Phaseo® Power Supplies
ABL1, ABL7, and ABL8

Class 8440

Catalog
8440CT0601R1/08

2008

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Power Supplies	**Regulated Switch Mode** **Phase Modular Range and Optimum Range Industrial Power Supplies**

Input voltage		100 to 240 Vac 120 to 250 Vdc
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
	United States • 277 V (in phase-to-neutral) • 480 V (in phase-to-phase)	—
	Europe • 230 V (in phase-to-neutral) • 400 V (in phase-to-phase)	Single-phase (N-L1) connection

IEC 61000-3-2 conformity		Yes for ABL7RP; no for ABL8REM; and not applicable for ABL8MEM and ABL7RM
Protection against undervoltage (U > 19 V)		Yes
Protection against overloads and short circuits		Yes, voltage detection. Automatic restart upon elimination of the fault.
Diagnostic relay		—
Compatibility with function modules		—
Power reserve (Boost)		1.25 to 1.4 In during 1 minute, depending on model (with ABL8MEM) / No

Output voltage		5 Vdc	12 Vdc	24 Vdc	48 Vdc
Output current	0.3 A	—	—	**ABL8MEM24003** (Modular)	—
	0.6 A	—	—	**ABL8MEM24006** (Modular)	—
	1.2 A	—	—	**ABL8MEM24012** (Modular)	—
	2 A	—	**ABL8MEM12020** (Modular)	—	—
	2.5 A	—	—	**ABL7RM24025** (Modular)	**ABL7RP4803** (Optimum)
	3 A	—	—	**ABL8REM24030** (Optimum)	—
	4 A	**ABL8MEM05040** (Modular)	—	—	—
	5 A	—	**ABL7RP1205** (Optimum)	**ABL8REM24050** (Optimum)	—

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Power supplies	Regulated Switch Mode Phaseo Universal Range Industrial Power Supplies		DC/DC Converter Modules
Input voltage	100 to120 Vac and 200 to 500 Vac[1]	380 to 500 Vac	24 Vdc
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	—	—
United States • 277 V (in phase-to-neutral) • 480 V (in phase-to-phase)		3-phase (L1-L2-L3) connection	—
Europe • 230 V (in phase-to-neutral) • 400 V (in phase-to-phase)		3-phase (L1-L2-L3) connection	—
IEC 61000-3-2 conformity	Yes		—
Protection against undervoltage (U > 19 V)	Yes		—
Protection against overloads and short circuits	Yes, current limitation or undervoltage detection		Yes, current limitation
Diagnostic relay	Yes, depending on model		
Compatibility with function modules	Yes with buffer module, battery and battery check modules, redundancy modules, and discriminating downstream protection module		
Power reserve (Boost)	1.5 In for 4 seconds		No

Output voltage		24 Vdc		5 Vdc	7 to 12 Vdc
Output current	2 A	—	—	—	**ABL8DCC12020** [2]
	3 A	**ABL8RPS24030**	—	—	—
	4 A	—	—	—	—
	5 A	**ABL8RPS24050**	—	**ABL8DCC05060** [2]	—
	10 A	**ABL8RPS24100**	—	—	—
	20 A	**ABL8RPM24200**	**ABL8WPS24200**	—	—
	40 A	—	**ABL8WPS24400**	—	—

1 Except ABL8RPM24200 100 to 120 Vac and 200 to 240 Vac

2 Use a Vdc/Vdc converter module with the Phaseo Universal range power supply.

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Power supplies		**Regulated switch mode** **Phaseo Dedicated range power supplies for repetitive machines**

Input voltage		100 to 240 Vac 120 to 370 Vdc
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
	United States 277 V (in phase-to-neutral) 480 V (in phase-to-phase)	Single-phase (N-L1) —
	Europe 230 V (in phase-to-neutral) 400 V (in phase-to-phase)	Single-phase (N-L1) —
IEC 61000-3-2 conformity		Yes for ABL1RP; not applicable for ABL1REM24025 / 12050
Protection against undervoltage (U > 19 V)		—
Protection against overloads and short circuits		Yes, voltage detection. Automatic restart upon elimination of the fault.
Diagnostic relay		—
Compatibility with function modules		—
Power reserve (Boost)		No

Output voltage		12 Vdc	24 Vdc
Output current	2.5 A		**ABL1REM24025**
	4.2 A		**ABL1R●M24042**
	5 A	**ABL1REM12050**	
	6.2 A		**ABL1R●M24062**
	8.3 A	**ABL1RPM12083**	
	10 A		**ABL1R●M24100**

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Power supplies	Regulated switch mode Phaseo AS-Interface range for AS-Interface cabling system
Input voltage	100 to 240 Vac
Connection to world-wide line supplies United States 120 V (in phase-to-neutral) 240 V (in phase-to-phase)	Single-phase (N-L1) connection
United States 277 V (in phase-to-neutral) 480 V (in phase-to-phase)	—
Europe 230 V (in phase-to-neutral) 400 V (in phase-to-phase)	Single-phase (N-L1) connection

IEC 61000-3-2 conformity	No	Yes
Protection against undervoltage (U > 19 V)	—	Yes
Protection against overloads and short circuits	Yes	
Diagnostic relay	—	
Compatibility with function modules	—	
Power reserve (Boost)	No	

Output voltage	30 Vdc	24 Vdc
Output current 2.5 A	**ASIABLB3002** **ASIABLD3002** [1] **ASIABLM3024** [2]	—
3 A	—	**ASIABLM3024** [2]
4.8 A	**ASIABLB3004** [2] **ASIABLD3004** [1]	—

[1] With ground fault detection.

[2] One output 30 Vdc and one output 24 Vdc ± 5%.

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Product description

The Phaseo electronic switch mode power supply, provides DC voltage for the PLC and automation system equipment control circuits.

These power supplies comprise five ranges:

- Modular, Optimum and Universal ranges for common applications (ABL8 and ABL7)
- AS-Interface range for the AS-Interface cabling system (ASIABL)
- Dedicated range for repetitive equipment (ABL1)

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 suitable for the loads supplied and compatible with the line supply available in the equipment. Clear guidelines are given for selecting the protection devices often used with them, to provide a comprehensive solution that can be used safely.

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 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 Universal range

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

- For Modular, Optimum, Dedicated, and AS-Interface ranges:
  - 100 to 240 Vac for phase-to-neutral (N-L1) or phase-to-phase (L1- L2) connection
- For the Universal range:
  - 85 to 550 Vac for phase-to-neutral (N-L1) or phase-to-phase (L1- L2) connection
  - 360 to 550 Vac for 3-phase connection (L1-L2-L3)

Conforming to IEC standards and UL, CSA, TÜV, and CTick 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 whenever faults occur, 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 DIN rails, optional on Dedicated range[2] (ABL1)

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[1] The inclusion of overload and short circuit protection makes downstream protection unnecessary if discrimination is not required.

[2] The Optimum and AS-Interface ranges can also mount on 75 mm DIN rails.

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Modular Range

ABL8MEM12020

Optimum Range

ABL8REM24030

Universal Range

ABL8RPS24100

Function Modules

ABL8BUF24400

Phaseo switch mode power supplies *(continued)*

Phaseo regulated switch mode industrial supplies are offered in three ranges (Modular, Optimum and Universal), complemented by the range for the AS-Interface cabling system and the dedicated range for repetitive machines.

Phaseo Modular range

The Phaseo Modular range meets all the needs of simple automation systems with power ratings from 7 to 60 W and an output voltage of 5 Vdc 12 Vdc, or 24 Vdc.

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

Because the wattage of this range of power supplies does not exceed 75 W, Standard EN61000-3-2 does not apply. (See page 8 for more details.)

Phaseo Optimum range

The Phaseo Optimum range is the low-cost solution for applications supplied at 12, 24, or 48 Vdc and requiring currents between 3 and 5 A.

The Optimum range of Phaseo power supplies delivers a voltage that can ensure the PLC logic states. In the event of an overload the power supply protection trips; once the fault has been eliminated, the power supply reverts to its nominal state.

Since the 24 Vdc Optimum range of Phaseo power supplies does not have PFC *(Power Factor Correction)*, they do not meet the requirements of standard EN 61000-3-2 (except for AB7RP1205 / 7RP4803 models). (See page 8 for more details.)

Phaseo Universal range

The Universal range of Phaseo power supplies covers power ratings from 72 to 960 W at 24 Vdc and adapts to the majority of power distribution systems used throughout the world. The same power supply can be connected phase-to-neutral (N-L1) or phase-to-phase for line supplies ranging from 100 to 500 Vac nominal. In addition, this range offers:

- Diagnostic functions (local or remote)
- User choice of operating mode when an overload (current limiting or stop) occurs
- Function modules to ensure continuity of service:
  - — Protection against microbreaks or prolonged outages by means of the Buffer module and Battery check 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

The Universal range of power supplies, satisfies the need for auxiliary voltage (5 to 15 Vdc) using DC/DC converter modules.

The incorporation of a PFC input filter reduces harmonic pollution to a minimum level across the entire Universal range, complying with the requirements of standard EN 61000-3-2. (See page 8 for more details.)

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ASIABL●3002

ASIABL●30●4

ABL1R●M●●0●●

ABL1R●M24100

Phaseo AS-Interface range

The 72 and 144 W AS-Interface range of Phaseo power supplies is designed to deliver a voltage of 30 Vdc, 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 Dedicated range

The Dedicated range of Phaseo power supplies, from 60 to 240 W, is designed for integration in repetitive equipment requiring a voltage of 12 or 24 Vdc. 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 the needs encountered in commercial machines and standard catalog machines.

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 EN 61000-3-2 limits the harmonic currents produced by power supplies.

This standard covers all 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 PFC filter circuit must therefore be added to comply with standard EN 61000-3-2.

The **ABL8RPS / 8RPM / 8WPS24●●0** Universal range and the **ABL1RPM** Dedicated range of Phaseo power supplies comply with standard EN 61000-3-2 and can therefore be connected directly to public distribution systems.

Since the **ABL8MEM240●●** Modular range and **ABL7RM24025** and **ABL1REM12050 / 24025** Dedicated range of Phaseo power supplies have power ratings of < 75 W, they are not subject to the requirements of standard EN 61000-3-2. They can therefore be connected directly to public distribution systems.

The **ABL8REM** Optimum range and the **ABL1REM** Dedicated range of Phaseo power supplies must only be connected downstream of a private, low voltage general transformer.

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Characteristics of the 24 Vdc operating voltage

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

For a nominal voltage, Un, of 24 Vdc, the extreme operating values are from -15% to +20% of Un, 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, In.

All 24 Vdc Phaseo power supplies are designed to provide an output voltage within these ranges.

A voltage measurement relay may be required to detect when the normal voltage limits are surpassed, so you can take appropriate action. The Universal range has integrated voltage detection.

Recommendations for the use of 24 Vdc voltage

The Phaseo range of power supplies can 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 that limits the output voltage to less than 60 V upon an internal fault.

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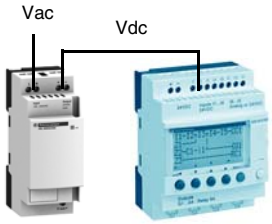

ABL8MEM●●●●● Zelio Logic

Product Description

Switch mode power supplies: modular range

The **ABL8MEM / ABL7RM** power supply offering is designed to provide the necessary DC voltage for the control circuits of automation systems consuming 7 to 60 W in 5, 12, and 24 Vdc. Comprising six products, this range meets the needs encountered in industrial, commercial, and residential applications. These modular electronic switch mode power supplies provide a quality of output current suitable for the loads supplied and compatible with the **Zelio Logic** range. Clear guidelines are given on selecting the upstream protection devices often used with them, to provide a comprehensive solution that can be used safely.

The Modular range of Phaseo 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 Vac. Conforming to IEC standards and UL, CSA and TÜV certified, they are suitable for global use. The inclusion of overload and short circuit protection makes downstream protection unnecessary if discrimination is not required.

Due to their low power, the Modular range Phaseo power supplies consume very little harmonic current. They are not subject to the requirements of standard 61000-3-2 concerning harmonic pollution.

All the Modular range Phaseo power supplies have protection devices to ensure optimum performance of the automation system with an automatic reset mode on elimination of a fault.

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

These power supplies also have a cable run inside the unit 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 DIN rails, or on a mounting plate using their retractable mounting feet.

There are six models available in the Phaseo Modular range:

Catalog Numbers	Power	Current	Voltage
ABL8MEM24003	7 W	300 mA	24 Vdc
ABL8MEM24006	15 W	600 mA	24 Vdc
ABL8MEM24012	30 W	1.2 A	24 Vdc
ABL7RM24025	60 W	2.5 A	24 Vdc
ABL8MEM05040	20 W	4 A	5 Vdc
ABL8MEM12020	25 W	2 A	12 Vdc

[1] 240 Vac nominal.

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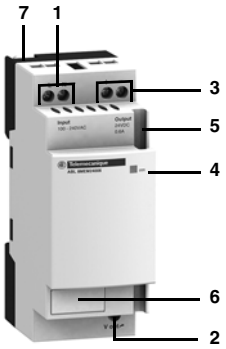
Description

ABL8MEM●●●●



ABL7RM24025

1	14 AWG (2.5 mm^2) screw terminal for connection of the AC input voltage
2	Output voltage adjustment potentiometer
3	14 AWG (2.5 mm^2) screw terminal for connection of the output voltage
4	LED indicating presence of the DC output voltage
5	Duct for through wiring of the output voltage conductors at the bottom (except for model **ABL7RM24025**)
6	Clip-on marker label (except for model **ABL7RM24025**)
7	Retractable mounting feet for panel mounting

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Technical Characteristics

Power supply type			ABL8MEM24003	ABL8MEM24006	ABL8MEM24012	ABL7RM24025
Certifications			cULus 508, cCSAus (CSA22.2 n950-1), TÜV 60950-1, CE, CTick, RoHS			
Conformity to standards	Safety		IEC/EN 60950-1, SELV			
	EMC		IEC/EN 61000-6-2, IEC/EN 61000-6-3, IEC/EN 61204-3, EN 55022 Class B			
Input circuit						
LED indication			No			
Input values	Nominal voltage	**V**	100 to 240 Vac			
	Limit voltage	**V**	85 to 264 Vac 120 to 250 Vdc [1]			85 to 264 Vac
	Current consumption	**A**	0.25 (100 Vac) 0.18 (240 Vac)	0.4 (100 Vac) 0.25 (240 Vac)	0.65 (100 Vac) 0.4 (240 Vac)	1.2 (120 Vac) 0.7 (240 Vac)
	Permissible frequencies	**Hz**	47 to 63			
	Maximum inrush current	**A**	20			90 for 1 ms
	Power factor		> 0.5			
	Efficiency at nominal load		> 78%	> 80%	> 82%	> 84%
	Dissipated power at nominal load	**W**	2	3.8	6.6	11.4
Output circuit						
LED indication			Green LED			
Nominal output values	Voltage (U_{Out})	**V**	24 Vdc			
	Current	**A**	0.3	0.6	1.2	2.5
	Power	**W**	7	15	30	60
Precision	Output voltage	**V**	Adjustable from 22.8 to 28.8 Vdc			
	Line and load regulation		± 3%			
	Residual ripple - noise	**mV**	250			200
Holding time for I max.	U_{In} = 100 Vac	**ms**	⩾ 10			
	U_{In} = 230 Vac	**ms**	⩾ 150			
Protection	Against short circuits		Permanent			
	Against undervoltages	**V**	–			< 19
	Thermal		Yes			–
Operating and environmental characteristics						
Connections	Input	**AWG (mm^2)**	26 to 14 (2 x 0.14 to 2.5) screw terminals			
	Output	**AWG (mm^2)**	26 to 14 (2 x 0.14 to 2.5) screw terminals		26 to 14 (4 x 0.14 to 2.5) screw terminals	
Mounting			On DIN rail, 35 x 7.5 mm and 35 x 15 mm or on panel (2 x ∅ 4 mm)			
Operating position	On vertical plane		Vertical			
Connections	Series		Possible			
	Parallel		Possible			
Environment	Operating temperature	**°F (°C)**	-13 to 158 derating from 131 °F (-25 to +70 derating from 55 °C),			-13 to 131 °F (-25 to +55 °C)
	Storage temperature	**°F (°C)**	-40 to 158 °F (-40 to +70 °C)			
	Relative humidity		90% during operation, 95% in storage			
	Degree of protection		IP 20 conforming to IEC 60529			
	Vibration per to EN 61131-2		3 to 11.9 Hz, amplitude 0.14 in. (3.5 mm); and 11.9 -150 Hz, acceleration 2 g			
Protection class according to VDE 0106 1			Class II			
Dielectric strength 50 Hz for 1 min	Input/output	**V rms**	3000 Vac			
Input fuse incorporated			Yes (not interchangeable)			
Emissions according to EN 61000-6-3			EN 50081-1 (generic)			
	Radiation		EN 55022 Class B			
	Conducted on the power line		EN 55022 Class B			
	Harmonic currents		IEC/EN 61000-3-2			
Immunity according to EN 61000-6-2			IEC 61000-6-2 (generic)			
	Electrostatic discharge		IEC/EN 61000-4-2 (6 kV contact/8 kV air)			IEC/EN 61000-4-2 (4 kV contact/8 kV air)
	Radiated electromagnetic fields		IEC/EN 61000-4-3 level 3 (10 V/m)			
	Induced electromagnetic fields		IEC/EN 61000-4-6 level 3 (10 V/m)			
	Rapid transients		IEC/EN 61000-4-4 (4 kV)			
	Surges		IEC/EN 61000-4-5 (1 kV)			
	Primary outages		IEC/EN 61000-4-11 (voltage dips and interruptions)			

[1] DC input voltages are not included in cULus, cCSAus, and TÜV certifications.

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Technical Characteristics

Power supply type			ABL8MEM05040	ABL8MEM12020
Certifications			cULus 508, cCSAus (CSA22.2 n950-1), TÜV EN 60950-1, CE, CTick, RoHS	
Conformity to standards	Safety		IEC/EN 60950-1, SELV	
	EMC		IEC/EN 61000-6-2, IEC/EN 61000-6-3, IEC/EN 61204-3, EN 55022 Class B	
Input circuit				
LED indication			No	
Input values	Nominal voltage	**V**	100 to 240 Vac	
	Limit voltage	**V**	85 to 264 Vac 120 to 250 Vdc[1]	
	Current consumption	**A**	0.55 (100 Vac) 0.35 (240 Vac)	0.6 (100 Vac) 0.35 (240 Vac)
	Permissible frequencies	**Hz**	47 to 63	
	Maximum inrush current	**A**	20	
	Power factor		> 0.5	
	Efficiency at nominal load		> 75%	> 80%
	Dissipated power at nominal load	**W**	6.7	6.2
Output circuit				
LED indication			Green LED	
Nominal output values	Voltage (U_{Out})	**V**	5 Vdc	12 to 15 Vdc
	Current	**A**	4	2.1
	Power	**W**	20	25
Precision	Output voltage	**V**	Adjustable from 4.75 to 6.25	Adjustable from 11.4 to 15
	Line and load regulation		± 3%	
	Residual ripple - noise	**mV**	250	
Holding time for I max	U_{In} min	**ms**	⩾ 10	
Protection	Against short circuits		Permanent	
	Against undervoltages		–	
	Thermal		–	
Operating and environmental characteristics				
Connections	Input	**AWG (mm^2)**	26 to 14 (2 x 0.14 to 2.5) screw terminals	
	Output	**AWG (mm^2)**	26 to 14 (4 x 0.14 to 2.5) screw terminals	
Mounting			On DIN rail, 35 x 7.5 mm and 35 x 15 mm or on panel (2 x ∅ 4 mm)	
Operating position	On vertical plane		Vertical	
Connections	Series		Possible	
	Parallel		Possible	
Environment	Operating temperature	**°F (°C)**	-13 to 158 derating from 131 °F (-25 to +70 derating from 55 °C)	
	Storage temperature	**°F (°C)**	-40 to 158 °F (-40 to +70 °C)	
	Maximum relative humidity		90% during operation 95% in storage	
	Degree of protection		IP 20 conforming to IEC 60529	
	Vibration		3 to 11.9 Hz, amplitude 0.14 in (3.5 mm); and 11.9 -150 Hz, acceleration 2 g	
Protection class according to VDE 0106 1			Class II	
Dielectric strength 50 Hz for 1 min	Input/output	**V rms**	3000 Vac	
Input fuse incorporated			Yes (not interchangeable)	
Emissions according to EN 61000-6-3			EN 50081-1 (generic)	
	Radiation		EN 55022 Class B	
	Conducted on the power line		EN 55022 Class B	
	Harmonic currents		IEC/EN 61000-3-2	
Immunity according to EN 61000-6-2			IEC 61000-6-2 (generic)	
	Electrostatic discharge		IEC/EN 61000-4-2 (6 kV contact/8 kV air)	
	Radiated electromagnetic fields		IEC/EN 61000-4-3 level 3 (10 V/m)	
	Induced electromagnetic fields		IEC/EN 61000-4-6 level 3 (10 V/m)	
	Rapid transients		IEC/EN 61000-4-4 (4 kV)	
	Surges		IEC/EN 61000-4-5 (1 kV)	
	Primary outages		IEC/EN 61000-4-11 (voltage dips and interruptions)	

[1] DC input voltages are not included in cULus, cCSAus, and TÜV certifications.

