

# Regulated switch mode power supplies Phaseo ABL4

Catalogue

September **2010**





> In need of space  
in your cabinets?

# Optimize your installations by using our compact power supplies

Designed for industrial machines, the new Phaseo™ ABL4 power supplies are easy to integrate into automation system cubicles and cabinets, thanks to their particularly small size.

Providing an output of 3.5 A to 40 A and usable in single-phase and three-phase installations, they meet the most demanding automation requirements.

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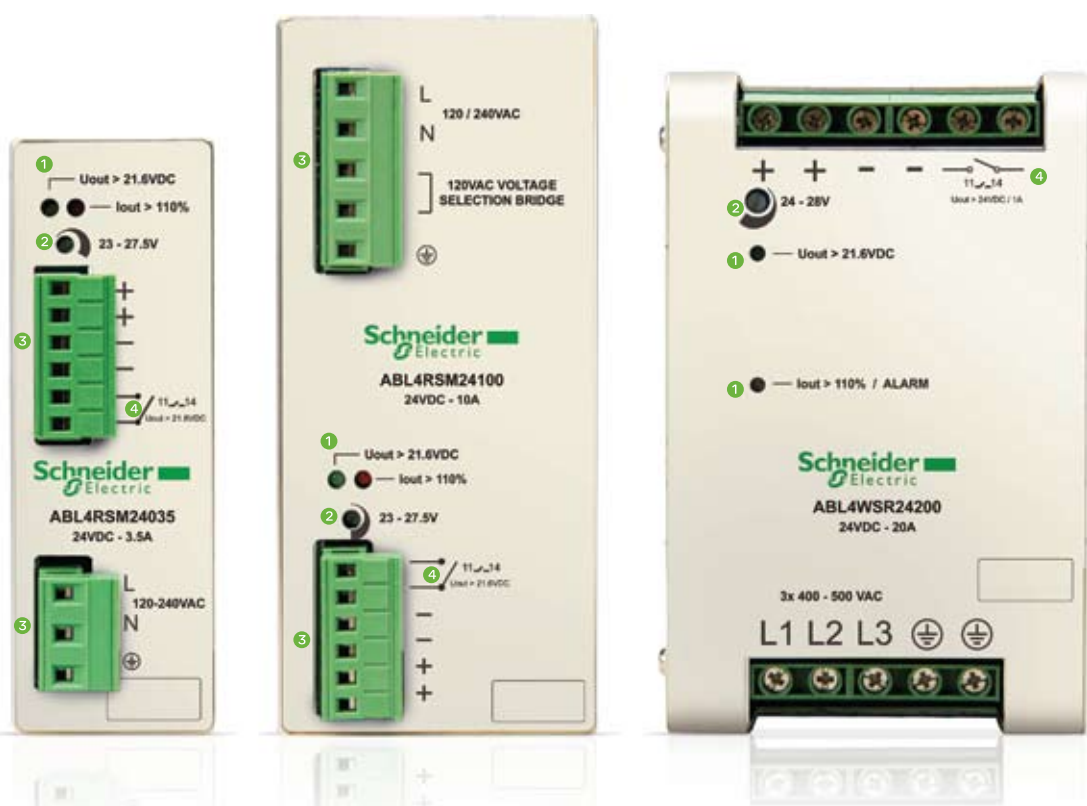
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Make the most of your energy<sup>SM</sup>



# Concentrated efficiency in a minimum size

Using switch mode technology, these power supplies guarantee just the required quality of output current. Their high efficiency enables us to offer power supplies among the most compact on the market, considerably reducing the space required in cabinets and cubicles.

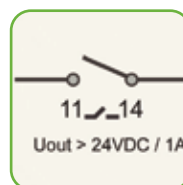
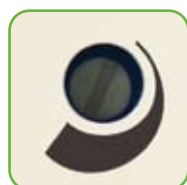
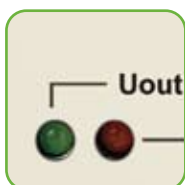
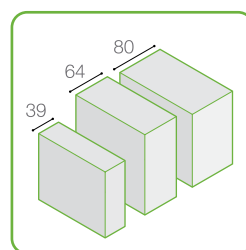


**1 Simplify the maintenance of your installations**  
The diagnostic LED provides instant identification of any system problems.

**2 Suitable for your application**  
Voltage adjustment compensates for voltage drops due to cable length

**3 Speed up maintenance work**  
Using plug-in terminals (up to and including the 240 W model).

**4 Maximum safety**  
Thanks to a diagnostic contact to report any output voltage problem



**50%**  
gain in the surface area occupied in your cabinets

Phaseo ABL4 even smaller!

