50082-2)		
Low frequency harmonic currents		–	EN61000-3-2	

Input circuit

Input voltages				
Rated values	V	a 100...240	a 100...240, c 110...220	3 x a 400...500
Permissible values	V	a 85...264 single-phase	a 85...264 single-phase c 99... 250	a 360...550 3-phase
Permissible frequencies	Hz	47...63		
Efficiency at nominal load		> 85 %		> 90 %
Current at switch-on	A	< 30		< 10
Power factor		a 0.65	a 0.98	a 0.70

Output circuit

Precision				
Output voltage		Adjustable, from 100 to 120 %		
Line and load regulation		± 3 %		± 1 %
Residual ripple - interference	mV	< 200		
Micro-breaks				
Holding time at I max and Ve min	ms	> 10	> 20	> 3.3
Overloads				
Permissible peak current		Unlimited for 100 ms		
Protection		Permanent/automatic restart	Permanent/automatic restart or manual restart on product	Permanent/automatic restart
Short-circuit				
Overload		1.1 In		1.1 In
Overvoltage		Tripping if U > 1.5 Un		
Undervoltage		Tripping if U < 0.8 Un		

Operational and environmental characteristics

Connections			
input	mm ²	2 x 2.5 + earth	
output	mm ²	2 x 2.5 + earth, multiple output, depending on model	3 x 2.5 + earth 4 x 10 + earth
Ambient conditions			
Storage temperature	°C	- 25... + 70	
Operating temperature	°C	0... + 60° C (derating as from 55° C)	
Maximum relative humidity		95 % without condensation or dripping water	
Degree of protection		IP 20 conforming to IEC529	
Vibrations		Conforming to EN61131-2	
Operating position		Vertical	
MTBF		> 100 000 h (Conforming to Bell Core, at 40° C)	
Connections			
Series		Possible	
Parallel		Possible (maximum temperature 50° C)	
Dielectric strength			
Input/output		3000 V/50 Hz 1 min	3750 V/50 Hz 1 min
Input/earth		3000 V/50 Hz 1 min	3500 V/50 Hz 1 min
Output/earth (and output/output)		500 V/50 Hz 1 min	500 V/50 Hz 1 min
Input fuse incorporated		Yes, not interchangeable	No
Emissions		EN50081-1 (Generic)	
Conducted/radiated		EN55011/EN55022 cl.B	
Immunity		IEC61000-6-2 (Generic)	
Electrostatic discharge		EN61000-4-2 (4 kV contact/8 kV air)	
Electromagnetic		EN61000-4-3 level 3 (10 V/m)	
Conducted interference		EN61000-4-4 level 3 (2 kV) , EN61000-4-5, EN61000-4-6 level 3, EN61000-4-8 level 4.	
Mains interference		EN1000-4-11 (Voltage drops and cuts)	

Type of power supplies			ABL-6RT				ABL-6RF						
			2410	2420	2430	2440	2401p	2402p	2405p	2410	2415	2420	
Technical characteristics													
Input	Input voltages	Permissible values	V	400 3-phase (- 10...+ 10 %) with + 5 % and - 5 % connectors				All products: 230 or 400 single-phase (- 10... +10 %) with - 15 V and + 15 V connectors except ABL-6RF24ppG2 : 120 or 240 single-phase (- 10... +10 %) with - 15 V and + 15 V connectors					
		Permissible frequencies	Hz	47...63				47...63					
		Efficiency (1)	%	73	78	77	78	71	75	75	80	80	93
Output	Precision	Output voltage	V	24 nominal Min : 20.4; Max : 28.8				24 nominal Min : 20.4; Max : 28.8					
		Output current	A	10	20	30	40	1	2.5	5	10	15	20
		Residual ripple (1)		≤ 2 %				≤ 5 %					
	Protection	Overload and short-circuit		External, depending on output current				External, depending on output current, except ABL-6RF2401p , ABL-6RF2402p , ABL-6RF2405p : 5 x 20 internal fuse					
		Transient output overvoltage		Peak limiter 2 J				Peak limiter 2 J					
Environment													
Connections	Input	mm ²	1 x 4 + earth				1 x 4 + earth						
	Output	mm ²	2 x 4 + earth				2 x 4...2 x 16 + earth						
Ambient air temperature around the device	Storage	°C	- 40...+ 80										
	Operation	°C	- 25...+ 60										
Maximum relative humidity			90 % without condensation or dripping water										
Degree of protection			IP 20										
Protective treatment			“TC”										
Operating position			All positions				Vertical						
Dielectric strength	Input/output	V	a 4000										
	Input/earth	V	a 2000										
	Output/earth	V	a 2000										
Connections	Series		Possible										
	Parallel		Possible, with 20 % derating										
Conforming to standards			EN 60742; UL 1950; IEC 1131-2; CSA-C22.2 N°234 or 950 DIN 19240										
Approvals			UL, c UL										

