

Power supplies & Transformers Phaseo

Catalog

July 2016



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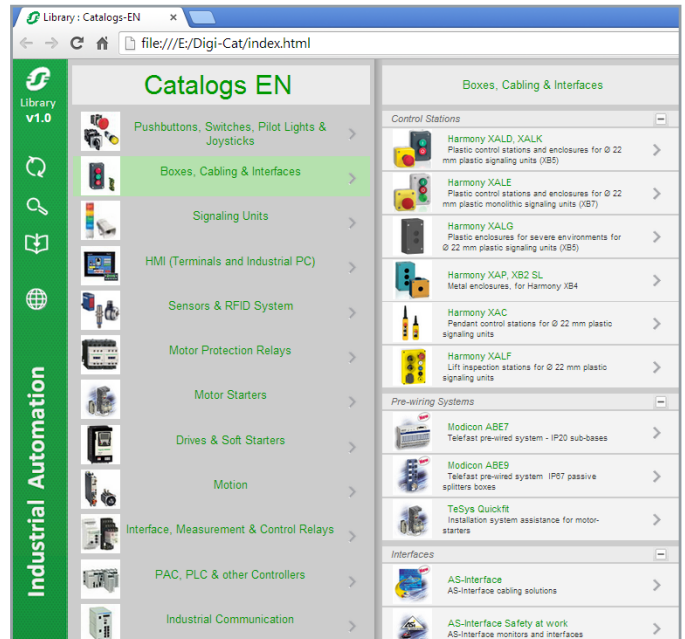
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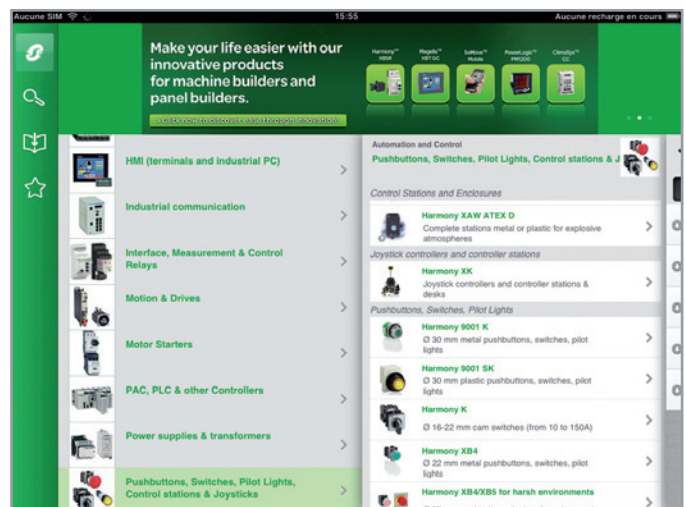
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Power supplies and transformers Phaseo

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Power supplies and transformers

Phaseo

Regulated switch mode power supplies and function modules

Applications	Regulated switch mode power supplies				Function modules <i>Only compatible with Phaseo ABL8RP/ABL8WPS (Universal) power supplies</i>													
	ABL8MEM/ABL7RM (Modular): 7 to 60 W - Mounting on rail ABL8REM/ABL7RP (Optimum): 60 to 144 W - Mounting on rail				ABL8RP/ABL8WP (Universal): 72 to 960 W - Wide input voltage range. Mounting on rail		ABL8DCC: converter modules 24 V 24 V 5-12 V		ABL8B: solutions to microbreaks and power outages		ABL8RED24400 : redundancy solution		ABL8PRP24100: solution for discriminating protection of the application					
																		
Input voltage	100...240 V ~ 120...250 V 24				100...120 V ~ and 200...500 V ~ (3)		24 V 24		24 V 24		24 V 24		24 V 24					
Connection to world-wide line supplies	United States - 120 V (in phase-to-neutral) - 240 V (in phase-to-phase) Europe - 230 V (in phase-to-neutral) - 400 V (in phase-to-phase) United States - 277 V (in phase-to-neutral) - 480 V (in phase-to-phase)				Single-phase (N-L1) or 2-phase (L1-L2) connection Single-phase (N-L1) connection		Single-phase (N-L1) or 2-phase (L1-L2) connection		3-phase (L1-L2-L3) connection		3-phase (L1-L2-L3) connection							
Certifications	CE marking, UL (508), CSA (60950-1), EAC, RCM, TÜV, KC (1)				CE marking, UL (508), CSA (60950-1), CB Scheme, EAC, RCM, TÜV, KC (1)		CE marking, UL (508), CSA (60950-1), EAC, RCM (1)		CE marking, UL (508), CSA (60950-1), EAC, RCM (1)		CE marking, UL (508), CSA (60950-1), EAC, RCM (1)		CE marking, UL (508), CSA (60950-1), EAC, RCM (1)		CE marking, UL (508), CSA (60950-1), EAC, RCM (1)			
Conformity to standards	EN 60950-1, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-3, EN 55022, EN 55024 (2)				EN 60950-1, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-3, EN 55022, EN 55024 (2)		EN 60950-1, EN 61000-6-2, EN 61000-6-3, EN 55022, EN 55024 (2)		EN 60950-1, EN 61000-6-2, EN 61000-6-3, EN 55022, EN 55024 (2)		EN 60950-1, EN 61000-6-2, EN 61000-6-3, EN 55022, EN 55024 (2)		EN 60950-1, EN 61000-6-2, EN 61000-6-3, EN 55022, EN 55024 (2)		EN 60950-1, EN 61000-6-2, EN 61000-6-3, EN 55022, EN 55024 (2)			
IEC/EN 61000-3-2 conformity	Yes for ABL7RP, not for ABL8REM and not applicable for ABL8MEM and ABL7RM				Yes		Yes, current limitation or undervoltage detection		Yes, depending on model		Yes, depending on model		Yes, depending on model		Yes, depending on model			
Protection against undervoltage	Yes				Yes		Yes, current limitation or undervoltage detection		Yes, depending on model		Yes, depending on model		Yes, depending on model		Yes, depending on model			
Protection against overloads and short-circuits	Yes, voltage detection. Automatic restart on elimination on the fault				Yes		Yes, current limitation or undervoltage detection		Yes, depending on model		Yes, depending on model		Yes, depending on model		Yes, depending on model			
Diagnostic relay	-				-		Yes, depending on model		Yes, depending on model		Yes, depending on model		Yes, depending on model		Yes, depending on model			
Compatibility	with function modules				-		Yes with buffer module, battery and battery control modules, redundancy module and discriminating downstream protection module		Yes with buffer module, battery and battery control modules, redundancy module and discriminating downstream protection module		Yes with buffer module, battery and battery control modules, redundancy module and discriminating downstream protection module		Yes with buffer module, battery and battery control modules, redundancy module and discriminating downstream protection module		Yes with buffer module, battery and battery control modules, redundancy module and discriminating downstream protection module			
Compatibility	with power supplies				-		-		-		-		-		-			
Power reserve (Boost)	1,25 to 1,4 In during 1 minute, depending on model (with ABL8MEM) No				1,5 In during 4 secondes		No		No		No		No		No			
Output voltage	5 V 12 V 24 V 48 V				24 V 5 V 7...12 V 24 V 24 V 24 V		24 V 5 V 7...12 V 24 V 24 V 24 V		24 V 5 V 7...12 V 24 V 24 V 24 V		24 V 5 V 7...12 V 24 V 24 V 24 V		24 V 5 V 7...12 V 24 V 24 V 24 V		24 V 5 V 7...12 V 24 V 24 V 24 V			
Output current	0.3 A 0.6 A 1.2 A 2 A 2.5 A 3 A 4 A 5 A 6 A 10 A 20 A 40 A				ABL8MEM24003 ABL8MEM24006 ABL8MEM24012 ABL8MEM12020 ABL7RM24025 ABL7RP4803 ABL8REM24030 ABL8MEM05040 ABL7RP1205 ABL8REM24050		ABL8RPS24030 ABL8RPS24050 ABL8RPS24100 ABL8RPM24200 ABL8WPS24200 ABL8WPS24400		ABL8DCC12020 ABL8DCC05060		ABL8BPU24200 ABL8BUF24400 2x ABL8RED24400 ABL8BBU24400		ABL8RED24400 2x ABL8RED24400		ABL8PRP24100			
Pages	12 12: ABL8MEM/ABL7RM (Modular) 14: ABL8REM/ABL7RP (Optimum) 14				16		20		22		26		28					

(1) Please consult detail on certifications for each reference in the individual data sheet, see on our web site www.schneider-electric.com
 (2) Please consult detail on conformity to standards for each reference in the individual data sheet, see on our web site www.schneider-electric.com
 (3) Except ABL8RPM24200. ~ 100...120 V and ~ 200...240 V.

Power supplies and transformers

Phaseo

Regulated switch mode power supplies
Rectified power supplies

Power supplies

Regulated switch mode

ABL1REM/1RPM: 60 to 240 W - Mounting on panel



Input voltage		100...240 V ~ 120...370 V ~
Connection to world-wide line supplies	United States - 120 V (in phase-to-neutral) - 240 V (in phase-to-phase)	Single-phase (N-L1) or 2-phase (L1-L2) connection
	Europe - 230 V (in phase-to-neutral) - 400 V (in phase-to-phase)	Single-phase (N-L1)
	United States - 277 V (in phase-to-neutral) - 480 V (in phase-to-phase)	-
	-	Single-phase (N-L1)

Certifications	CE marking, UL (508), CSA (60950-1), EAC, RCM, TÜV, KC (1)	
Conformity to standards	EN 60950-1, EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4 (2)	
IEC/EN 61000-3-2 conformity	Yes for ABL1RP, not applicable for ABL1REM24025/12050	
Protection against undervoltage	-	
Protection against overloads and short-circuits	Yes, voltage detection. Automatic restart on on elimination of overload or short circuit	
Diagnostic relay	-	
Compatibility with function modules	-	
Power reserve (Boost)	No	

Output voltage	12 V ~	24 V ~
Output current	0.5 A	
1 A		
2 A		
2.5 A		ABL1REM24025
3 A		
4 A		
4.2 A		ABL1R•M24042
4.8 A		
5 A	ABL1REM12050	
6 A		
6.2 A		ABL1R•M24062
8.3 A	ABL1RPM12083	
10 A		ABL1R•M24100
15 A		
20 A		
30 A		
40 A		
60 A		

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(1) Please consult detail on certifications for each reference in the individual data sheet, see on our web site www.schneider-electric.com
(2) Please consult detail on conformity to standards for each reference in the individual data sheet, see on our web site www.schneider-electric.com

Rectified and filtered

ABL8FEQ/8TEQ: 12 to 1440 W - Mounting on panel or rail - For severe application



230 V ~ and 400 V ~		400 V ~
-		
Single-phase (N-L1) or 2-phase (L1-L2) connection		3-phase (L1-L2-L3) connection
-		

Certifications	CE marking, UL (508), EAC, KC	
Conformity to standards	EN 61558-1, EN 61558-2-6, EN 62041	
IEC/EN 61000-3-2 conformity	Yes	
Protection against undervoltage	No	
Protection against overloads and short-circuits	Yes depending on model, by fuse	Yes, by external protection
Diagnostic relay	No	
Compatibility with function modules	No	
Power reserve (Boost)	No	

24 V ~	
ABL8FEQ24005	
ABL8FEQ24010	
ABL8FEQ24020	
ABL8FEQ24040	
ABL8FEQ24060	
ABL8FEQ24100	ABL8TEQ24100
ABL8FEQ24150	
ABL8FEQ24200	ABL8TEQ24200
	ABL8TEQ24300
	ABL8TEQ24400
	ABL8TEQ24600

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(3) With earth fault detection.
(4) One output 30 V ~ and one output 24 V ~ ± 5 %.

Regulated switch mode

ASI ABL: Power supplies for AS-Interface cabling system



100...240 V ~	
Single-phase (N-L1) connection	
Single-phase (N-L1) connection	
-	

Certifications	CSA 22-2 N° 950, TÜV 60950-1, UL 508	
Conformity to standards	EN 50081-1, EN 55022 Class B, EN/IEC 61000-6-2, EN 60950-1	
IEC/EN 61000-3-2 conformity	No	Yes
Protection against undervoltage	-	Yes
Protection against overloads and short-circuits	Yes	
Diagnostic relay	-	
Compatibility with function modules	-	
Power reserve (Boost)	No	

30 V ~		24 V ~
ASIABLE3002		
ASIABLD3002 (3)		
ASIABLM3024 (4)		
		ASIABLM3024 (4)
ASIABLE3004		
ASIABLD3004 (3)		

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Power supplies and transformers

Phaseo Transformers ABL6TS, ABT7

Transformers for AC control circuits

Transformers 230 V
Single winding transformers
Operating temperature: 40 °C

Transformers 230/400 V
Single winding transformers
Operating temperature: 50 °C



Tension d'entrée	230 V ~, ± 15 V
Connection to world-wide line supplies	United States - 120 V (in phase-to-neutral) - 240 V (in phase-to-phase) Europe - 230 V (in phase-to-neutral) - 400 V (in phase-to-phase)

Tension d'entrée	230 V ~, ± 15 V
Connection to world-wide line supplies	- - Single-phase (N-L1) connection

Tension d'entrée	230 V ~ and 400 V ~, ± 15 V
Connection to world-wide line supplies	- - 2-phase (L1-L2) connection Single-phase (N-L1) connection 2-phase (L1-L2) connection

Applications	SELV transformer (Safety Extra Low Voltage)
Secondary winding	Single winding
Signalling	-
Conformity to standards	CEI 61558-2-6, EN 61558-2-6, EN 61558-1, EN 62041
Certifications	CE marking, EAC

Applications	SELV transformer (Safety Extra Low Voltage)
Secondary winding	Single winding
Signalling	-
Conformity to standards	CEI 61558-2-6, EN 61558-2-6, UL 506, EN 61558-1, EN 61558-2-6, EN 62041
Certifications	CE marking, UL (506), EAC

Applications	Isolation transformer
Secondary winding	Single winding
Signalling	-
Conformity to standards	CEI 61558-2-4, EN 61558-2-4, UL 506, EN 61558-1, EN 61558-2-6, EN 62041
Certifications	CE marking, UL (506), EAC

Transformers 230/400 V
Single winding transformers
Operating temperature: 50 °C

Transformers 230/400 V
Double winding transformers
Operating temperature: 60 °C



Tension d'entrée	230 V ~ and 400 V ~, ± 15 V
Connection to world-wide line supplies	- - 2-phase (L1-L2) connection Single-phase (N-L1) connection 2-phase (L1-L2) connection

Tension d'entrée	230 V ~ and 400 V ~, ± 15 V
Connection to world-wide line supplies	- - 2-phase (L1-L2) connection Single-phase (N-L1) connection 2-phase (L1-L2) connection

Applications	SELV transformer (Safety Extra Low Voltage)
Secondary winding	Double winding
Signalling	Presence of input voltage by LED (up to 320 VA)
Conformity to standards	CEI 61558-2-6, EN 61558-2-6, UL 506, EN 61558-1, EN 61558-2-6, EN 62041
Certifications	CE marking, UL (506), EAC

Applications	SELV transformer (Safety Extra Low Voltage)	Isolation transformer
Secondary winding	Double winding	Double winding
Signalling	Presence of input voltage by LED (up to 320 VA)	
Conformity to standards	CEI 61558-2-6, EN 61558-2-6, UL 506, EN 61558-1, EN 61558-2-6, EN 62041	CEI 61558-2-4, EN 61558-2-4, UL 506, EN 61558-1, EN 61558-2-6, EN 62041
Certifications	CE marking, UL (506), EAC	CE marking, UL (506), EAC

Output voltage	24 V ~
Power supply type	Nominal power
	25 VA
	40 VA
	63 VA
	100 VA
	160 VA
	250 VA
	320 VA
	400 VA
	630 VA
	1 000 VA
	1 600 VA
	2 500 VA

Output voltage	24 V ~
Power supply type	Nominal power
	25 VA
	40 VA
	63 VA
	100 VA
	160 VA
	250 VA
	320 VA
	400 VA
	630 VA
	1 000 VA
	1 600 VA
	2 500 VA

Output voltage	12 V ~	24 V ~
Power supply type	Nominal power	Nominal power
	25 VA	25 VA
	40 VA	40 VA
	63 VA	63 VA
	100 VA	100 VA
	160 VA	160 VA
	250 VA	250 VA
	320 VA	320 VA
	400 VA	400 VA
	630 VA	630 VA
	1 000 VA	1 000 VA
	1 600 VA	1 600 VA
	2 500 VA	2 500 VA

Output voltage	115 V ~	230 V ~
Power supply type	Nominal power	Nominal power
	25 VA	25 VA
	40 VA	40 VA
	63 VA	63 VA
	100 VA	100 VA
	160 VA	160 VA
	250 VA	250 VA
	320 VA	320 VA
	400 VA	400 VA
	630 VA	630 VA
	1 000 VA	1 000 VA
	1 600 VA	1 600 VA
	2 500 VA	2 500 VA

Output voltage	2 x 24 V ~	2 x 115 V ~
Power supply type	Nominal power	Nominal power
	25 VA	25 VA
	40 VA	40 VA
	63 VA	63 VA
	100 VA	100 VA
	160 VA	160 VA
	250 VA	250 VA
	320 VA	320 VA
	400 VA	400 VA
	630 VA	630 VA
	1 000 VA	1 000 VA
	1 600 VA	1 600 VA
	2 500 VA	2 500 VA

Power supplies and transformers

Phaseo

Regulated switch mode power supplies

Presentation

The Phaseo electronic switch mode power supply offer is designed to provide the DC voltage necessary for the PLC and automation system equipment control circuits.