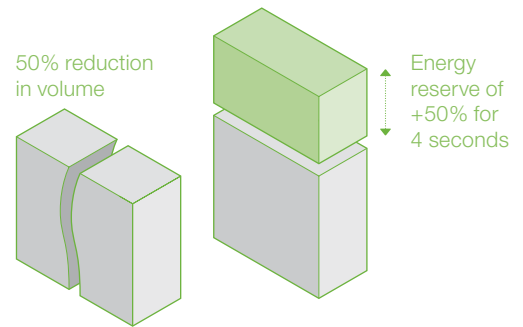
## > Reduce your costs

### In machine design and manufacture:

- Oversizing of power supplies is no longer necessary, thanks to the new Phaseo range from Schneider Electric™ with its energy reserve (50% of extra current for at least 5 seconds)
- Choose exactly what you need for your installations by using the 30 A version
- Create an economical redundant power supply solution thanks to the redundancy diode incorporated in the ABL4RSM24200 model

### In maintenance:

- Advanced diagnostics by LED and relay contact
- Snaps on to the Omega rail
- Plug-in terminals up to and including the 240 W model



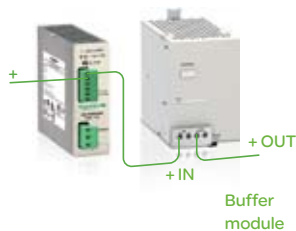
## > Benefit from better service

### Phaseo is also a complete range of functional modules to ensure peace of mind regarding the correct operation of your applications:

- Protection against mains power failures with ABL8B buffer modules and battery back-up
- Service continuity with the ABL8RED redundancy module
- Selectivity of 24 VDC circuits with the ABL8PRP output protection module

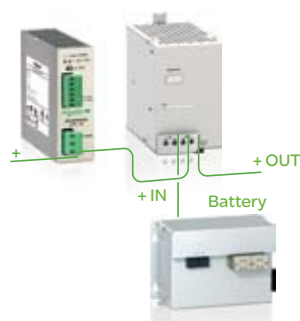
#### The buffer module solution

Micro-outages of a few seconds

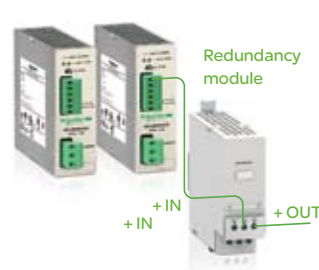


#### The battery back-up solution

Outages > a few seconds



#### The redundancy solution



#### The output protection solution



## > Reliability of operation

- No voltage drop for an output overload of less than 5 seconds
- Continuity of operation if one phase is lost (ABL4W)
- The very high efficiency of our power supplies reduces consumption and component heating

### Multiple protections:

- Against output overloads (automatic re-arming when the fault disappears)
- Against voltage surges generated on the output by switching inductive loads
- Against abnormal rises in ambient temperature

# Power supplies and transformers

## Phaseo

Regulated switch mode power supplies  
**ABL4**  
 85 to 960 W - Compact - Rail mounting

**Power supplies**

**Regulated switch mode power supplies**  
**ABL4: 85 to 960 W - Compact - Rail mounting**



<b>Nominal input voltage</b>	
<b>Connection to worldwide line supplies</b>	United States - 120 V (phase-to-neutral) - 240 V (phase-to-phase)  Europe - 230 V (phase-to-neutral) - 400 V (phase-to-phase)  United States - 277 V (phase-to-neutral) - 480 V (phase-to-phase)

~ 100...230 V	~ 120 V or ~ 230 V	~ 400...500 V
Single-phase (N-L1) connection	Single-phase (N-L1) connection or 2-phase (L1-L2) connection	–
–	Single-phase (N-L1) connection	3-phase (L1-L2-L3) connection
–	–	3-phase (L1-L2-L3) connection

<b>Undervoltage control</b>	
<b>Protection against overloads and short-circuits</b>	
<b>Diagnostics relay</b>	
<b>Compatibility with function modules</b>	
<b>Power reserve (Boost)</b>	

No	No	No
Yes, current limitation Automatic reset on elimination of the fault		
Yes	Yes	Yes
Yes with buffer module, battery and battery check modules, redundancy module and discriminating downstream protection module		
Depending on model: 1.5 to 1.7 I <sub>n</sub> for 5 to 30 seconds		