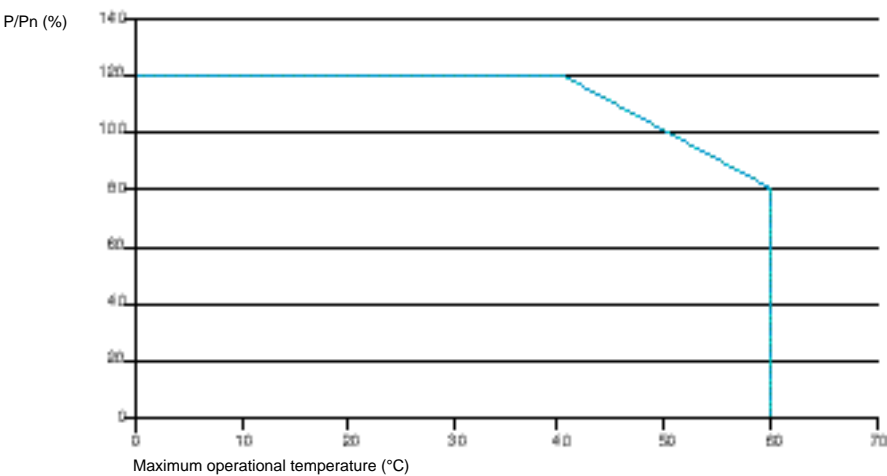
(1) At nominal input voltage and load

Derating

The ambient temperature is a determining factor which limits the power that an electronic power supply can deliver continuously. A temperature which is too high around the electronic components significantly reduces their life. However, if the ambient temperature remains largely below the rated operating temperature, then a power supply can deliver more than its nominal power.

The rated ambient temperature for Phaseo power supplies is 50°C. Below this, an increase in rating is possible up to 120% of the nominal power. Above 50°C, a derating is necessary up to a maximum temperature of 60°C.

The graph below shows the power (in relation to the nominal power) which the power supply unit can deliver continuously, according to the ambient temperature.



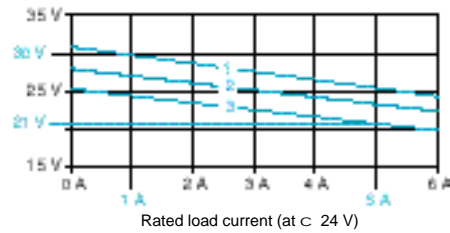
Derating should be considered in the following extreme operating conditions:

- intensive operation (output current permanently close to the nominal current, combined with a high ambient temperature),
- output voltage set above 24V (to compensate for line voltage drops, for example),
- parallel connection to increase the total power.

	Phaseo RE	Phaseo RP	Phaseo RU
Intensive operation	Without derating, from 0°C to 50°C Derating of nominal current by 1% per additional °C up to 60°C		Without derating, from 0°C to 60°C
Rise in output voltage	The nominal power is fixed. Increasing the output voltage means that the current delivered must be reduced.		
Parallel connection to increase the power	The total power is equal to the sum of the powers of the power supplies used, but the maximum ambient temperature for operation is 50°C. To improve heat dissipation, the power supplies must not be in contact with each other.		

In all cases, there must be adequate convection round the products to ensure easier cooling; There must be a clear space of 50 mm above and below Phaseo power supplies and of 15 mm at the sides.

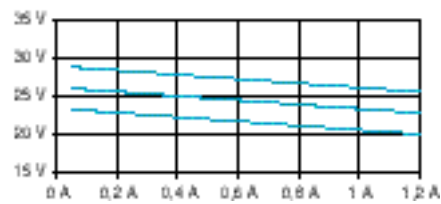
Example using the graph



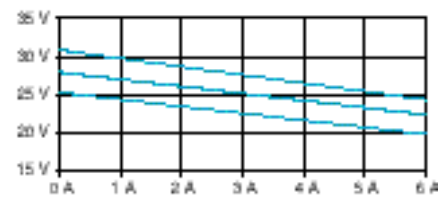
For an ABL-6RF2405 power supply used with a variable load of 1 to 5 A on a mains supply with $U_n \pm 10\%$, the graph shows the limits at the load terminals : 21 and 30 V.
Note : permitted loads are represented vertically as images of the rated load current at rated voltage.

- 1 Rated supply +10%
- 2 Rated supply
- 3 Rated supply -10%

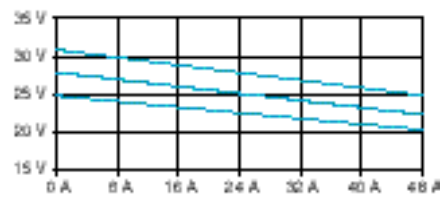
ABL-6RF2401/G2



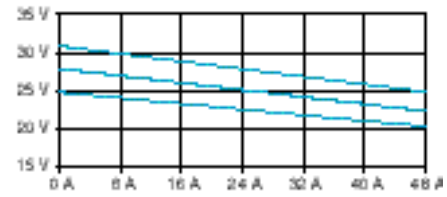
ABL-6RF2405/G2



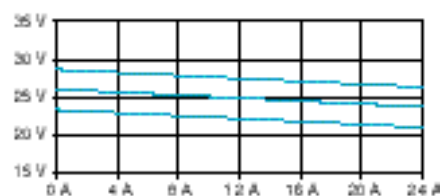
ABL-6RF2410



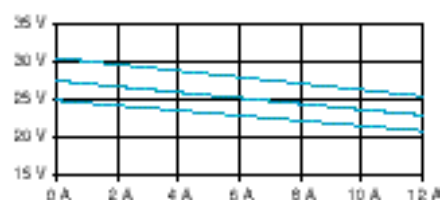
ABL-6RF2415



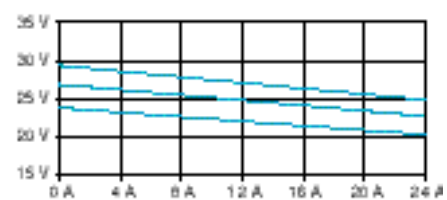
ABL-6RF2420



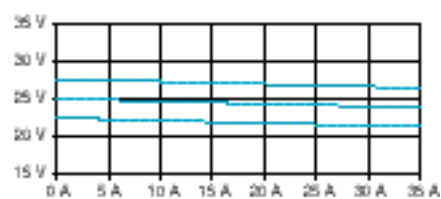
ABL-6RT2410



ABL-6RT2420



ABL-6RT2430



ABL-6RT2440