Comprising five ranges:

- ABL8MEM/ABL7RM (Modular), ABL8REM/ABL7RP (Optimum) and ABL8RP/ABL8WP (Universal) for common applications,
- ASIABL for the AS-Interface cabling system,
- ABL1REM/1RPM for repetitive equipment,

the Phaseo offer meets the needs encountered in industrial, commercial and residential applications. With phase-to-neutral (N-L1), phase-to-phase (L1-L2) or 3-phase (L1-L2-L3) connection to the line supply, these electronic switch mode power supplies provide a quality of output current that is suitable for the loads supplied and compatible with the line supply available in the equipment. Clear guidelines are given for selecting protection devices which are often used with them, and a comprehensive solution is provided.

Phaseo switch mode power supplies

Phaseo switch mode power supplies are totally electronic and their output voltage is regulated. The use of electronics makes it possible to significantly improve the performance of these power supplies, which offer:

- Very compact size
- Integrated overload, short-circuit, overvoltage and undervoltage protection (1)
- A very wide input voltage range for the ABL8RP/ABL8WP (Universal) range
- A high degree of output voltage stability
- Good performance
- Diagnostics via LED indicators on the front panel
- Remote diagnostics via a relay contact for the ABL8RP/ABL8WP (Universal) range

Phaseo power supplies deliver a stabilized \sim output voltage that is precise to 3%, whatever the load from a \sim line supply, within the ranges of:

- For ABL8MEM/ABL7RM (Modular), ABL8REM/ABL7RP (Optimum), ABL1REM/1RPM and ASIABLRanges:
 - 100 to 240 V \sim for phase-to-neutral (N-L1) or phase-to-phase (L1-L2) connection
- For the ABL8RP/ABL8WP (Universal) range:
 - 85 to 550 V \sim for phase-to-neutral (N-L1) or phase-to-phase (L1-L2) connection
 - 360 to 550 V \sim for 3-phase connection (L1-L2-L3)

Conforming to IEC standards and UL, CSA, TÜV and C-Tick certified, they are suitable for industrial use. The inclusion of overload and short-circuit protection makes downstream protection unnecessary if discrimination is not required. To provide discrimination, it is advisable to use discriminating electronic downstream protection modules.

Phaseo power supplies also incorporate:

- An output voltage adjustment potentiometer in order to be able to compensate for any line voltage drops in installations with long cable runs
- Direct mounting on 35 mm U_T rails, optional on ABL1REM/1RPM range (2)

(1) The inclusion of overload and short-circuit protection makes downstream protection unnecessary if discrimination is not required (see page 28).

(2) The ABL8REM/ABL7RP (Optimum) and ASIABLRanges can also take 75 mm U_T rails.

Power supplies and transformers

Phaseo

Regulated switch mode power supplies



ABL8MEM12020



ABL8REM24030



ABL8RPS24100



ABL8BUF24400



ASIABL3004



ASIABL3002



ABL1R0M000



ABL1R0M24100

Presentation (continued)

Phaseo switch mode power supplies (continued)

Phaseo regulated switch mode industrial supplies are offered in three ranges ABL8MEM/ABL7RM (Modular), ABL8REM/ABL7RP (Optimum) and ABL8RP/ABL8WP (Universal)), complemented by the ASIABL and ABL1REM/1RPM ranges for repetitive machines:

Phaseo ABL8MEM/ABL7RM (Modular) range

The Phaseo ABL8MEM/ABL7RM (Modular) range meets all the needs of simple automation systems with power ratings from 7 to 60 W and an output voltage of 5 V $\overline{\text{---}}$, 12 V $\overline{\text{---}}$ or 24 V $\overline{\text{---}}$.

The shape and compact nature of its casing mean that it can be incorporated either in a modular panel or mounted on a U rail in a cabinet. Direct mounting on a panel (using its two retractable lugs) and the choice of wires exiting at the top or bottom (except for the **ABL7RM24025** model) make it an easy product to integrate.

Phaseo ABL8REM/ABL7RP (Optimum) range

The Phaseo ABL8REM/ABL7RP (Optimum) range is the low-cost solution for applications supplied in 12 V $\overline{\text{---}}$, 24 V $\overline{\text{---}}$ or 48 V $\overline{\text{---}}$ and requiring currents between 3 and 5 A.

The ABL8REM/ABL7RP (Optimum) range of Phaseo power supplies delivers a voltage that can give the PLC logic states. In the event of an overload the power supply protection trips so that, when there is no more overhead, the power supply reverts to its nominal state.

Since the ABL8REM/ABL7RP (Optimum) range of Phaseo power supplies does not have PFC (*Power Factor Correction*), they do not meet the requirements of standard IEC/EN 61000-3-2 (except for **ABL7RP1205/7RP4803** models).

Phaseo ABL8RP/ABL8WP (Universal) range

The ABL8RP/ABL8WP (Universal) range of Phaseo power supplies covers power ratings from 72 to 960 W in 24 V $\overline{\text{---}}$ and adapts to the majority of power distribution systems used throughout the world. The same power supply can thus be connected phase-to-neutral (N-L1) or phase-to-phase for line supplies ranging from 100 V \sim to 500 V \sim nominal. In addition, this range offers:

- Diagnostic functions (local or remote)
- User choice of operating mode in the event of an overload (current limiting or stop)
- Function modules to give continuity of service:
 - Protection against microbreaks or prolonged outages by means of the Buffer module and Battery control modules
 - Paralleling and redundancy functions by means of the Redundancy module
 - Discriminating protection against application overloads by means of discriminating electronic downstream Protection modules
- A power reserve (boost function) for absorbing the transient current peaks required by the application

With the ABL8RP/ABL8WP (Universal) range of power supplies, it is possible to satisfy the need for auxiliary voltage (5 V $\overline{\text{---}}$ to 15 V $\overline{\text{---}}$) using $\overline{\text{---}}$ / $\overline{\text{---}}$ Converter modules.

The incorporation of a PFC (*Power Factor Correction*) input filter reduces harmonic pollution to a minimum level across the entire ABL8RP/ABL8WP (Universal) range, ensuring compliance with the requirements of standard IEC/EN 61000-3-2.

Phaseo ASIABLrange

The 72 and 144 W ASIABLrange of Phaseo power supplies is designed to deliver a voltage of 30 V $\overline{\text{---}}$, which is a prerequisite for the AS-Interface cabling system. These electronic switch mode power supplies with phase-to-neutral (N-L1) connection ensure the quality of the output current in accordance with the electrical characteristics and in compliance with standard EN 50295.

Phaseo ABL1REM/1RPM range

The ABL1REM/1RPM range of Phaseo power supplies from 60 to 240 W is designed for integration in repetitive equipment requiring a voltage of 12 V $\overline{\text{---}}$ or 24 V $\overline{\text{---}}$.

These electronic switch mode power supplies, with phase-to-neutral (N-L1) connection, with or without anti-harmonic filter and UL 508, CSA and TÜV certified, meet all the needs encountered in commercial machines and standard catalog machines.

Power supplies and transformers

Phaseo

Regulated switch mode power supplies

Characteristics of the 24 V $\overline{\text{---}}$ operating voltage

The permissible tolerances for the operating voltage are listed in publications IEC/EN 61131-2 and DIN 19240.

For a nominal voltage U_n of 24 V $\overline{\text{---}}$, the extreme operating values are from - 15% to + 20% of voltage U_n , whatever the supply fluctuations in the range - 10% to + 6% (defined by standard IEC 38) with load variations in the range 0 to 100% of nominal current I_n .

The 24 V $\overline{\text{---}}$ Phaseo power supplies are designed to provide an output voltage within these ranges.

It may be necessary to use a voltage measurement relay to detect when the normal voltage limits are being surpassed and to deal with the consequences of this. The ABL8RP/ABL8WP (Universal) range has integrated voltage detection.

Recommendations for the use of 24 V $\overline{\text{---}}$ voltage

The Phaseo power supplies can be used to supply control circuits with Protection Extra Low Voltage (PELV) or Safety Extra Low Voltage (SELV) in compliance with standard IEC/EN 60364-4-41.

They have the following characteristics:

- Double insulation between the input circuit (connected to the line supply) and the low voltage output circuit via an integrated isolation transformer
- Internal device limiting the output voltage to less than 60 V.

Power supplies and transformers

Phaseo

Regulated switch mode power supplies

Harmonic pollution (power factor)

The current drawn by a power supply is not sinusoidal. This leads to the generation of harmonic currents that pollute the distribution system.

European standard IEC/EN 61000-3-2 limits the harmonic currents produced by power supplies.

This standard covers devices between 75 and 1000 W, drawing up to 16 A per phase and connected directly to the public distribution system. Devices connected downstream of a private, low voltage general transformer are therefore excluded. Regulated switch mode supplies always consume harmonic currents; a filter circuit (*Power Factor Correction* or PFC) can therefore be added to comply with standard IEC/EN 61000-3-2.

The ABL8RP/8WP (Universal), ABL1RPM12083, ABL1RPM24042, and ABL1REM24042 Phaseo power supplies comply with standard IEC/EN 61000-3-2 and can therefore be connected directly to public distribution systems.

Since the ABL8MEM240●●, ABL7RM24025, ABL1REM12050 and ABL1REM24025 Phaseo power supplies have power ratings of < 75 W, they are not subject to the requirements of standard IEC/EN 61000-3-2.

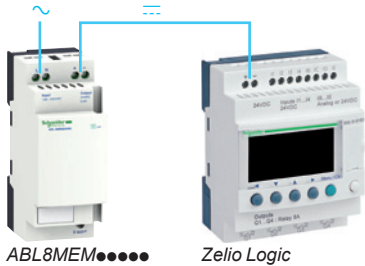
They can therefore be connected directly to public distribution systems.

The ABL8REM, ABL1REM24062, ABL1RPM24062, ABL1REM24100, and ABL1RPM24100 Phaseo power supplies must only be connected downstream of a private, low voltage general transformer.

Power supplies and transformers

Phaseo

Regulated switch mode power supplies
ABL8MEM/ABL7RM (Modular)
7 to 60 W - Rail mounting



Regulated switch mode power supplies ABL8MEM/ABL7RM (Modular)

The ABL8MEM/ABL7RM (Modular) power supply offer is designed to provide the DC voltage necessary for the control circuits of automation system equipment consuming 7 to 60 W in 5, 12 and 24 V \dots .

Comprising six products, this range meets the needs encountered in industrial, commercial and residential applications. These compact electronic switch mode power supplies provide a quality of output current that is suitable for the loads supplied and compatible with the **Zelio Logic** and **Modicon M221** ranges, and the small **Modicon M340**, **Premium** and **Quantum** configurations. Clear guidelines are given on selecting the upstream protection devices which are often used with them, and thus a comprehensive solution is provided that can be used.

ABL8MEM/ABL7RM (Modular) power supplies can be connected in phase-to-neutral (N-L1) or in phase-to-phase (1) (L1-L2). They deliver a voltage that is precise to 3%, whatever the load and whatever the type of line supply, within a range of 85 to 264 V \sim . Conforming to IEC standards and UL, CSA and TUV certified, they are suitable for universal use. The inclusion of overload and short-circuit protection makes downstream protection unnecessary if discrimination is not required.

Due to their low power, ABL8MEM/ABL7RM (Modular) power supplies consume very little harmonic current and thus are not subject to the requirements of standard IEC/EN 61000-3-2 concerning harmonic pollution.

ABL8MEM/ABL7RM (Modular) power supplies have protection devices to ensure optimum performance of the automation system with an automatic reset mode.

The products are equipped with an output voltage adjustment potentiometer to compensate for any line voltage drops in installations with long cable runs.

These power supplies also have a cable run inside the case so that the outputs can be connected at the top or bottom of the product as required.

These power supplies are designed for direct mounting on 35 mm \sqcorner rails, or on a mounting plate using their retractable fixing lugs.

There are six references available in the Phaseo ABL8MEM/ABL7RM (Modular) range:

■ ABL8MEM24003	7 W	0.3 A	24 V \dots
■ ABL8MEM24006	15 W	0.6 A	24 V \dots
■ ABL8MEM24012	30 W	1.2 A	24 V \dots
■ ABL7RM24025	60 W	2.5 A	24 V \dots
■ ABL8MEM05040	20 W	4 A	5 V \dots
■ ABL8MEM12020	25 W	2 A	12 V \dots

(1) 240 V \sim nominal.

Description

ABL8MEM.....



ABL7RM24025



- 1 2.5 mm² screw terminal for connection of the incoming AC voltage
- 2 Output voltage adjustment potentiometer
- 3 2.5 mm² screw terminal for connection of the output voltage
- 4 LED indicating presence of the DC output voltage
- 5 Duct for throughwiring of the output voltage conductors at the bottom (except for model ABL7RM24025)
- 6 Clip-on marker tag (except for model ABL7RM24025)
- 7 Retractable fixing lugs for panel mounting

Selection of protection on the power supply primaries

Type of line supply	100 to 240 V ~ single-phase		
Type of protection	Thermal-magnetic circuit breaker		gG fuse
	GB2 (IEC/CSA-c/US)	C60N (IEC) C60N (UL/CSA)	
ABL8MEM05040	GB2●●07 (1)	24581 24517	2 A
ABL8MEM12020			
ABL8MEM24003			
ABL8MEM24006			
ABL8MEM24012			
ABL7RM24025	GB2●●08 (1)	24582 24518	3 A

(1) Complete the reference by replacing ●● with:


CB: for single-pole circuit-breaker with magnetic trip threshold 12 to 16 In

CD: for single-pole + neutral circuit-breaker with magnetic trip threshold 12 to 16 In

DB: for 2-pole circuit-breaker with magnetic trip threshold 12 to 16 In

CS: for single-pole circuit-breaker with magnetic trip threshold 5 to 7 In

References

	Input voltage	Secondary		Reset	Conformity to standard IEC/EN 61000-3-2 (1)	Reference	Weight kg/lb	
		Output voltage	Nominal power					Nominal current
	100...240 V -15%, +10% 50/60 Hz	Single-phase (N-L1) or 2-phase (L1-L2) connection						
		5 V ---	20 W	4 A	Automatic	Not applicable	ABL8MEM05040	0.195/ 0.430
		12 V ---	25 W	2 A	Automatic	Not applicable	ABL8MEM12020	0.195/ 0.430
		24 V ---	7 W	0.3 A	Automatic	Not applicable	ABL8MEM24003	0.100/ 0.220
			15 W	0.6 A	Automatic	Not applicable	ABL8MEM24006	0.100/ 0.220
			30 W	1.2 A	Automatic	Not applicable	ABL8MEM24012	0.195/ 0.430
	60 W	2.5 A	Automatic	Not applicable	ABL7RM24025	0.255/ 0.562		

ABL8MEM05040/12020/24012



ABL8MEM24003/24006



ABL7RM24025

Description	Use	Order in multiples of	Unit reference	Weight kg/lb
Clip-on marker tags	Replacement parts for ABL8MEM power supplies	100	LAD90	0.030/ 0.066

(1) Due to their power < 75 W, ABL8MEM/ABL7RM (Modular) power supplies are not subject to the requirements of standard IEC/EN 61000-3-2.