<b>Output voltage</b>	
<b>Output current</b>	3.5 A 5 A 10 A 20 A 30 A 40 A

☰ 24 V		
<b>ABL 4RSM24035</b>		
<b>ABL 4RSM24050</b>		
	<b>ABL 4RSM24100</b>	
	<b>ABL 4RSM24200</b>	<b>ABL 4WSR24200</b>
		<b>ABL 4WSR24300</b>
		<b>ABL 4WSR24400</b>

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**Function modules** **Converters DC/DC**



Compatibility	Output connection of power supplies	
Rated output voltage	5 V	12 V
Rated output current	6 A	2 A
Reference	<b>ABL8DCC05060</b>	<b>ABL8DCC12020</b>

**Function module** **Connection of 2 power supplies inputs up to 20 A (1 power supply 40A)**



Compatibility	Connection of 2 power supplies inputs up to 20 A (1 power supply 40A)	
Rated output voltage	24 V	
Rated output current	40 A	
Reference	<b>ABL8RED24400</b>	

**Function module** **Starter protection solution**



Compatibility	Output connection of power supplies	
Rated output voltage	10 A per channel	
Calibres	1 / 2.5 / 4 / 5 / 7 / 8 / 10 A	
Number of channels	4	
Default relay	yes	
Manual breaking (1 per channel)	<b>Two-pole</b>	
Reference	<b>ABL8PRP24100</b>	

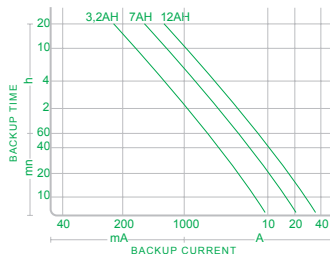
**Function modules** **Microcuts and cuts network solutions**



Compatibility	Output connection of power supplies		
Technology	Buffer module	battery backup module + battery	
Rated voltage	40 A	20 A	40 A
Holding time 1A	2 s typical	adjustable from 10 s to 24 H (battery depending)	
Holding time for I max	100 ms typical	adjustable from 10 s to 30 mn (battery depending)	adjustable from 10 to 10 mn (battery depending)
Reference module	<b>ABL8BUF24400</b>	<b>ABL8BBU24200</b>	<b>ABL8BBU24400</b>
Reference battery	3.2AH (2)	<b>ABL8BPK24A03</b>	<b>ABL8BPK24A03</b>
	7AH (2)	<b>ABL8BPK24A07</b>	<b>ABL8BPK24A07</b>
	12AH (2)	<b>ABL8BPK24A12</b>	<b>ABL8BPK24A12</b>

(1) Battery module except 7AH and 12AH. For battery module 3.2AH with ABL1A02 kit.

(2) Battery to be chosen according to the graph below.



# Power supplies and transformers

## Phaseo

Regulated switch mode power supplies  
**ABL4**  
 85 to 960 W - Compact - Rail mounting



### Presentation

#### The range

The Phaseo regulated switch mode power supplies ABL4 offer is designed to provide the DC voltage necessary for the control circuits of automation system equipment consuming 85 W to 960 W on  $\sim$  24 V.

Comprising 7 products, this range of power supplies meets the needs encountered in industrial applications.

Using electronic switch mode technology, these power supplies provide a quality of output current that is suitable for the loads supplied and compatible with the following ranges:

- Twido™ programmable controllers
- Modicon™ logic controllers M238 and M258
- Modicon motion controllers LMC 058
- automation platforms M340, Premium, and Quantum

Due to their high overload withstand, the power supplies ABL4 are the power supply solution for stepper motors, servo motors, and integrated drives.

When used with function modules ABL8B/RED/D/P, they ensure continuity of service in the event of power outages or application malfunctions. In addition, the ABL 4RSM24200 model can be used in a redundant power supply without an additional redundancy module due to its integrated diode.

Their high effectiveness enables us to offer power supplies that are among the smallest on the market, thus considerably reducing the space required in enclosures.

#### Compatibility with distribution systems

Power supplies ABL4 must be connected in phase-to-neutral, phase-to-phase (1) for the ABL 4R, and in 3-phase for the ABL 4W.

They deliver a voltage that is precise to within  $\pm$  1% whatever the load and whatever the type of line supply, within the following ranges:

- $\sim$  90...264 V for the ABL 4RSM24035 and ABL 4RSM24050,
- $\sim$  90...132 V and  $\sim$  185...264 V for the ABL 4RSM24100 and ABL 4RSM24200,
- $\sim$  340...550 V for the ABL 4W.