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Output characteristics

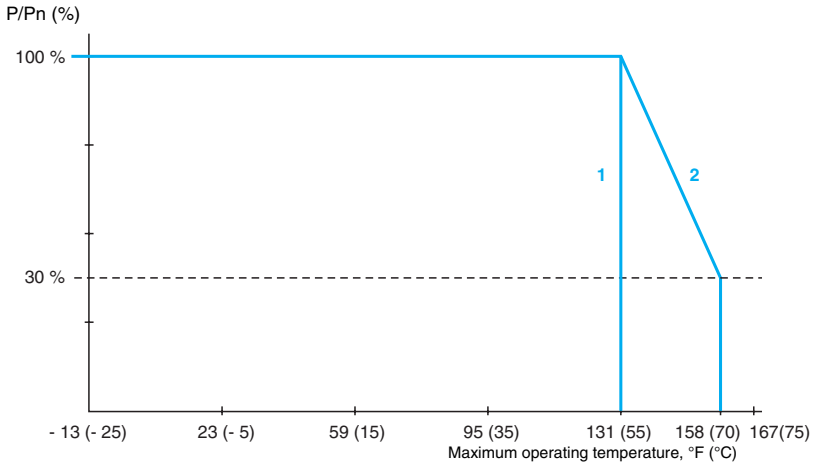
Behavior when short circuits and overloads occur

Phaseo power supplies are equipped with an electronic protection device. When an overload or short circuit occurs, the integrated protection interrupts the current supply before the output voltage drops below 19 V. The output voltage reverts to its nominal value upon elimination of the fault, eliminating the need to take any action.

Derating

The ambient temperature is a determining factor which limits the power that an electronic power supply can deliver continuously. Excessively high temperatures around the electronic components significantly reduce their life.

The nominal ambient temperature for the Modular range of Phaseo power supplies is 131°F (55 °C). Above this temperature, derating is necessary up to a maximum temperature of 158 °F (70 °C) (except for the **ABL7RM24025** model).



The graph to the left shows the power as a percentage of the nominal power that the power supply can deliver continuously, depending on the ambient temperature.

1 With an **ABL7RM24025**

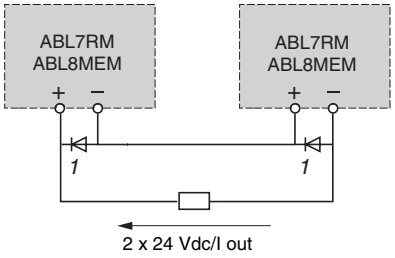
2 With an **ABL8MEM●●●●●**

Temporary overloads

The **ABL8MEM●●●●** Modular range of power supplies have an energy reserve that can be used to supply the application with 125% to 140% of the nominal output current for a maximum of 1 minute, depending on the model.

Series or parallel connection

Series connection

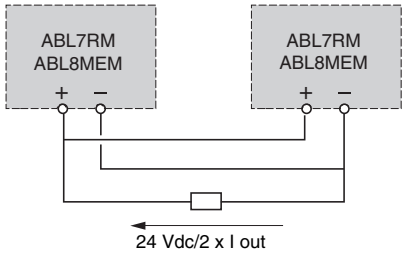


[1] Two shottky diodes, Imin = power supply In, and Vmin = 50 V

Family	Series	Parallel
ABL7RM / 8MEM	2 products max.	2 products max.

NOTE: Series or parallel connection is recommended only for products with identical catalog numbers.

Parallel connection



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Selection of protection for the power supply primary

Type of line supply	100 to 240 Vac single-phase		
Type of protection	Thermal-magnetic supplementary protector		gG fuse
	GB2 (IEC)	C60N (IEC) C60N (UL/CSA)	
ABL8MEM05040	GB2●●07 [1]	24581 24517	2A
ABL8MEM12020			
ABL8MEM24003			
ABL8MEM24006			
ABL8MEM24012			
ABL7RM24025	GB2●●08 [1]	24582 24518	3A

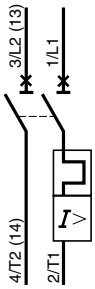
[1] Complete the catalog number by replacing ●● as required:

- **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

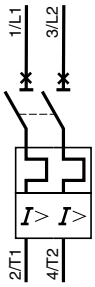
Wiring Diagrams

GB2CB●●

GB2CD●●



GB2DB●●



GB2CS●●

Telemecanique

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Regulated switch mode power supplies: Phaseo Modular range

ABL8MEM05040 / 12020 / 24012

ABL8MEM24003 / 24006

Input voltage	Secondary			Reset	Conforming to standard EN 61000-3-2[1]	Catalog Numbers	Weight lb (kg)
	Output voltage	Nominal power	Nominal current				
Single-phase (N-L1) **or 2-phase** (L1-L2) **connection**							
100 to 240 V -15%, +10% 50/60 Hz	5 Vdc	20 W	4 A	Automatic	Not applicable	**ABL8MEM05040**	0.429 (0.195)
	12 Vdc	25 W	2 A	Automatic	Not applicable	**ABL8MEM12020**	0.429 (0.195)
	24 Vdc	7 W	0.3 A	Automatic	Not applicable	**ABL8MEM24003**	0.220 (0.100)
		15 W	0.6 A	Automatic	Not applicable	**ABL8MEM24006**	0.220 (0.100)
		30 W	1.2 A	Automatic	Not applicable	**ABL8MEM24012**	0.429 (0.195)
		60 W	2.5	Automatic	Not applicable	**ABL7RM24025**	0.562 (0.255)

ABL7RM24025

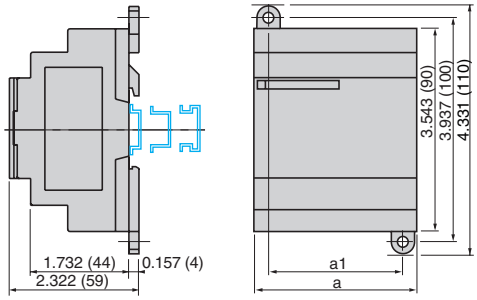
Designation	Use	Sold in packs of	Unit Catalog Number	Weight lb (kg)
Clip-on marker labels	Replacement parts for **ABL8MEM** power supplies	100	**LAD90**	0.066 (0.030)

cULus–ABL8MEM File E164867 CCN NMTR and NMTR7; ABL7RM24025–E164866 CNN NRAQ and NRAQ7
cCSAus–ABL8MEM File204701 Class 5311-07 and 5311-87
CSA–ABL7RM24025 File 203359 Class 5311-05
CTick, TÜV EN 60950-1, **CE**, **RoHS**

[1] Due to their power < 75 W, the **ABL8MEM / 7RM** Modular range of power supplies is not subject to the requirements of standard EN 61000-3-2

Approximate Dimensions

ABL8MEM●●●●● / ABL7RM24025 power supply

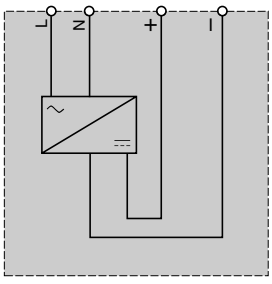


	a	a1
ABL8MEM05040	2.125 (54)	1.653 (42)
ABL8MEM12020	2.125 (54)	1.653 (42)
ABL8MEM24003	1.417 (36)	.944 (24)
ABL8MEM24006	1.417 (36)	.944 (24)
ABL8MEM24012	2.125 (54)	1.653 (42)
ABL7RM24025	2.834 (72)	2.362 (60)

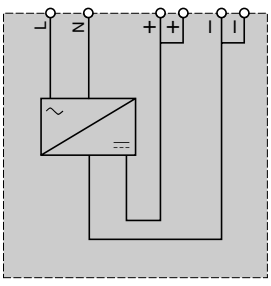
in/(mm)

Wiring Diagrams

ABL8MEM2400●



ABL8MEM05040 / 8MEM12020 / 8MEM24012 / 7RM24025



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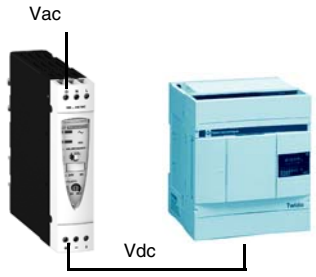

ABL8REM24030 Twido

Product description

Switch mode power supplies: Optimum Range

The **ABL8REM / 7RP** power supply offer is designed to provide the necessary DC voltage for the control circuits of automation system equipment consuming 60 to 144 W at 12, 24, and 48 Vdc. Comprising four products, this range meets the needs of industrial, commercial and residential applications. With phase to neutral (N-L1) or phase to phase (L1-L2) connection, these slim, electronic switch mode power supplies provide a quality of output current suitable for the loads supplied and compatible with both the **Twido** range and the smallest **Modicon M430** configurations, making them ideal partners. Their simplified characteristics along with the universal offering make them the low-cost solution for applications less affected by problems with the line supply, such as harmonic pollution and outages. Clear guidelines are given for selecting the upstream protection devices often used with them, providing a comprehensive solution that can be used safely.

The Optimum range of Phaseo 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 Vac. Conforming to IEC standards and UL, CSA, and TÜV certified, they are suitable for global 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 61000-3-2 concerning harmonic pollution. **ABL7RP** power supplies, however, are equipped with PFC (Power Factor Correction) filter, thus ensuring compliance with standard 61000-3-2.

All the Optimum range of Phaseo power supplies have protection devices to ensure optimum performance of the automation system with an automatic reset mode on elimination of the fault.

When an overload or short circuit occurs, the integrated protection interrupts the current supply before the output voltage drops below 19 Vdc. The protection device resets itself automatically upon elimination of the fault, eliminating the need to take any action or change a fuse.

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

These power supplies are designed for direct mounting on 35 mm and 75 mm DIN rails.

There are four models available in the Optimum range of Phaseo power supplies:

Catalog Numbers	Power	Current	Voltage
ABL8REM24030	72 W	3 A	24 Vdc
ABL8REM24050	120 W	5 A	24 Vdc
ABL7RP1205	60 W	5 A	12 Vdc
ABL7RP4803	144 W	3 A	48 Vdc

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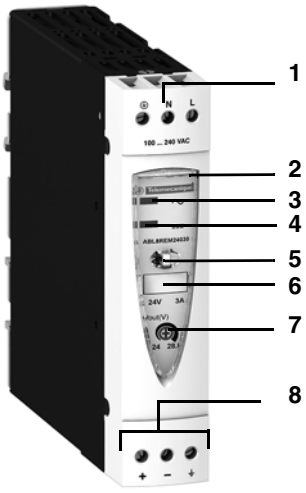

Description

1	14 AWG (2.5 mm^2) enclosed screw terminals for connection of the input voltage (single-phase N-L1, phase to phase L1-L2[1])
2	Protective plastic flap
3	Input voltage status LED (orange)
4	Output DC voltage status LED (green)
5	Locking catch for the plastic flap (sealable)
6	Clip-on marker label
7	Output voltage adjustment potentiometer
8	14 AWG (2.5 mm^2) enclosed screw terminal block for connection of the DC output voltage

[1] 240 Vac nominal.

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Technical Characteristics

Type of power supply				ABL7RP1205	ABL7RP4803	ABL8REM24030	ABL8REM24050
Certifications				File CCN, cULus 508, cCSAus (CSA22.2 n950-1), File Class, TÜV 60950-1, CE, CTick, RoHS			
Conformity to standards	Safety			IEC/EN 60950, IEC/EN 61496-1-2, SELV		IEC/EN 60950, SELV	
	EMC			EN 50081-1, IEC 61000-6-2 (EN 50082-2)			
Input circuit							
LED indication				Orange LED			
Input values	Nominal voltage		V	100 to 240 Vac compatible with 110 to 220 Vdc[1]		100 to 240 Vac compatible with 110 to 220 Vdc[1]	
	Limit voltage		V	85 to 264 Vac compatible with 100 to 250 Vdc[1]		85 to 264 Vac single-phase compatible with 100 to 250 Vdc[1]	
	Current consumption	U_{In} = 240 Vac	A	0.4	0.6	0.83	1.2
		U_{In} = 100 Vac	A	0.8	1	1.46	1.9
	Permissible frequencies		Hz	47 to 63			
	Maximum inrush current		A	30			
	Power factor			0.98 approx.		0.65 approx.	
	Efficiency at nominal load			> 85%			
	Dissipated power at nominal load		W	10.6	25.4	12.7	21.2
Output circuit							
LED indication				Green LED			
Nominal output values	Voltage (U_{Out})		V	12 Vdc	48 Vdc	24 Vdc	
	Current		A	5	3	3	5
	Power		W	60	144	72	120
Precision	Output voltage		V	Adjustable from 12 to 14.4 Vdc	Adjustable from 48 to 57.6 Vdc	Adjustable from 24 to 28.8 Vdc	
	Line and load regulation			± 3%			
	Residual ripple - noise		mV	< 200 (peak-peak)			
Holding time for I max	U_{In} = 240 Vac		ms	≥ 20		≥10	
	U_{In} = 100 Vac		ms	≥ 20		≥10	
Protection	Against short circuits			Permanent/automatic or manual restart		Permanent/automatic restart	
	Against overloads			1.1 In			
	Against overvoltages			Tripping if U_{Out} > 1.5 Un			
	Against undervoltages			Tripping if U_{Out} < 0.8 Un			
Operating and environmental characteristics							
Connections	Input		AWG (mm^2)	26 to 14 (2 x 0.14 to 2.5) screw terminals + ground			
	Output		AWG (mm^2)	26 to 14 (2 x 0.14 to 2.5) screw terminals + ground, multiple output, depending on model			
Mounting	On DIN rail		in (mm)	1.38 x.30, 1.38 x.59 and 2.95x.30 (35 x 7.5, 35 x 15 and 75 x 7.5)			
Operating position	On vertical plane			Vertical			
Connections	Series			Possible			
	Parallel			Possible			
Degree of protection				IP 20 conforming to IEC 60529			
Environment	Operating temperature		°F (°C)	32 to 140 derating from 122 °F (0 to +60 derating from 50 °C)			
	Storage temperature		°F (°C)	-13 to 158 °F (-25 to +70 °C)			
	Maximum relative humidity			95% without condensation or dripping water			
	Vibration per to EN 61131-2			3 to 11.9 Hz, amplitude 0.14 in (3.5 mm); and 11.9 to 150 Hz, acceleration 2 g			
Protection class according to VDE 0106 1				Class I			
Dielectric strength 50 and 60 Hz for 1 min	Input/output		V rms	3000 Vac			
	Input/ground		V rms	3000 Vac			
	Output/ground (and output/output)		V rms	500 Vac			
Input fuse incorporated				Yes (not interchangeable)			
Emissions according to EN 61000-6-3				EN 50081-1 (generic)			
	Conducted/radiated			EN 55011/EN 55022 cl. B			
Immunity according to EN 61000-6-2				IEC 61000-6-2 (generic)			
	Electrostatic discharge			IEC/EN 61000-4-2 (6 kV contact/8 kV air)			
	Radiated electromagnetic fields			IEC/EN 61000-4-3 level 3 (10 V/m)			
	Induced electromagnetic fields			IEC/EN 61000-4-6 level 3 (10 V/m)			
	Rapid transients			EN 61000-4-4 level 3 (2 kV)			
	Surges			IEC/EN 61000-4-5 (2 kV)			
	Primary outages			IEC/EN 61000-4-11 (voltage dips and interruptions)			

[1] DC input voltages are not included in cULus, cCSAus, and TÜV certifications.

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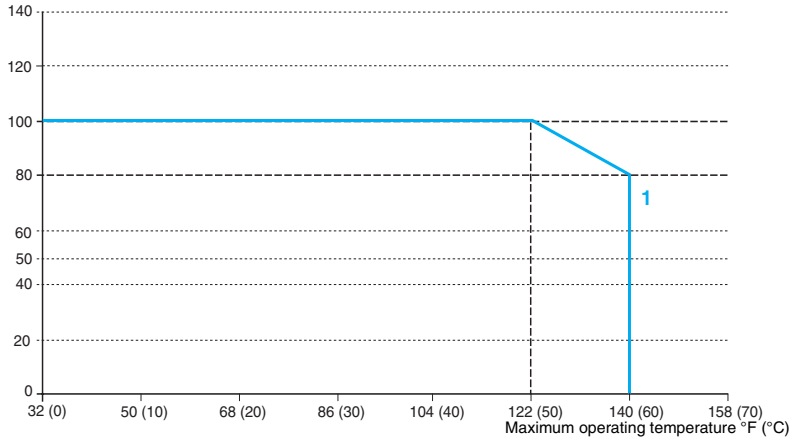
Output characteristics

Derating

The ambient temperature is a determining factor which limits the power that an electronic power supply can deliver continuously. Excessively high temperatures around the electronic components significantly reduce their life.

The nominal ambient temperature for the Optimum range Phaseo power supplies is 122 °F (50 °C). Above this temperature, derating is necessary up to a maximum temperature of 140 °F (60 °C).

The graph below shows the power as a percentage of the nominal power that the power supply can deliver continuously, depending on the ambient temperature.



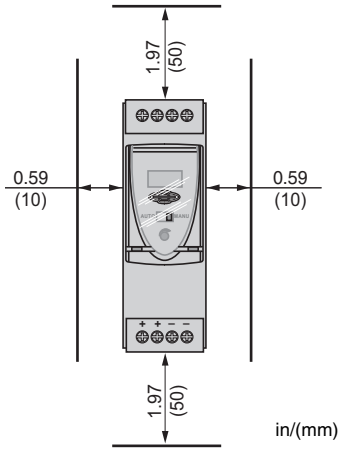
1 ABL8REM, ABL7RP mounted vertically

Derating should be considered in extreme operating conditions:

- Intensive operation (output current permanently close to the nominal current, combined with a high ambient temperature)
- Output voltage set above 24 Vdc (to compensate for line voltage drops, for example)
- Parallel connection to increase the total power

General rules

Intensive operation	See derating in above graph. Example for ABL8REM: • Without derating, from 32 to 122 °F (0 to 50 °C) • Derating of nominal current by 2% per additional °C, up to 60 °C. See chart.
Rise in output voltage	The nominal power is fixed. Increasing the output voltage means that the current delivered must be reduced.
Parallel connection to increase the total power	The total power is equal to the sum of the power supplies used, but the maximum ambient temperature for operation is 122 °F (50 °C). To improve heat dissipation, the power supplies must not be in contact with each other.