Power supplies and transformers

Phaseo

Regulated switch mode power supplies
ABL8REM/ABL7RP (Optimum)
60 to 144 W - Rail mounting

Switch mode power supplies: range ABL8REM/ABL7RP (Optimum)

The ABL8REM/ABL7RP (Optimum) power supply offer is designed to provide the DC voltage necessary for the control circuits of automation system equipment consuming 60 to 144 W in 12, 24 and 48 V DC . Comprising four products, this range meets the needs encountered in industrial, commercial, and residential applications. With phase-to-neutral (N-L1) or phase-to-phase (1) (L1-L2) connection, these slim electronic switch mode power supplies provide a quality of output current that is suitable for the loads supplied and compatible with both Modicon logic controllers and small Modicon M340, Premium and Quantum configurations, making them ideal partners.

Their simplified characteristics in comparison with the ABL8RP/8WP offer also make them the low-cost solution for applications less affected by constraints with the line supply, such as harmonic pollution and outages. Clear guidelines are given on selecting the upstream protection devices which are often used with them, and thus a comprehensive solution is provided that can be used in total safety.

The ABL8REM/ABL7RP (Optimum) power supplies delivers a voltage that is precise to 3%, whatever the load and whatever the type of line supply, within a range of 85 to 264 V \sim . Conforming to IEC standards and UL, CSA and TUV certified, they are suitable for universal use. The inclusion of overload and short-circuit protection makes downstream protection unnecessary if discrimination is not required.

- ABL8REM power supplies do not have an anti-harmonic filter and do not satisfy the requirements of standard IEC/EN 61000-3-2 concerning harmonic pollution.
- ABL7RP power supplies, however, are equipped with a PFC (Power Factor Correction) filter, thus ensuring compliance with standard IEC/EN 61000-3-2.

ABL8REM/ABL7RP (Optimum) power supplies have protection devices to give optimum performance of the automation system with an automatic reset mode. In the event of an overload or short-circuit, the integrated protection interrupts the current supply before the output voltage drops below 19 V DC . The protection device resets itself automatically (no action or change a fuse).

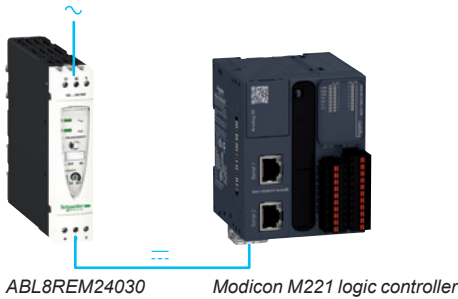
Each product is equipped with an output voltage adjustment potentiometer to compensate for any line voltage drops in installations with long cable runs. The power supplies are designed for direct mounting on 35 and 75 mm rails.

There are four references available in the ABL8REM/ABL7RP (Optimum) Phaseo range:

■ ABL8REM24030	72 W	3 A	24 V DC
■ ABL8REM24050	120 W	5 A	24 V DC
■ ABL7RP1205	60 W	5 A	12 V DC
■ ABL7RP4803	144 W	3 A	48 V DC

Description

- 1 2.5 mm² enclosed screw terminals for connection of the input voltage (single-phase N-L1, phase-to-phase L1-L2 (1))
 - 2 Protective glass flap
 - 3 Input voltage status LED (orange)
 - 4 Output DC voltage status LED (green)
 - 5 Locking catch for the glass flap (sealable)
 - 6 Clip-on marker tag
 - 7 Output voltage adjustment potentiometer
 - 8 2.5 mm² enclosed screw terminal block for connection of the DC output voltage
- (1) 240 V \sim nominal



Selection of protection on the power supply primaries

Type of line supply	100 V ~			240 V ~		
Type of protection	Thermal-magnetic circuit breaker		gG fuse	Thermal-magnetic circuit breaker		gG fuse
	GB2 (IEC/CSA-c/US)	C60N (CEI) C60N (UL)		GB2 (IEC/CSA-c/US)	C60N (CEI) C60N (UL)	
ABL8REM24030	GB2●●07 (1)	24581 24517	2 A	GB2●●06 (1)	24580 24516	2 A (2)
ABL8REM24050	GB2●●08 (1)	24582 24518	4 A	GB2●●07 (1)	24581 24517	2 A
ABL7RP1205	GB2●●06 (1)	24580 24516	2 A	GB2●●06 (1)	24580 24516	2 A (2)
ABL7RP4803	GB2●●08 (1)	24582 24518	4 A	GB2●●07 (1)	24581 24517	2 A

(1) Complete the reference by replacing ●● with:

CB: for single-pole circuit-breaker with magnetic trip threshold 12 to 16 In



CD: for single-pole + neutral circuit-breaker with magnetic trip threshold 12 to 16 In

DB: for 2-pole circuit-breaker with magnetic trip threshold 12 to 16 In

CS: for single-pole circuit-breaker with magnetic trip threshold 5 to 7 In

(2) 1 A version not available.

ABL8REM/ABL7RP (Optimum) range of Phaseo regulated switch mode power supplies

	Input voltage	Secondary		Reset	Conformity to standard IEC/EN 61000-3-2	Reference	Weight kg/lb
		Output voltage	Nominal power				
Single-phase (N-L1) or phase-to-phase (L1-L2) connection							
	100...240 V ~ - 15%, + 10% 50/60 Hz and 120...220 V ~ (1)	24 V ~	72 W	3 A	Automatic	No	ABL8REM24030 0.520/ 1.146
			120 W	5 A	Automatic	No	ABL8REM24050 1.000/ 2.205
	100...240 V ~ - 15%, + 10% 50/60 Hz	12 V ~	60 W	5 A	Automatic or manual	Yes	ABL7RP1205 1.000/ 2.205
		48 V ~	144 W	2.5 A	Automatic or manual	Yes	ABL7RP4803 1.000/ 2.205

ABL8REM24030

ABL8REM24050



ABL7RP1205,
ABL7RP4803

(1) CULus 508, CCSAus and TUV 60950-1 certifications are not valid for DC input voltage.

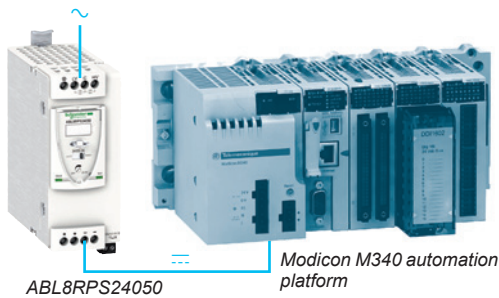
Power supplies and transformers

Phaseo

Regulated switch mode power supplies

ABL8RP/ABL8WP (Universal)

72 to 960 W - Wide input voltage range - Mounting on rail



Switch mode power supplies: ABL8RP/ABL8WP (Universal) range

The **ABL8RPS/RPM/WPS** power supply offer is designed to provide the DC voltage necessary for the control circuits of automation system equipment. Comprising six products, this range meets the needs encountered in industrial and commercial applications. These compact electronic switch mode power supplies provide a quality of output current that is suitable for the loads supplied and compatible with the **Modicon M340**, **Modicon M580**, **Modicon Premium** and **Modicon Quantum** ranges. When used with additional function modules, they ensure continuity of service in the event of network power outages. Clear guidelines are given on selecting the function modules and upstream protection devices which are often used with them, and a comprehensive solution is provided.

The ABL8RP/ABL8WP (Universal) range of Phaseo power supplies must be connected in

phase-to-neutral or phase-to-phase for **ABL8RPS/RPM**, and in three-phase for **ABL8WPS**. They deliver a voltage that is precise to 3%, whatever the load and whatever the type of line supply, within the ranges:

- 85 to 132 V ~ and 170 to 550 V ~ for **ABL8RPS**
- 85 to 132 V ~ and 170 to 264 V ~ for **ABL8RPM**
- 340 to 550 V ~ for **ABL8WPS**

Their very wide input voltage range allows a considerable reduction of parts held in stock and offers a distinct advantage in terms of machine design.

Conforming to IEC standards and UL and CSA certified, they are suitable for ABL8RP/ABL8WP (Universal) use.

ABL8RPS/RPM and **ABL8WPS** power supplies are all equipped with a harmonic filter, giving compliance with standard IEC/EN 61000-3-2 concerning harmonic pollution.

The ABL8RP/ABL8WP (Universal) power supplies have protection devices to ensure optimum performance of the automation system. Their operating mode can be configured as required by the user:

- **Manual reset protection mode:** Priority is given to the voltage so as to guarantee the PLC logic states and nominal operation of the supplied actuators.
- **Automatic reset protection mode:** Priority is given to the continuity of service until the arrival of the maintenance team.

The ABL8RP/ABL8WP (Universal) range of Phaseo power supplies also has a power reserve, allowing them to deliver a current of 1.5 In at regular intervals. This avoids the need to oversize the power supply if the device has a high inrush current, while maintaining the performance of the automation.

The diagnostics for the ABL8RP/ABL8WP (Universal) range of Phaseo power supplies are available on the front of the device via LEDs (U_{out} and I_{out}) and via a volt-free relay contact (PLC state).

The products are equipped with an output voltage adjustment potentiometer in order to be able to compensate for any line voltage drops in installations with long connection cable runs.

These power supplies are designed for direct mounting on a 35 mm U -rail.

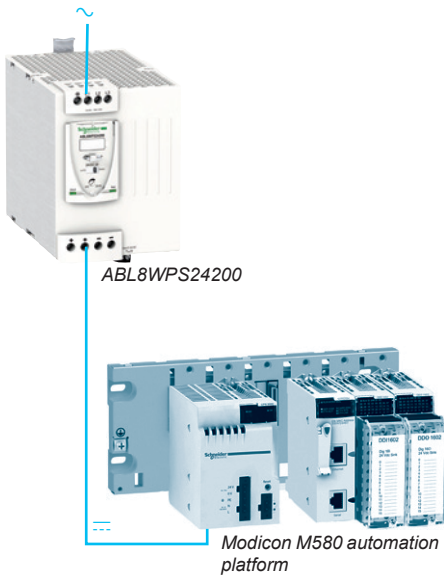
Power supplies and transformers

Phaseo

Regulated switch mode power supplies

ABL8RP/ABL8WP (Universal)

72 to 960 W - Wide input voltage range - Mounting on rail



Switch mode power supplies: ABL8RP/ABL8WP (Universal) range (continued)

There are four references available in the ABL8RP/ABL8WP (Universal) range of Phaseo power supplies for phase-to-neutral or phase-to-phase connection:

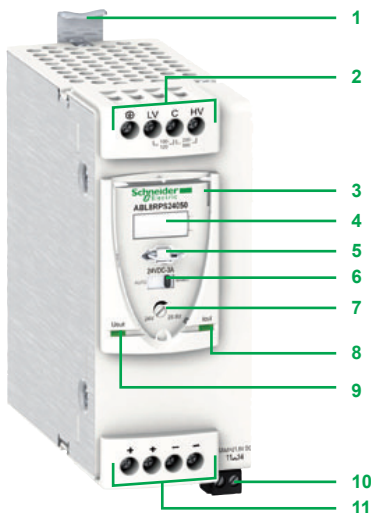
■ ABL8RPS24030	72 W	3 A	24 V $\overline{\text{---}}$
■ ABL8RPS24050	120 W	5 A	24 V $\overline{\text{---}}$
■ ABL8RPS24100	240 W	10 A	24 V $\overline{\text{---}}$
■ ABL8RPM24200	480 W	20 A	24 V $\overline{\text{---}}$

The ABL8RP/ABL8WP (Universal) range of Phaseo power supplies also features two references for three-phase connection:

■ ABL8WPS24200	480 W	20 A	24 V $\overline{\text{---}}$
■ ABL8WPS24400	960 W	40 A	24 V $\overline{\text{---}}$

A range of function modules also allows functions to be added to the ABL8RP/ABL8WP (Universal) range of Phaseo power supplies so as to give continuity of service:

- A Buffer module or Battery control modules combined with their batteries to give continuity of service in the event of a network power outage
- A Redundancy module to meet the requirements for continuity of service even if the power supply is cut off.
- Downstream electronic Protection modules to ensure that the protection in the application is discriminating
- Converter modules delivering nominal voltages of 5 and 12 V $\overline{\text{---}}$ from the 24 V $\overline{\text{---}}$ output of the ABL8RP/ABL8WP (Universal) range of Phaseo power supplies



Description

ABL8RP/ABL8WP (Universal) range of power supplies

The ABL8RP/ABL8WP (Universal) range of Phaseo regulated switch mode power supplies, **ABL8RPS24●●0/RPM24200/WPS24●00**, comprise:

- 1 Spring clip for 35 mm $\overline{\text{---}}$ rail
- 2 4 mm² enclosed screw terminals for connection of the AC voltage (single-phase, phase-to-phase or three-phase connection)
- 3 Protective glass flap
- 4 Clip-on marker label
- 5 Locking catch for the glass flap (sealable)
- 6 Protection mode selector
- 7 Output voltage adjustment potentiometer
- 8 Output voltage status LED (green and red)
- 9 Output current status LED (green, red and orange)
- 10 Screw terminals for connection of the diagnostic relay contact, except **ABL8RPS24030**
- 11 4 mm² (10 mm² on **ABL8WPS24●00** and **ABL8RPM24200**) enclosed screw terminals for connection of the DC output voltage

Power supplies and transformers

Phaseo

Regulated switch mode power supplies

ABL8RP/ABL8WP (Universal)

72 to 960 W - Wide input voltage range - Mounting on rail

Selection of protection on the power supply primaries

Type of line supply	115 V ~ phase-to-neutral			230 V ~ phase-to-phase			400 V ~ phase-to-phase	
Type of protection	Thermal-magnetic circuit-breaker		gG/gL fuse	Thermal-magnetic circuit-breaker		gG/gL fuse	Thermal-magnetic circuit-breaker	gG/gL fuse
	(1) GB2 (IEC/ CSA-c/US) (3)	(2) C60N (IEC/UL)	–	(1) GB2 (IEC/ CSA-c/US)	(2) C60N (IEC/UL)	–	(1) GV2 (IEC/UL)	–
ABL8RPS24030	GB2CD07	MG24443	2 A (8 x 32)	GB2CD07	MG24443	2 A (8 x 32)	GV2RT06 GV2ME06 (3)	2 A (14 x 51)
ABL8RPS24050	GB2CD08	MG24444	4 A (8 x 32)	GB2CD07	MG24443	2 A (8 x 32)	GV2RT06 GV2ME06 (3)	2 A (14 x 51)
ABL8RPS24100	GB2CD12	MG24447	6 A (8 x 32)	GB2CD08	MG24444	4 A (8 x 32)	GV2RT07 GV2ME07 (3)	4 A (14 x 51)
ABL8RPM24200	GB2CD16	MG24449	10 A (8 x 32)	GB2CD12	MG24447	6 A (8 x 32)	–	–
ABL8WPS24200	–	–	–	–	–	–	GV2ME06 (4)	2 A (14 x 51)
ABL8WPS24400	–	–	–	–	–	–	GV2ME07 (4)	4 A (14 x 51)

(1) Automation and Control offer.

(2) Electrical Distribution offer.

(3) Connection in single-phase (L-N) or phase-to-phase (L1-L2).

(4) Connection in 3 phase (L1-L2-L3).

