



wieland

wipos PBS1

wipos PBS1 12-2 | PBS1 24-0.42 | PBS1 24-1.25 | PBS1 24-2.5 |
PBS1 24-4.2

1-phase Power Supplies „Building line“

Instruction manual

Dok.-Nr BA001430

Release: 07/2026 (Rev. A)

NOTE

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1 TECHNICAL DATA

		PBS1 24-0,42	PBS1 12-2 PBS1 24-1.25	PBS1 24-2.5	PBS1 24-4.2
Input					
Input voltage range (operating voltage)	V _{AC}	85 – 264 V _{AC} 120–373 V _{DC} ⁽¹⁾			
Input surge voltage	V _{AC}	Withstands 300 V _{AC} for 5 s			
Input frequency	Hz	47 – 63			
Input current (110/230V _{AC})	A	0.18 / 0.12	0.6 / 0.4	1.2 / 0.8	2.0 / 1.1
Inrush current at 230 V _{AC} (Cold start)	A	40	50	60	60
Leckstrom	-	Not applicable			
Power Factor (110/230V _{AC})	-	0.56 / 0.42	0.6 / 0.4	0.5 / 0.43	0.5 / 0.43
Harmonic Compliance	-	Meets EN61000-3-2 Class A			
No Load Power consumption	W	< 0,3	< 0,3	< 0,5	< 0,5
Hold up time (typ) 115V _{AC} Input	ms	20	20	20	15
Average efficiency (230V _{AC}) ⁽²⁾	%	76.8	83.6	>87	87
Immunity	-	See immunity table			
Insulation class	-	Construction suitable for class II installation			
Certifications and markings of the safety authority	-	IEC/UL/CSA/EN 62368-1, 60950-1, UL508 Listed, UL1310 Class 2 ⁽³⁾ , CE-Brand			

Immunity

Test	Standard	Test level	Criteria	Notes
ESD	EN61000-4-2	3	A	8-kV-Air discharge
Susceptibility to radiation	EN61000-4-3	3	A	
Electric fast, transient burst	EN61000-4-4	4	A	
Surge	EN61000-4-5	3	A	
Susceptibility performed	EN61000-4-6	3	A	
Magnetic Fields	EN61000-4-8	4	A	
Voltage drops and input interruptions	EN61000-4-11 Class 3 Industrial operation	0 % for 1 Cycle	A	
		40 % for 10/12 Cycles	B	
		70 % for 25/30 Cycles	B	
		80 % for 250/300 Cycles	B	
SEMI F47 Line dip	SEMI F47			> 200 V _{AC} Input

Technical Data (cont.)

Model		PBS1 24-0,42	PBS1 12-2 PBS1 24-1.25	PBS1 24-2.5	PBS1 24-4.2
Output					
Output Voltage Range	V _{DC}	See model selector			
Switching frequency (230 V _{AC} 100% load)	kHz	~103,6	96.9 – 103.8	87 – 94	84.4 95.5
Line regulation	mV	12 – 15 V Outputs: 120; 24 V Output: 240			
Load control	mV	12 – 15 V Outputs: 120; 24 V Output: 240			
Ripple & Noise (max) (Typ)	mV	12 – 15 V Outputs: 120; 24 V Output: 240			
Temperature coefficient	%/°C	<±0,02			
Min. load	-	No minimum load required			
Overcurrent protection	%	>105 Hiccup-Mode with automatic recovery			
Surge protection	V	24 V Outputs: 29-35; 12 V Outputs: 16-19			
Indicators & Signals	-	The green LED indicates that DC Out is OK			
Parallel operation	-	Not available			
Series operation	-	Possible, see installation manual			
Ambient conditions					
Operating Temperature (-25°C Start)	°C	PBS1 24-0.42, PBS1 12-2, PBS1 24-1.25, PBS1 24-2.5: -20 bis +71 Full Load at +55°C; (linearly reduced to 60 % load at +71°C) PBS1 24-4.2: -20 bis +71°C. 115V _{AC} ~240V _{AC} : Full Load at +51°C; (linearly reduced to 60% load at +71°C) 100V _{AC} ~115V _{AC} : Full Load at +40°C; (linearly reduced to 40% load at +71 °C)			
Storage temperature	°C	-40 to +85			
Operating humidity (non-condensing)	%RH	5 - 95 (Operations & Storage)			
Cooling		Convection			
Height	m	3.000			
Endure Tension (1 minute)	V _{AC}	Input to Exit 3k			
Insulation resistance	MΩ	>100 at 25°C, 70 % relative humidity and 500V _{DC}			
Vibration (Operations)	-	IEC 60068-2-6, Sine wave, 10-500Hz, 19,6 m/s² (2G-spike) 10 minutes per cycle, 60 minutes for all X, Y and Z directions			
Shock	-	IEC 60068-2-27, half sine wave, 39,2 m/s² (4G) with a duration of 22 ms 3 shock absorbers for each 3 directions, a total of 9 times			
Miscellaneous					
Weight (Max)	g	65	120	200	280
Size (WxHxD)	Mm	18 x 90 x 55,6	36 x 90 x 55,6	54 x 90 x 55,6	72 x 90 x 55,6
Size (WxHxD)	Inches	0,71 x 3,58 x 2,19	1,42 x 3,58 x 2,19	2,13 x 3,58 x 2,19	2,83 x 3,58 x 2,19
Housing material	-		Flame retardant Polycarbonat (UL94 V-0)		
DIN-Rail Type	-		Suitable for mounting on TS-35/7.5 or TS35/15 DIN rails		
MTBF – Telcordia SR-332 Release 3 ⁽⁴⁾	Hours	1,401,366	704,390	369,824	437,110
Warranty	years		2		