In all cases, there must be adequate convection around the products to assist cooling. There must be sufficient clearance around the Optimum range Phaseo power supplies:

- 1.97 inches (50 mm) above and below
- 0.59 inches (15 mm) on the sides

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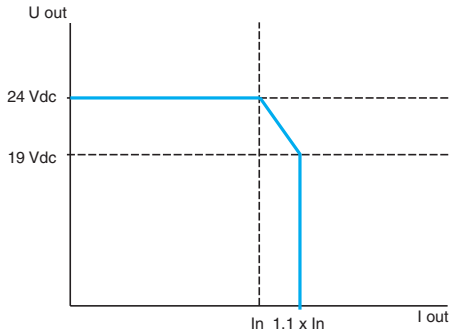
Output characteristics *(continued)*

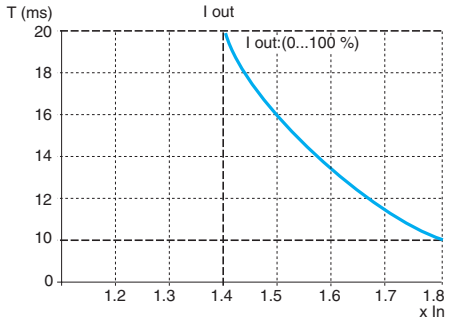
Load limit

ABL8REM240●● / ABL7RP●●●●



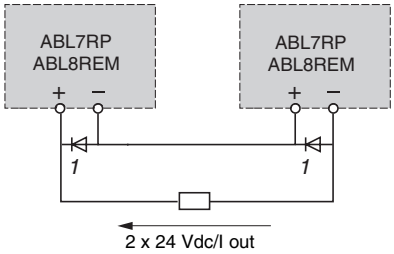
Temporary overloads

ABL8REM / ABL7RP

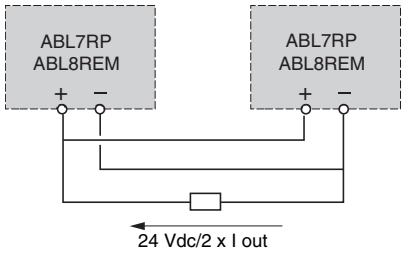


Series or parallel connection

Series connection



Parallel connection



[1] Two shottky diodes, Imin = power supply In, and Vmin = 50 V

Family	Series	Parallel
ABL8REM / 7RP	2 products max.	2 products max.

NOTE: Series or parallel connection is recommended only for products with identical catalog numbers.

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Selection of protection for the power supply primary

Type of line supply (Single Phase)	120 Vac			240 Vac		
Type of protection	Thermal-magnetic supplementary protector		gG fuse	Thermal-magnetic Supplementary protector		gG fuse
	GB2 (IEC)	C60N (IEC) C60N (UL)		GB2 (IEC)	C60N (IEC) C60N (UL)	
ABL7RP1205	GB2●●06 [1]	24580 24516	2 A	GB2●●06 [1]	24580 24516	1 A
ABL8REM24030	GB2●●07 [1]	24581 24517	2 A	GB2●●06 [1]	24580 24516	1 A
ABL8REM24050	GB2●●07 [1]	24581 24517	2 A	GB2●●06 [1]	24580 24516	1 A
ABL7RP4803	GB2●●07 [1]	24581 24517	2 A	GB2●●06 [1]	24580 24516	1 A

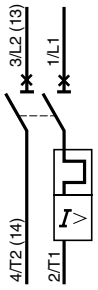
[1] Complete the catalog number by replacing ●● as required:

- **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

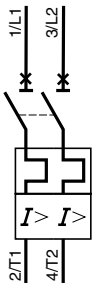
Wiring for GB2●●0● thermal-magnetic circuit protectors

GB2CB●●

GB2CD●●



GB2D●●



GB2CS●●

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Regulated switch mode power supplies: Phaseo Optimum range

ABL7RRP1205 / 4803

ABL8REM24030

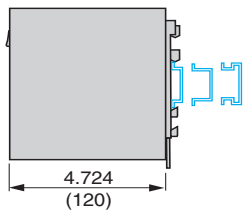
ABL8REM24050

Input voltage	Secondary			Reset	Conforming to standard EN 61000-3-2	Catalog Numbers	Weight lb (kg)
	Output voltage	Nominal power	Nominal current				
Single-phase (N-L1) or phase-to-phase (L1-L2) connection							
100 to 240 Vac -15%, +10%	12 Vdc	60 W	5 A	Automatic or manual	Yes	**ABL7RP1205**	2.204 (1.000)
50/60 Hz	24 Vdc	72 W	3 A	Automatic	No	**ABL8REM24030**	1.146 (0.520)
		120 W	5 A	Automatic	No	**ABL8REM24050**	2.204 (1.000)
	48 Vdc	144 W	2.5 A	Automatic or manual	Yes	**ABL7RP4803**	2.204 (1.000)

cULus–ABL8REM File E164867 CCN NMTR and NMTR7
UL Listed–ABL7RP File E164867 CCN NMTR
cCSAus–ABL8REM File 204701 class 5311-07 and 5311-87
CSA–ABL7RP file 204701 Class 5311-03
CTick, TÜV 60950-1, CE, RoHS

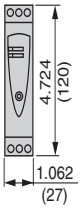
Approximate dimensions

ABL7RP●●●●
Common side view
Mounted on 35 and 75 mm DIN rails

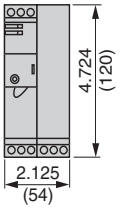


in/(mm)

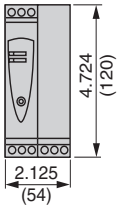
ABL8REM24030



ABL7RP1205/4803

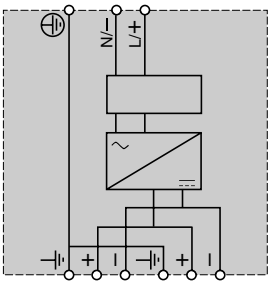


ABL8REM24050

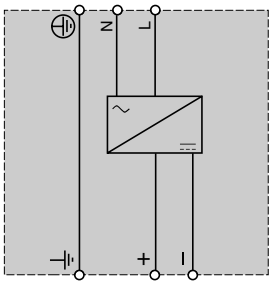


Wiring diagrams

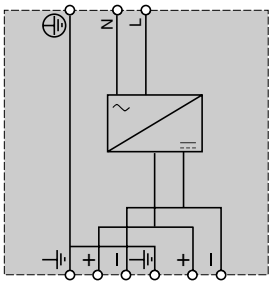
ABL7RP1205 / 48030



ABL8REM24030



ABL8REM24050



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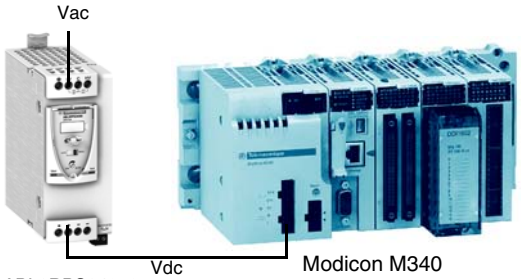

Switch mode power supplies: Universal Range

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

The 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 Vac and 170 to 550 Vac for **ABL8RPS**
- 85 to 132 Vac and 170 to 264 Vac for **ABL8RPM**
- 340 to 550 Vac 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 universal use.

ABL8RPS / RPM and **ABL8WPS** power supplies are equipped with a harmonic filter, ensuring compliance with standard 61000-3-2 concerning harmonic pollution. See page 8 for more details.

All Universal range Phaseo 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 ensure the PLC logic states and the nominal operation of the supplied actuators.
- **Automatic reset protection mode**: Priority is given to the current to allow troubleshooting, for example, or to ensure continuity of service until the maintenance team arrives.

The Universal range Phaseo power supplies also have a power reserve, allowing them to deliver a current of 1.5 In at regular intervals. This eliminates the need to oversize the power supply if the device has a high inrush current, while ensuring optimum performance of the automation system.

Diagnostics for the Universal range Phaseo power supplies are available on the front of the device via LEDs (U out and I out) and via a voltage-free relay contact (whether or not the PLC states are assured).

All products are equipped with an output voltage adjustment potentiometer, allowing them 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 DIN rail.

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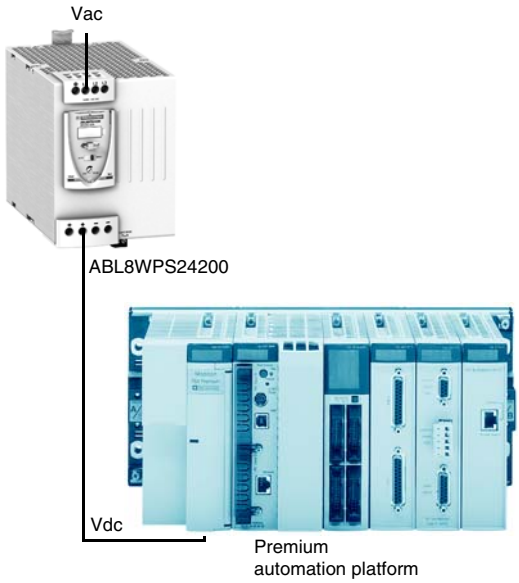


Switch mode power supplies: Universal Range *(continued)*

There are four models available in the Universal range of Phaseo power supplies for phase-to-neutral or phase-to-phase connection:

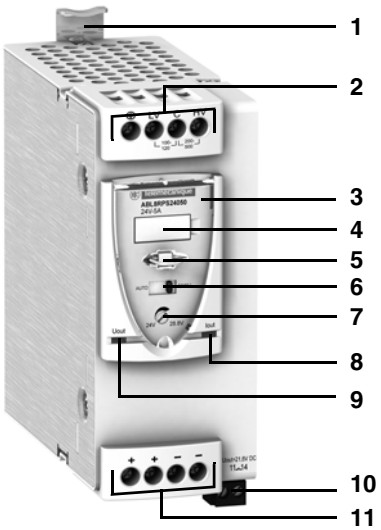
Catalog Numbers	Power	Current	Voltage
ABL8RPS24030	72 W	3 A	24 Vdc
ABL8RPS24050	120 W	5 A	24 Vdc
ABL8RPS24100	240 W	10 A	24 Vdc
ABL8RPM24200	480 W	20 A	24 Vdc

The Universal range Phaseo power supplies also features two models for three-phase connection:

Catalog Numbers	Power	Current	Voltage
ABL8WPS24200	480 W	20 A	24 Vdc
ABL8WPS24400	960 W	40 A	24 Vdc

A range of function modules also allows functions to be added to the Universal range Phaseo power supplies to ensure continuity of service:

- A buffer module or battery check modules, combined with their batteries to ensure continuity of service when of a network power outage occurs
- A redundancy module to meet the most demanding requirements for continuity of service even if the power supply fails
- Downstream electronic protection modules to ensure discriminating protection
- Converter modules delivering nominal voltages of 5 and 12 Vdc from the 24 Vdc output of the Universal range Phaseo power supplies



Description

Universal range power supplies

The Universal range Phaseo regulated-switch-mode power supplies, **ABL8RPS24●●0 / RPM24200 / WPS24●00**, comprise:

1	Spring clip for 35 mm DIN rail
2	12 AWG (4 mm^2) enclosed screw terminals for connection of the AC voltage (single-phase, phase-to-phase, or three-phase connection)
3	Protective plastic flap
4	Clip-on marker label
5	Locking catch for the plastic flap (sealable)
6	Protection mode selector
7	Output voltage adjustment potentiometer
8	Output voltage status LED (green and red)[1]
9	Output current status LED (green, red, and orange)
10	Screw terminals for connection of the diagnostic relay contact, except **ABL8RPS24030**
11	12 AWG (4 mm^2) [8 AWG (10 mm^2) on **ABL8WPS24●00** and **ABL8RPM24200**] enclosed screw terminals for connection of the DC output voltage

[1] See “LED Descriptions” on page 26.

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Technical characteristics

Type of power supply			ABL8RPS24030	ABL8RPS24050	ABL8RPS24100	ABL7RPM24200
Certifications			CB scheme EN 60950-1, cULus 508, cCSAus, CE, RoHS			
Conformity to standards	Safety		IEC/EN 60950-1, EN 61204, SELV			
	EMC		EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61204-3			
Input circuit						
Input values phase-to-neutral (N-L1) or phase-to-phase (L1-L2)	Nominal voltage	**V**	100 to 120 / 200 to 500 Vac			100 to 120 / 200 to 240 Vac
	Limit voltage	**V**	85 to 132 / 170 to 550 Vac			85 to 132 / 170 to 264 Vac
	Permissible frequencies	**Hz**	47 to 63			
	Maximum inrush current	**A**	30 for 2 ms max.			
	Power factor		0.59 at 120 Vac / 0.51 at 240 Vac		0.69 at 120 Vac / 0.68 at 240 Vac	
	Efficiency at nominal load		> 87 %			> 88 %
	Dissipated power at nominal load	**W**	7.8	15.5	31	57.6
Anti-harmonic filtering			Yes, via integrated PFC passive filter			
Output circuit						
Compatibility with function modules			Buffer, battery and battery check unit, redundancy, discriminating protection			
Diagnostics	LEDs on front panel		Current (green, orange, and red), voltage (green, red, and off)			
	Relay		–	Relay closed U_{Out} > 21.6 V contact 230 Vac, 0.5 A max; 24 Vdc, 5 mA min		
Nominal output values	Nominal output voltage (U_{Out})	**V**	24 Vdc			
	Current	**A**	3	5	10	20
	Power	**W**	72	120	240	480
Permissible temporary inrush current (boost)		**A**	1.5 In for 4 s maximum			
Precision	Nominal output voltage (U_{Out})	**V**	Adjustable 24 to 28.8 Vdc			
	Line and load regulation		1 % to 3 %			
	Residual ripple - noise	**mV**	< 200 (peak-peak)			
Holding time for I max.	U_{In} = 100 Vac	**ms**	⩾ 20			
	U_{In} = 240 Vac	**ms**	⩾ 40			
	U_{In} = 400 Vac	**ms**	⩾ 120			–
Protection	Against short circuits		Permanent, automatic or manual restart			
	Against overloads		< 1.10 In (after "boost" function)			
	Against overvoltages	**V**	30 to 32 Vdc			
	Against undervoltages	**V**	Tripping if U_{Out} < 21.6 (in manual mode)			
	Thermal		Yes			

LED Descriptions

U out		11 14
	21.6 V ⩽ Uout	
	7 V ⩽ Uout < 21.6 V	
	Uout < 7 V	

I out	
	Iout ⩽ In
	In ⩽ Iout
	Power supply shut off 0 V / 0 A **State of protection**

OFF
Green
Orange
Red

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Technical Characteristics *(continued)*

Type of power supply			ABL8RPS24030	ABL8RPS24050	ABL8RPS24100	ABL7RPM24200
Operating and environmental characteristics						
Connections	Input	**AWG (mm^2)**	22 to 12 (2 x 0.5 to 4) screw terminals + ground terminal			
	Output	**AWG (mm^2)**	24 to 10 (4 x 0.5 to 4) screw terminals + ground terminal [1]			
	Diagnostic relay	**AWG (mm^2)**	–	14 (2 x 2.5) removable screw terminal block		
Mounting	On DIN rail	**in/mm**	1.38 x 0.30 and 1.38 x 0.59 (35 x 7.5 and 35 x 15)			
Operating position			Vertical			
Connections	Series		Possible			
	Parallel		Possible			
Degree of protection			IP 20 conforming to IEC 60529			
Environment	Operating temperature	**°F (°C)**	-13 to 140 derating from 122 °F (-25 to +60 derating from 50 °C)			
	Storage temperature	**°F (°C)**	-40 to158 °F (-40 to +70 °C)			
	Maximum relative humidity		90% during operation, 95% in storage			
	Vibration per to EN 61131-2		3 to 11.9 Hz, amplitude 0.14 in (3.5 mm); and 11.9 to 150 Hz, acceleration 2 g			
Protection class	According to VDE 0106 1		Class I			
Dielectric strength 50 Hz for 1 min	Input/output	**V rms**	4000 Vac			3000 Vac
	Input/ground	**V rms**	3500 Vac			2500 Vac
	Output/ground	**V rms**	500 Vac			
Input fuse incorporated			No			
Emissions according to EN 61000-6-3	Radiation		EN 55022 Class B and GL levels			
	Conducted on the power line		EN 55022 Class B and GL levels			
	Harmonic currents		IEC/EN 61000-3-2			
Immunity according to EN 61000-6-2 and GL	Electrostatic discharge		IEC/EN 61000-4-2 (6 kV contact/8 kV air)			
	Radiated electromagnetic fields		IEC/EN 61000-4-3 level 3 (10 V/m)			
	Induced electromagnetic fields		IEC/EN 61000-4-6 level 3 (10 V/m)			
	Rapid transients		IEC/EN 61000-4-4 (4 kV)			
	Surges		IEC/EN 61000-4-5 (2 kV)			
	Primary outages		IEC/EN 61000-4-11 (voltage dips and interruptions)			

[1] No ground screw on ABL8RPM24200 power supply.