Power supplies and transformers

Phaseo

Regulated switch mode power supplies

ABL8RP/ABL8WP (Universal)

72 to 960 W - Wide input voltage range - Mounting on rail



ABL8RPS24050



ABL8RPM24200



ABL8WPS24200



ABL8BUF24400



ABL8BBU24200



ABL8RED24400

Regulated switch mode power supplies: Phaseo ABL8RP/ABL8WP (Universal) range

Input voltage	Secondary Output voltage	Nominal power	Nominal current	Reset	Conforming to standard IEC/EN 61000-3-2	Reference	Weight kg/lb
Single-phase (N-L1) or 2-phase (L1-L2) connection							
100...120 V - 200...500 V ~ - 15%, + 10% 50/60 Hz	24...28.8 V	72 W	3 A	Auto/man	Yes	ABL8RPS24030	0.300/ 0.661
	---	120 W	5 A	Auto/man	Yes	ABL8RPS24050	0.700/ 1.543
	---	240 W	10 A	Auto/man	Yes	ABL8RPS24100	1.000/ 2.205
100...120 V/200... 240 V ~ - 15%, + 10% 50/60 Hz	24...28.8 V	480 W	20 A	Auto/man	Yes	ABL8RPM24200	1.600/ 3.527
	---	---	---	---	---	---	---
Three-phase connection (L1-L2-L3)							
380...500 V ~ ± 10 % 50/60 Hz	24...28.8 V	480 W	20 A	Auto/man	Yes	ABL8WPS24200	1.600/ 3.527
	---	960 W	40 A	Auto/man	Yes	ABL8WPS24400	2.700/ 5.952

Function modules for continuity of service (1)

Function	Use	Designation	Reference	Weight kg/lb
Continuity after a power outage	Holding time 100 ms at 40 A and 2 s at 1 A	Buffer module	ABL8BUF24400	1.200/ 2.646
	Holding time 9 min at 40 A...2 hrs at 1 A (depending on use with a Battery control module-battery unit and load) (2)	Battery control module 20 A output current	ABL8BBU24200	0.500/ 1.102
		Battery control module 40 A output current	ABL8BBU24400	0.700/ 1.543
		3.2 Ah battery module (3)	ABL8BPK24A03	3.500/ 7.716
		7 Ah battery module (3)	ABL8BPK24A07	6.500/ 14.330
	12 Ah battery module (3)	ABL8BPK24A12	12.000/ 26.455	
Continuity after a malfunction	Paralleling and redundancy of the power supply to give uninterrupted operation of the application excluding AC line failures and application overloads	Redundancy module	ABL8RED24400	0.700/ 1.543
Discriminating downstream protection	Electronic protection (1...10 A overload or short-circuit) with 4 output terminals from a ABL8RP/ABL8WP (Universal) range Phaseo power supply	Protection module with 2-pole breaking (4) (5)	ABL8PRP24100	0.270/ 0.595

--- / --- converters (1)

Primary (6)	Secondary	Reference	Weight kg/lb	
Input voltage	ABL8RP/ABL8WP (Universal) range power supply module output current	Output voltage	Nominal current	
24 V --- - 9%, + 24%	2.2 A	5...6.5 V --- 6 A	ABL8DCC05060	0.300/ 0.661
	1.7 A	7...15 V --- 2 A	ABL8DCC12020	0.300/ 0.661

Separate and replacement parts

Designation	Use	Composition	Unit reference	Weight kg/lb
Fuse assemblies	For ABL8PRP24100 discriminating Protection modules	4 x 5 A, 4 x 7.5 A and 4 x 10 A	ABL8FUS01	—
	For ABL8BPK24A●● Battery	4 x 20 A and 6 x 30 A	ABL8FUS02	—
Clip-on marker labels	Each products except ABL8PRP24100	Order in multiples of 100	LAD90	0.030/ 0.066
	ABL8PRP24100 selective Protection Module	Order in multiples of 22	ASI20MACC5	—
DIN rail mounting kit	ABL8BPK2403 Battery Module	—	ABL1A02	—
EEPROM memory	Backup and duplication of ABL8 BBU24●00 battery control module parameters	—	SR2MEM02	0.010/ 0.022

(1) For use with ABL8RP/ABL8WP (Universal) range of Phaseo power supplies.

(2) For table of compatibility of Battery control module-battery unit with holding time depending on the load.

(3) Supplied with 20 or 30 A fuse depending on the model.

(4) Supplied with four 15 A fuses.

(5) Local reset via pushbutton or automatic reset.

(6) Voltage from a 24 V --- ABL8RP/ABL8WP (Universal) range Phaseo power supply.

Power supplies and transformers

Phaseo

Regulated switch mode power supplies

ABL8DCC Function modules

---/--- Converter modules

Supplying 5 V --- and 12 V --- auxiliary voltages

The Phaseo range offers modules that convert the 24 V --- voltage to a 5 to 15 V --- voltage.

These modules can be used to make savings in the:

- Upstream protection normally used with the 5 to 15 V --- power supply
- Connection to the line supply

There are two references available for this solution:

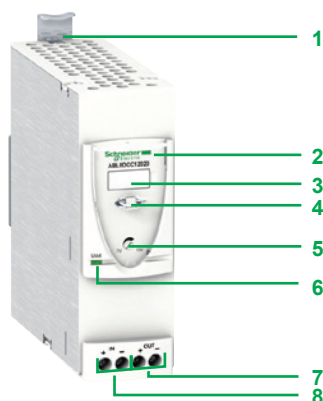
- **ABL8DCC05060** : 5...6.5 V ---, 6 A converter module
- **ABL8DCC12020** : 7...15 V ---, 2 A converter module

Description

5 V --- and 12 V --- Converter modules

The **ABL8DCC●●●●●** --- / --- Converter modules comprise:

- 1 Spring clip for 35 mm U_r rail
- 2 Protective glass flap
- 3 Clip-on marker label
- 4 Locking catch for the glass flap (sealable)
- 5 Output voltage adjustment potentiometer
- 6 Output current status LED (green)
- 7 4 mm² enclosed screw terminals for connection of the 24 V --- input voltage
- 8 4 mm² enclosed screw terminals for connection of the 5 V --- or 12 V --- output voltage



Power supplies and transformers

Phaseo

Regulated switch mode power supplies

ABL8DCC Function modules

---/-- Converter modules



ABL8DCC05060/12020

References

--- / --- converters (compatible only with ABL8RP/ABL8WP (Universal) Phaseo power supplies)

Primary (1)	Secondary		Reference	Weight kg/lb	
	Input voltage	Output voltage			Nominal current
24 V c -9%, +24%	ABL8RP/ABL8WP (Universal) range power supply module output current 2.2 A	5...6.5 V ---	6 A	ABL8DCC05060	0.300/ 0.661
	1.7 A	7...15 V ---	2 A	ABL8DCC12020	0.300/ 0.661

Replacement part

Designation	Composition	Unit reference	Weight kg/lb
Clip-on marker labels	Order in multiples of 100	LAD90	0.030/ 0.066

(1) Voltage from a 24 V --- Phaseo ABL8RP/ABL8WP (Universal) range power supply

Power supplies and transformers

Phaseo

Regulated switch mode power supplies
 ABL8B Function modules
 Solutions to microbreaks and power outages

Presentation

The **ABL8B** Function module offer complements the **ABL8RP/ABL8WP (Universal)** regulated switch mode power supply offer, thus forming a set of solutions to meet the needs for continuity of service in demanding applications.

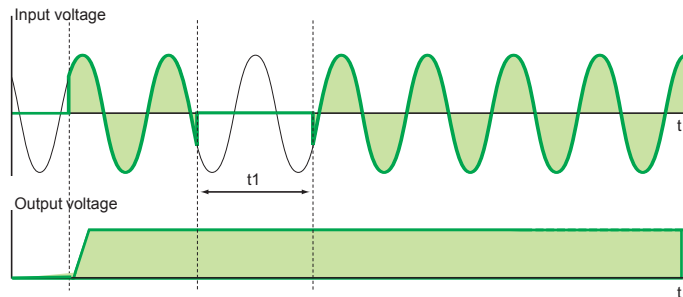
These modules, connected to the electronic switch mode power supply outputs, offer solutions such as:

- Immunity to microbreaks (see page 22)
- Voltage holding in the event of power outages (see page 23)
- Voltage holding in the event of power supply equipment impairment (see page 26)
- Discrimination in the application's protection against overloads and short-circuits (see page 28)

Continuity of service: Immunity to microbreaks

ABL8RP/ABL8WP (Universal) power supplies can deliver their nominal power in the event of a microbreak of less than 20 ms. When outages exceed this value, the **ABL8BUF24400** Buffer Function module, combined with an **ABL8RP/ABL8WP (Universal)** power supply, is used. In the event of short interruptions, the Buffer module takes over and continues to provide the 24 V $\bar{\text{---}}$ voltage.

The table below indicates the maximum time for immunity to microbreaks t_1 .



Power supply	Typical time for immunity to microbreaks with Buffer module (40 A) at U_n t_1	
	100% load at the Buffer module output	2 A at the Buffer module output
ABL8RPS24030 Single-phase or 2-phase 3 A, 72 W	0.912 s	0.984 s
ABL8RPS24050 Single-phase or 2-phase 5 A, 120 W	0.472 s	1.33 s
ABL8RPS24100 Single-phase or 2-phase 10 A, 240 W	0.220 s	1.34 s
ABL8RPM24200 Single-phase or 2-phase 20 A, 480 W	0.206 s	1.82 s
ABL8WPS24200 3-phase 20 A, 480 W	0.056 s (1)	1.18 s
ABL8WPS24400 3-phase 40 A, 960 W	0.092 s (1)	1.29 s

Note: In order to maximize the immunity time, it is advisable to connect only those circuits requiring protection against microbreaks (controller or PLC power supply) at the Buffer module output.

(1) Values liable to increase significantly. Please consult our website www.schneider-electric.com

Power supplies and transformers Phaseo

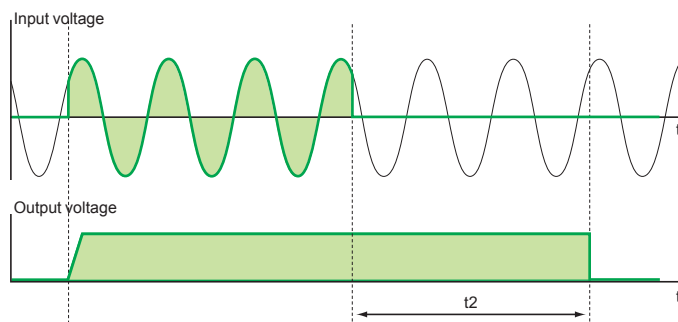
Regulated switch mode power supplies ABL8B Function modules Solutions to microbreaks and power outages

Continuity of service: Voltage holding in the event of a power outage (continued)

For applications that are sensitive to unintended stopping, the **ABL8B** 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 $\overline{\text{ac}}$. 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+5	2+5	2+5	2+6	2+6	2+6	+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	+6	+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	2+6	+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+5	2+5	2+5	2+6	2+6	2+6	2+6	2+6	2+6	2+6	2+6	+6	+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+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	+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	2+6	2+6	+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	2+6	2+6	+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	2+6	2+6	2+6	+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	2+6	2+6	2+6	+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	3+6	3+6	3+6	+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	3+6	3+6	3+6	3+6	+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	3+6	3+6	3+6	3+6	+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	3+6	3+6	3+6	3+6	+6

Function modules	Reference	Code
40 A Buffer module	ABL8BUF24400	1
20 A Battery control module	ABL8BBU24200	2
40 A Battery control module	ABL8BBU24400	3
3.2 Ah Battery module	ABL8BPK24A03	4
7 Ah Battery module	ABL8BPK24A07	5
12 Ah Battery module	ABL8BPK24A12	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
ABL8B Function modules
Solutions to microbreaks and power outages

Description

40 A Buffer module

The **ABL8BUF24400** Buffer Function module comprises:

- 1 Spring clip for 35 mm DIN rail
- 2 Clip-on marker label
- 3 LED indicator (green): module ready (maximum load)
- 4 10 mm² enclosed screw terminals for connection of the 24 V DC input voltage
- 5 10 mm² enclosed screw terminals for connection of the 24 V DC output voltage
- 6 Removable screw terminal block for connection of the diagnostic contact: module ready (maximum load)

20 A and 40 A Battery control modules

The **ABL8BBU24●00** Battery control Function modules comprises:

- 1 Spring clip for 35 mm DIN rail
- 2 Clip-on marker label
- 3 Memory card slot for backup and duplication of the configuration parameters
- 4 Display and configuration parameter browse/selection button
- 5 Removable screw connector for connection of the battery voltage inhibit input (terminal block supplied)
 - ⚠ This contact must always be volt-free.
- 6 Removable screw connector for connection of the diagnostic contacts: power supply presence, battery presence (terminal block supplied)
- 7 10 mm² enclosed screw terminals for connection of the 24 V DC output voltage
- 8 10 mm² enclosed screw terminals for connection of the power supply 24 V DC input voltage
- 9 10 mm² enclosed screw terminals for connection of the battery voltage 24 V DC input voltage

3.2 Ah, 7 Ah, and 12 Ah Battery modules

The front panel of the **ABL8BPK24A●●** Battery Function modules comprises:

- 1 A metal box that can be fixed on a vertical or horizontal panel
- 2 Fuse carrier (one or two depending on the model), which, in addition to protect the output, can be used to disable the battery module (fuse supplied but not fitted)
- 3 10 mm² enclosed screw terminals for connection of the Battery module 24 V DC output voltage (depending on the model, allows two Battery modules to be connected in parallel)
- 4 Fuse storage attachment

Functions

ABL8BBU24●00 Battery control modules

The main module functions are:

- Charging and checking the associated battery
- Automatic switching between the power supply and the battery in the event of a power outage
- Diagnostics

The Battery control modules offer a three-color LCD screen and a navigation button that can be used to:

- Display the status and diagnostic data
- Access the service and maintenance functions
- Set the module parameters

These modules also have a diagnostic relay (C/O contacts) relating to:

- The power supply status
- The Battery module status
- The alarm

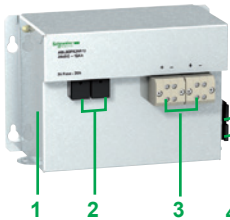
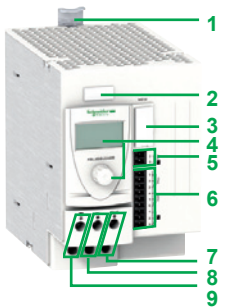
The following functions are available:

- Inhibition or activation (local or remote) of the battery in order to do maintenance operations on the application
- Battery test
- Backup and download of a configuration via a memory card enabling storage and duplication of the configuration parameters

The module parameters can be set in order to define:

- The user language
- The rating of the battery connected to the Battery control module
- The operating temperature for the battery in order to optimize its life
- The length and cross-section of the connection to compensate for voltage losses due to the length of the line
- The duration of the battery-powered supply
- The threshold voltage provided by the power supply below which the battery takes over

Whichever solution is used, the output terminals for the power supplies, Buffer modules and Battery control modules have been designed to make it easier to isolate a backed-up circuit and a non-backed-up circuit to maintain continuity of service after a power outage.



Green: Nominal status/information



Orange: Warning



Red: Fault

Examples of Battery control module diagnostic screens

Power supplies and transformers Phaseo

Regulated switch mode power supplies
ABL8B Function modules
Solutions to microbreaks and power outages

Functions

ABL8BPK24A●● Battery modules

- Each Battery module consists of:
- Lead-sealed batteries (two in series)
 - Its automotive type fuse protection

Only these modules are compatible with the **ABL8BBU** Battery control modules.

⚠ In the event of the Battery control module-Battery module combination not being used for long periods (approximately 1 week minimum) the following is recommended:

- Fully charge the Battery module beyond 72 hours,
- Remove the fuse(s) from the Battery module(s) and store them in the allocated slots **2**

References

Function modules (compatible only with ABL8RP/ABL8WP (Universal) Phaseo power supplies)

Function	Use	Designation	Reference	Weight kg/lb
Continuity after a power outage	Holding time 100 ms at 40 A and 2 s at 1 A	Buffer module	ABL8BUF24400	1.200/ 2.646
	Holding time 9 min at 40 A...2 hrs at 1 A (depending on use with a battery control module-battery unit and load) (1)	Battery control module 20 A output current	ABL8BBU24200	0.500/ 1.102
Battery control module, 40 A output current		ABL8BBU24400	0.700/ 1.543	
3.2 Ah battery module (2)		ABL8BPK24A03	3.500/ 7.716	
7 Ah battery module (2)		ABL8BPK24A07	6.500/ 14.330	
	12 Ah battery module (2)	ABL8BPK24A12	12.000/ 26.455	



ABL8BUF24400



ABL8BBU24200



ABL8BBU24200

Separate and replacement parts

Designation	Description	Composition	Unit reference	Weight kg/lb
Fuse assemblies	For ABL8BPK24A●● battery	4 x 20 A and 6 x 30 A	ABL8FUS02	–
Clip-on marker labels	All products except ABL8PRP24100	Order in multiples of 100	LAD90	0.030/ 0.066
Kit for mounting on rail	For ABL8BPK2403 Battery module	–	ABL1A02	–
EEPROM memory	Backup and duplication of ABL8 BBU parameters	–	SR2MEM02	0.010/ 0.022

(1) For table of compatibility of battery control module-battery unit with holding time depending on the load, see page 23.

(2) Supplied with 20 or 30 A fuse depending on the model.