Notes

- (1) Safety certified for AC inputs only
- (2) Measured at 25%, 50%, 75% and 100% load conditions
- (3) NEC Class 2 according to UL1310. Excluded is the wipos PBS1 24-4.2 model
- (4) 24V Output Model, 55°C Environment, Full Load, 230VAC Input

2 MODEL SELECTOR

Part Number	Type	Output-Voltage	Adjustment range	Output Power	Output current	Efficiency (115/230 V AC)
81.000.1200.0	WIPOS PBS1 12-2	12 V DC	12–15 V DC	25,2 W	2.1 A	87/88 %
81.000.1210.0	WIPOS PBS1 24-0,42	24 V DC	-	10 W	0,42 A	87/87 %
81.000.1211.0	WIPOS PBS1 24-1.25	24 V DC	24–28 V DC	30 W	1.25 A	88/90 %
81.000.1212.0	WIPOS PBS1 24-2.5	24 V DC	24–28 V DC	60 W	2.5 A	89/90 %
81.000.1214.0	WIPOS PBS1 24-4.2	24 V DC	24–28 V DC	100 W	4.2 A	88/90 %

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3 ABOUT THIS MANUAL

Please read this chapter carefully before using the user manual and the wipos power supply.

3.1 Function of this document

This user manual for the wipos power supplies describes the devices and their functions.

3.2 Scope and revision status

This installation manual applies to the wipos power supplies mentioned in this manual. The installation instructions for the product can be downloaded from the Wieland electronic catalogue. Be sure to always read the latest version information in this installation guide. The version and the revision status are indicated on the title page and in the footer.

3.3 Target group

The target group of this manual are planners, technicians and employees from assembly and service departments who plan and implement a remote control or remote maintenance solution.

3.4 Function and structure of this manual

This installation manual provides technical personnel with information on the installation, operation and diagnosis of wipos power supplies.

Chapter 2, "Safety instructions", p. 5, contains the basic safety instructions. Read these instructions carefully and follow them.

NOTE

You can also find more information on our website: <https://eshop.wieland-electric.com>.

3.5 Symbols and labels



DANGER

The symbol "DANGER" indicates an imminent danger. Failure to observe this symbol can lead to serious injury or death.

"HAZARD" is used to indicate hazards that already exist at the time of the warning (e.g., hot surfaces, sharp edges, pinch spots, etc.). This symbol is only used if there is a risk of injury!



WARNING

The "WARNING" symbol indicates a potential danger. Failure to observe this symbol can lead to serious injuries.



CAUTION

The "CAUTION" symbol indicates a potential danger. Failure to observe this symbol can lead to minor injuries.

NOTE

Notes on special features of the device.

The instructions indicate a potentially dangerous situation. Failure to observe this symbol may result in damage to the system or the system environment.

4 SAFETY INSTRUCTIONS

This chapter describes the safety instructions for you and the operators of the equipment. Please read this chapter carefully before working with a wipos switching power supply.



General safety instructions

- All persons who install and commission wipos switched-mode power supplies must have read and understood this manual.
- These individuals must be familiar with all the warnings, instructions, and requirements mentioned in this manual.
- The applicable local safety, protection and installation regulations must be observed.
- The user is solely responsible for selecting the correct product and technical execution in accordance with the relevant local regulations.

4.1 Qualified personnel

The installation, configuration for the operation, commissioning and maintenance of wipos switched-mode power supplies may only be carried out by qualified personnel.