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Technical characteristics

Type of power supply			ABL8WPS24200	ABL8WPS24400
Certifications			CB scheme EN 60950-1, cULus 508, cCSAus, CE, RoHS	
Conformity to standards	Safety		EN 60950-1, EN 61204, SELV	
	EMC		EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61204-3	
Input circuit				
LED indication			–	
Input values 3 phases (L1-L2-L3)	Nominal values	**V**	380-500 Vac	
	Permissible values	**V**	320-550 Vac	
	Permissible frequencies	**Hz**	47 to 63	
	Maximum inrush current	**A**	25 for 2 ms max.	
	Power factor		0.65	0.85
	Efficiency at nominal load		> 92%	
	Dissipated power at nominal load	**W**	38.4	76.8
Anti-harmonic filtering			Yes, via integrated PFC passive filter	
Operating mode in the event of phase failure		**V**	Operation possible for a few minutes then protection trips	
Output circuit				
Compatibility with function modules			Buffer, battery and battery check unit, redundancy, discriminating protection	
Diagnostics	LEDs on front panel		Current (green, orange, and red), voltage (green, red, and off)	
	Relay		Closed relay U_{out} > 21.6 V, contact 230 Vac, 0.5 A max; 24 Vdc, 5 mA min	
Nominal output values	Output voltage (U_{Out})	**V**	24 Vdc	
	Current	**A**	0 to 20	0 to 40
	Power	**W**	480	960
Permissible temporary inrush current (boost)		**A**	1.5 In for 4 s maximum	
Precision	Output voltage (U_{Out})	**V**	Adjustable 24 to 28.8 Vdc	
	Line and load regulation		1% to 3%	
	Residual ripple - noise	**mV**	< 200 (peak-peak)	
Holding time for I max	U_{In} = 400 Vac	**ms**	⩾ 18	⩾ 14
Protection	Against short circuits		Permanent, automatic or manual restart	
	Against overloads		< 1.10 In (after "boost" function)	
	Against overvoltages	**V**	30 to 32 Vdc	
	Against undervoltages	**V**	Tripping if U_{Out} < 21.6 (in manual mode)	
	Thermal		Yes	
Operating and environmental characteristics				
Connections	Input	**AWG (mm^2)**	22–12 (3 x 0.5 to 4) screw terminals + ground	
	Output	**AWG (mm^2)**	22–8 (4 x 0.5 to 10) screw terminals	
	Diagnostic relay	**AWG (mm^2)**	14 (2 x 2.5) removable screw terminal block	
Mounting	On DIN rail	**in (mm)**	1.38 x 0.30 and 1.38 x 0.59 (35 x 7.5 and 35 x 15)	
Operating position			Vertical	
Connections	Series		Possible	
	Parallel		Possible	
Degree of protection			IP 20 conforming to IEC 60529	
Environment	Operating temperature	**°F (°C)**	-13 to 140 derating from 122 °F (-25 to +60 derating from 50°C)	
	Storage temperature	**°F (°C)**	-40 to 158 °F (-40 to +70 °C)	
	Maximum relative humidity		90% during operation, 95% in storage	
	Vibration per to EN 61131-2		3 to 11.9 Hz, amplitude 0.14 in (3.5 mm); and 11.9 to150 Hz, acceleration 2 g	
Protection class according to VDE 0106 1			Class I	
Dielectric strength 50 Hz for 1 min	Input/output	**V rms**	4000 Vac	
	Input/ground	**V rms**	3500 Vac	
	Output/ground	**V rms**	500 Vac	
Input fuse incorporated			No	
Emissions according to EN 61000-6-3	Radiation		EN 55022 Class B and GL levels	
	Conducted on the power line		EN 55022 Class B and GL levels	
	Harmonic currents		IEC/EN 61000-3-2	
Immunity according to EN 61000-6-2 and GL	Electrostatic discharge		IEC/EN 61000-4-2 (6 kV contact/8 kV air)	
	Radiated electromagnetic fields		IEC/EN 61000-4-3 level 3 (10 V/m)	
	Induced electromagnetic fields		IEC/EN 61000-4-6 level 3 (10 V/m)	
	Rapid transients		IEC/EN 61000-4-4 (4 kV)	
	Surges		IEC/EN 61000-4-5 (1 kV)	
	Primary outages		IEC/EN 61000-4-11 (voltage dips and interruptions)	

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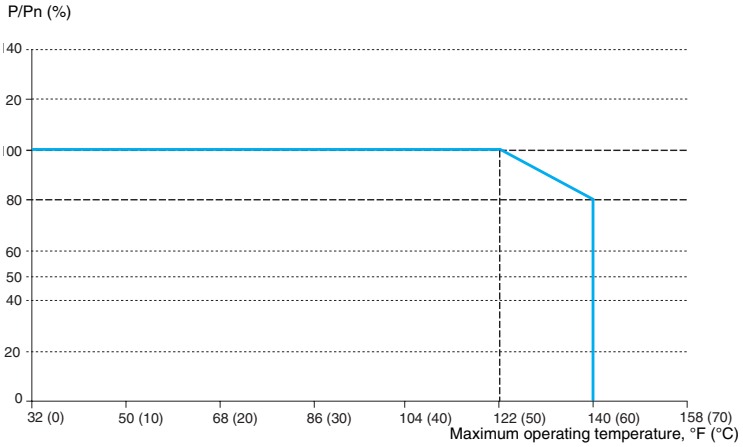
Output characteristics

Derating

The ambient temperature is a determining factor that limits the power an electronic power supply can deliver continuously. Excessively high temperatures around the electronic components significantly reduce their life.

The nominal ambient temperature for the Universal range Phaseo power supplies is 122 °F (50 °C). Above this temperature, derating is necessary up to a maximum temperature of 140 °F (60 °C).

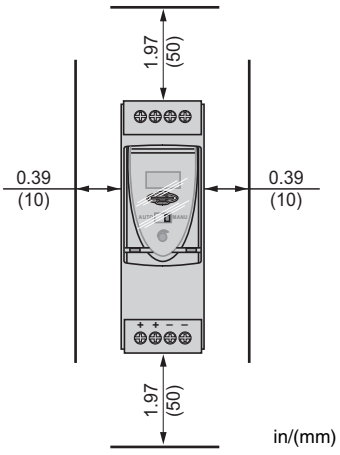
The graph below shows the power (in relation to the nominal power) that the power supply can deliver continuously, depending on the ambient temperature.



ABL8RPM, ABL8RPS, ABL8WPS mounted vertically

Derating should be considered in extreme operating conditions:

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



General rules

Intensive operation	See derating on above graph. Example for ABL8RPS: • Without derating, from 32 °F (0 °C) to 122 °F (50 °C) • Derating of nominal current by 2% per additional °C, up to 60 °C. See chart.
Rise in output voltage	The nominal power is fixed. Increasing the output voltage means that the current delivered must be reduced.
Mounting	To allow heat dissipation, the power supplies must not be in contact with each other.

In all cases, there must be adequate convection around the products to assist cooling. There must be sufficient clearance around the Universal range Phaseo power supplies:

- 1.97 inches (50 mm) above and below
- 0.39 inches (10 mm) on the sides

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Output characteristics

Behavior when overloads occur:

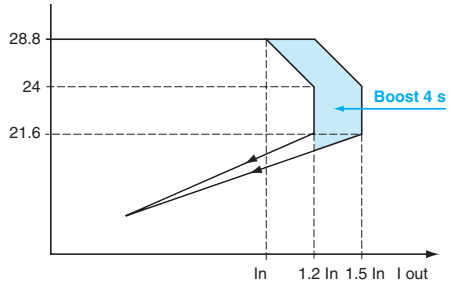
- **Automatic reset protection mode (current limiting)**: If the output current exceeds approximately 1.2 In, the output current is limited to this value. The value of the output voltage can then be less than 21 V but the diagnostic relay opens, allowing the anomaly to be fed back to the automation system. This prevents feedback of any undefined logic state. On elimination of the overload, the output voltage reverts to its preset value.
- **Manual reset protection mode (undervoltage detection)**: If the output current exceeds approximately 1.2 In, the power supply stops completely before the output voltage drops below 21 V and no longer delivers any current. The fault is stored in memory as long as voltage is present at the power supply primary. After the primary is de-energized for a few seconds, the power supply will become operational again if the cause of the fault has been removed.

NOTE: In both these modes, any overload of less than 1.5 In and lasting less than 4 s will be absorbed by the "boost" circuit, and the voltage delivered will stay within the specified limits (adjustment voltage +/- 3%).

Load Limit

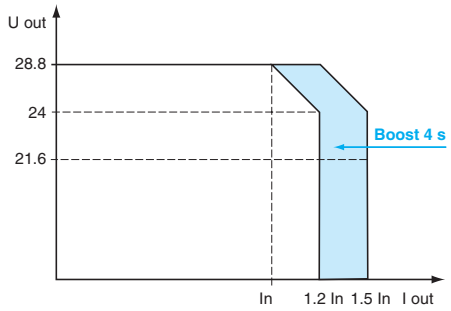
Manual reset protection mode

ABL8RPM24200 / ABL 8RPS24●●● / ABL8WPS24●●●



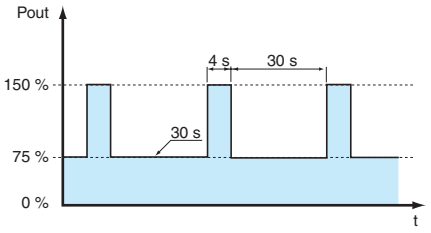
Automatic reset protection mode

ABL8RPM24200 / ABL8RPS24●●● / ABL8WPS24●●●



"Boost" repeat accuracy

The **ABL8RPS / RPM / WPS** Universal range Phaseo power supplies have a power reserve, allowing them to supply the application with energy up to 1.5 times the nominal current at the intervals illustrated by the graph to the left.



The "boost" amplitude and repeat accuracy depend on:

- The overload duration
- The overload intensity
- The period between each consumption peak

When the power supply can no longer cope (repeated overloads, overload duration > 4 seconds, power rating > 150% of nominal power) the integrated protection trips.

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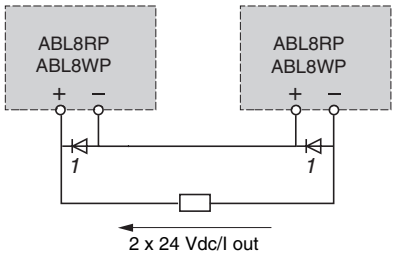
Behavior in the event of phase failure on three-phase power supplies

The **ABL8WPS24●00** Universal range Phaseo power supplies are capable of starting and delivering a nominal current and voltage for a few minutes when failure of one phase occurs. Their protection (thermal) then trips and they are reset automatically or manually, depending upon the operator's presetting.

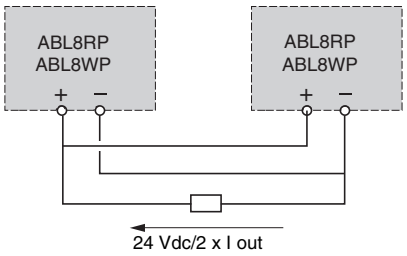
Output Characteristics

Series or parallel connection

Series connection



Parallel connection



Family	Series	Parallel
ABL8RPS / 8RPM / 8WPS	2 products max.[1]	2 products max.

NOTE: Series or parallel connection is only recommended for products with identical catalog numbers. For better availability, the power supplies can also be connected in parallel using the ABL8RED24400 Redundancy module.

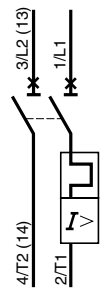
[1] Two Shottky diodes, Imin = power supply In, and Vmin = 50 V

Selection of protection on the power supply primaries

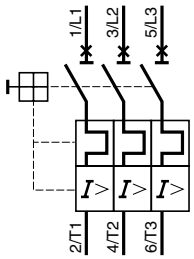
Type of line supply	115 Vac phase-to-neutral			230 Vac phase-to-phase			400 Vac phase-to-phase	
Type of protection	Thermal-magnetic supplementary protector		gG/gL fuse	Thermal-magnetic supplementary protector		gG/gL fuse	Thermal-magnetic supplementary protector	gG/gL fuse
	Telemecanique GB2 (IEC)	Merlin Gerin C60N (IEC) C60N (UL)		Telemecanique GB2 (IEC)	Merlin Gerin C60N (IEC) C60N (UL)		Telemecanique GV2 (IEC/UL)	
ABL8RPS24030	GB2CD07	MG24443	2 A (8 x 32)	GB2CD07	MG24443	2 A (8 x 32)	GV2RT06	2 A (14 x 51)
ABL8RPS24050	GB2CD08	MG24444	4 A (8 x 32)	GB2CD07	MG24443	2 A (8 x 32)	GV2RT06	2 A (14 x 51)
ABL8RPS24100	GB2CD12	MG24447	6 A (8 x 32)	GB2CD08	MG24444	4 A (8 x 32)	GV2RT07	4 A (14 x 51)
ABL8RPM24200	GB2CD16	MG24449	10 A (8 x 32)	GB2CD12	MG24447	6 A (8 x 32)	–	–
ABL8WPS24200	–	–	–	–	–	–	GV2ME07	2 A (14 x 51)
ABL8WPS24400	–	–	–	–	–	–	GV2ME08	4 A (14 x 51)

Wiring Diagrams

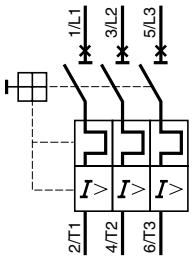
GB2CD●●



GV2RT●●



GV2ME●●



CB scheme EN60950-1, UL, cCSAus, CE, RoHS

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ABL8RPS24050

ABL8RPM24200

ABL8WPS24200

ABL8BUF24400

ABL8BBU24200

ABL8RED24400

Regulated switch mode power supplies: Phaseo Universal range

Input voltage	Secondary			Reset	Conforming to standard EN 61000-3-2	Catalog Numbers	Weight lb (kg)
	Output voltage	Nominal power	Nominal current				
Single-phase (N-L1) **or 2-phase** (L1-L2) **connection**							
100–120 Vac to 200–500 Vac -15%,+10% 50/60 Hz	24–28.8 Vdc	72 W	3 A	Auto/man	Yes	**ABL8RPS24030**	0.661 (0.300)
		120 W	5 A	Auto/man	Yes	**ABL8RPS24050**	1.543 (0.700)
		240 W	10 A	Auto/man	Yes	**ABL8RPS24100**	2.204 (1.000)
100 to 120 Vac 200 to 240 Vac - 15%,+ 10% 50/60 Hz	24 to 28.8 Vdc	480 W	20 A	Auto/man	Yes	**ABL8RPM24200**	3.527 (1.600)
Three-phase connection (L1-L2-L3)							
380 to 500 Vac ± 10 % 50/60 Hz	24 to 28.8 Vdc	480 W	20 A	Auto/man	Yes	**ABL8WPS24200**	3.527 (1.600)
		960 W	40 A	Auto/man	Yes	**ABL8WPS24400**	5.952 (2.700)

Function modules for continuity of service

Function	Use	Designation	Catalog Numbers	Weight lb (kg)
Continuity after a power outage	Holding time 100 ms at 40 A and 2 s at 1 A	Buffer module	For more information see page 37.	
	Holding time 9 min at 40 A to 2 hrs at 1 A (depending on use with a battery check module-battery unit and load)[1]	Battery check module 20 A output current		
		Battery check module 40 A output current		
		3.2 Ah battery module [2]		
		7 Ah battery module [2]		
		12 Ah battery module [2]		
Continuity after a malfunction	Paralleling and redundancy of the power supply to ensure uninterrupted operation of the application excluding AC line failures and application overloads	Redundancy module	For more information see page 46.	
Discriminating downstream protection	Electronic protection (1 to 10 A overload or short circuit) with 4 output terminals from a Universal range Phaseo power supply	Protection module with single-pole breaking [3]	For more information see page 50.	
		Protection module with 2-pole breaking [3] [4]		

DC/DC converters (for use with Universal range Phaseo power supplies)

Primary[5]		Secondary		Catalog Numbers	Weight lb (kg)
Input voltage	Universal range power supply module output current	Output voltage	Nominal current		
24 Vdc - 9%, + 24%	2.2 A	5 to 6.5 Vdc	6 A	For more information see page 34.	
	1.7 A	7 to 15 Vdc	2 A		

Separate and replacement parts

Designation	Description	Composition	Catalog Numbers	Weight lb (kg)
Fuse assemblies	For ABL8PR●24100 discriminating Protection modules	4 x 3 A, 4 x 7.5 A and 4 x 15 A	**ABL8FUS01**	–
	For ABL8BKP24A●● Battery	4 x 20 A and 6 x 30 A	**ABL8FUS02**	–
Clip-on marker labels	All products except ABL8PR●●●●●●	Order in multiples of 100	**LAD90**	0.066 (0.030)
	ABL8PR●●●●●●	Order in multiples of 22	**ASI20MACC5**	–
DIN rail mounting kit	For ABL8BPK2403 Battery Module	Single unit	**ABL1A02**	–
Cables	Connection cable between ABL8BBU and PC for updating the software	RS232 3 m	**SR2CBL01**	0.330 (0.150)
		USB 3 m	**SR2USB01**	0.330 (0.150)
EEPROM memory	Backup and duplication of ABL8BBU parameters	Single unit	**SR2MEM02**	0.022 (0.010)

1 For table of compatibility of battery check module-battery unit with holding time depending on the load

2 Supplied with 20 or 30 A fuse, depending on the model

3 Supplied with four 15 A fuses

4 Local reset via pushbutton, or automatic reset on elimination of the fault, and diagnostic relay

5 Voltage from a 24 Vdc Universal range Phaseo power supply

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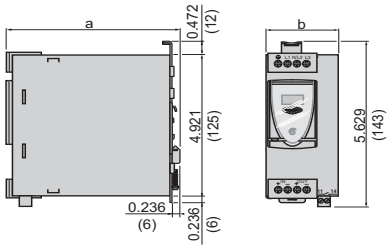
Approximate Dimensions

ABL8RPS24●●● / ABL8RPM24200 / ABL8WPS24●●●
Common side view

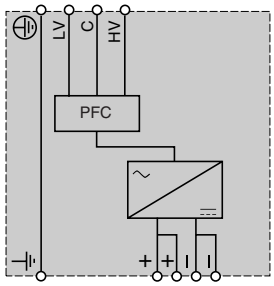


ABL8	a	b
RPS24030	4.724 (120)	1.732 (44)
RPS24050	4.724 (120	2.204 (56)
RPS24100	5.511 (140)	3.346 (85)
RPM24200	5.511 (140)	5.708 (145)
WPS24200	6.102 (155)	3.740 (95)
WPS24400	6.102 (155)	6.496 (165)
	in (mm)	

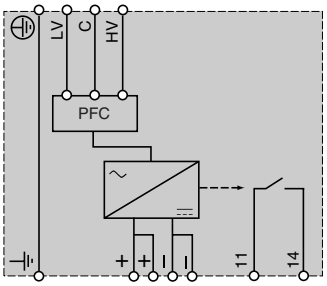
ABL8RPS, ABL8WPS, AND ABL7RPM:
cULus File E164867 CNN NMTR and NMTR7
cCSAus–File 21388438 Class 4311-07 and 5311-87
CB scheme EN 60950-1, CE, RoHS

Wiring Diagrams

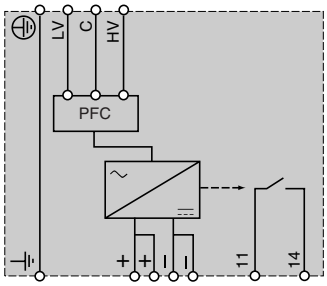
ABL8RPS24030



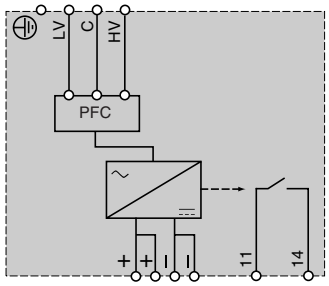
ABL8RPS24050



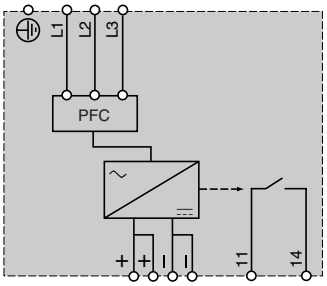
ABL8RPS24100



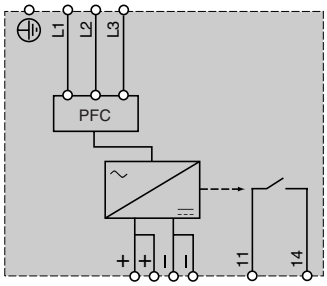
ABL8RPM24200



ABL8WPS24200

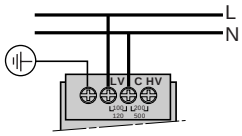


ABL8WPS24400

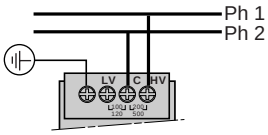


Line Supply Wiring Diagrams

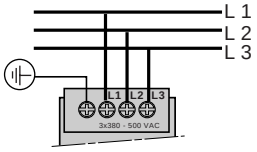
Single-phase (L-N) 100 to 120 V



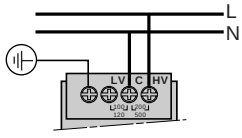
Phase-to-phase (L1-L2) 200 to 500 V



Three-phase (L1-L2-L3) 3 x 380 to 500 V



Single-phase (L-N) 200 to 500 V



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Supplying 5 Vdc and 12 Vdc auxiliary voltages

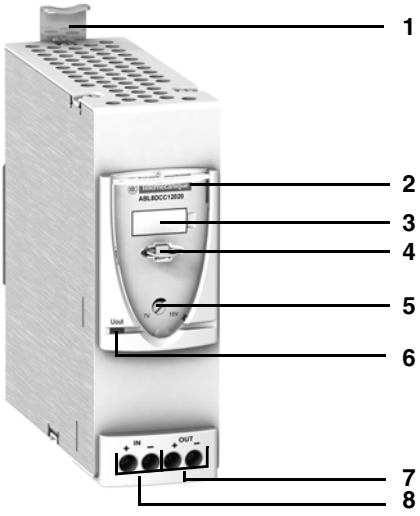
The Phaseo range offers modules that convert the 24 Vdc voltage to a 5 to 15 Vdc voltage.