Power supplies and transformers

Phaseo

Regulated switch mode power supplies
ABL8RED24400 Function module
Redundancy solution

Continuity of service: Failure of power supply equipment

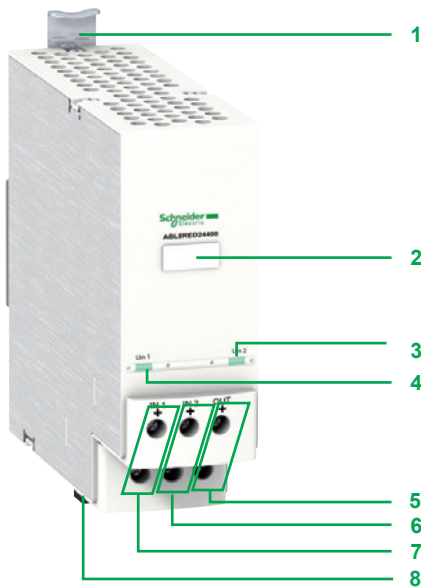
Where continuous operation of the application is the prime concern, it is necessary to know that when one power supply malfunctions, a second power supply takes over. The **ABL8RED24400** Redundancy module can perform this function, allowing that the failure of one power supply does not disturb the second (for example, in the event of a short-circuit of one of the power supply outputs).

The **ABL8RED24400** Redundancy module, used with two electronic switch mode power supplies of the same type, can be used to supply the nominal power to the application even if one of the power supplies fails.

The various diagnostics - on the front panel (LED) and remote (relay) - inform the maintenance team as soon as the first fault occurs on one of the power supplies.

When continuity of service is critical for the application, it may be necessary to provide redundancy for the Redundancy module.

Note: The Redundancy module can be used to connect two power supplies with a maximum rating of 20 A in parallel. To connect two 40 A **ABL8WPS24400** power supplies, two **ABL8RED24400** Redundancy modules must be used.



Description

2 x 20 A Redundancy module

The **ABL8RED24400** Redundancy Function module comprises:

- 1 Spring clip for 35 mm rail
- 2 Clip-on marker label
- 3 Input voltage status LED (green) for the first 24 V --- power supply
- 4 Input voltage status LED (green) for the second 24 V --- power supply
- 5 10 mm² enclosed screw terminals for connection of the 24 V --- output voltage
- 6 10 mm² enclosed screw terminals for connection of the input voltage for the second 24 V --- power supply ($I \leq 20$ A)
- 7 10 mm² enclosed screw terminals for connection of the input voltage for the first 24 V --- power supply ($I \leq 20$ A)
- 8 Removable screw terminal block for connection of the diagnostic contact

Power supplies and transformers

Phaseo

Regulated switch mode power supplies

ABL8RED24400 Function module

Redundancy solution



ABL8RED24400

Function module (compatible only with ABL8RP/ABL8WP (Universal) Phaseo

power supplies)

Function	Use	Designation	Reference	Weight kg/lb
Continuity after a failure	Paralleling and redundancy of the power supply to ensure uninterrupted operation of the application excluding AC line failures and application overloads	Redundancy module	ABL8RED24400	0.700/ 1.543

Replacement part

Designation	Composition	Unit reference	Weight kg/lb
Clip-on marker labels	Order in multiples of 100	LAD90	0.030/ 0.066

Power supplies and transformers Phaseo

Regulated switch mode power supplies

Function modules ABL8PRP24100

Solution for discriminating protection of the application

Continuity of service: Discrimination of protection against overloads and short-circuits

There is no point in using thermal-magnetic circuit-breakers or fuses downstream of an electronic switch mode power supply in the majority of cases. When a short-circuit or very quick overload occurs in the application, the electronic protection is faster than the thermal-magnetic circuit-breaker or fuse. In this case, none of the circuits are powered.

To provide discriminating protection in the event of an overload or short-circuit, the **ABL8RP/ABL8WP (Universal)** Phaseo power supply electronic protection function has been integrated in four-channel modules. These discriminating downstream Protection modules can be daisy-chained to provide protection discrimination on as many application segments as necessary.

The **ABL8PRP24100** discriminating downstream Protection module have:

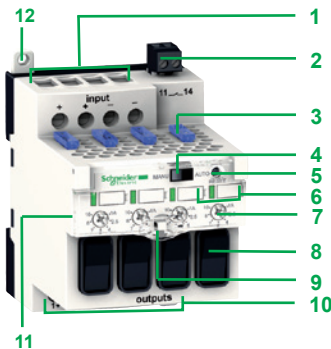
- Overload and short-circuit protection on each of their four channels:
- Each channel can be calibrated by the user from 1 to 10 A, according to the needs of the application.
- One fuse per channel (15 A supplied by default) gives ultimate protection in the event of a module fault. This fuse can be replaced by a fuse with a lower rating that is appropriate for the conductor c.s.a. used for cabling.
- A 2-pole isolator on each of its channels
- An automatic or manual reset mode for the protection
- Memorization of the fault even in the event of failure of the 24 V $\bar{\bar{c}}$ voltage
- A diagnostic relay indicating that each channel is operational
- One diagnostic LED per channel
- Manual reset on the front panel
- One switch per channel that can be used, like thermal-magnetic circuit-breakers, to open or close the circuits during test, maintenance or installation periods

Description

Single-pole and 2-pole downstream electronic Protection module

The **ABL8PRP24100** 4-channel downstream electronic Protection module comprises:

- 1 10 mm² enclosed screw terminals for connection of the 24 V $\bar{\bar{c}}$ voltage
- 2 Enclosed screw terminals for connection of the diagnostic relay contact
- 3 Line protection fuses (one 15 A fuse per channel by default)
- 4 Automatic or manual reset mode selector
- 5 Reset pushbutton
- 6 Diagnostic LEDs (green and red) and clip-on marker tag holder (1 per channel)
- 7 1...10 A output nominal current selector (1 per channel)
- 8 Channel isolator switch (1 per channel)
- 9 Locking catch for the glass flap (sealable).
- 10 4 mm² enclosed screw terminals for connection of the four channels (2-pole)
- 11 Protective glass flap
- 12 Retractable fixing lugs for panel mounting (DIN rail mounting also possible)



Power supplies and transformers

Phaseo

Regulated switch mode power supplies

Function modules ABL8PRP24100

Solution for discriminating protection of the application



ABL8PRP24100

References

Function modules (compatible only with ABL8RP/ABL8WP (Universal) Phaseo power supplies)

Function	Use	Designation	Reference	Weight kg/lb
Discriminating downstream protection	Electronic protection (1...10 A overload or short-circuit) of 4 output terminals from a Phaseo ABL8RP/ABL8WP (Universal) range power supply	Universal Protection module with 2-pole breaking (1)	ABL8PRP24100	0.470/ 1.036

Separate part

Designation	Use	Composition	Unit reference	Weight kg/lb
Fuse set	For ABL8PRP24100 module	4 x 5 A, 4 x 7.5 A and 4 x 10 A	ABL8FUS01	0.018/ 0.040

Replacement part

Designation	Use	Composition	Unit reference	Weight kg/lb
Clip-on marker labels	For ABL8PRP24100 module	Order in multiples of 22	ASI20MACC5	0.015/ 0.033

(1) Local reset via pushbutton or automatic reset.

Power supplies and transformers

Phaseo

Regulated switch mode power supplies

ABL1REM/1RPM

60 to 240 W - Mounting on panel



ABL1REM/1RPM Phaseo range regulated switch mode power supplies

Presentation

ABL1REM/1RPM Phaseo range regulated switch mode power supplies are specially designed to provide the d.c. voltage necessary for electrical equipment operating on a safety extra low voltage (SELV). Split into two ranges, they are able to meet the needs encountered in standard commercial machines.

These single-phase power supplies, with or without anti-harmonic distortion filter, conform to world-wide standards. Switch mode technology guarantees the quality of the output current with regulation below 3%.

As machine components, **ABL1REM/1RPM** Phaseo range power supplies must be easy to install; only setting-up may vary from one application to another. The ABL1 range has been specially designed for machine manufacturers.

ABL1REM/1RPM regulated switch mode power supplies are totally electronic and regulated. They provide the following benefits:

- A wide input voltage range from 85 to 264 V ~ and 120 to 370 V ~ (not indicated on the product).
- Products with anti-harmonic distortion input filter.
- A high degree of output voltage stability, adjustable by potentiometer.
- Built-in thermal overload protection.
- Conformity to world-wide standards.
- UL 508, CSA and TÜV certifications.
- Overload and short-circuit protection.
- Considerably reduced weight.
- Identical mounting accessories for each model.

ABL1 power supplies for electrical equipment are split into two ranges :

- **ABL1REM**, single-phase:
 - 60 W for the 12 V ~ version,
 - 60 W, 100 W, 150 W and 240 W for the 24 V ~ versions.
- **ABL1RPM**, single-phase with anti-harmonic distortion filter:
 - 100 W for the 12 V ~ version,
 - 100 W, 150 W and 240 W for the 24 V ~ versions.

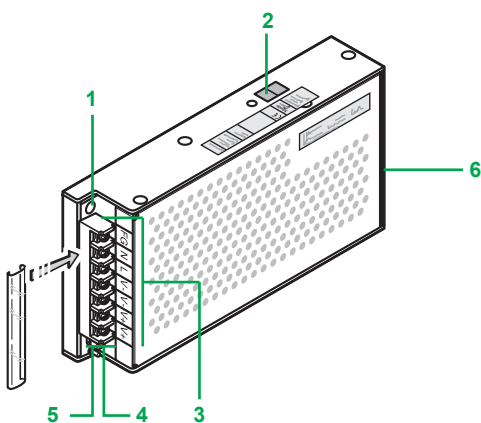
Behaviour in the event of short-circuits

ABL1 power supplies are equipped with electronic and thermal overload protection. This protection resets itself automatically on elimination of the fault, which avoids having to take any action or change a fuse.

Description

ABL1REM/1RPM regulated switch mode power supplies comprise:

- 1 Two fixing holes for M4 x 20 screws.
- 2 A 115/230 V input voltage selector (on 150 W and 240 W versions only).
- 3 A 4 mm² screw clamp terminal block for connection of the AC input voltage and DC output voltage.
- 4 A green LED indicating presence of the d.c. output voltage.
- 5 An output voltage adjustment potentiometer ($\pm 10\%$).
- 6 A removable, transparent, clip-on cover.



Selection of protection for the power supply primary

Type of mains supply Type of protection (2 poles protected)	~ 115 V single-phase			~ 230 V single-phase		
	Thermal-magnetic circuit-breaker		gG fuse	Thermal-magnetic circuit-breaker		gG fuse
	GB2 (IEC/CSA-c/US)	C60N (IEC) C60N (UL)		GB2 (IEC/CSA-c/US)	C60N (IEC) C60N (UL)	
ABL1REM12050	GB2DB07	24517	2 A	GB2DB07	24517	2 A
ABL1REM24025	GB2DB07	24517	2 A	GB2DB07	24517	2 A
ABL1RPM12083	GB2DB07	24517	2 A	GB2DB07	24517	2 A
ABL1REM24042	GB2DB07	24517	2 A	GB2DB07	24517	2 A
ABL1RPM24042	GB2DB07	24517	2 A	GB2DB07	24517	2 A
ABL1REM24062	GB2DB07	24517	2 A	GB2DB08	24518	4 A
ABL1RPM24062	GB2DB07	24517	2 A	GB2DB08	24518	4 A
ABL1REM24100	GB2DB08	24518	4 A	GB2DB10 (1)	17454	6 A
ABL1RPM24100	GB2DB08	24518	4 A	GB2DB10 (1)	17454	6 A

(1) Pending UL certification.

References

Regulated switch mode power supplies: ABL1REM Phaseo range

Input voltage 47...63 Hz	Output voltage	Nominal power	Nominal current	Auto-protect reset	Conforming to standard IEC/EN 61000-3-2	Reference	Weight kg/lb
100...240 V ~ (1) single-phase wide range	12 V $\overline{\text{---}}$	60 W	5 A	Automatic	Not applicable	ABL1REM12050	0.440/ 0.970
	24 V $\overline{\text{---}}$	60 W	2.5 A	Automatic	Not applicable	ABL1REM24025	0.440/ 0.970
		100 W	4.2 A	Automatic	Not applicable	ABL1REM24042	0.640/ 1.411
100...120 V ~ 200...240 V ~ (2) single-phase	24 V $\overline{\text{---}}$	150 W	6.2 A	Automatic	No	ABL1REM24062	0.730/ 1.609
		240 W	10 A	Automatic	No	ABL1REM24100	0.880/ 1.940



ABL1REM24025



ABL1RPM24042



ABL1RPM24062



ABL1RPM24100

Regulated switch mode power supplies: ABL1RPM Phaseo range

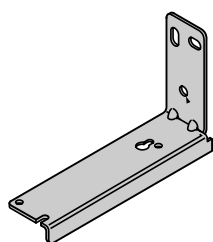
Input voltage 47...63 Hz	Output voltage	Nominal power	Nominal current	Auto-protect reset	Conforming to standard IEC/EN 61000-3-2	Reference	Weight kg/lb
100...240 V ~ (1) single-phase wide range	12 V $\overline{\text{---}}$	100 W	8.3 A	Automatic	Yes	ABL1RPM12083	0.640/ 1.411
	24 V $\overline{\text{---}}$	100 W	4.2 A	Automatic	Yes	ABL1RPM24042	0.640/ 1.411
100...120 V ~ 200...240 V ~ (2) single-phase	24 V $\overline{\text{---}}$	150 W	6.2 A	Automatic	Yes	ABL1RPM24062	0.970/ 2.138
		240 W	10 A	Automatic	Yes	ABL1RPM24100	1.230/ 2.712

Mounting accessories

Description	For power supplies	Sold in lots of	Unit reference	Weight kg/lb
Reversible mounting bracket	For the mounting on the back of cabinet of ABL1RPM power supply	5	ABL1A01	0.085/ 0.187
Clip-on mounting plate for 35 mm mounting rail	- ABL1REM12050/24025: the plate mounting on 35 mm requires one mounting plate - ABL1RPM12083 and ABL1RPM24042/24062/24100: the plate mounting on 35 mm requires 2 mounting plates - ABL1RPM24062: the mounting on the back of cabinet on the 35 mm rail requires one mounting plate	5	ABL1A02	0.035/ 0.077

(1) Compatible input voltage $\overline{\text{---}}$ 120...370 V not indicated on the product.

(2) Compatible input voltage $\overline{\text{---}}$ 180...370 V not indicated on the product.



ABL1A01

Power supplies and transformers Phaseo

Regulated switch mode power supplies

ASIABL

Power supplies for AS-Interface cabling system

Power supplies for AS-Interface cabling system

Consistent with the standard Phaseo line, the range of **ASIABL** power supplies is designed to deliver a \sim voltage, as required by AS-Interface cabling systems. Three versions are available to meet all needs encountered in industrial applications, in enclosures, cells or floor-standing enclosures. These single-phase, electronic, switch mode power supplies guarantee the quality of the output current, in accordance with the electrical characteristics and conforming to standard EN 50295.

ASIABLB300●

Operating on a 100 to 240 V \sim supply, this power supply delivers a voltage of 30 V \sim . Available in 2.4 and 4.8 A ratings, the outgoing terminal block allows the cable to be connected separately to the AS-Interface interface modules and to the AS-Interface master. Input and output LEDs allow fast and continuous diagnostics.



ASIABLB3002

ASIABLD300●

Operating on a 100 to 240 V \sim supply, this power supply delivers a voltage of 30 V \sim . Available in 2.4 and 4.8 A ratings, it allows diagnosis and management of earth faults on AS-Interface interface modules. In the event of an earth fault, the Phaseo power supply stops dialogue on the AS-Interface cabling system and puts the installation in a fallback condition. Restarting is only possible after deliberate acknowledgement of the fault. Two inputs/outputs enable dialogue with a processing unit. The outgoing terminal block is used to connect the AS-Interface cable separately to the interface modules and master modules. Input, output and earth fault LED's allow fast and continuous diagnostics.



ASIABLD3004

ASIABLM3024

Operating on a 100 to 240 V \sim supply, this product provides two separate power supplies, which are totally independent in the way they operate. Two output voltages - 30 V/2.4 A (AS-Interface line supply) and 24 V/3 A - are available, so making it possible to supply the control equipment without an additional power supply. Input and output LEDs allow fast and continuous diagnostics.