#### Standards and certifications

Conforming to IEC standards and UL certified, the power supplies ABL4 are suitable for universal use: they can be used to supply Protection Extra Low Voltage (PELV) or Safety Extra Low Voltage (SELV) circuits in compliance with standard IEC/EN 60364-4-41 due to their double insulation between the input circuit (connected to the line supply) and the output circuit and their internal device limiting the output voltage to less than 60 V in the event of an internal fault.

#### Diagnostics

The operation of the power supply ABL4 can be checked using 2 LEDs located on the front face.

A normally open contact (NO) relay also enables checking of the output voltage compliance (contact closed if the output voltage exceeds 90% of the nominal voltage).

#### Protection

Power supplies ABL4 have the following continuous protection (2):

- protection against overvoltages on the output circuit
- thermal protection
- protection against overcurrents and short-circuits on the output circuit

#### Mounting

Power supplies ABL4 are mounted on Omega ( $\Omega$  35 mm) rail.

(1) Only on certain American line supplies.

(2) With automatic restarting.



# Power supplies and transformers

## Phaseo

### Regulated switch mode power supplies

#### ABL4

#### 85 to 960 W - Compact - Rail mounting

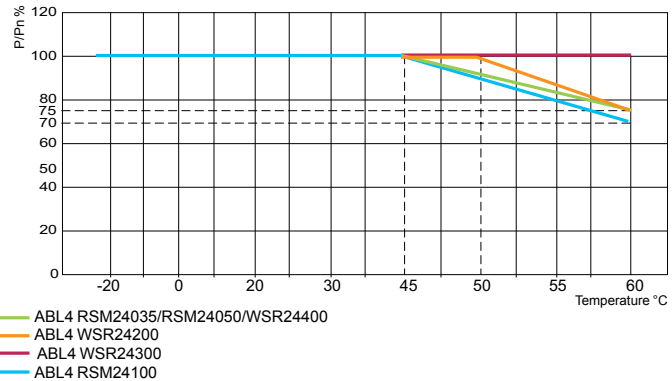
### Characteristics

#### Derating

The ambient temperature is a determining factor which limits the power that an electronic power supply can deliver continuously. If the temperature around the electronic components is too high, their life will be significantly reduced.

The nominal ambient temperature for power supplies ABL4 is, depending on the reference, 45, 50 or 60°C. Above this temperature, derating is necessary up to a maximum temperature of 60°C.

The adjacent graph shows the power as a percentage of the nominal power that the power supply can deliver continuously, in relation to the ambient temperature.



In all cases, there must be adequate convection around the products to assist cooling.

There must be sufficient clearance around power supplies ABL4: refer to instruction sheet supplied with each power supply and, also, downloadable from [www.schneider-electric.com](http://www.schneider-electric.com)

#### Temporary overcurrents

Power supplies ABL4 have an energy reserve allowing them to supply the application, according to the references, from 150% to 170% of the nominal current for 5 seconds and up to 30 seconds, whilst guaranteeing an output voltage higher than 90% of the nominal voltage.

Power supply	Maximum temporary overcurrent	Maximum time of temporary overcurrent
ABL 4RSM24035	170% of nominal current	30 seconds
ABL 4RSM24050	160% of nominal current	30 seconds
ABL 4RSM24100	150% of nominal current	30 seconds
ABL 4RSM24200 ABL 4WSR24●00	150% of nominal current	5 seconds

The time interval between each overcurrent cannot be less than 10 seconds.

When the overcurrent value exceeds the reserve energy value, when the overcurrents are too closely spaced, or when the overcurrent is prolonged (depending on the reference) more than 5 seconds and up to 30 seconds, the power supply switches to protection mode.

#### Behaviour in event of overcurrents and short-circuits

In the event of overcurrent or short-circuit, the power supply ABL4 switches to protection mode and periodically attempts a reset ("Hiccup" mode) until the fault disappears. Once the output circuit load conditions return to normal, the power supply automatically resets.

Power supply	Periodic reset frequency type
ABL 4RSM24035 ABL 4RSM24050 ABL 4RSM24100	Variable: depends on the overcurrent value and the ambient temperature. In the event of a short-circuit (output voltage close to 0 V), the current is established for 50 ms approximately every 1.8 seconds.
ABL 4RSM24200 ABL 4WSR24●00	Fixed: the current is established for 5 seconds every 15 seconds either in the event of an overcurrent or a short-circuit.