These modules can be used for savings in:

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

There are two models available for this solution:

- **ABL8DCC05060**: 5 to 6.5 Vdc, 6 A converter module
- **ABL8DCC12020**: 7 to15 Vdc, 2 A converter module



Description

5 Vdc and 12 Vdc Converter modules

The **ABL8DCC●●0●0** DC/DC Converter modules comprise:

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

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Technical Characteristics

Type of module				Converter ABL8DCC05060	ABL8DCC12020
Certifications				CB scheme EN60950-1, UL, cCSAus, CE, RoHs	
Conformity to standards	Safety			EN60950-1, EN61204	
	EMC			EN 50081-1, EN61000-6-2, EN61000-6-3	
Input circuit					
Input values	Nominal voltage		**V**	24 to 28.8 Vdc	
	Limit voltage		**V**	22 to 30 Vdc	
	Protection against reverse polarity			Yes	
	Efficiency at nominal load			> 80%	> 82%
	Dissipated power at nominal load		**W**	7	4
Output circuit					
Diagnostics	LEDs on front panel			Voltage > 4 Vdc (green)	Voltage > 6 Vdc (green)
Nominal output values	Output voltage (U_{Out})		**V**	5, Adjustable from 5 to 6.5 Vdc	12, Adjustable from 7 to 15 Vdc
	Current		**A**	6	2
	Power		**W**	30	24
Precision	Line and load regulation			1 to 3%	
	Residual ripple - noise		**mV**	< 100	
Protection	Against short circuits			Permanent, automatic restart	
	Against overloads			Permanent, automatic restart I_{Out} > 1.1 In	
	Against overvoltages		**V**	Permanent, automatic restart U_{Out} > 7.8	Permanent, automatic restart U_{Out} > 18
	Thermal			–	
Operating and environmental characteristics					
Connections	Input		**AWG (mm^2)**	24 to 12 (2 x 0.5 to 4)	
	Output		**AWG (mm^2)**	24 to 12 (2 x 0.5 to 4)	
Mounting	On DIN rail		**in (mm)**	1.38 x0.30 and 1.38 x 0.59 (35 x 7.5 and 35 x 15)	
Operating position				Mounted vertically Mounted horizontally with derating of power from 122 to 140 °F (50 to 60 °C) 40% maximum to 140 °F (60°C)	Vertical or horizontal position
Degree of protection				IP 20 conforming to IEC 60529	
Environment	Temperature	Operation	**°F (°C)**	-40 to 185 °F (-40 to +85 °C)	
		Storage	**°F (°C)**	-13 to 140 °F (-25 to +60 °C)	
	Relative humidity	Operation		90%	
		Storage		95%	
	Vibration according to EN 61131-2			3 to 11.9 Hz, amplitude 0.14 in (3.5 mm); 11.9 to 150 Hz, acceleration 2 g	
Protection class				Class III	
Dielectric strength 50 Hz for 1 min	Input/output		**V rms**	500 Vac	
	Input/ground		**V rms**	500 Vac	
	Output/ground		**V rms**	500 Vac	
Emissions according to EN 61000-6-3	Conducted/radiated			EN 55022 - Class B	
Immunity according to EN 61000-6-2	Electrostatic discharge			IEC/EN 61000-4-2 (6 kV contact/8 kV air)	
	Radiated electromagnetic fields			IEC/EN 61000-4-3 level 3 (10 V/m)	
	Induced electromagnetic fields			IEC/EN 61000-4-6 level 3 (10 V/m)	
	Rapid transients			IEC/EN 61000-4-4 level 3 (2 kV)	
	Surges			IEC/EN 61000-4-5 level 2 (1 kV)	

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ABL8DCC050060 / 12020

DC/DC converters (for use with Universal range of Phaseo power supplies)

Primary[1]		Secondary		Catalog Numbers	Weight
Input voltage	Universal range power supply module output current	Output voltage	Nominal current		lb (kg)
24 Vdc - 9%,+ 24%	2.2 A	5–6.5 Vdc	6 A	**ABL8DCC05060**	0.661 (0.300)
	1.7 A	7–15 Vdc	2 A	**ABL8DCC12020**	0.661 (0.300

Replacement part

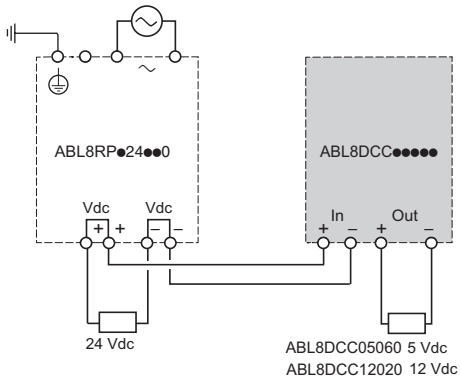
Designation	Order Quantity	Catalog Number	Weight
			lb (kg)
Clip-on marker label	100	**LAD90**	0.661 (0.300)

[1] Voltage from a 24 Vdc Phaseo Universal range power supply

CB Scheme EN60950-1, UL, cCSAus, CE, RoHS

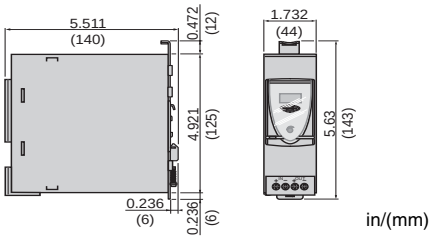
Wiring Diagram for use with a Universal range power supply

With ABL8DCC●●0●0 Converter module



Approximate Dimensions

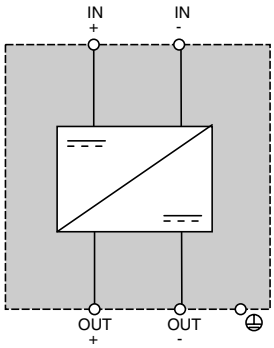
ABL8DCC05060 and ABL8DCC12020 Converter modules



in/(mm)

Wiring Diagram

ABL8DCC05060 and ABL8DCC12020 Converter modules



cULus File E164867 CCN NMTR and NMTR7
cCSAus File 239438 Class 5311-07 and 5311-87

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Product Description

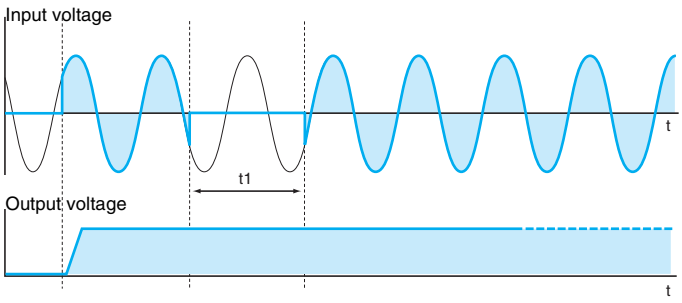
The ABL8 Function module offering complements the **ABL8RPS / RPM / WPS** electronic switch mode power supply offering, thus forming a set of solutions to meet the needs for continuity of service in the most demanding applications.

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

- Immunity to microbreaks
- Voltage holding during power outages
- Voltage holding during power supply equipment failure
- Discrimination in the application's protection against overloads and short circuits

Continuity of Service: Immunity to Microbreaks

ABL8RPS / RPM / WPS power supplies can deliver their nominal power during a microbreak of less than 20 ms. When outages exceed this value, the **ABL8BUF24400** Buffer Function module, combined with an **ABL8RPS / RPM / WPS** Universal power supply, is used. During short interruptions, the Buffer module takes over and continues to provide the 24 Vdc voltage. The table below indicates the maximum time for immunity to microbreaks t1.



Power supply		**Typical time for immunity to microbreaks with Buffer module** (40 A) **at Un t1**	
		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

[1] Values liable to increase significantly.

NOTE: To maximize the immunity time, connect only those circuits requiring protection against microbreaks (controller or PLC power supply) at the Buffer module output.

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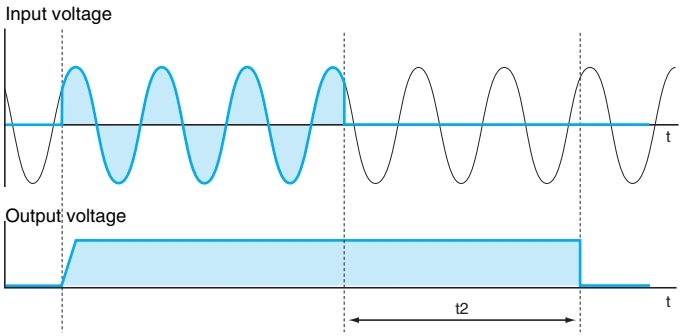
Continuity of Service: Immunity to Microbreaks *(continued)*

For applications that are sensitive to unintended stopping, the ABL8 range of function modules offers a solution comprising:

- Electronic switch mode power supply and Buffer module for holding times t2 up to two seconds
- Electronic switch mode power supply, Battery check module and Battery module for holding times t2 of between two seconds and a few hours

These solutions are used to supply voltage after loss of the line supply, enabling saving of current values or fallback of some actuators supplied with 24 Vdc. The table on the next page indicates the possible holding times according to the equipment combinations and the current required.



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Continuity of Service: Immunity to Microbreaks *(continued)*

Holding current	Holding time t2																										
	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+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+ 6	2+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+ 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+4	2+5	2+5	2+5	2+6	2+6	2+6	2+6+ 6	2+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+4	2+5	2+5	2+5	2+5	2+5	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+ 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+ 6	2+6+ 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+ 6	2+6+ 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+ 6	2+6+ 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+ 6	3+6+ 6	3+6+ 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 +6	3+6 +6	3+6 +6	3+6+ 6	3+6+ 6	3+6+ 6	3+6+ 6							
35 A	1	3+5	3+5	3+5	3+5	3+5	3+5	3+5	3+5	3+6	3+6	3+6	3+6 +6	3+6 +6	3+6 +6	3+6 +6	3+6+ 6	3+6+ 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 +6	3+6 +6	3+6 +6	3+6 +6	3+6 +6	3+6+ 6	3+6+ 6									

Function modules	Catalog Numbers	Code
40 A Buffer module	**ABL8BUF24400**	1
20 A Battery check module	**ABL8BBU24200**	2
40 A Battery check 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).

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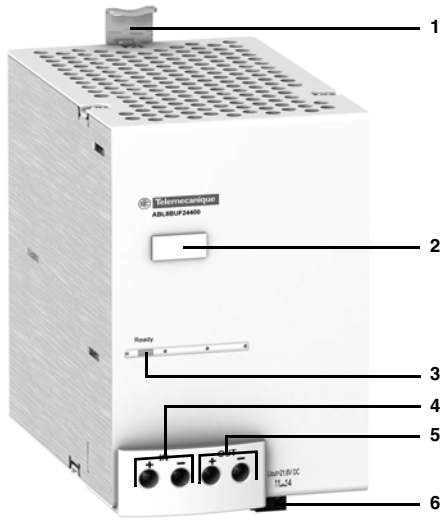

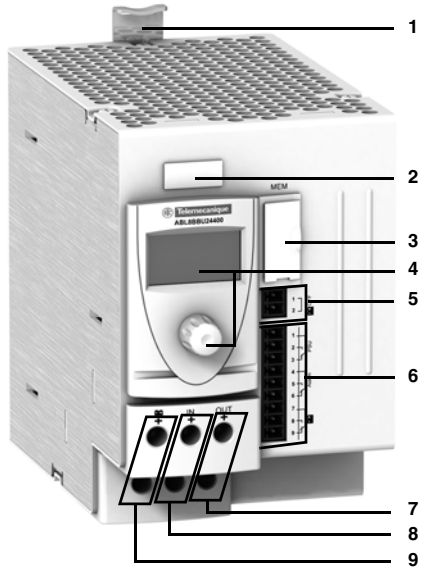

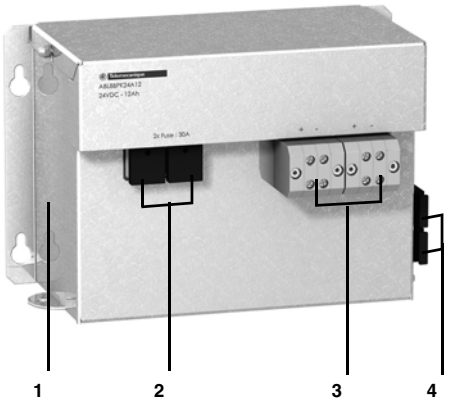

Product Description

40 A Buffer module

The **AB8BUF24400** Buffer Function module comprises:

1	Spring clip for 35 mm DIN rail
2	Clip-on marker label
3	LED indicator (green) indicating module ready (maximum load)
4	8 AWG (10 mm^2) enclosed screw terminals for connection of the 24 Vdc input voltage
5	8 AWG (10 mm^2) enclosed screw terminals for connection of the 24 Vdc output voltage
6	Removable screw terminal block for connection of the diagnostic contact: module ready (maximum load)

20 A and 40 A Battery check modules

The **ABL8BBU24●00** Battery check Function module 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. **This contact must always be voltage-free.**
6	Removable screw connector for connection of the diagnostic contacts (power supply presence, battery alarm and presence)
7	8 AWG (10 mm^2) enclosed screw terminals for connection of the 24 Vdc output voltage
8	8 AWG (10 mm^2) enclosed screw terminals for connection of the power supply 24 Vdc input voltage
9	8 AWG (10 mm^2) enclosed screw terminals for connection of the battery voltage 24 Vdc 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 mounted on a vertical or horizontal panel
2	Fuse carrier (one or two depending on the model), which, in addition to protecting the output, can be used to disable the battery module (fuse supplied but not fitted)
3	8 AWG (10 mm^2) enclosed screw terminals for connection of the Battery module 24 Vdc output voltage (depending on the model, allows two Battery modules to be connected in parallel)
4	Fuse storage attachment

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Green: Nominal status/information

Orange: Warning

Red: Fault

Examples of Battery check module diagnostic screens

Functions

ABL8BBU24●00 Battery check modules

The main module functions are:

- Charging and checking the associated battery
- Automatic switching between the power supply and the battery when a power outage occurs
- Diagnostics

The Battery check 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 to ensure the safety of maintenance operations on the application and to avoid the battery discharging when the installation is powered down
- Battery test
- Backup and download of a configuration via a memory card, enabling storage and duplication of the configuration parameters, to eliminate repetitive operations when setting up the Battery check modules
- Firmware updating from a PC

The module parameters define:

- The user language
- The rating of the battery connected to the Battery check module
- The operating temperature for the battery, 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 for switching to the battery

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

ABL8BPK24A●● Battery modules

Each Battery module consists of:

- Lead-sealed batteries (two in series)
- Automotive type fuse protection

Only these modules are compatible with the ABLBBU Battery check modules.

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Technical Characteristics

Type of Function module				Buffer module ABL8BUF24400	Battery check module ABL8BBU24200	ABL8BBU24400
Certifications				CB scheme EN60950-1, cULus 508, cCSAus, CE, RoHS		
Conformity to standards	Safety			EN60950-1, EN61204		
	EMC			IEC/EN61000-6-2, IEC/EN61000-6-3		
Input circuit						
Input values	Nominal voltage		V	24 to 28.8 Vdc		
	Limit voltage		V	22 to 30 Vdc		
	No-load/On-load/Max. consumption		A	0.1/0.6/40.6	0.1/1.7/21.7	0.1/1.7/41.7
	Activation threshold		V	U_{In} - 1 and 22 Vdc min.	Adjustable 22 to 26 Vdc	
	Protection against reverse polarity			Yes		
	Dissipated power at nominal load		W	< 15	< 7	< 12
Output circuit						
Nominal output values	Voltage (U_{Out})		V	Nominal mode: U_{In} -0.25 Buffer mode: U_{In} -1	Nominal mode: U_{In} -0.25 Battery mode: $U_{battery}$ -0.5	
	Max. current		A	40	20	40
Precision	Residual ripple - noise		mV	< 200		
Holding time	I = 0.5 A			6 s		
	I = 40 A			0.1 s		
Protection	Against short circuits	Power-supplied mode		Permanent, automatic restart	Power supply protection	
		Battery-backed mode		–	Permanent, automatic restart	
	Against overloads			> 45 A	1.5 In	
	Against overvoltages		V	–	–	–
	Against undervoltages		V	Tripping if U_{Out} < 19	–	
	Thermal			–		
Operating and environmental characteristics						
Connections	Input		AWG (mm^2)	20 to 8 (2 x 0.5 to 10) screw terminals		
	Output		AWG (mm^2)	20 to 8 (2 x 0.5 to 10) screw terminals		
	Diagnostic relay		mm^2	2.5	0.75	
Mounting	On DIN rail		in (mm)	1.38 x 0.30 and 1.38 x 0.59 (35 x 7.5 and 35 x 15)		
Operating position				Mounted vertically Mounted horizontally (with derating of maximum power by 20% from 50°C)		
Connections	Series			–		
	Parallel			Yes	–	
Degree of protection				IP 20 conforming to IEC 60529		
Environment	Temperature	Operation	°F (°C)	-13 to 140 °F (-25 to +60 °C)		
		Storage	°F (°C)	-40 to 185 °F (-40 to +85 °C)		
	Relative humidity	Operation		90%		
		Storage		95%		
	Vibration according to EN 61131-2			3 to 11.9 Hz, amplitude 0.14 in (3.5 mm); 11.9 to 150 Hz, acceleration 2 g		
Protection class according to VDE 0106 1				Class II		
Charging time			s	< 25	Depending on the battery used	
Control input				–	Battery inhibit input /OFF: terminals 1 and 2 linked = battery off ⚠ This contact must always be volt-free.	
Diagnostics	Via LED			Green: Buffer ready Off: Load < 95%	–	
	LCD screen			–	Green: nominal status, orange: warning, red: fault	
	Via relay			Open: Load < 95% Closed: Buffer ready	3 C/O relays: for power supply status, battery and alarm status	
					PSU: relay tripped (contact 1-2 closed): 24 V present on In input	
					: relay tripped (contact 4-5 closed): backup mode, current supplied by the battery	
					Alarm: relay tripped (contact 7-8 closed): battery charge < 80% battery off or disconnected	
Relay characteristic				230 Vac 0.5 A, 24 Vdc 5 mA min.		
Dielectric strength 50 Hz for 1 min	Input/ground		V rms	500 Vac		
	Output/ground		V rms	500 Vac		
Emissions according to EN 61000-6-3	Conducted/radiated			EN 55022 - Class B		
Immunity according to EN 61000-6-2	Electrostatic discharge			IEC/EN 61000-4-2 (6 kV contact/8 kV air)		
	Radiated electromagnetic fields			IEC/EN 61000-4-3 level 3 (10 V/m)		
	Induced electromagnetic fields			IEC/EN 61000-4-6 level 3 (10 V/m)		
	Rapid transients			IEC/EN 61000-4-4 level 3 (2 kV)		
	Surges			IEC/EN 61000-4-5 level 2 (1 kV)		