ASIABLM3024

Selection of protection on the power supply primaries

Type of mains supply	~ 115 V single-phase			~ 230 V single-phase		
	Power supply	Thermal-magnetic circuit-breaker (1)	Gg fuse	Thermal-magnetic circuit-breaker (2-pole)	Gg fuse	
ASIAPL3002	GB2●B07	MG24517 (2)	2 A	GB2DB06	MG24516 (2)	2 A
ASIAPL3004	GB2●B08	MG24518 (2)	4 A	GB2DB07	MG17453 (2)	2 A
ASIAPLD3002	GB2●B07	MG24517 (2)	2 A	GB2DB06	MG24516 (2)	2 A
ASIAPLD3004	GB2●B08	MG24518 (2)	4 A	GB2DB07	MG17453 (2)	2 A
ASIAPLM3024	GB2●B07	MG24517 (2)	2 A	GB2DB06	MG17453 (2)	2 A

(1) Single-phase protection, replace ● by C; 2-pole protection, replace ● by D.

(2) UL certified circuit breaker.

References

Input voltage	Secondary			Auto-protect reset	Earth fault detection	Reference	Weight kg/lb
	Output voltage	Nominal power	Nominal current				
Single phase (N-L1) or 2-phase (L1-L2)							
~ 100...240 V - 15 %, + 10 % 50/60 Hz	~ 30 V	72 W	2,4 A	Auto	No	ASIAPL3002	0.800/ 1.764
		144 W	4,8 A	Auto	No	ASIAPL3004	1.300/ 2.866
	72 W	2,4 A	Auto	Yes	ASIAPLD3002	0.800/ 1.764	
			Auto	Yes	ASIAPLD3004	1.300/ 2.866	
	~ 30 V	72 W	2,4 A	Auto	No	ASIAPLM3024	1.300/ 2.866
		~ 24 V	72 W	3 A			



ASIAPL●3002

Power supplies and transformers

Phaseo

Filtered rectified power supplies

ABL8FEQ/8TEQ

12 to 1440 W - Mounting on panel or rail



ABL8FEQ24040



ABL8FEQ●●●●●



ABL8TEQ24●00

ABL8FEQ/8TEQ power supplies

The **ABL8FEQ/8TEQ** range of power supplies is designed to provide the DC voltage necessary for the control circuits of automation system equipment. Comprising two families, this range meets the needs encountered in industrial, commercial and residential applications. With phase-to-neutral or three-phase connection, of the conventional type with rectifier, they provide a quality of output current that is suitable for the loads supplied and compatible with the line supply available in the equipment. Clear guidelines are given for selecting protection devices which are often used with them, and thus a comprehensive solution is provided.

Filtered rectified power supplies

Filtered rectified power supplies are built using a SELV transformer (Safety Extra Low Voltage) equipped with a bridge rectifier and smoothing capacitors. With no regulation system, and of simple and rugged construction, their output voltage will withstand line voltage variations and load variations while remaining within the range defined in standards IEC/EN 61131-2.

These power supplies are split into two families:

- The **ABL8FEQ** family, with phase-to-neutral or phase-to-phase connection, rectified and filtered, enables connection to European 230/400 V line supplies. Power supplies from 0.5 A to 4 A are available for direct mounting on a DIN rail.
- The **ABL8TEQ** family, with three-phase connection, filtered and rectified, is particularly suitable where a high power level is required for controlling actuators and preactuators. This is especially true for “24 V DC ” equipment, or for pilot operation of DC valves and solenoid valves.

Selection of power supplies

Quality of the line supply

Rectified power supplies provide a non-regulated voltage, sensitive to load and line supply fluctuations. They can only be used on good-quality line supplies, with fluctuations limited to - 10%...+ 10% of the nominal value.

Graphs showing the output voltage as a function of the current, the load and the input voltage for **ABL8FEQ** and **ABL8TEQ** supplies are given on our web site www.schneider-electric.com.

If the quality of the line supply is not suitable for a rectified power supply, a regulated supply must be used.

Harmonic pollution (power factor)

By design, **ABL8FEQ** and **ABL8TEQ** rectified power supplies consume very little harmonic current; they meet the requirements of standard IEC/EN 61000-3-2 and can therefore be connected directly to public distribution systems.

Behavior in the event of short-circuits

In the event of an overload or short-circuit, rectified power supplies need a downstream fuse or circuit-breaker to prevent their destruction. **ABL8FEQ** models up to 6 A are fitted with a 5 x 20 mm glass fuse and do not need any external downstream protection.

Selection

ABL8TEQ power supplies: protection of the primary and secondary voltages

Type of line supply		400 V ~ 3-phase, primary voltage				24 V \equiv , secondary voltage	
Type of protection	Nominal power	3-pole thermal-magnetic circuit-breaker		UL listed FNQ type fuse	aM type fuse	gC type fuse	T type fuse
		TeSys	C60N (1)				
ABL8TEQ24100	240 W	GV2RT04	24532	0.8 A	1 A	12 A	12 A
ABL8TEQ24200	480 W	GV2RT06	17470	1.5 A	1 A	25 A	25 A
ABL8TEQ24300	720 W	GV2RT07	24533	2 A	2 A	40 A	–
ABL8TEQ24400	960 W	GV2RT07	24534	3 A	2 A	50 A	–
ABL8TEQ24600	1440 W	GV2RT08	24535	4 A	4 A	80 A	–

ABL8FEQ power supplies: protection of the primary and secondary voltages

Type of line supply		400 V ~ single-phase, primary voltage			230 V ~ single-phase, primary voltage				
Type of protection	Nominal power	3-pole thermal-magnetic circuit-breaker		UL listed FNQ type fuse	aM type fuse	Thermal-magnetic circuit-breaker		UL listed MDL type fuse	aM type fuse
		TeSys	C60N 2 poles (1)			TeSys	C60N 1 pole (1)		
ABL8FEQ24005	12 W	GB2DB05	17451	0.1 A	0.25 A	GB2●●05	17421	0.125 A	0.25 A
ABL8FEQ24010	24 W	GB2DB05	17451	0.15 A	0.25 A	GB2●●05	17421	0.2 A	0.25 A
ABL8FEQ24020	48 W	GB2DB05	17451	0.3 A	0.25 A	GB2●●05	17421	0.5 A	0.25 A
ABL8FEQ24040	96 W	GB2DB06	24516	0.5 A	0.5 A	GB2●●06	24500	1 A	0.5 A
ABL8FEQ24060	144 W	GB2DB06	24516	1 A	0.5 A	GB2●●07	17422	1.25 A	1 A
ABL8FEQ24100	240 W	GB2DB06	24516	1.25 A	1 A	GB2●●07	24501	2 A	1 A
ABL8FEQ24150	360 W	GB2DB07	24517	2 A	1 A	GB2●●08	24502	3 A	2 A
ABL8FEQ24200	480 W	GB2DB07	24517	2.5 A	1 A	GB2●●09	24503	4 A	2 A

Type of line supply

Type of line supply		24 V \equiv , secondary voltage	
Type of protection	Nominal power	gC type fuse	T type fuse
ABL8FEQ24005	12 W	–	0.5 A (internal fuse)
ABL8FEQ24010	24 W	–	1 A (internal fuse)
ABL8FEQ24020	48 W	–	2 A (internal fuse)
ABL8FEQ24040	96 W	–	4 A (internal fuse)
ABL8FEQ24060	144 W	–	6.3 A (internal fuse)
ABL8FEQ24100	240 W	12 A	12 A
ABL8FEQ24150	360 W	20 A	20 A
ABL8FEQ24200	480 W	25 A	25 A

(1) UL certified circuit-breaker

References



ABL8FEQ24●●●



ABL8TEQ24●00

Input voltage	Secondary			Reference	Weight kg/lb	
	Output voltage	Nominal power	Output current			
Rectified and filtered power supplies						
Single-phase (N-L1) or phase-to-phase (L1-L2) connection						
230/400 V ~ ± 15 V 50/60 Hz	24 V \equiv	12 W	0.5 A	Yes	ABL8FEQ24005	1.280/2.822
		24 W	1 A	Yes	ABL8FEQ24010	1.300/2.866
		48 W	2 A	Yes	ABL8FEQ24020	2.200/4.850
		96 W	4 A	Yes	ABL8FEQ24040	2.900/6.393
		144 W	6 A	Yes	ABL8FEQ24060	4.940/10.891
		240 W	10 A	No	ABL8FEQ24100	7.660/16.887
		360 W	15 A	No	ABL8FEQ24150	8.820/19.445
	480 W	20 A	No	ABL8FEQ24200	13.220/29.145	
3-phase connection (L1-L2-L3)						
400 V ~ ± 20 V 50/60 Hz	24 V \equiv	240 W	10 A	No	ABL8TEQ24100	4.720/10.406
		480 W	20 A	No	ABL8TEQ24200	9.900/21.826
		720 W	30 A	No	ABL8TEQ24300	13.000/28.660
		960 W	40 A	No	ABL8TEQ24400	17.500/38.581
		1440 W	60 A	No	ABL8TEQ24600	26.500/58.422

Marking accessory

Designation	Size	Order in multiples of	Unit reference	Weight kg/lb
Self-adhesive marker tag holder	20 x 10 mm	50	AR1SB3	0.010/0.022

Power supplies and transformers

Phaseo

Transformers

ABL6TS, ABT7

Presentation

The Phaseo **ABL6TS** and **ABT7** single-phase transformers offer is designed to supply control circuits in electrical equipment from a 230 V ~ or 400 V ~ supply (depending on the model) at 50 or 60 Hz. ± 15 V connectors at the primary ensure adaptation to the actual values of the supply networks to which they are connected.

Transformers 230 V, Single winding: ABT7ESM

This range of simplified single-winding transformers is primarily designed for repetitive applications and offers the following as standard:

- 230 V ~ ± 15 V input voltage
- 24 V ~ output voltages
- Panel mounting using 4 screws
- Operating temperature of 40°C

Transformers 230/400 V, Single winding: ABL6TS

The following characteristics demonstrate the suitability of this tried and tested range of single-winding transformers for standard applications:

- 230 V/400 V ~ ± 15 V input voltage
- 12 V, 24 V, 115 V or 230 V ~ output voltage
- Panel mounting, using 4 screws (or clip-on \perp rail-mounting option available depending on the model)
- Operating temperature of 50°C
- cURus certifications

Transformers 230/400 V, Double winding: ABT7PDU

This range of transformers with double winding features a particularly innovative design and offers high-level characteristics (depending on the model) such as:

- 230 V/400 V ~ ± 15 V input voltage
- 2 x 115 V or 2 x 24 V ~ output voltage
- Clip-on \perp rail mounting (depending on the model) or panel mounting (using 4 screws)
- Series or parallel connection of secondary winding and grounding via internal jumpers
- LED indicator
- Operating temperature of 60°C
- cURus certification

Those components are concealed behind a plastic cover making it easier to integrate the Phaseo transformers in control cabinets.

Protection

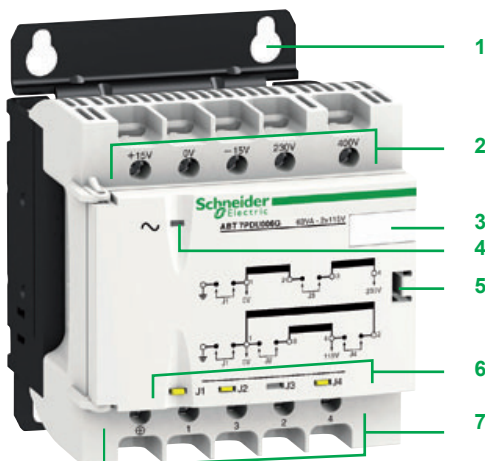
The transformers can be protected against short-circuits by means of fuses or thermal-magnetic circuit-breakers mounted on the secondary.

For operation in compliance with UL standards, short-circuit protection must be achieved using fuses (UL approved) mounted on the primary.

Where the control circuit is isolated from the ground (IT system), a leakage detector will indicate any accidental ground faults.

Description

- 1 Mounted using 4 screws or, depending on the model in the ABT7PDU range, by clipping on a 35 mm \perp rail
- 2 Screw terminals with ± 15 V connectors for connection of the AC input voltage
- 3 Clip-on marker tag or self-adhesive marker tag holder **AR1SB3**
- 4 LED (green) indicating presence of input voltage (depending on the model in the ABT7PDU range)
- 5 Access to the jumpers for selecting the secondary connection (opened using a screwdriver)
- 6 Windows (depending on the model in the ABT7PDU range) for viewing the connection via jumpers of the:
 - 0 V to ground (J1 jumper)
 - Series connection, totally freeing up the “customer” secondary wiring capacity (J3 jumper)
 - Parallel connection, totally freeing up the “customer” secondary wiring capacity (J2 and J4 jumpers)
- 7 Screw terminals for connection of the AC output voltage



ABT7PDU002...7PDU032●

Power supplies and transformers

Phaseo

Transformers

ABL6TS, ABT7

Selection

ABL6TS and **ABT7** transformers are characterized by the apparent nominal power they can supply continuously. However, they are also designed to supply, when necessary, significantly higher powers, such as contactor inrush peaks.

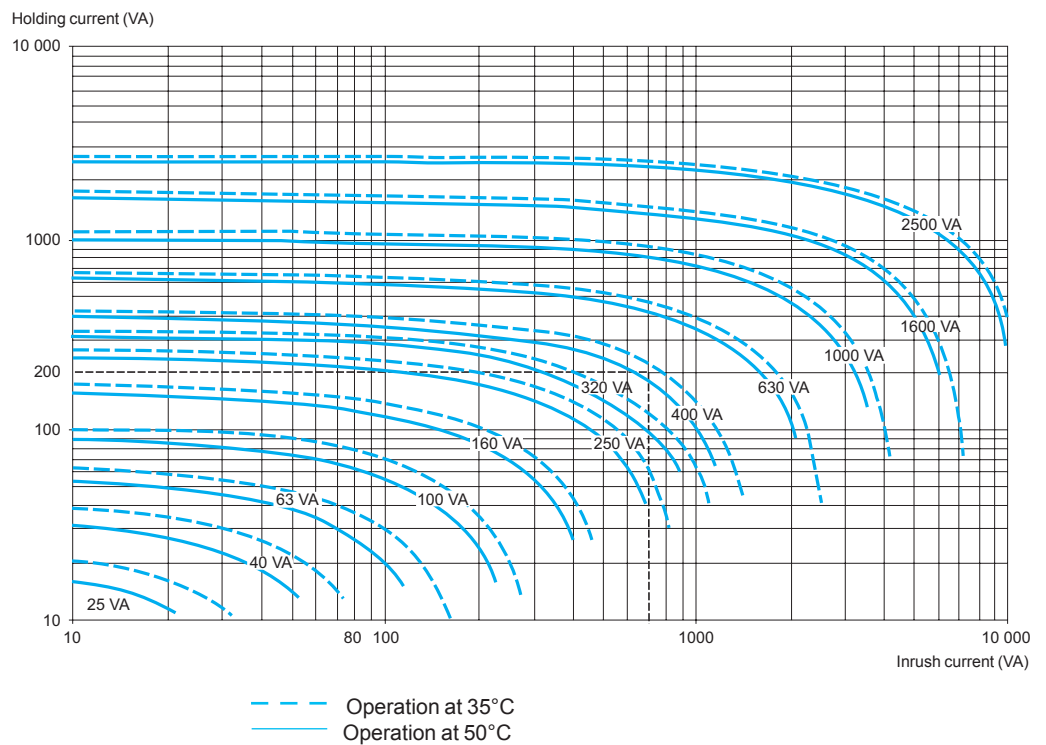
Contactor inrush peaks can reach 10 to 20 times the required holding current. This leads to the transformer being oversized in relation to the continuous power it has to supply. The transformer must be sized so that the voltage drop at its terminals, caused by the inrush, remains within the permissible limits for the contactor to close properly.

The two power values that need to be taken into account to determine which transformer rating to use are therefore:

- The continuous power the transformer has to supply
- The maximum inrush power it has to provide

In practice, only the sum of the holding currents and the contactor inrush current need to be considered.

For **ABL6TS** transformers, the graph below can be used to select the appropriate rating according to these two currents. This gives a maximum voltage drop of 5% at the moment of inrush, compatible with correct operation of the entire installation. However, these transformers have been designed for continuous operation at nominal load and at an ambient temperature of 50°C. A reduction in the ambient temperature may uprate the transformer, which, in some cases, allows a lower rating to be used. The graph below has been drawn up for ambient temperatures of 35...50°C.