Qualified persons:

- have completed appropriate technical training and
- have access to the installation instructions for the wipos switching power supply and have read and understood them.

4.2 Intended use

Please refer to the following instructions:

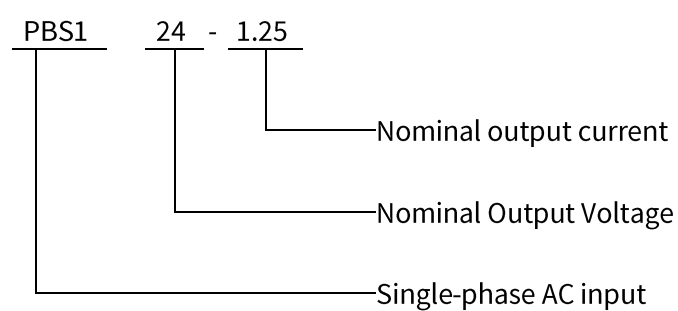
- The power supply may only be used in accordance with applicable international and national regulations and in compliance with any specific restrictions for specific applications and environments.
- To prevent injury and damage to the device and to ensure that all relevant regulations are followed, only original accessories may be used. Unauthorized modifications or the use of unauthorized accessories may damage the power adapter. Unauthorized modifications or the use of unauthorized accessories may void the warranty.
- Do not open the power adapter.
- The maximum permissible voltage at the power supply connection must not be exceeded.
- Do not expose the power supply to extreme environmental conditions. Protect the power supply from dust, moisture, and high temperatures.

Any other use or modification of the device – even during assembly and installation – will void the warranty by Wieland Electric GmbH.

5 DECLARATION OF CONFORMITY

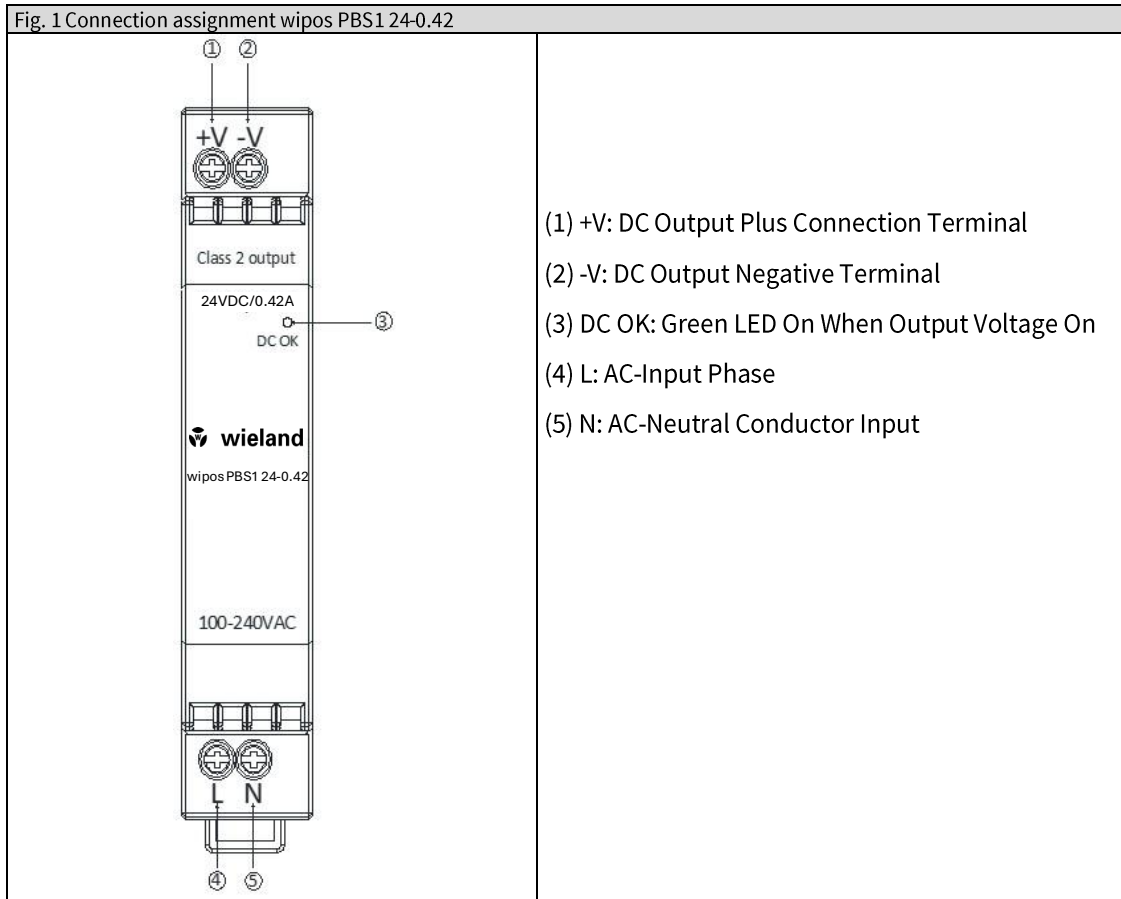
		wieland				Wieland Electric GmbH Brennerstraße 10-14, 96052 Bamberg, Deutschland Telefon: +49 951 9324 0 E-Mail: info@wieland-electric.com					
This declaration of conformity complies with the European standard EN 45014 "General criteria for declarations of conformity of suppliers". We declare in our sole responsibility that the device included in this box has successfully passed all manufacturing tests and final testing and complies with the product requirements, including all reference codes and delivery specifications.											