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Technical Characteristics

Type of Function module				Battery ABL8BPK24A03	ABL8BPK24A07	ABL8BPK24A12
Battery type				Lead-sealed battery		
Certifications				Certification pending		
Conformity to standards		Safety		Conformity pending		
Input circuit						
Input values	Nominal voltage		**V**	24 to 28.8 Vdc		
	Limit voltage		**V**	22 to 29 Vdc		
	Load current		**A**	0.3	0.7	1.2
	Protection against reverse polarity			Yes		
	Charging time		**h**	72 max.		
Output circuit						
Nominal output values	Voltage (Un)		**V**	24 Vdc		
	Max. current		**A**	32	40	75
	Capacity		**Ah**	3.2	7	12
Holding time at 20°C	Maximum		**h**	20 at 0.16 A	20 at 0.35 A	20 at 0.6 A
	Minimum		**min**	5 at 8.4 A	5 at 18.2 A	5 at 31.3 A
Protection	Against short circuits and overloads by automotive type fuse protection			1 x 20 A	1 x 30 A	2 x 30 A
	Self-discharge rate	1 month		3%		
		3 months		9%		
		6 months		15%		
Operating and environmental characteristics						
Connections	Input		**AWG (mm^2)**	20 to 8 (2 x 0.5 to 10)		20 to 8 (4 x 0.5 to 10)
	Output		**AWG (mm^2)**	20 to 8 (2 x 0.5 to 10)		20 to 8 (4 x 0.5 to 10)
Mounting	On DIN rail		**in (mm)**	1.38 x 0.30 and 1.38 x 0.59 (35 x 7.5 and 35 x 15)	–	
	On vertical panel			With 4 screws ∅ 5 mm		
	On horizontal panel			With 2 screws ∅ 5 mm		
Operating position				Vertical or horizontal		
Connections	Series			–		
	Parallel			Yes		
Degree of protection				IP 10 conforming to IEC 60529		
Environment	Temperature	Operation	°F (**°C**)	32 to 104 °F (0 to +40 °C)		
		Storage	°F (**°C**)	-4 to 122 °F (-20 to +50 °C)		
	Vibration according to EN 61131-2			3 to 11.9 Hz, amplitude 3.5 mm; and 11.9 to 150 Hz, acceleration 2 g		
Protection class according to VDE 0106 1				Class III		
Service life (approximate)		68 °F (20 °C)	**h**	44,000		
		77 °F (25 °C)	**h**	31,000		
		86 °F (30 °C)	**h**	22,000		
		95 °F (35 °C)	**h**	15,000		
		104 °F (40 °C)	**h**	11,000		
		113 °F (45 °C)	**h**	7,300		
		122 °F (50 °C)	**h**	5,000		

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ABL8BUF24400

ABL8BBU24200

Selection

Function	Use	Designation	Catalog Numbers	Weight lb (kg)
Continuity after a power outage	Holding time, 100 ms at 40 A and 2 s at 1 A	Buffer module	**ABL8BUF24400**	2.645 (1.200)
	Holding time, 9 min at 40 A to 2 hrs at 1 A (depending on use with a battery check module-battery unit and load) [1]	Battery check module 20 A output current	**ABL8BBU24200**	1.102 (0.500)
		Battery check module, 40 A output current	**ABL8BBU24400**	1.543 (0.700)
		3.2 Ah battery module [2]	**ABL8BPK24A03**	7.716 (3.500)
		7 Ah battery module [2]	**ABL8BPK24A07**	14.330 (6.500)
		12 Ah battery module [2]	**ABL8BPK24A12**	26.455 (12.000)

cCSAus, CB Scheme, UL EN60950-1, CE, RoHS

Separate and replacement parts

Designation	Description	Composition	Catalog Numbers	Weight lb (kg)
Fuse assemblies	For **ABL8BKP24A●●** battery	4 x 20 A and 6 x 30 A	**ABL8FUS02**	–
Clip-on marker labels	All products except **ABL8PR●●●●●●**	Order in multiples of 100	**LAD90**	0.066 (0.030)
Kit for mounting on DIN rail	For **ABL8BPK2403** Battery module	Single unit	**ABL1A02**	–
Cables	Connection cable between **ABL8BBU** and PC for updating the software	RS232 3 m	**SR2CBL01**	0.330 (0.150)
		USB 3 m	**SR2USB01**	0.330 (0.150)
EEPROM memory	Backup and duplication of **ABLBBU** parameters	Single unit	**SR2MEM02**	0.022 (0.010)

[1] For the table of compatibility of the battery check module-battery unit with the holding time (depending on the load)

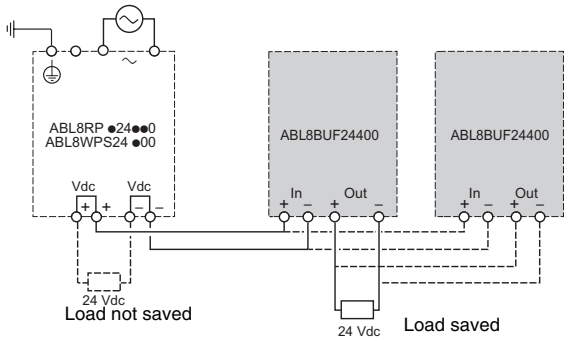
[2] Supplied with 20 or 30 A fuse depending on the model.

Wiring Diagrams for use with Universal range power supplies

With ABL8BUF24400 Buffer module

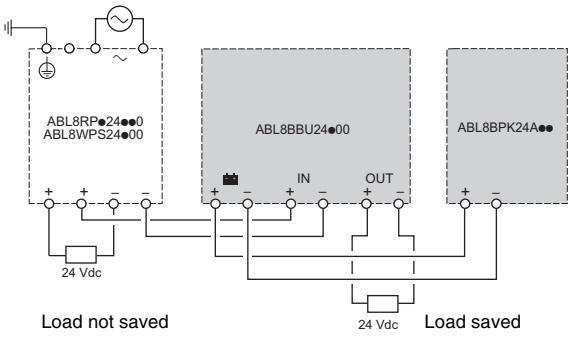
ABL8BUF2440
cULus File E164867 CCN NMTR and NMTR7

cCSAus File 238438 Class 5311-07 and 5311-87



With ABL8BBU24•00 Battery check module

ABL8BBU
UL Listed File E164867 CCN NMTR



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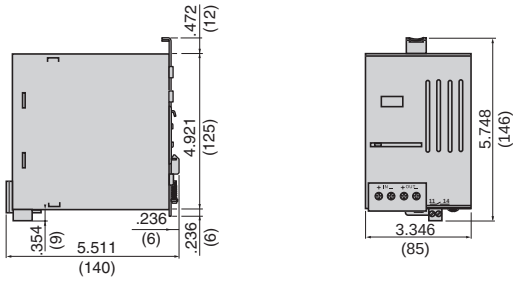
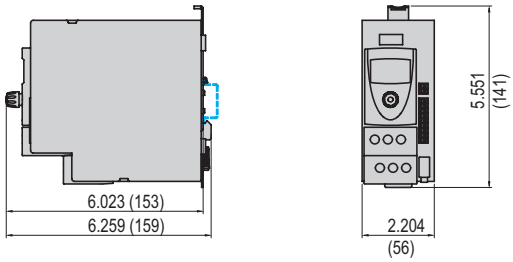
Approximate Dimensions

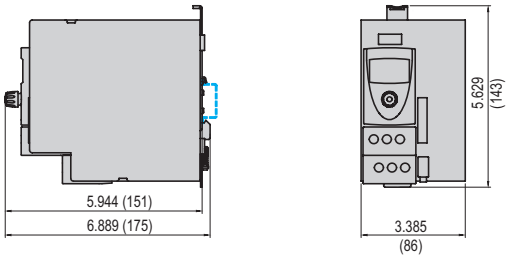
ABL8BUF24400 Buffer module



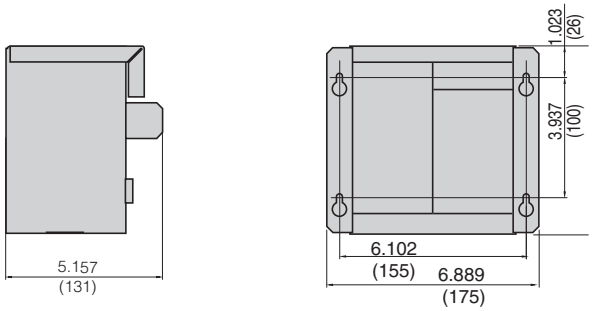
ABL8BBU24200 Battery check module



ABL8BBU24400 Battery check module



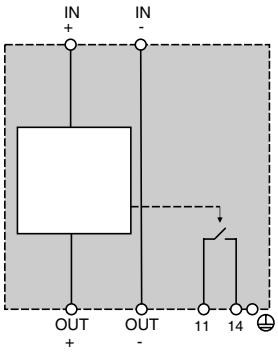
ABL8BPK24A03/A07/A12 Battery modules



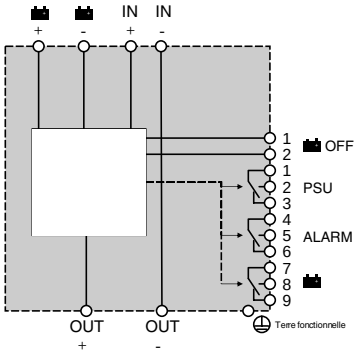
in/(mm)

Wiring Diagrams

AB8BUF24400 Buffer module



ABL8BBU24200 and ABL8BBU24400 Battery check modules



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Continuity of Service: Failure of Power Supply Equipment

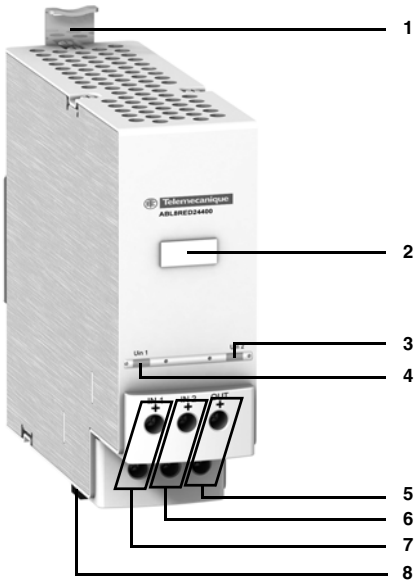
Where continuous operation of the application is the prime concern, it is necessary to ensure that when one power supply malfunctions, a second power supply takes over. The **ABL8RED24400** Redundancy module can perform this function, ensuring that the failure of one power supply does not disturb the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

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 DIN rail
2	Clip-on marker label
3	Input voltage status LED (green) for the first 24 Vdc power supply
4	Input voltage status LED (green) for the second 24 Vdc power supply
5	8 AWG (10 mm^2) enclosed screw terminals for connection of the 24 Vdc output voltage
6	8 AWG (10 mm^2) enclosed screw terminals for connection of the input voltage for the second 24 Vdc power supply ($I \leqslant 20$ A)
7	8 AWG (10 mm^2) enclosed screw terminals for connection of the input voltage for the first 24 Vdc power supply ($I \leqslant 20$ A)
8	Removable screw terminal block for connection of the diagnostic contact (power supply connected to a faulted input)

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Technical Characteristics

Type of Function module				Redundancy ABL8RED24400
Certifications				CB scheme EN60950-1, cULus 508, cCSAus, CE, RoHS
Conformity to standards	Safety			EN60950-1, EN61204
	EMC			EN61000-6-2, EN61000-6-3
Input circuit				
Input values	Nominal voltage (U_{In})		**V**	24–28.8 Vdc
	Limit voltage		**V**	22–30 Vdc
	Input limit current		**A**	20 per input
	Protection against reverse polarity			Yes
Output circuit				
Nominal output values	Output voltage (U_{Out})		**V**	U_{In} - 0.2
	Max. current (I_{Out})		**A**	40
Number of channels				1
Protection	Against short circuits			Provided by the power supply
	Against overloads			Manual, provided by the power supply
Operating and environmental characteristics				
Connections	Input		**AWG (mm^2)**	20–8 (2 x 0.5 to 10)
	Output		**AWG (mm^2)**	20–8 (2 x 0.5 to 10)
	Diagnostic relay		**(mm^2)**	2.5
Mounting	On DIN rail		**in (mm)**	1.38 x 0.30 and 1.38 x 0.59 (35 x 7.5 and 35 x 15)
Operating position				Vertical or horizontal position
Connections	Series			—
	Parallel			Yes for 2 x 40 A
Degree of protection				IP 20 conforming to IEC 60529
Environment	Temperature	Operation	**°F (°C)**	-13 to 140 °F (-25 to +60 °C)
		Storage	**°F (°C)**	-40 to 185 °F (-40 to +85 °C)
	Relative humidity	Operation		90%
		Storage		95%
	Vibration according to EN 61131-2			3–11.9 Hz, amplitude 0.14 in (3.5 mm); 11.9–150 Hz, acceleration 2 g
Protection class according to VDE 0106 1				Class II
Diagnostics	Via LED			1 LED per input Green: power supply operational
	Via relay			Closed: 2 power supplies operational
Dielectric strength 50 Hz for 1 min	Input/output		**V rms**	No isolation
	Input/ground		**V rms**	500 Vac
	Output/ground		**V rms**	500 Vac
Emissions according to EN 61000-6-3	Conducted/radiated			EN 55022 - Class B
Immunity according to EN 61000-6-2	Electrostatic discharge			IEC/EN 61000-4-2 (6 kV contact/8 kV air)
	Radiated electromagnetic fields			IEC/EN 61000-4-3 level 3 (10 V/m)
	Induced electromagnetic fields			IEC/EN 61000-4-6 level 3 (10 V/m)
	Rapid transients			IEC/EN 61000-4-4 level 3 (2 kV)
	Surges			IEC/EN 61000-4-5 level 2 (1 kV)

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ABL8RED24400

Function module

Function	Use	Designation	Catalog Number	Weight lb (kg)
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**	1.543 (0.700)

CB Scheme EN60950-1 UL, cCSAus

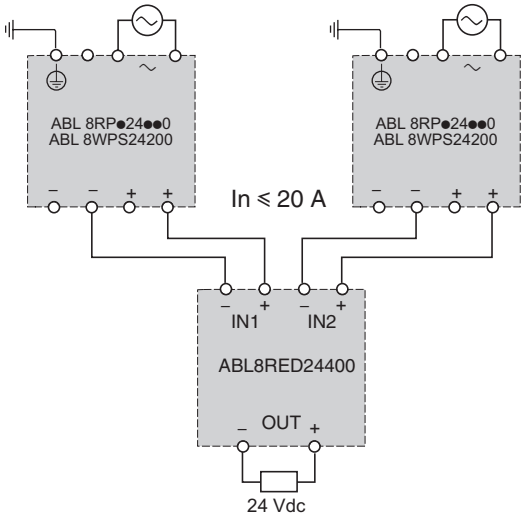
Replacement part

Designation	Composition	Catalog Number	Weight lb (kg)
Clip-on marker labels	Order in multiples of 100	**LAD90**	0.066 (0.030)

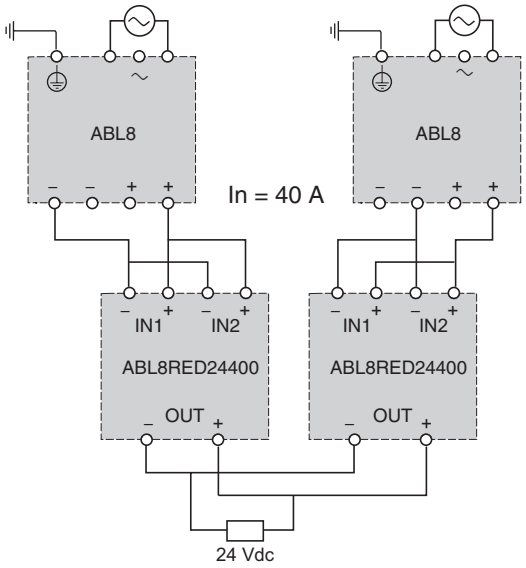
Wiring Diagrams for use with Universal range power supplies

With ABL8RED24400 Redundancy module

ABL8RPS24●●●/ABL8RPM24200/ABL8WPS24200



ABL8WPS24400 or full system redundancy



cULus File E164867 CCN NMTR and NMTR7

cCSAus File 238438 class 5311-07 and 5311-87

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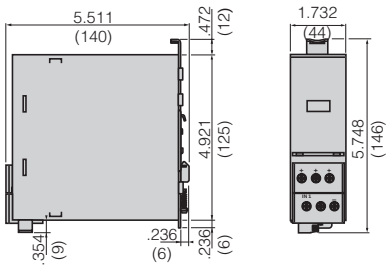
Approximate Dimensions

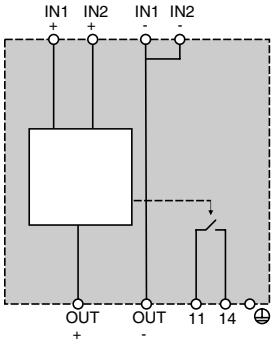
ABL8RED24400 Redundancy module



In/(mm)

Wiring Diagram

ABL8RED24400 Redundancy module



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

In the majority of cases, there is no need for thermal-magnetic circuit protectors or fuses downstream of an electronic switch mode power supply. When a short circuit or very quick overload occurs in the application, the electronic protection de-energizes the circuits before the thermal-magnetic circuit protector or fuse can.

To provide discriminating protection when an overload or short circuit occurs, the 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.

There is one model available for this solution: **ABL8PRP24100**.