Example: A device with a total holding current of 200 VA and inrush current of the contactor of 700 VA can be supplied by a 630 VA transformer if it is used at an ambient temperature of 50°C. A 400 VA transformer is sufficient if the ambient temperature is 35°C.

Phaseo

Transformers

ABT7

Recommended protection for the primary

Protection on the primary by fuse or thermal magnetic circuit breaker

Transformer		230 V ~ single-phase input voltage			
Reference	Power	MDL fuses UL Listed (1)	aM fuses	TeSys GV2RT	Acti9 IC60 (2)
ABT7ESM004B	40 VA	0.3 A	0.25 A	GV2RT03	0.5 A D curve (3)
ABT7ESM006B	63 VA	0.4 A	0.5 A	GV2RT03	0.5 A D curve (3)
ABT7ESM010B	100 VA	0.5 A	0.5 A	GV2RT04	0.5 A D curve
ABT7ESM016B	160 VA	1 A	1 A	GV2RT05	1 A D curve
ABT7ESM025B	250 VA	1.25 A	2 A	GV2RT06	2 A D curve (3)
ABT7ESM032B	320 VA	1.5 A	2 A	GV2RT06	2 A D curve (3)
ABT7ESM040B	400 VA	2 A	2 A	GV2RT07	3 A D curve (3)

Recommended protection for the secondary

Protection on the secondary by fuses of thermal circuit breaker

Transformer		24 V ~ secondary			
Reference	Power	gG fuse (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/US)	Acti9 IC60 (2)
ABT7ESM004B	40 VA	1 A	1 A	GB2CD07	2 A C curve
ABT7ESM006B	63 VA	2 A	2 A	GB2CD08	3 A C curve
ABT7ESM010B	100 VA	4 A	4 A	GB2CD09	4 A C curve
ABT7ESM016B	160 VA	6 A	6 A	GB2CD12	6 A C curve
ABT7ESM025B	250 VA	10 A	10 A	GB2CD16	10 A C curve
ABT7ESM032B	320 VA	12 A	12 A	GB2CD20	16 A C curve
ABT7ESM040B	400 VA	16 A	16 A	GB2CD21	16 A C curve

(1) For operation in compliance with UL.

(2) Check your local catalogue for the exact reference.

For installation in North America, please select a UL489 compliant circuit breaker.

(3) Protection on the secondary is necessary.

Recommended protection for the primary

Protection on the primary by fuse or thermal magnetic circuit breaker

Transformer		230 V ~ single-phase					400 V ~ single-phase				
Reference	Power	MDL fuses UL listed (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/US)	TeSys GV2RT	Acti9 IC60 (2)	MDL fuses UL Listed (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/US)	TeSys GV2RT	Acti9 IC60 (2)
ABT7PDU002G	25 VA	0.2 A	0.25 A	–	–	–	0.25 A	0.16 A	–	–	–
ABT7PDU004B/G	40 VA	0.3 A	0.25 A	GB2DB05	GV2RT03	0.5 A D curve (3)	0.25 A	0.16 A	–	–	–
ABT7PDU006B/G	63 VA	0.5 A	0.5 A	GB2DB06	GV2RT04	0.5 A D curve (3)	0.25 A	0.25 A	–	–	–
ABT7PDU010B/G	100 VA	0.5 A	0.5 A	GB2DB06	GV2RT04	1 A D curve (3)	0.3 A	0.5 A	GB2DB05	GV2RT03	0.5 A D curve
ABT7PDU016B/G	160 VA	1 A	1 A	GB2DB07	GV2RT05	1 A D curve (3)	0.5 A	0.5 A	GB2DB06	GV2RT04	1 A D curve
ABT7PDU025B/G	250 VA	1.25 A	2 A	GB2DB07	GV2RT06	2 A D curve (3)	0.75 A	1 A	GB2DB06	GV2RT05	1 A D curve
ABT7PDU032B/G	320 VA	1.5 A	2 A	GB2DB07	GV2RT07	2 A D curve	1 A	1 A	GB2DB06	GV2RT05	1 A D curve
ABT7PDU040B/G	400 VA	2 A	2 A	GB2DB09	GV2RT07	3 A D curve (3)	1.25 A	2 A (3)	GB2DB07	GV2RT06	2 A D curve
ABT7PDU063B/G	630 VA	3 A	4 A	GB2DB12(3)	GV2RT08	6 A D curve (3)	2 A	2 A	GB2DB09 (3)	–	4 A D curve (3)
ABT7PDU100B/G	1000 VA	5 A	6 A	GB2DB16 (3)	GV2RT10	10 A D curve (3)	3 A	4 A (3)	GB2DB12 (3)	–	6 A D curve (3)
ABT7PDU160B/G	1600 VA	8 A	8 A	GB2DB21 (3)	GV2RT14	16 A D curve (3)	4 A	6 A (3)	GB2DB14 (3)	GV2RT10	10 A D curve (3)
ABT7PDU250B/G	2500 VA	–	12 A	–	–	25 A D curve (3)	7 A	8 A (3)	GB2DB21 (3)	GV2RT14	16 A D curve (3)

Recommended protection for the secondary

Protection on the secondary by fuses of thermal circuit breaker

Transformer		24 V ~ secondary				48 V ~ secondary			
Reference	Power	gG fuse (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/US)	Acti9 IC60 (2)	gG fuse (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/US)	Acti9 IC60 (2)
ABT7PDU004B	40 VA	2 A	2 A	GB2CD07	2 A C curve	1 A	1 A	GB2CD06	1 A C curve
ABT7PDU006B	63 VA	2 A	2 A	GB2CD08	3 A C curve	1 A	1 A	GB2CD06	1 A C curve
ABT7PDU010B	100 VA	4 A	4 A	GB2CD09	4 A C curve	2 A	2 A	GB2CD07	2 A C curve
ABT7PDU016B	160 VA	6 A	6 A	GB2CD12	6 A C curve	2 A	2 A	GB2CD08	3 A C curve
ABT7PDU025B	250 VA	10 A	10 A	GB2CD16	10 A C curve	4 A	4 A	GB2CD10	6 A C curve
ABT7PDU032B	320 VA	12 A	12 A	GB2CD20	16 A C curve	6 A	6 A	GB2CD12	10 A C curve
ABT7PDU040B	400 VA	16 A	16 A	GB2CD21	16 A C curve	8 A	8 A	GB2CD14	10 A C curve
ABT7TDU063B	630 VA	25 A	25 A	–	25 A C curve	12 A	12 A	GB2CD20	16 A C curve
ABT7TDU100B	1000 VA	40 A	40 A	–	40 A C curve	20 A	20 A	GB2CD22	20 A C curve
ABT7TDU160B	1600 VA	63 A	63 A	–	63 A C curve	32 A	32 A	–	32 A C curve
ABT7TDU250B	2500 VA	100 A	100 A	–	–	50 A	50 A	–	50 A C curve

Transformer		115 V ~ secondary				230 V ~ secondary			
Reference	Power	gG fuse (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/US)	Acti9 IC60 (2)	gG fuse (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/US)	Acti9 IC60 (2)
ABT7PDU002G	25 VA	–	0.25 A	–	–	–	0.16 A	–	–
ABT7PDU004G	40 VA	0.5 A	0.5 A	GB2CD05	–	–	0.25 A	–	–
ABT7PDU006G	63 VA	0.5 A	0.5 A	GB2CD05	0.5 A C curve	–	0.25 A	–	–
ABT7PDU010G	100 VA	1 A	1 A	GB2CD05	1 A C curve	0.5 A	0.5 A	GB2CD06	0.5 A C curve
ABT7PDU016G	160 VA	1 A	1 A	GB2CD06	2 A C curve	0.5 A	0.5 A	GB2CD07	1 A C curve
ABT7PDU025G	250 VA	2 A	2 A	GB2CD06	2 A C curve	1 A	1 A	GB2CD07	1 A C curve
ABT7PDU032G	320 VA	2 A	2 A	GB2CD07	3 A C curve	1 A	1 A	GB2CD08	2 A C curve
ABT7PDU040G	400 VA	4 A	4 A	GB2CD07	4 A C curve	2 A	2 A	GB2CD08	2 A C curve
ABT7TDU063G	630 VA	4 A	4 A	GB2CD09	4 A C curve	2 A	2 A	GB2CD07	2 A C curve
ABT7TDU100G	1000 VA	8 A	8 A	GB2CD14	10 A C curve	4 A	4 A	GB2CD09	4 A C curve
ABT7TDU160G	1600 VA	12 A	12 A	GB2CD20	16 A C curve	6 A	6 A	GB2CD12	6 A C curve
ABT7TDU250G	2500 VA	20 A	20 A	GB2CD22	20 A C curve	10 A	10 A	GB2CD16	10 A C curve

(1) For operation in compliance with UL.

(2) Check your local catalogue for the exact reference. For installation in North America, please select a UL489 compliant circuit breaker.

(3) Protection on the secondary is necessary.

Recommended protection for the primary

Protection on the primary by fuse or thermal magnetic circuit breaker

Transformer		230 V ~ single-phase input voltage					400 V ~ single-phase input voltage				
Reference	Power	MDL fuses UL listed (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/ US)	TeSys GV2RT	Acti9 IC60 (2)	MDL fuses UL Listed (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/US)	TeSys GV2RT	Acti9 IC60 (2)
ABL6TS02J	25 VA	0.18 A	0.16 A	–	–	–	0.25 A	0.16 A	–	–	–
ABL6TS04J	40 VA	0.25 A	0.25 A	GB2DB05	GV2RT03	0.5 A D curve (3)	0.25 A	0.16 A	–	–	–
ABL6TS06J	63 VA	0.37 A	0.5 A	GB2DB05	GV2RT03	0.5 A D curve (3)	0.25 A	0.25 A	–	–	–
ABL6TS10J	100 VA	0.5 A	0.5 A	GB2DB06	GV2RT04	1 A D curve (3)	0.3 A	0.5 A	GB2DB05	GV2RT03	0.5 A D curve
ABL6TS16J	160 VA	1 A	1 A	GB2DB07	GV2RT05	2 A D curve (3)	0.5 A	0.5 A	GB2DB06	GV2RT04	1 A D curve
ABL6TS25J	250 VA	1.25 A	2 A	GB2DB07	GV2RT06	2 A D curve (3)	0.75 A	1 A	GB2DB06	GV2RT05	1 A D curve

Recommended protection for the secondary

Protection on the secondary by fuses of thermal circuit breaker

Transformer		12 V ~ secondary			
Reference	Power	gG fuse (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/US)	Acti9 IC60 (2)
ABL6TS02J	25 VA	2 A	2 A	GB2CD07	2 A C curve
ABL6TS04J	40 VA	4 A	4 A	GB2CD08	3 A C curve
ABL6TS06J	63 VA	6 A	6 A	GB2CD10	6 A C curve
ABL6TS10J	100 VA	8 A	8 A	GB2CD14	10 A C curve
ABL6TS16J	160 VA	12 A	12 A	GB2CD20	16 A C curve
ABL6TS25J	250 VA	20 A	20 A	GB2CD22	20 A C curve

Recommended protection for the primary

Protection on the primary by fuse or thermal magnetic circuit breaker

Transformer		230 V ~ single-phase input voltage					400 V ~ single-phase input voltage				
Reference	Power	MDL fuses UL listed (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/ US)	TeSys GV2RT	Acti9 IC60 (2)	MDL fuses UL Listed (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/US)	TeSys GV2RT	Acti9 IC60 (2)
ABL6TS02B	25 VA	0.18 A	0.16 A	–	–	–	0.25 A	0.16 A	–	–	–
ABL6TS04B	40 VA	0.25 A	0.25 A	GB2DB05	GV2RT03	0.5 A D curve (3)	0.25 A	0.16 A	–	–	–
ABL6TS06B	63 VA	0.37 A	0.5 A	GB2DB05	GV2RT03	0.5 A D curve (3)	0.25 A	0.25 A	–	–	–
ABL6TS10B	100 VA	0.5 A	0.5 A	GB2DB05	GV2RT04	1 A D curve (3)	0.3 A	0.5 A	GB2DB05	GV2RT03	0.5 A D curve
ABL6TS16B	160 VA	1 A	1 A	GB2DB06	GV2RT05	2 A D curve (3)	0.5 A	0.5 A	GB2DB06	GV2RT04	1 A D curve
ABL6TS25B	250 VA	1.25 A	2 A	GB2DB07	GV2RT06	2 A D curve (3)	0.75 A	1 A	GB2DB06	GV2RT05	1 A D curve
ABL6TS40B	400 VA	2 A	2 A	GB2DB09	GV2RT07	3 A D curve (3)	1.5 A	1 A	GB2DB07	GV2RT06	2 A D curve
ABL6TS63B	630 VA	3 A	4 A	GB2DB12	GV2RT08	6 A D curve (3)	2.5 A	2 A	GB2DB09	GV2RT07	3 A D curve
ABL6TS100B	1000 VA	5 A	6 A	GB2DB16	GV2RT10	10 A D curve (3)	3.5 A	4 A	GB2DB10	GV2RT08	6 A D curve
ABL6TS160B	1600 VA	8 A	8 A	GB2DB20	GV2RT14	16 A D curve (3)	5 A	4 A	GB2DB14	GV2RT10	10 A D curve
ABL6TS250B	2500 VA	–	12 A	GB2DB22	GV2RT16	20 A D curve (3)	7.5 A	8 A (3)	GB2DB20	GV2RT14	10 A D curve

Recommended protection for the secondary

Protection on the secondary by fuses of thermal circuit breaker

Transformer		24 V ~ secondary			
Reference	Power	gG fuse (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/US)	Acti9 IC60 (2)
ABL6TS02B	25 VA	1 A	1 A	GB2CD06	1 A C curve
ABL6TS04B	40 VA	1 A	1 A	GB2CD07	2 A C curve
ABL6TS06B	63 VA	2 A	2 A	GB2CD08	3 A C curve
ABL6TS10B	100 VA	4 A	4 A	GB2CD09	4 A C curve
ABL6TS16B	160 VA	6 A	6 A	GB2CD12	6 A C curve
ABL6TS25B	250 VA	10 A	10 A	GB2CD16	10 A C curve
ABL6TS40B	400 VA	16 A	16 A	GB2CD21	16 A C curve
ABL6TS63B	630 VA	25 A	25 A	–	25 A C curve
ABL6TS100B	1000 VA	40 A	40 A	–	40 A C curve
ABL6TS160B	1600 VA	63 A	63 A	–	63 A C curve
ABL6TS250B	2500 VA	100 A	100 A	–	–

(1) For operation in compliance with UL.

(2) Check your local catalogue for the exact reference. For installation in North America, please select a UL489 compliant circuit breaker.

(3) Protection on the secondary is necessary.