#### Connecting in parallel

In order to increase the current available, the outputs of two power supplies with identical references can be connected in parallel.

To obtain equitable sharing of the current between the two power supplies, the following precautions must be taken into account:

- Use two power supplies bearing the same date code and same reference.
- Adjust the output voltages so as to obtain the same voltage value, to within plus or minus 20 mV, 10 minutes after power-up with a load consumption of less than 20% connected on each power supply output.
- Connect one of the "+" terminals and one of the "-" terminals of each power supply to a terminal using wires of the same length and diameter.
- Use wires with the largest cross-section as possible.

The maximum usable current is 1.8 times the nominal current of the power supply.

Redundancy of the power supply ABL 4RSM24200 can be achieved without adding a specific module, due to the specific diode that is integrated in these products.

For other power supply references, redundancy module ABL 8RED24400 must be used.

*Additional technical information on [www.schneider-electric.com](http://www.schneider-electric.com)*

# Power supplies and transformers

## Phaseo

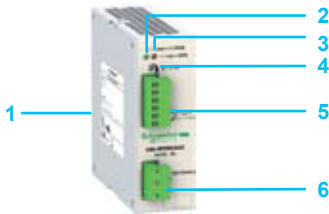
Regulated switch mode power supplies  
ABL4  
85 to 960 W - Compact - Rail mounting

Characteristics (continued)			
Selection of protection on the power supply primaries			
Power supply	Type of protection		
	Miniature circuit-breakers C60N (Icn > 1.5 kA)	Fuses	Class CC fuses with rejection system
Zone in which equipment used			
Rest of the world			USA & Canada
ABL 4RSM24035	4 A curve C	4 A time-lag	6 A
ABL 4RSM24050	4 A curve C	4 A time-lag	6 A
ABL 4RSM24100	6 A curve C	6.3 A time-lag	6 A
ABL 4RSM24200	16 A curve C 10 A curve D	15 A time-lag	10 A
ABL 4WSR24200	3 x 10 A curve C	3 x 3.15 A time-lag	3 x 10 A
ABL 4WSR24300	3 x 10 A curve C	3 x 5 A time-lag	3 x 10 A
ABL 4WSR24400	3 x 10 A curve C	3 x 6.3 A time-lag	3 x 10 A

### Description

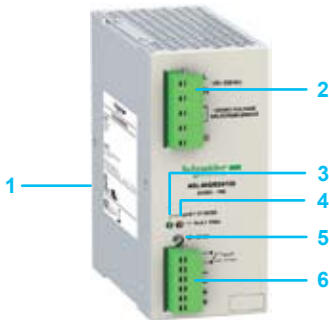
The regulated switch mode power supplies ABL 4RSM24035 and ABL 4RSM24050 comprise:

- 1 Spring clip for Omega (└ 35 mm) rail
- 2 Output voltage status LED (green)
- 3 Output circuit overcurrent LED (red)
- 4 Output voltage adjustment potentiometer
- 5 Removable screw terminal block for connection of the DC output voltage and diagnostics contact
- 6 Removable screw terminal block for connection of the AC input voltage on single-phase (1)



The regulated switch mode power supplies ABL 4RSM24100 comprise:

- 1 Spring clip for Omega (└ 35 mm) rail
- 2 Removable screw terminal block for connection of the AC input voltage (on single-phase (1)) and for connection of 120/230 V selection link
- 3 Output voltage status LED (green)
- 4 Output circuit overcurrent LED (red)
- 5 Output voltage adjustment potentiometer
- 6 Removable screw terminal block for connection of the DC output voltage and diagnostics contact



The regulated switch mode power supplies ABL 4RSM24200, ABL 4WSR24200, ABL 4WSR24300 and ABL 4WSR24400 comprise:

- 1 Spring clip for Omega (└ 35 mm) rail
- 2 Enclosed screw terminals for connection of the DC output voltage and diagnostics contact
- 3 Output voltage adjustment potentiometer
- 4 Output voltage status LED (green)
- 5 Output circuit overcurrent and alarm LED (red)
- 6 Enclosed screw terminals for connection of the AC input voltage:
  - single-phase connection for ABL 4RSM24200 (1),
  - 3-phase connection for ABL 4W●●●●



(1) Connection between 2 phases only on certain American line supplies.