The **ABL8PRP24100** Universal discriminating downstream electronic Protection module with 2-pole breaking has:

- Overload and short circuit protection on each of its four channels:
  - — Each channel can be calibrated by the user from 1 to 10 A, according to the needs of the application.
  - — The breaking capacity is provided by one fuse per channel that can be calibrated according to the line (factory setting 10 A).
- Fault stored in the memory even when failure of the 24 Vdc voltage occurs
- 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
- A 2-pole isolator on each of its channels
- An automatic or manual reset mode for the protection
- A diagnostic relay indicating that all channels are operational

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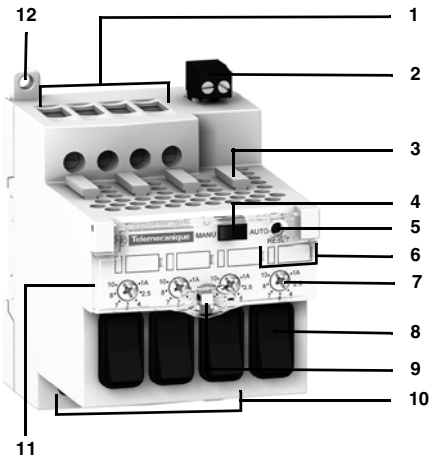

Description

2-pole downstream electronic Protection module

The front panel of the **ABL8PRP24100** four-channel downstream electronic Protection modules comprise:

1	8 AWG (10 mm^2) enclosed screw terminals for connection of the 24 Vdc voltage to be protected
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 plastic flap (sealable)
10	12 AWG (4 mm^2) enclosed screw terminals for connection of the four channels
11	Protective plastic flap
12	Retractable mounting lugs for panel mounting (DIN rail mounting also possible)

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Technical Characteristics

Type of Function module				Discriminating downstream electronic protection ABL8PRP24100
Certifications				CB scheme EN60950-1, UL (pending), cCSAus, CE, RoHS
Conformity to standards	Safety			EN60950-1, EN61204
	EMC			EN61000-6-2, EN61000-6-3
Input circuit				
Input values	Nominal voltage		**V**	24 to 28.8 Vdc
	Limit voltage		**V**	19 to 32 Vdc
	Input limit current		**A**	40
	Protection against reverse polarity			Yes
Output circuit				
Nominal output values	Voltage (U_{Out})		**V**	U_{In} - 0.3 Vdc
	Max. current (I_{Out})		**A**	10 per channel
	Rating		**A**	1/2.5/4/5/7/8/10 per channel
Number of channels				4
Protection	Against short circuits			Permanent, automatic or manual restart
	Against overloads			1.3 In
Isolation	Type			2-pole switch (+24 V and 0 V)
	Breaking capacity (fuse)			1000 A at 32 Vdc
Operating and environmental characteristics				
Connections	Input		**AWG (mm^2)**	20 to 8 (4 x 0.5 to 10)
	Output		**AWG (mm^2)**	20 to 12 (8 x 0.5 to 4)
	Diagnostic relay		**AWG (mm^2)**	14 (2.5)
Mounting	On DIN rail		**in (mm)**	1.38 x 0.30 and 1.38 x 0.59 (35 x 7.5 and 35 x 15)
Operating position				Mounted vertically
Degree of protection				IP 20 conforming to IEC 60529
Environment	Temperature	Operation	**°F (°C)**	-13 to 140 °F (-25 to +60 °C)
		Storage	**°F (°C)**	-40 to 185 °F (-40 to +85 °C)
	Relative humidity	Operation		90%
		Storage		95%
	Vibration according to EN 61131-2			3 to 11.9 Hz, amplitude 0.14 in (3.5 mm); 11.9 to 150 Hz, acceleration 2 g
Protection class according to VDE 0106 1				Class II
Diagnostics	Via LED			1 LED per channel Green: Channels operating Red: Overload Off: U_{In} < 19 V or switch open
	Via relay			Closed: Channels operating Open: If 1 channel faulted
Dielectric strength 50 Hz for 1 min	Input/output		**V rms**	No isolation
	Input/ground		**V rms**	500 Vac
	Output/ground		**V rms**	500 Vac
Emissions according to EN 61000-6-3	Conducted/radiated			EN 55022-Class B
Immunity according to EN 61000-6-2	Electrostatic discharge			IEC/EN 61000-4-2 (6 kV contact/8 kV air)
	Radiated electromagnetic fields			IEC/EN 61000-4-3 level 3 (10 V/m)
	Induced electromagnetic fields			IEC/EN 61000-4-6 level 3 (10 V/m)
	Rapid transients			IEC/EN 61000-4-4 level 3 (2 kV)
	Surges			IEC/EN 61000-4-5 level 2 (1 kV)

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ABL8PRP24100

Catalog Numbers

Function module: Discriminating downstream Protection

Function	Use	Designation	Catalog Numbers	Weight lb (kg)
Discriminating downstream protection	Electronic protection (1 to 10 A overload or short circuit) of four output terminals from a Phaseo Universal range power supply	Universal Protection module with 2-pole breaking [1] [2]	**ABL8PRP24100**	—

Replacement parts

Designation	Description	Composition	Catalog Numbers	Weight lb (kg)
Fuse assemblies	For **ABL8PRP24100** discriminating Protection modules	4 x 3 A, 4 x 7.5 A and 4 x 15 A	**ABL8FUS01**	—
Clip-on marker labels	**ABL8PRP24100**	Order in multiples of 22	**ASI20MACC5**	—

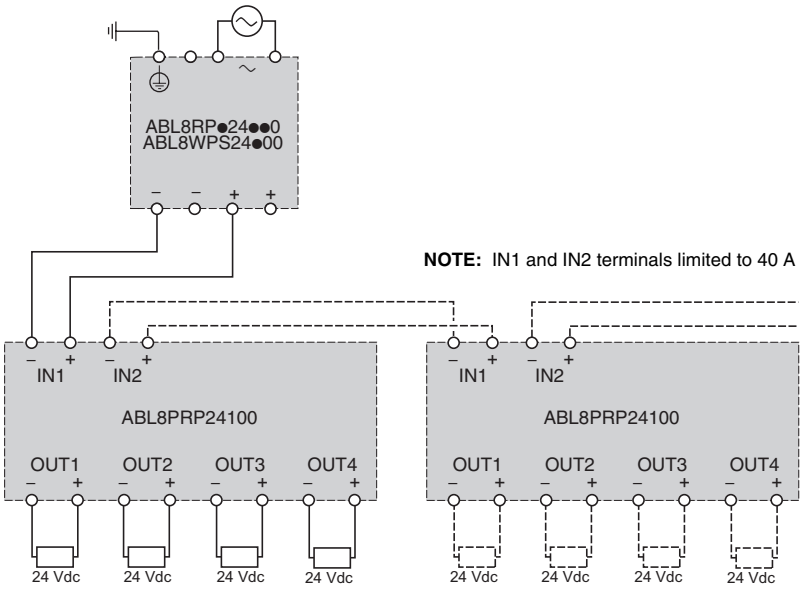
[1] Supplied with four 15 A fuses

[2] Local reset via pushbutton or automatic reset on elimination of the fault

CB Scheme EN60950-1, UL, cCSAus, CE, RoHS

Wiring Diagram

With ABL8PRP24100 downstream electronic Protection module



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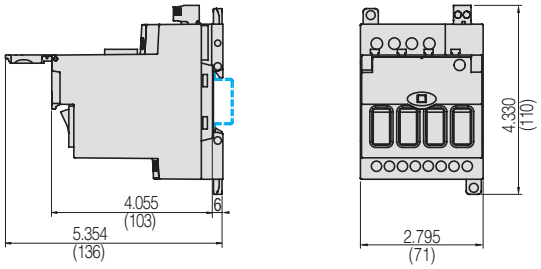
Approximate Dimensions

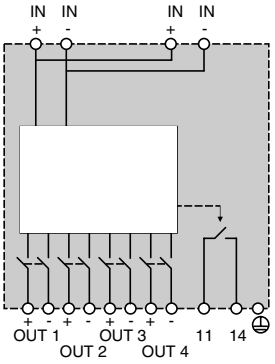
ABL8PRP24100 discriminating downstream electronic Protection module



in/(mm)

Wiring Diagram

ABL8PRP24100 downstream electronic Protection module (2-pole breaking)



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Product Description

ABL1REM / RPM Phaseo Dedicated range regulated switch mode power supplies are specially designed to provide the necessary DC voltage for electrical equipment operating on a safety extra low voltage (SELV). Categorized into two ranges, they meet the needs of standard commercial machines.

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

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

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

- A wide input voltage range from 85 to 264 Vac and 120 to 370 Vdc (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
- Conformity to standard EN 55022 class B
- UL 508, CSA and TÜV certification.
- Overload and short circuit protection
- Considerably reduced weight
- Identical mounting accessories for all models

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

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

Electromagnetic compatibility

Levels of conducted and radiated emissions are defined in standards EN 55011 and EN 55022.

The products in the ABL1 range are class B, the strictest level, and can be used without any restrictions due to their low emissions.

Behavior when short circuits occur

ABL1 power supplies are equipped with electronic and thermal overload protection. This protection resets itself automatically when the fault is removed, eliminating the need for the operator to take action or change a fuse.

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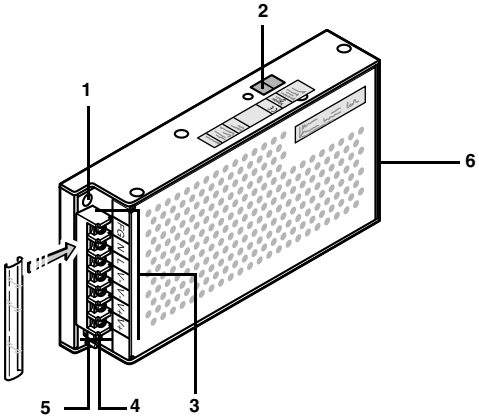

Description

ABL1REM / RPM regulated switch mode power supplies comprise:

1	Two mounting holes for M4 x 20 screws
2	A 115 / 230 V input voltage selector (on 150 W and 240 W versions only).
3	A 12 AWG (4 mm^2) screw clamp terminal block for connection of the AC input voltage and DC output voltage
4	A green LED indicating presence of the DC output voltage
5	An output voltage adjustment potentiometer (± 10%)
6	A removable, transparent, clip-on cover

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Technical characteristics

Type of power supply				ABL1REM					ABL1RPM			
				12050	24025	24042	24062	24100	12083	24042	24062	24100
Product certifications/markings				cULus 508, cCSAus, CSA 22.2 n° 60950-1, UL 60950-1, TÜV, CTick, RoHS, CE								
Conforming to standards	Safety			IEC/EN 60950-1, SELV								
	Generic EMC			EN 50081-1, IEC 61000-6-2 (EN 50082-2), IEC/EN 61000-6-3								
	Low frequency harmonic currents			–					IEC/EN 61000-3-2			
Input circuit												
LED indication				–								
Input voltages	Nominal voltage		V	100 to 240 Vac		100 to 120 Vac 200 to 240 Vac			100 to 240 Vac		100 to 120 Vac 200 to 240 Vac	
	Limit voltage	Vac	V	85 to 264 Vac		85 to 132/170 to 264 Vac			85 to 264 Vac		85 to 132/170 to 264 Vac	
		Vdc compatible	V	120 to 370 Vdc [1]		180 to 370 Vdc [1]			120 to 370 Vdc [1]		180 to 370 Vdc [1]	
	Current consumption	U_{In} = 240 V	A	1	0.7	2.5	3		0.7		2.5	3
		U_{In} = 100 V	A	2	1.4	5	6		1.7		5	6
	Permissable frequencies		Hz	47 to 63								
	Maximum inrush current		A	50								
	Power factor			0.65 approx.					0.7 to 0.95 approx. (depending on model)			
	Efficiency at nominal load			> 80%								
	Dissipated power at nominal load		W	15	25	37.5	60		25		37.5	60
Output circuit												
LED indication				Green LED								
Nominal output values	Voltage (U_{Out})		V	2 Vdc	24 Vdc				12 Vdc	24 Vdc		
	Current		A	5	2.5	4.2	6.2	10	8.3	4.2	6.2	10
	Power		W	60		100	150	240	100		150	240
Precision	Adjustable output voltage		V	10.8–13.2	21.6–26.4				10.8–13.2	21.6–26.4		
	Line and load regulation			± 3%								
	Residual ripple - noise		mV	< 200 (peak-peak)								
Holding time for I max.	U_{In} = 240 V		ms	⩾ 40								
	U_{In} =100 V		ms	⩾ 10								
Protection	Against shorts circuits			Permanent, automatic restart								
	Against overloads			1.1 to 1.5 In								
	Against undervoltages			U > 1.25 U_{Out}								
	Thermal			Yes (limiting operation above a temperature between 50 and 60 °C, depending on the load rating)								
Operating and environmental characteristics												
Connections	Input		AWG (mm^2)	12 (2 + ground) x 4								
	Output		AWG (mm^2)	12 (2 x 4)	12 (4 x 4)							
Mounting				On panel or on ABL1A01 reversible mounting bracket								
Operating position				All positions with derating								
Connections	Series			Possible (2 max.)								
	Parallel			Possible (2 max.)								
Degree of protection				IP 20, conforming to standard IEC/EN 60950 with clip-on cover over connection terminal block								
Overvoltage category				II								
Environment	Temperature	Operating	°F (°C)	32 to 140 derating from 113 °F (0 to + 60 derating from 45 °C)								
		Storage	°F (°C)	-13 to 185 °F (-25 to +85 °C)								
	Max. relative humidity			20 to 90%								
	Vibrations, per EN 61131-2			5 to 9 Hz, amplitude 0.14 in (3.5 mm); and 9 to 150 Hz, acceleration 2 g								
Protection class	According to VDE 0106 1			Class 1								
Degree of pollution				2								
Dielectric strength 50 and 60 Hz for 1 min	Input/output		V rms	3000 Vac								
	Input/ground		V rms	1500 Vac								
	Output/ground		V rms	500 Vac								
Input fuse incorporated				Yes (not interchangeable)								
Emissions according to EN 61000-6-3				IEC/EN 61000-6-3 (generic)								
	Conducted/radiated			IEC/EN 55011, IEC/EN 55022 class B								
Immunity according to EN 61000-6-2				IEC/EN 61000-6-2 (generic)								
	Electrostatic discharge			IEC/EN 61000-4-2 level 3 (4 kV contact/8 kV air)								
	Radiated electromagnetic fields			IEC/EN 61000-4-3 level 3 (10 V/m)								
	Induced electromagnetic fields			IEC/EN 61000-4-6 level 3 (10 V/m)								
	Rapid transients			IEC/EN 61000-4-4 level 3 (2 kV)								
	Surges			IEC/EN 61000-4-5								
	Conducted interference			IEC/EN 61000-4-8 level 4, IEC/EN 61000-4-12 level 3								
	Primary outage			Conforming to standard IEC/EN 61000-4-11(voltage dips and interruptions)								

[1] Not indicated on the products.

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Output characteristics

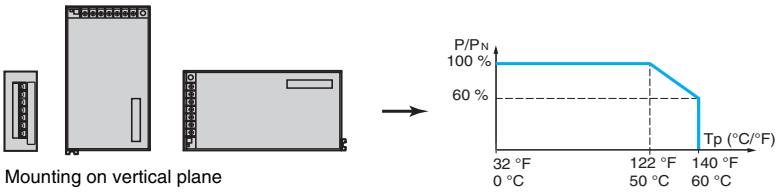
Derating

The ambient temperature is a determining factor which limits the power that an electronic power supply can deliver continuously. Excessively high temperatures around the electronic components significantly reduce their life.

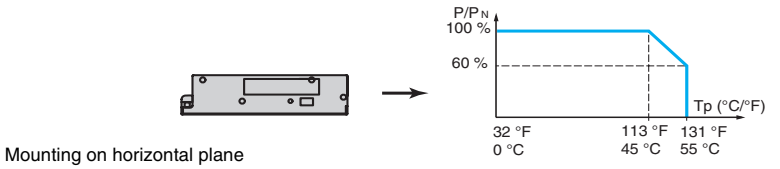
ABL1R●M24100 power supplies (240 W) are mechanically ventilated from an ambient temperature > 104 °F (40 °C) approx., or for a load rating > 90% approx.

The rated ambient temperature for **ABL1REM / 1RPM** power supplies is 122 °F (+50 °C). Above this, derating is necessary up to a maximum temperature of 140 °F (+60 °C).

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



Mounting on vertical plane



Mounting on horizontal plane

Extreme operating conditions

Derating should be considered in extreme operating conditions:

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

General rules to be complied with	
Intensive operation	See derating on above curves. Example for ABL1 mounted vertically: • Without derating, from 32 to 122 °F (0 to 50 °C) • Derating of nominal current by 4%, per additional °C, up to 60 °C
Rise in output voltage	The nominal power is fixed. Increasing the output voltage means that the current delivered will be reduced.
Parallel connection to increase the power	The total power is equal to the sum of the power supplies used, but the maximum ambient temperature for operation is 122 °F (50 °C). To improve heat dissipation, the power supplies must not be in contact with each other.

NOTE: See page 59 for a schematic drawing of the ABL1 Dedicated Range power supplies.

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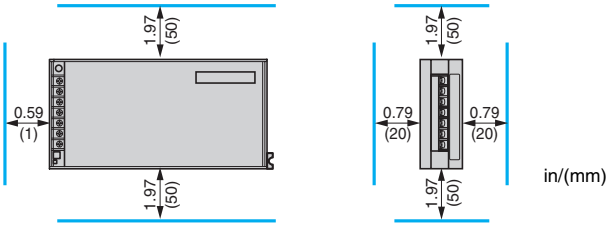
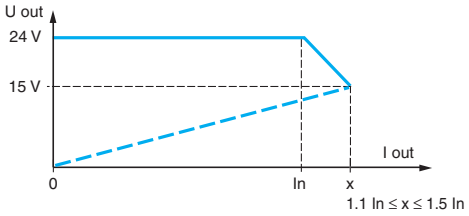
Output characteristics *(continued)*



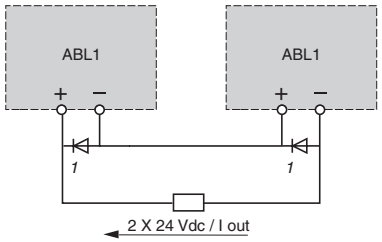
In all cases, there must be adequate convection round the products to ensure sufficient cooling. There must be a clear space of 1.97 in (50 mm) above and below the power supplies, and of 0.79 in (20 mm) at the sides.

Load limits

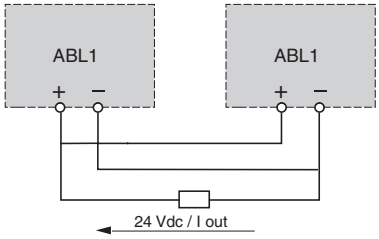


Series or parallel connection

Series connection



Parallel connection



[1] 8 A / 100 V Shottky diode for **ABL1REM12050 / 1REM24025 / 1R●M24042**
15 A /1 00 V Shottky diode for **ABL1RPM12083 / 1R●M24062 / 1R●M24100**

Selection of protection for the power supply primary

Type of mains supply:	115 Vac single-phase			230 Vac single-phase		
Type of protection (2 poles protected):	Thermal-magnetic supplementary breaker		gG fuse	Thermal-magnetic supplementary breaker		gG fuse
Power supply Catalog Numbers	GB2 (IEC)	C60N (IEC) C60N (UL)		GB2 (IEC)	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	17454	6 A
ABL1RPM24100	GB2DB08	24518	4 A	GB2DB10	17454	6 A

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109710

ABL1REM24025

109711

ABL1R●M24042

109712

ABL1R●M24062

109713

ABL1R●M24100

Catalog Numbers

Regulated switch mode power supplies: ABL1REM Phaseo Dedicated Range

Input voltage 47 to 63 Hz	Output voltage	Nominal power	Nominal current	Auto-protect reset	Conforming to standard IEC/EN 61000-3-2	Catalog Numbers	Weight lb (kg)
100 to 240 Vac [1] single-phase wide range	12 Vdc	60 W	5 A	Automatic	No	**ABL1REM12050**	0.970 (0.440)
	24 Vdc	60 W	2.5 A	Automatic	No	**ABL1REM24025**	0.970 (0.440
		100 W	4.2 A	Automatic	No	**ABL1REM24042**	1.410 (0.640)
100 to 120 Vac 200 to 240 Vac [2] single-phase	24 Vdc	150 W	6.2 A	Automatic	No	**ABL1REM24062**	1.609 (0.730)
		240 W	10 A	Automatic	No	**ABL1REM24100**	1.940 (0.880)

Regulated switch mode power supplies: ABL1RPM Phaseo Dedicated Range

Input voltage 47 to 63 Hz	Output voltage	Nominal power	Nominal current	Auto-protect reset	Conforming to standard IEC/EN 61000-3-2	Catalog Numbers	Weight lb (kg)
100 to 240 Vac [1] single-phase wide range	12 Vdc	100 W	8.3 A	Automatic	Yes	**ABL1RPM12083**	1.410 (0.640)
	24 Vdc	100 W	4.2 A	Automatic	Yes	**ABL1RPM24042**	1.410 (0.640)
100 to 120 Vac 200 to 240 Vac [2] single-phase	24 Vdc	150 W	6.2 A	Automatic	Yes	**ABL1RPM24062**	2.138 (0.970)
		240 W	10 A	Automatic	Yes	**ABL1RPM24100**	2.711 (1.230)

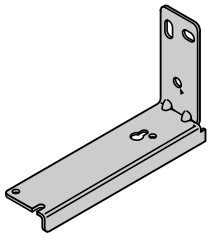
[1] Compatible input voltage 120 to 370 Vdc not indicated on the product.