Recommended protection for the primary

Protection on the primary by fuse or thermal magnetic circuit breaker

Transformer		230 V ~ single-phase input voltage					400 V ~ single-phase input voltage				
Reference	Power	MDL fuses UL listed (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/ US)	TeSys GV2RT	Acti9 IC60 (2)	MDL fuses UL Listed (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/ US)	TeSys GV2RT	Acti9 IC60 (2)
ABL6TS02G	25 VA	0.18 A	0.16 A	–	–	–	0.25 A	0.16 A	–	–	–
ABL6TS04G	40 VA	0.25 A	0.25 A	GB2DB05	GV2RT03	0.5 A D curve (3)	0.25 A	0.16 A	–	–	–
ABL6TS06G	63 VA	0.37 A	0.5 A	GB2DB06	GV2RT03	0.5 A D curve (3)	0.25 A	0.25 A	–	–	–
ABL6TS10G	100 VA	0.5 A	0.5 A	GB2DB06	GV2RT04	1 A D curve (3)	0.3 A	0.5 A	GB2DB05	GV2RT03	0.5 A D curve
ABL6TS16G	160 VA	1 A	1 A	GB2DB07	GV2RT05	1 A D curve (3)	0.5 A	0.5 A	GB2DB06	GV2RT04	1 A D curve
ABL6TS25G	250 VA	1.25 A	2 A	GB2DB07	GV2RT06	2 A D curve (3)	0.75 A	1 A	GB2DB06	GV2RT05	1 A D curve
ABL6TS40G	400 VA	2 A	2 A	GB2DB09	GV2RT07	4 A D curve (3)	1.5 A	2 A (3)	GB2DB07	GV2RT06	2 A D curve
ABL6TS63G	630 VA	3 A	4 A	GB2DB12	GV2RT08	6 A D curve (3)	2.5 A	4 A (3)	GB2DB08	GV2RT07	3 A D curve
ABL6TS100G	1000 VA	5 A	6 A	GB2DB16	GV2RT10	10 A D curve (3)	3.5 A	4 A	GB2DB10	GV2RT08	6 A D curve
ABL6TS160G	1600 VA	8 A	8 A	GB2DB16	GV2RT14	10 A D curve (3)	5 A	4 A	GB2DB12	GV2RT10	6 A D curve
ABL6TS250G	2500 VA	–	25 A (3)	–	–	–	–	10 A (3)	GB2DB22	GV2RT16 (3)	–

Recommended protection for the secondary

Protection on the secondary by fuses of thermal circuit breaker

Transformer		115 V ~ secondary			
Reference	Power	gG fuse (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/ US)	Acti9 IC60 (2)
ABL6TS02G	25 VA	–	0.25 A	–	–
ABL6TS04G	40 VA	0.5 A	0.5 A	–	–
ABL6TS06G	63 VA	0.5 A	0.5 A	GB2CD05	0.5 A C curve
ABL6TS10G	100 VA	1 A	1 A	GB2CD06	1 A C curve
ABL6TS16G	160 VA	1 A	1 A	GB2CD07	2 A C curve
ABL6TS25G	250 VA	2 A	2 A	GB2CD07	2 A C curve
ABL6TS40G	400 VA	4 A	4 A	GB2CD09	4 A C curve
ABL6TS63G	630 VA	6 A	6 A	GB2CD12	6 A C curve
ABL6TS100G	1000 VA	8 A	8 A	GB2CD16	10 A C curve
ABL6TS160G	1600 VA	12 A	12 A	GB2CD21	16 A C curve
ABL6TS250G	2500 VA	20 A	20 A	GB2CD22	20 A C curve

Recommended protection for the primary

Protection on the primary by fuse or thermal magnetic circuit breaker

Transformer		230 V ~ single-phase input voltage					400 V ~ single-phase input voltage				
Reference	Power	MDL fuses UL listed (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/ US)	TeSys GV2RT	Acti9 IC60 (2)	MDL fuses UL Listed (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/ US)	TeSys GV2RT	Acti9 IC60 (2)
ABL6TS02U	25 VA	0.18 A	0.16 A	–	–	–	0.25 A	0.16 A	–	–	–
ABL6TS04U	40 VA	0.25 A	0.25 A	GB2DB05	GV2RT03	0.5 A D curve (3)	0.25 A	0.16 A	–	–	–
ABL6TS06U	63 VA	0.37 A	0.5 A	GB2DB05	GV2RT03	0.5 A D curve (3)	0.25 A	0.25 A	–	–	–
ABL6TS10U	100 VA	0.5 A	0.5 A	GB2DB05	GV2RT04	1 A D curve (3)	0.3 A	0.5 A	GB2DB05	GV2RT03	0.5 A D curve
ABL6TS16U	160 VA	1 A	1 A	GB2DB06	GV2RT05	2 A D curve (3)	0.5 A	0.5 A	GB2DB06	GV2RT04	1 A D curve
ABL6TS25U	250 VA	1.25 A	2 A	GB2DB07	GV2RT06	2 A D curve (3)	0.75 A	1 A	GB2DB06	GV2RT05	1 A D curve
ABL6TS40U	400 VA	2 A	2 A	GB2DB09	GV2RT07	3 A D curve (3)	1.5 A	2 A (3)	GB2DB07	GV2RT06	2 A D curve
ABL6TS63U	630 VA	3 A	4 A	GB2DB14	GV2RT10 (3)	10 A D curve (3)	2.5 A	4 A (3)	GB2DB10	GV2RT08 (3)	4 A D curve
ABL6TS100U	1000 VA	5 A	6 A	GB2DB20	GV2RT14 (3)	10 A D curve (3)	5 A (3)	4 A	GB2DB12	GV2RT10 (3)	6 A D curve
ABL6TS160U	1600 VA	8 A	8 A	GB2DB20	GV2RT14	16 A D curve (3)	5 A (3)	4 A	GB2DB14	GV2RT10	6 A D curve
ABL6TS250U	2500 VA	–	16 A (3)	–	–	–	–	10 A (3)	GB2DB22	GV2RT16 (3)	16 A D curve

Recommended protection for the secondary

Protection on the secondary by fuses of thermal circuit breaker

Transformer		230 V ~ secondary			
Reference	Power	gG fuse (1)	aM fuses	TeSys GB2 (IEC/ CSA-c/ US)	Acti9 IC60 (2)
ABL6TS02U	25 VA	–	0.16 A	–	–
ABL6TS04U	40 VA	–	0.16 A	–	–
ABL6TS06U	63 VA	–	0.25 A	–	–
ABL6TS10U	100 VA	0.5 A	0.5 A	GB2CD05	0.5 A C curve
ABL6TS16U	160 VA	0.5 A	0.5 A	GB2CD06	1 A C curve
ABL6TS25U	250 VA	1 A	1 A	GB2CD06	1 A C curve
ABL6TS40U	400 VA	2 A	2 A	GB2CD07	2 A C curve
ABL6TS63U	630 VA	2 A	2 A	GB2CD08	3 A C curve
ABL6TS100U	1000 VA	4 A	4 A	GB2CD09	4 A C curve
ABL6TS160U	1600 VA	6 A	6 A	GB2CD14	6 A C curve
ABL6TS250U	2500 VA	10 A	10 A	GB2CD16	10 A C curve

(1) For operation in compliance with UL.

(2) Check your local catalogue for the exact reference. For installation in North America, please select a UL489 compliant circuit breaker.

(3) Protection on the secondary is necessary.

Power supplies and transformers

Phaseo

Transformers

ABL6TS, ABT7



ABT7ESM000B



ABL6TS000

Transformers with phase-to-neutral (N-L1) or phase-to-phase (L1-L2) connection

Input voltage	Secondary		Nominal power	Reference	Weight kg/lb
	Type	Voltage			

Transformers 230 V, Single winding

230 V ± 15 V single-phase, 50/60 Hz	Single winding	24 V	40 VA	ABT7ESM004B	1.020/2.249
			63 VA	ABT7ESM006B	1.140/2.513
			100 VA	ABT7ESM010B	1.900/4.189
			160 VA	ABT7ESM016B	2.720/5.997
			250 VA	ABT7ESM025B	3.540/7.804
			320 VA	ABT7ESM032B	4.080/8.995
			400 VA	ABT7ESM040B	5.100/11.244

Transformers 230/400 V, Single winding

230/400 V ± 15 V single-phase 50/60 Hz	Single winding	12 V	25 VA	ABL6TS02J	0.700/1.543			
			40 VA	ABL6TS04J	1.200/2.646			
			63 VA	ABL6TS06J	1.600/3.527			
			100 VA	ABL6TS10J	2.100/4.630			
			160 VA	ABL6TS16J	3.200/7.055			
			250 VA	ABL6TS25J	4.400/9.700			
						<hr/>		
			24 V			25 VA	ABL6TS02B	0.700/1.543
						40 VA	ABL6TS04B	1.200/2.646
						63 VA	ABL6TS06B	1.600/3.527
100 VA	ABL6TS10B	2.100/4.630						
160 VA	ABL6TS16B	3.200/7.055						
250 VA	ABL6TS25B	4.400/9.700						
400 VA	ABL6TS40B	6.500/14.330						
630 VA	ABL6TS63B	9.800/21.605						
1000 VA	ABL6TS100B	14.300/31.526						
1600 VA	ABL6TS160B	19.400/42.770						
2500 VA	ABL6TS250B	27.400/60.407						
			<hr/>					
115 V			25 VA	ABL6TS02G	0.700/1.543			
			40 VA	ABL6TS04G	1.200/2.646			
			63 VA	ABL6TS06G	1.600/3.527			
			100 VA	ABL6TS10G	2.100/4.630			
			160 VA	ABL6TS16G	3.200/7.055			
			250 VA	ABL6TS25G	4.400/9.700			
			400 VA	ABL6TS40G	6.500/14.330			
			630 VA	ABL6TS63G	9.800/21.605			
			1000 VA	ABL6TS100G	14.300/31.526			
			1600 VA	ABL6TS160G	19.400/42.770			
2500 VA	ABL6TS250G	27.400/60.407						
			<hr/>					
230 V			25 VA	ABL6TS02U	0.700/1.543			
			40 VA	ABL6TS04U	1.200/2.646			
			63 VA	ABL6TS06U	1.600/3.527			
			100 VA	ABL6TS10U	2.100/4.630			
			160 VA	ABL6TS16U	3.200/7.055			
			250 VA	ABL6TS25U	4.400/9.700			
			400 VA	ABL6TS40U	6.500/14.330			
			630 VA	ABL6TS63U	9.800/21.605			
			1000 VA	ABL6TS100U	14.300/31.526			
			1600 VA	ABL6TS160U	19.400/42.770			
2500 VA	ABL6TS250U	27.400/60.407						

Power supplies and transformers

Phaseo

Transformers

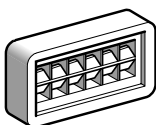
ABL6TS, ABT7



ABT7PDU002...032



ABT7PDU040...250



AR1SB3

Transformers with phase-to-neutral (N-L1) or phase-to-phase (L1-L2) connection (continued)

Input voltage	Secondary Type	Voltage	Nominal power	Reference	Weight kg/lb
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Transformers 230/400 V, Double winding


With cover, connected by internal jumpers with LED indicators

230/400 V ± 15 V single-phase 50/60 Hz	Double winding	2 x 24 V	40 VA	ABT7PDU004B	1.400/3.086
			63 VA	ABT7PDU006B	1.940/4.277
			100 VA	ABT7PDU010B	2.860/6.305
			160 VA	ABT7PDU016B	4.400/9.700
			250 VA	ABT7PDU025B	5.600/12.346
			320 VA	ABT7PDU032B	7.100/15.653
		2 x 115 V	25 VA	ABT7PDU002G	1.100/2.425
			40 VA	ABT7PDU004G	1.400/3.086
			63 VA	ABT7PDU006G	1.940/4.277
			100 VA	ABT7PDU010G	2.860/6.305
			160 VA	ABT7PDU016G	4.400/9.700
			250 VA	ABT7PDU025G	5.600/12.346
320 VA	ABT7PDU032G	7.100/15.653			

Without cover, connected by external jumpers

230/400 V ± 15 V single-phase 50/60 Hz	Double winding	2 x 24 V	400 VA	ABT7PDU040B	7.400/16.314
			630 VA	ABT7PDU063B	7.900/17.418
			1000 VA	ABT7PDU100B	14.000/30.865
			1600 VA	ABT7PDU160B	20.000/44.092
			2500 VA	ABT7PDU250B	28.000/61.729
		2 x 115 V	400 VA	ABT7PDU040G	7.400/16.314
			630 VA	ABT7PDU063G	7.900/17.418
			1000 VA	ABT7PDU100G	14.000/30.865
			1600 VA	ABT7PDU160G	20.000/44.092
			2500 VA	ABT7PDU250G	28.000/61.729

Separate parts for ABT6TS and ABT7

Designation	Use on transformers	Order in multiples of	Unit reference	Weight kg/lb
Plates for mounting on  rail	ABL6TS02	5	ABL6AM00	0.045/0.099
	ABT7ESM004B/006B ABL6TS04	5	ABL6AM01	0.050/0.110
	ABL6TS06	5	ABL6AM02	0.055/0.121
	ABT7ESM010B ABL6TS10	5	ABL6AM03	0.065/0.143
	ABT7ESM016B	5	ABL6AM04	0.085/0.187
Self-adhesive marker tag holder 20 x 10 mm	–	50	AR1SB3	0.001/0.002

Replacement parts for ABT6TS and ABT7

Designation	Use on	Reference	Weight kg/lb
Pack of 10 jumpers	ABT7PDU range double-winding transformer	ABT7JMP01	0.010/0.022

A					
ABL1A01	31	ABL6TS40G	41 42	ABL8RED24400	2 19 27
ABL1A02	19 25 31	ABL6TS40U	41 42	ABL8REM24030	15
ABL1REM12050	31	ABL6TS63B	40 42	ABL8REM24050	15
ABL1REM24025	31	ABL6TS63G	41 42	ABL8RPM24200	19
ABL1REM24042	31	ABL6TS63U	41 42	ABL8RPS24030	19
ABL1REM24062	31	ABL6TS100B	40 42	ABL8RPS24050	19
ABL1REM24100	31	ABL6TS100G	41 42	ABL8RPS24100	19
ABL1RPM12083	31	ABL6TS100U	41 42	ABL8TEQ24100	35
ABL1RPM24042	31	ABL6TS160B	40 42	ABL8TEQ24200	35
ABL1RPM24062	31	ABL6TS160G	41 42	ABL8TEQ24300	35
ABL1RPM24100	31	ABL6TS160U	41 42	ABL8TEQ24400	35
ABL6AM00	43	ABL6TS250B	40 42	ABL8TEQ24600	35
ABL6AM01	43	ABL6TS250G	41 42	ABL8WPS24200	19
ABL6AM02	43	ABL6TS250U	41 42	ABL8WPS24400	19
ABL6AM03	43	ABL7RM24025	13	ABT7ESM004B	38 42
ABL6AM04	43	ABL7RP1205	15	ABT7ESM006B	38 42
ABL6TS02B	40 42	ABL7RP4803	15	ABT7ESM010B	38 42
ABL6TS02G	41 42	ABL8BBU24200	2 19 25	ABT7ESM016B	38 42
ABL6TS02J	40 42	ABL8BBU24400	19 23 25	ABT7ESM025B	38 42
ABL6TS02U	41 42	ABL8BPK24A03	19 25	ABT7ESM032B	38 42
ABL6TS04B	40 42	ABL8BPK24A07	19 25	ABT7ESM040B	38 42
ABL6TS04G	41 42	ABL8BPK24A12	19 25	ABT7JMP01	43
ABL6TS04J	40 42	ABL8BUF24400	2 19 25	ABT7PDU002G	39 43
ABL6TS04U	41 42	ABL8DCC05060	19 21	ABT7PDU004B	39 43
ABL6TS06B	40 42	ABL8DCC12020	19 21	ABT7PDU004G	39 43
ABL6TS06G	41 42	ABL8FEQ24005	35	ABT7PDU006B	39 43
ABL6TS06J	40 42	ABL8FEQ24010	35	ABT7PDU006G	39 43
ABL6TS06U	41 42	ABL8FEQ24020	35	ABT7PDU006G	39 43
ABL6TS10B	40 42	ABL8FEQ24040	35	ABT7PDU010B	39 43
ABL6TS10G	41 42	ABL8FEQ24060	35	ABT7PDU010G	39 43
ABL6TS10J	40 42	ABL8FEQ24100	35	ABT7PDU016B	39 43
ABL6TS10U	41 42	ABL8FEQ24150	35	ABT7PDU016G	39 43
ABL6TS16B	40 42	ABL8FEQ24200	35	ABT7PDU025B	39 43
ABL6TS16G	41 42	ABL8FEQ24200	35	ABT7PDU025G	39 43
ABL6TS16J	40 42	ABL8FUS01	19 29	ABT7PDU032B	39 43
ABL6TS16U	41 42	ABL8FUS02	19 25	ABT7PDU032G	39 43
ABL6TS25B	40 42	ABL8MEM05040	13	ABT7PDU040B	39 43
ABL6TS25G	41 42	ABL8MEM12020	13	ABT7PDU040G	39 43
ABL6TS25J	40 42	ABL8MEM24003	13	ABT7PDU063B	39 43
ABL6TS25U	41 42	ABL8MEM24006	13	ABT7PDU063G	43
ABL6TS40B	40 42	ABL8MEM24012	13	ABT7PDU100B	39 43
		ABL8PRP24100	2 19 29	ABT7PDU100G	43
				ABT7PDU160B	39 43
				ABT7PDU160G	43
				ABT7PDU250B	39
				ABT7PDU250G	39
				AR1SB3	35 43
				ASI20MACC5	19 29
				ASIABLB3002	33
				ASIABLB3004	33
				ASIABLD3002	33
				ASIABLD3004	33
				ASIABLM3024	33
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				LAD90	13 19 21 25 27
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				SR2MEM02	19 25

The Next Generation



Schneider Electric Industries SAS

Head Office
35, rue Joseph Monier
F-92500 Rueil-Malmaison
France

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