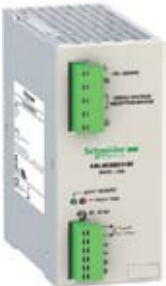
# Power supplies and transformers

## Phaseo

Regulated switch mode power supplies  
**ABL4**  
 85 to 960 W - Compact - Rail mounting



ABL 4RSM24050



ABL 4RSM24100



ABL 4WSR24200



ABL 8BUF24400



ABL 8BBU24200



### Phaseo regulated switch mode power supplies ABL4, 85 to 960 W

Input voltage	Secondary		Reset	Reference	Weight kg	
	Output voltage	Nominal power				Nominal current
<b>Single-phase (N-L1) connection (1)</b>						
~ 100...230 V - 10%, + 15%	~ 23...27.4 V	85 W	3.5 A	Automatic	ABL 4RSM24035	0.500
		120 W	5 A	Automatic	ABL 4RSM24050	0.500
~ 120 V - 25%, + 10% and ~ 230 V - 20%, + 15%	~ 23...27.4 V	240 W	10 A	Automatic	ABL 4RSM24100	0.800
		480 W	20 A	Automatic	ABL 4RSM24200 (2)	1.300
<b>3-phase (L1-L2-L3) connection</b>						
~ 400...500 V - 15%, + 10%	~ 24...27.8 V	480 W	20 A	Automatic	ABL 4WSR24200	1.300
		720 W	30 A	Automatic	ABL 4WSR24300	1.300
		960 W	40 A	Automatic	ABL 4WSR24400	1.300

### Function modules for continuity of service (3)

Function	Use	Description	Reference	Weight kg
<b>Continuity after a power outage</b>	Holding time 100 ms at 40 A and 2 s at 1 A  Holding time 9 min at 40 A...2 hrs at 1 A (depending on use with a battery check module-battery unit and load) (4)	Buffer module	ABL 8BUF24400	1.200
		Battery check module, output current 20 A	ABL 8BBU24200	0.500
		Battery check module, output current 40 A	ABL 8BBU24400	0.700
		Battery module, 3.2 Ah (5)	ABL 8BPK24A03	3.500
		Battery module, 7 Ah (5)	ABL 8BPK24A07	6.500
<b>Continuity after a malfunction</b>	Paralleling and redundancy of the power supply to ensure uninterrupted operation of the application excluding AC line failures and application overcurrents	Battery module, 12 Ah (5)	ABL 8BPK24A12	12.000
		Redundancy module	ABL 8RED24400	0.700
<b>Discriminating downstream protection</b>	Electronic protection (1...10 A overcurrent or short-circuit) of 4 output terminals from an ABL4 power supply	Protection module with 2-pole breaking (6) (7)	ABL 8PRP24100	0.270

### Converters ~ / ~ (3)

Input voltage	Power supply module output current	Secondary		Reference	Weight kg
		Output voltage	Nominal current		
~ 24 V - 9%, + 24%	2.2 A	~ 5...6.5 V	6 A	ABL 8DCC05060	0.300
	1.7 A	~ 7...15 V	2 A	ABL 8DCC12020	0.300

### Separate and replacement parts

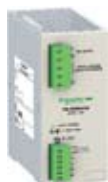
Description	Use	Composition	Unit reference	Weight kg
<b>Fuse assemblies</b>	Discriminating Protection module ABL 8PRP24100	4 x 5 A, 4 x 7.5 A and 4 x 10 A	ABL 8FUS01	-
	Battery ABL 8BPK24A●●	4 x 20 A and 6 x 30 A	ABL 8FUS02	-
<b>Clip-on marker labels</b>	All products except ABL 8PRP24100	Sold in lots of 100	LAD 90	0.030
	Discriminating Protection module ABL 8PRP24100	Sold in lots of 22	ASI20 MACC5	-
<b>Rail mounting kit</b>	Battery module ABL 8BPK2403	-	ABL 1A02	-
<b>EEPROM memory</b>	Backup and duplication of ABL8 BBU24●00 battery check module parameters	-	SR2 MEM02	0.010

(1) 2-phase connection possible on certain American line supplies  
 (2) Power supply reference **ABL 4RSM24200** has an integrated redundancy diode  
 (2) For use with power supply ABL4  
 (3) Compatibility table for battery check module-battery unit with holding time depending on the load  
 (4) Supplied with 20 or 30 A fuse depending on the model  
 (5) Supplied with four 15 A fuses  
 (6) Local reset via pushbutton or automatic reset on elimination of the fault  
 (7) Voltage from power supply ABL4