[2] Compatible input voltage 180 to 370 Vdc not indicated on the product.

UL60950-1, UL Listed –File E164867 CCN NMTR and NMTR7, CSA 22.2n° 60950-1, cCSAus File 204701 Class 5311-07 and 5311-87, TÜV, CE, RoHS, CTick

Mounting accessories

Description	For power supplies	Sold in lots of	Catalog Numbers	Weight lb (kg)
Reversible mounting bracket	For mounting on the back of the cabinet of the **ABL1R●M●●●●●** power supply	5	**ABL1A01**	0.187 (0.085)
Clip-on mounting plate for 35 mm DIN rail mounting	**ABL1REM12050 / 24025**: plate-mounting on DIN rail requires one mounting plate **ABL1RPM12083** and **ABL1R●M24042 / 24062 / 24100**: plate-mounting on DIN rail requires 2 mounting plates **ABL1R●M●●●●●**: back-of-cabinet mounting on the DIN rail requires one mounting plate	5	**ABL1A02**	0.077 (0.035)

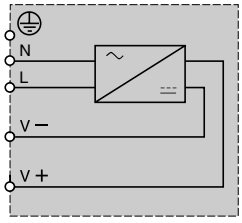


ABL1A01

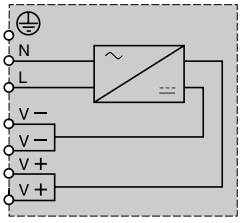
ABL1A02

Wiring Diagrams

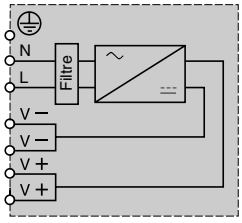
ABL1REM12050, ABL1REM24025



ABL1REM24042, ABL1REM24062, ABL1REM24100



ABL1RPM●●●●●



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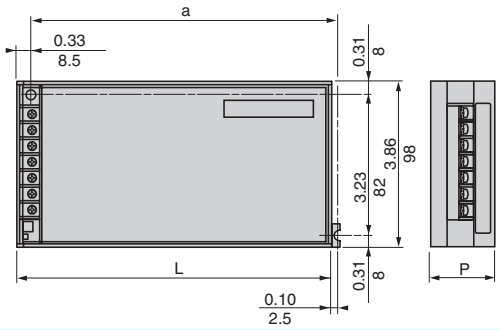
Approximate Dimensions

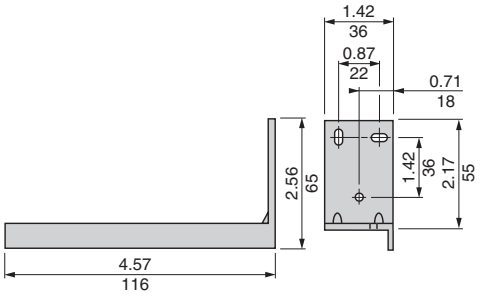
ABL1R●M●●●●●



ABL	L	P	a	b	c
1REM12050	5.91 (150)	1.5 (38)	5.67 (144)	1.5 (38)	2.28 (58)
1REM24025	5.91 (150)	1.5 (38)	5.67 (144)	1.5 (38)	2.28 (58)
1REM12083	7.87 (200)	1.5 (38)	7.64 (194)	1.5 (38)	2.28 (58)
1RPM24042	7.87 (200)	1.5 (38)	7.64 (194)	1.5 (38)	2.28 (58)
1RPM24062	7.87 (200)	1.97 (50)	7.64 (194)	1.10 (28)	1.89 (48)
1RPM24100	7.87 (200)	2.56 (65)	7.64 (194)	1.10 (28)	1.89 (48)

in/(mm)

ABL1A01



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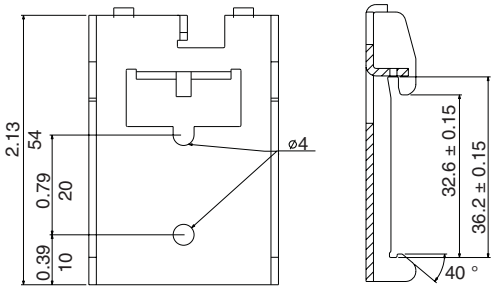
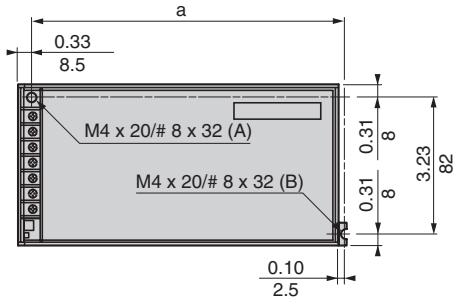


Mounting

ABL1R●M●●●●●

Direct mounting by 2 M4 x 20 screws



Back-of-cabinet mounting using the ABL1A01 reversible bracket with 3 ∅ 4 mm screws

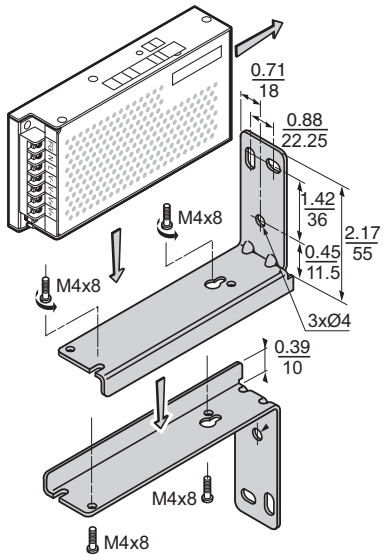
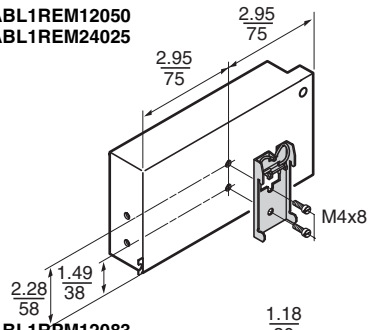
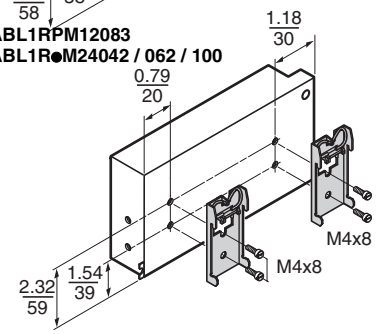


Plate-mounting using the ABL1A02 clip-on plate on a 35 mm DIN rail

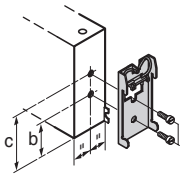
ABL1REM12050
ABL1REM24025



ABL1RPM12083
ABL1R●M24042 / 062 / 100



Mounting by the back ABL1R●M●●●●●:



Telemecanique

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Product Description

Power supplies for AS-Interface cabling system

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

ASIABLB3002

ASIABLB300●

Operating on a 100 to 240 Vac supply, this power supply delivers a voltage of 30 Vdc. Available in 2.4 and 4.8 A ratings, the outgoing terminal block allows the cable to be connected separately to the AS-Interface modules and to the AS-Interface master. Input and output LEDs permit rapid and continuous diagnosis of problems.

ASIABLD3004

ASIABLD300●

Operating on a 100 to 240 Vac supply, this power supply delivers a voltage of 30 Vdc. Available in 2.4 and 4.8 A ratings, it allows diagnosis and management of ground faults on AS-Interface modules. When a ground fault occurs, 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 ground fault LEDs permit rapid and continuous diagnosis of problems.

⚠ WARNING

HAZARD OF UNEXPECTED OUTPUT ACTUATION

The ground [1] connection must be made. When a disconnection occurs, the built-in detector becomes inoperative. To obtain ground connection diagnostics, it is recommended that an ASIABLB300● power supply be used together with insulation relay RMOPAS101.

Failure to follow this instruction can result in death or serious injury.

[1] Required connection.

ASIABLM3024

ASIABLM3024

Operating on a 100 to 240 Vac supply, this product provides two separate power supplies, which are totally independent in the way they operate.

Two output voltages are available:

- -30 V / 2.4 A (AS-Interface line supply)
- 24 V / 3 A

These make it possible to supply the control equipment without an additional power supply. Input and output LEDs permit rapid and continuous diagnosis of problems.

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Technical characteristics

Type of power supply			ASIABLB3002	ASIABLB3004	ASIABLD3002	ASIABLD3004	ASIABLM3024	
Functions			Supply to the AS-Interface line (30 Vdc)				30 Vdc supply	24 Vdc supply
Product certifications			UL 508, CSA 22-2 n° 950, TÜV 60950-1					
Conforming to standards	Safety		EN 60950-1					
	EMC		EN 50081-1, IEC 61000-6-2, EN 55022 class B					
	Low frequency harmonic currents		No					
Input circuit								
LED indication			Orange LED					
Input voltage	Rated values	**V**	100 to 240 Vac					
	Permissible values	**V**	85 to 264 Vac					
	Current consumption	**A**	0.5	1	0.5	1		
	Permissible frequencies	**Hz**	47 to 63					
	Current at switch-on	**A**	< 30					
	Power factor		0.65					
	Efficiency at nominal load	**%**	> 83				> 83	> 80
	Dissipated power at nominal load	**W**	14.7	29.5	14.7	29.5	14.7	36
Output circuit								
LED indication			Green LED					
Nominal output values	Voltage (U_{out})	**V**	30 (AS-Interface) Vdc				30	24
	Current	**A**	2.4	4.8	2.4	4.8	2.4	3
	Power	**W**	72	144	72	144	72	72
Precision	Adjustable output voltage	**V**	–				–	100 to 120%
	Line and load regulation		3%					
	Residual ripple - noise	**mV**	300 - 50					
Holding time for I max	U_{in} min	**ms**	⩾ 10					
Protection	Against short circuit		Permanent. Automatic restart after elimination of the fault					
	Against overload		1.1 In					
	Against overvoltage		Tripping if U > 1.2 Un				U > 1.2 Un	U > 1.5 Un
	Against undervoltage		Tripping if U < 0.95 Un				U < 0.95 Un	U < 0.8 Un
Operating characteristics								
Connections	Input	**AWG (mm^2)**	2 x 14 (2.5), screw terminals + ground					
	Output	**AWG (mm^2)**	2 x 14 (2.5), screw terminals + ground, multiple output					
Environment	Operating temperature	**°F (°C)**	32 to 140 derating from 122 °F (0 to +60 derating from 50 °C)					
	Storage temperature	**°F (°C)**	-13 to +158 °F (-25 to +70 °C)					
	Maximum relative humidity		95% (without condensation or dripping water)					
	Degree of protection		IP 20 (conforming to IEC 529)					
	Vibrations		EN 61131-2					
Operating position			Vertical					
Dielectric strength 50 Hz during 1 min	Input/output	**V rms**	3000 Vac					
	Input/ground	**V rms**	3000 Vac					
	Output/ground (and output/output)	**V rms**	500 Vac					
Input fuse incorporated			Yes (not interchangeable)					
Emission according to EN 61000-6-3	Conducted/radiated		Class B (conforming to EN 55022)					
Immunity according to EN 61000-6-2	Electrostatic discharge		EN 61000-4-2 (4 kV contact/8 kV air)					
	Radiated electromagnetic field		EN 61000-4-3 level 3 (10 V/m)					
	Induced electromagnetic field		EN 61000-4-6 (10 V/m)					
	Rapid transients		EN 61000-4-4 level 3 (2 kV),					
	Primary outages		EN 61000-4-11 (voltage dips and interruptions)					

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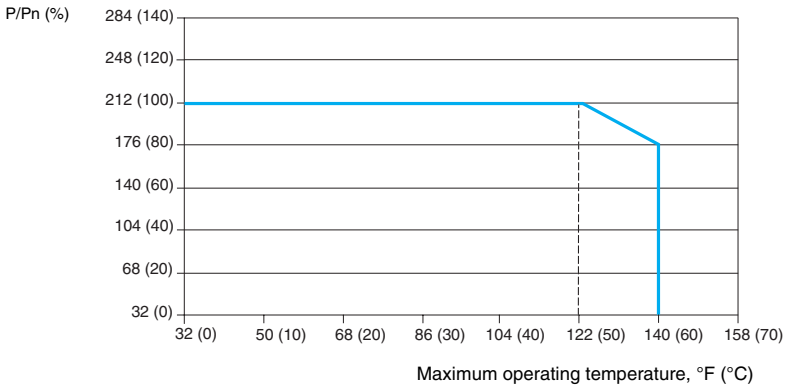
Output characteristics

Derating

The ambient temperature is a determining factor which limits the power that an electronic power supply can deliver continuously. Excessively high temperatures around the electronic components significantly reduce their life.

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



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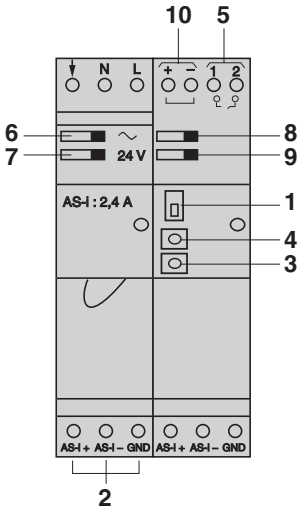
Selection

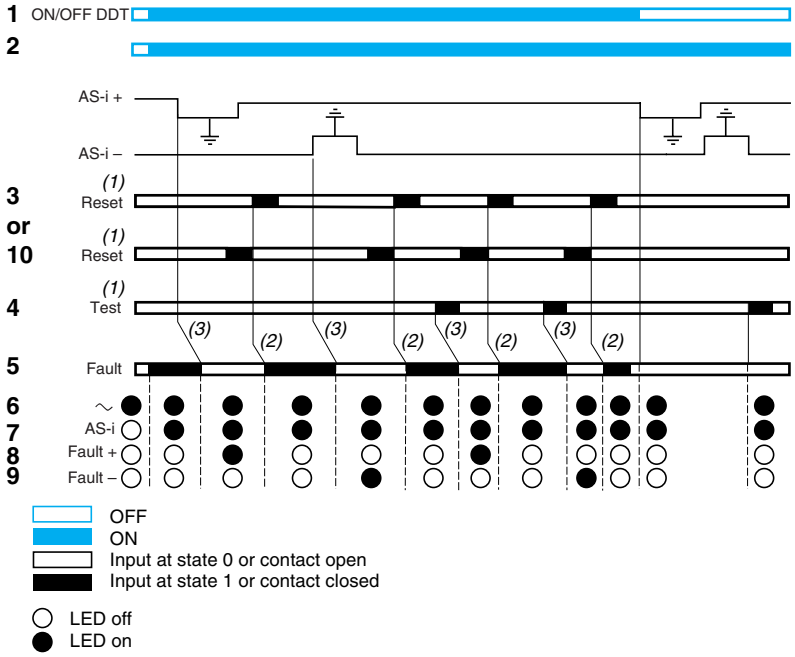
Upstream protection of power supplies for AS-Interface cabling system

Type of mains supply	115 Vac single-phase			230 Vac single-phase		
Type of protection	Thermal-magnetic supplementary breaker		Gg fuse	Thermal-magnetic supplementary breaker		Gg fuse
Single-pole	GB2CB●●					
2-pole	GB2DB●●	C60N		GB2DB●●	C60N	
ASIABLB3002	GB2●B07	MG24517 [1]	2 A	GB2DB06	MG24516 [1]	2 A
ASIABLB3004	GB2●B08	MG24518 [1]	4 A	GB2DB07	MG17453 [1]	2 A
ASIABLD3002	GB2●B07	MG24517 [1]	2 A	GB2DB06	MG24516 [1]	2 A
ASIABLD3004	GB2●B08	MG24518 [1]	4 A	GB2DB07	MG17453 [1]	2 A
ASIABLM3024	GB2●B07	MG24517 [1]	2 A	GB2DB06	MG17453 [1]	2 A

[1] UL certified circuit breaker.

Function diagram





(1) 30 ms min.

(2) 15 ms.

(3) 20 ms.

(4) Warning: the ground fault detector will only operate if the ground (GND) terminal is connected.

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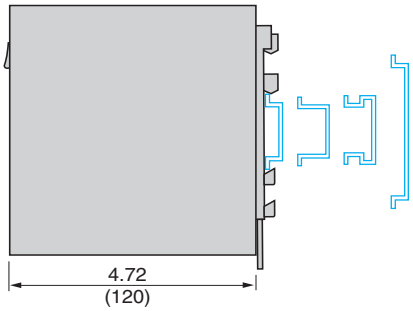
ASIABL●3002

Phaseo AS-Interface range regulated switch mode power supplies

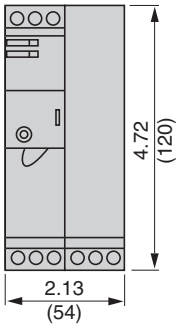
Input voltage	Secondary			Auto-protect reset	Ground fault detection	Catalog Numbers	Weight
	Output voltage	Nominal power	Nominal current				lb (kg)
Single phase (N-L1) **or 2-phase** (L1-L2)							
100 to 240 Vac - 15 %, + 10 % 50/60 Hz	30 Vdc	72 W	2.4 A	Auto	No	**ASIABLB3002**	1.76 (0.800)
		144 W	4.8 A	Auto	No	**ASIABLB3004**	2.87 (1.300)
		72 W	2.4 A	Auto	Yes	**ASIABLD3002**	1.76 (0.800)
		144 W	4.8 A	Auto	Yes	**ASIABLD3004**	2.87 (1.300)
	30 Vdc	72 W	2.4 A	Auto	No	**ASIABLM3024**	1.76 (1.300)
	24 Vdc	72 W	3.A				

Approximate Dimensions

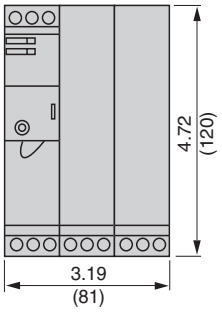
Common side view
Mounting on DIN 1.38 to 2.95 in (35 to 75 mm)



ASIABLB3002
ASIABLD3002

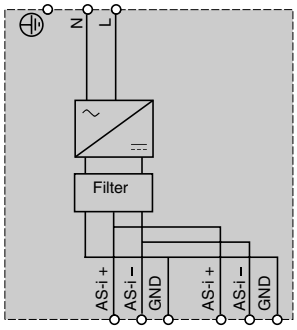


ASIABLB3004 / ABLD3004
ASIABLM3024

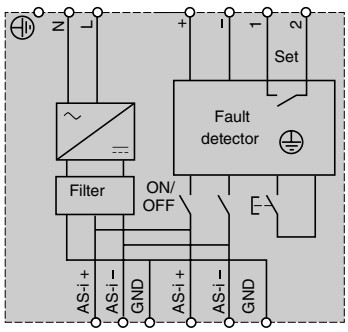


Wiring Diagrams

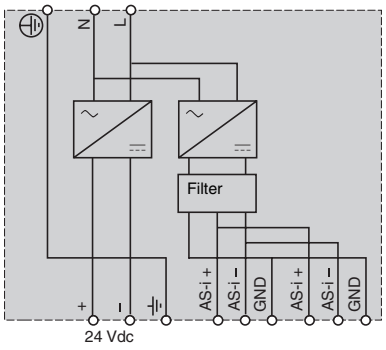
ASIABLB300●



ASIABLD300●



ASIABLM3024



UL Listed–File E164867 CCN NMTR

CSA–File 204701 Class 5311-03

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ABL1A01	60
ABL1A02	32, 44, 60
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ABL1REM24042	60
ABL1REM24062	60
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