ROHS-Compliance: The product meets the requirements of the EU Directive on the Restriction of the Use of Certain Hazardous Substances (RoHS) according to document 2011/65/EU.											
REACH-Compliance: The product meets the requirements of the EU REACH Regulation on Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006.											
Note: All information provided comes from our suppliers. Wieland Electric GmbH has not carried out its own tests to check whether the substances mentioned are actually contained.											
Code											
wipos PBS1 12-2		1-phase switching power supply, input 85-264 V AC / output 12 V DC – 2 A									
wipos PBS1 24-0.42		1-phase switching power supply, input 85-264 V AC / output 24 V DC – 0.42 A									
wipos PBS1 24-1.25		1-phase switching power supply, input 85-264 V AC / output 24 V DC – 1.25 A									
wipos PBS1 24-2.5		1-phase switching power supply, input 85-264 V AC / output 24 V DC – 2.5 A									
wipos PBS1 24-4.2		1-phase switching power supply, input 85-264 V AC / output 24 V DC – 4.2 A									
Certifications and approvals											
Reference standards		2014/35/EU (Low Voltage Directive) 2014/30/EU (EMV-Policy) IEC 62368-1 (Safety standard) UL508 listed UL1310 Class2 - EN 61000-4-2 (Test of immunity to the discharge of static electricity) - EN 61000-4-3 (Testing of immunity to high-frequency electromagnetic fields) - EN 61000-4-4 (Test of immunity to fast transient electrical disturbances/burst) - EN 61000-4-5 (Test of immunity to surge voltages) - EN 61000-4-6 (Immunity to conducted disturbances induced by high-frequency fields) - EN 61000-4-8 (Testing of immunity to magnetic fields with energy-related frequencies) - EN 61000-4-11 (Immunity tests against voltage dips, short-term interruptions and voltage fluctuations) SEMI F47 Line DIP									