**ABL4: 85 to 960 W - Compact - Rail mounting**

**Function modules ABL 8DCC: converters  $\overline{\sim}/\overline{\sim}$**



$\sim 100...230\text{ V}$	$\sim 120\text{ V}$ or $\sim 230\text{ V}$	$\sim 400...500\text{ V}$	$\overline{\sim} 24\text{ V}$
Single-phase (N-L1) connection	Single-phase (N-L1) connection or 2-phase (L1-L2) connection	–	–
–	Single-phase (N-L1) connection	3-phase (L1-L2-L3) connection	–
–	–	3-phase (L1-L2-L3) connection	–
No	No	No	–
Yes, current limitation			Yes, current limitation
Automatic reset on elimination of the fault			
Yes	Yes	Yes	Yes, depending on model
Yes with buffer module, battery and battery check modules, redundancy module and discriminating downstream protection module			
Depending on model: 1.5 to 1.7 In for 5 to 30 seconds			No

$\overline{\sim} 24\text{ V}$	$\overline{\sim} 5\text{ V}$	$\overline{\sim} 7...12\text{ V}$
		<b>ABL 8DCC12020 (1)</b>
<b>ABL 4RSM24035</b>		
<b>ABL 4RSM24050</b>		
		<b>ABL 8DCC05060 (1)</b>
	<b>ABL 4RSM24100</b>	
	<b>ABL 4RSM24200</b>	<b>ABL 4WSR24200</b>
		<b>ABL 4WSR24300</b>
		<b>ABL 4WSR24400</b>

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(1) Converter module  $\overline{\sim}/\overline{\sim}$ , must be used with a Phaseo power supply.

# Power supplies and transformers

## Phaseo

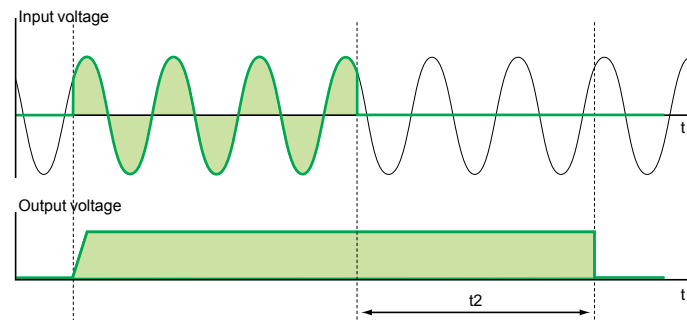
Regulated switch mode power supplies  
Function modules: solutions to power outages  
Selection grid

### Continuity of service: Voltage holding in the event of a power outage

For applications that are sensitive to unintended stopping, the **ABL 8** range of Function modules offers a solution comprising:

- Electronic switch mode power supply and Buffer module for holding times  $t_2$  up to two seconds
- Electronic switch mode power supply, Battery control module and Battery module for holding times  $t_2$  of between two seconds and a few hours

These solutions are used to supply voltage after loss of the line supply, thus enabling saving of current values or fallback of some actuators supplied with 24 V  $\overline{\text{---}}$ . The table below indicates the possible holding times according to the equipment combinations and the current required.



Holding current	Holding time $t_2$																											
	Seconds									Minutes										Hours								
	0.1	0.2	0.5	1	2	5	10	30	1	2	3	4	5	6	7	8	9	10	15	20	30	40	50	1	2	3	5	
1 A	1	1	1	1	1	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+5	2+5	
2 A	1	1	1	1	1	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+5	2+6	2+6
3 A	1	1	1	1	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+5	2+5	2+5	2+6	2+6	2+6
4 A	1	1	1	1	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+5	2+5	2+5	2+5	2+6	2+6	2+6	
5 A	1	1	1	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+5	2+5	2+5	2+6	2+6	2+6	2+6	2+6	
6 A	1	1	1	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+5	2+5	2+5	2+6	2+6	2+6	2+6	2+6	2+6	
7 A	1	1	1	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+5	2+5	2+5	2+5	2+5	2+6	2+6	2+6	2+6	2+6	2+6	2+6	
8 A	1	1	1	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+5	2+5	2+5	2+5	2+5	2+5	2+5	2+6	2+6	2+6	2+6	2+6	2+6	2+6	
10 A	1	1	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+5	2+5	2+5	2+5	2+5	2+5	2+5	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	
15 A	1	1	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+4	2+5	2+5	2+5	2+5	2+5	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	
20 A	1	1	2+5	2+5	2+5	2+5	2+5	2+5	2+5	2+5	2+5	2+5	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	
25 A	1	3+5	3+5	3+5	3+5	3+5	3+5	3+5	3+5	3+5	3+5	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	
30 A	1	3+5	3+5	3+5	3+5	3+5	3+5	3+5	3+5	3+5	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	
35 A	1	3+5	3+5	3+5	3+5	3+5	3+5	3+5	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	
40 A	1	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	3+6	

Function modules	Reference	Code
40 A Buffer module	ABL 8BUF24400	1
20 A Battery control module	ABL 8BBU24200	2
40 A Battery control module	ABL 8BBU24400	3
3.2 Ah Battery module	ABL 8BPK24A03	4
7 Ah Battery module	ABL 8BPK24A07	5
12 Ah Battery module	ABL 8BPK24A12	6

**Note:** Several Buffer modules (up to a maximum of three) can be connected in parallel to increase the immunity time. The times given in the table above (boxes marked 1) should be multiplied by the number of modules used (2 or 3).

# Power supplies and transformers

## Phaseo

### Regulated switch mode power supplies

#### Substitution of ABL8RP/WP by ABL4

#### Substitution of Phaseo ABL8RP/WP power supplies by Phaseo ABL4 power supplies

For the majority of applications, power supplies ABL4 easily replace power supply models ABL8RP/WP due to:

- the reduced size of the ABL4 (up to - 56% in volume)
- tested compatibility with the function modules ABL8B/RED/8D/8P
- the presence of a diagnostics contact on all models
- a higher withstand to temporary overcurrents than the equivalent ABL8 RP/WP power supplies

However, for some applications the following points must be checked before substituting ABL8RP/WP power supplies by ABL4 power supplies:

Equivalent ABL8 and ABL4 power supplies		Points to be checked related to the application	Installation differences
ABL 8RPS24030	ABL 4RSM24035	<ul style="list-style-type: none"> <li>■ Input voltage limits:                             <ul style="list-style-type: none"> <li><input type="checkbox"/> ABL4: 90..264 V</li> <li><input type="checkbox"/> ABL8: 85..550 V</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Input and output terminals reversed</li> </ul>
ABL 8RPS24050	ABL 4RSM24050	<ul style="list-style-type: none"> <li>■ Resetting of protection:                             <ul style="list-style-type: none"> <li><input type="checkbox"/> ABL4: automatic</li> <li><input type="checkbox"/> ABL8: selectable, automatic or manual</li> <li>■ ABL4 does not conform to IEC 61000-3-2 (1)</li> </ul> </li> </ul>	
ABL 8RPS24100	ABL 4RSM24100	<ul style="list-style-type: none"> <li>■ Input voltage limits:                             <ul style="list-style-type: none"> <li><input type="checkbox"/> ABL4: 90..264 V</li> <li><input type="checkbox"/> ABL8: 85..550 V</li> </ul> </li> <li>■ Resetting of protection:                             <ul style="list-style-type: none"> <li><input type="checkbox"/> ABL4: automatic</li> <li><input type="checkbox"/> ABL8: selectable, automatic or manual</li> <li>■ ABL4 does not conform to IEC 61000-3-2 (1)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ 120/230 V voltage selection                             <ul style="list-style-type: none"> <li><input type="checkbox"/> ABL4: by link</li> <li><input type="checkbox"/> ABL8: by terminal</li> </ul> </li> </ul>
ABL 8RPM24200	ABL 4RSM24200	<ul style="list-style-type: none"> <li>■ Resetting of protection:                             <ul style="list-style-type: none"> <li><input type="checkbox"/> ABL4: automatic</li> <li><input type="checkbox"/> ABL8: selectable, automatic or manual</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Input and output terminals reversed</li> </ul>
ABL 8WPS24200	ABL 4WSR24200	<ul style="list-style-type: none"> <li>■ ABL4 does not conform to IEC 61000-3-2 (1)</li> </ul>	<ul style="list-style-type: none"> <li>■ 120/230 V voltage selection                             <ul style="list-style-type: none"> <li><input type="checkbox"/> ABL4: by link</li> <li><input type="checkbox"/> ABL8: by terminal</li> </ul> </li> </ul>
ABL 8WPS24400	ABL 4WSR24400		<ul style="list-style-type: none"> <li>■ Input and output terminals reversed</li> </ul>

(1) Standard IEC/EN 61000-3-2 defines the harmonic limits of the input current that can be produced by equipment such as regulated switch mode power supplies ABL4 or ABL8. This standard is only applicable to electrical or electronic devices that are intended for connection to low-voltage public distribution systems. This is rarely the case in industrial applications.

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