6 TYPE DESIGNATION



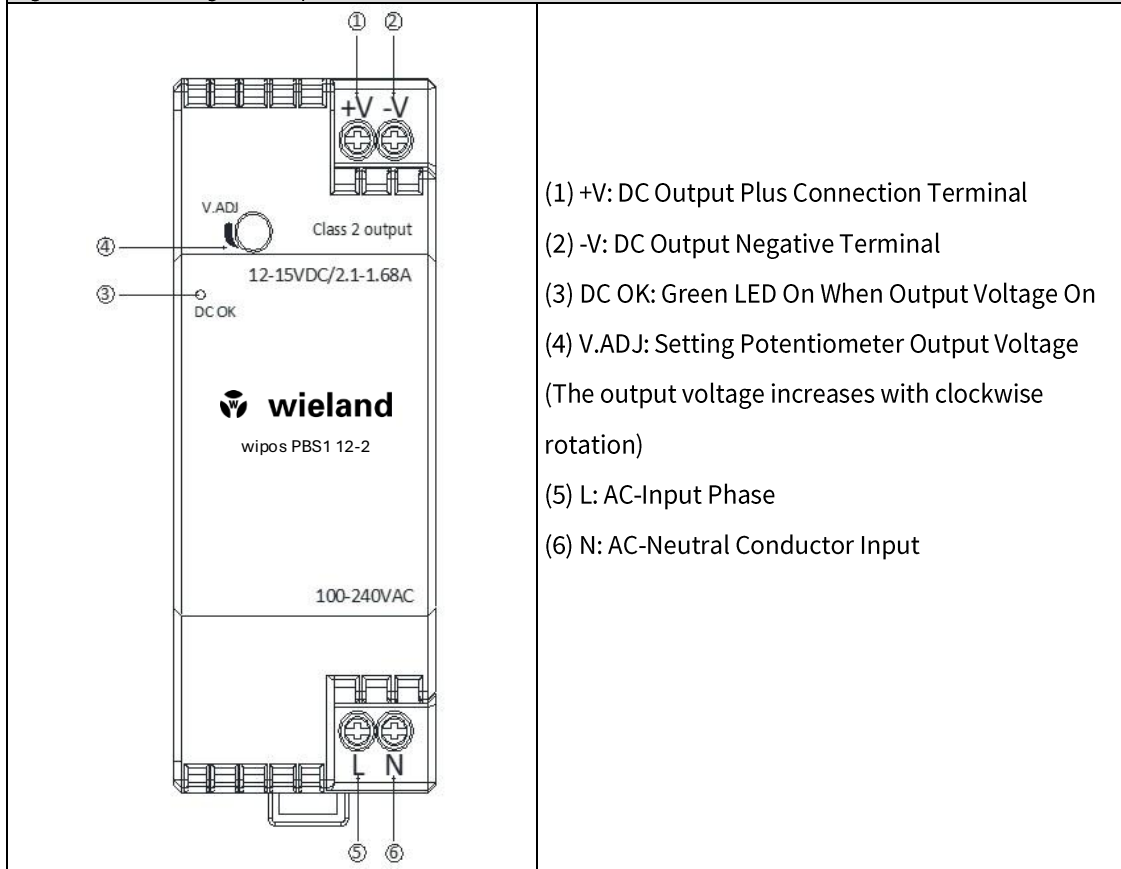
7 CONNECTION DESCRIPTION

7.1 wipos PBS1 24-0.42

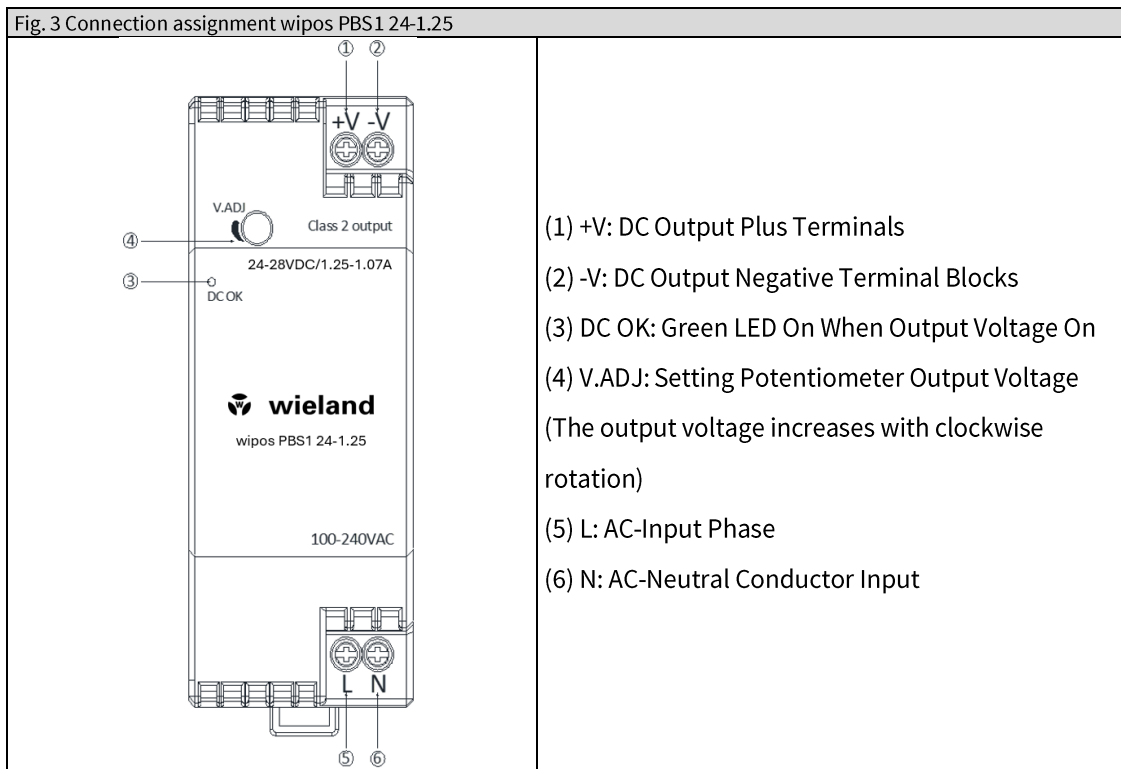


7.2 wipos PBS1 12-2

Fig. 2 Connection assignment wipos PBS1 12-2

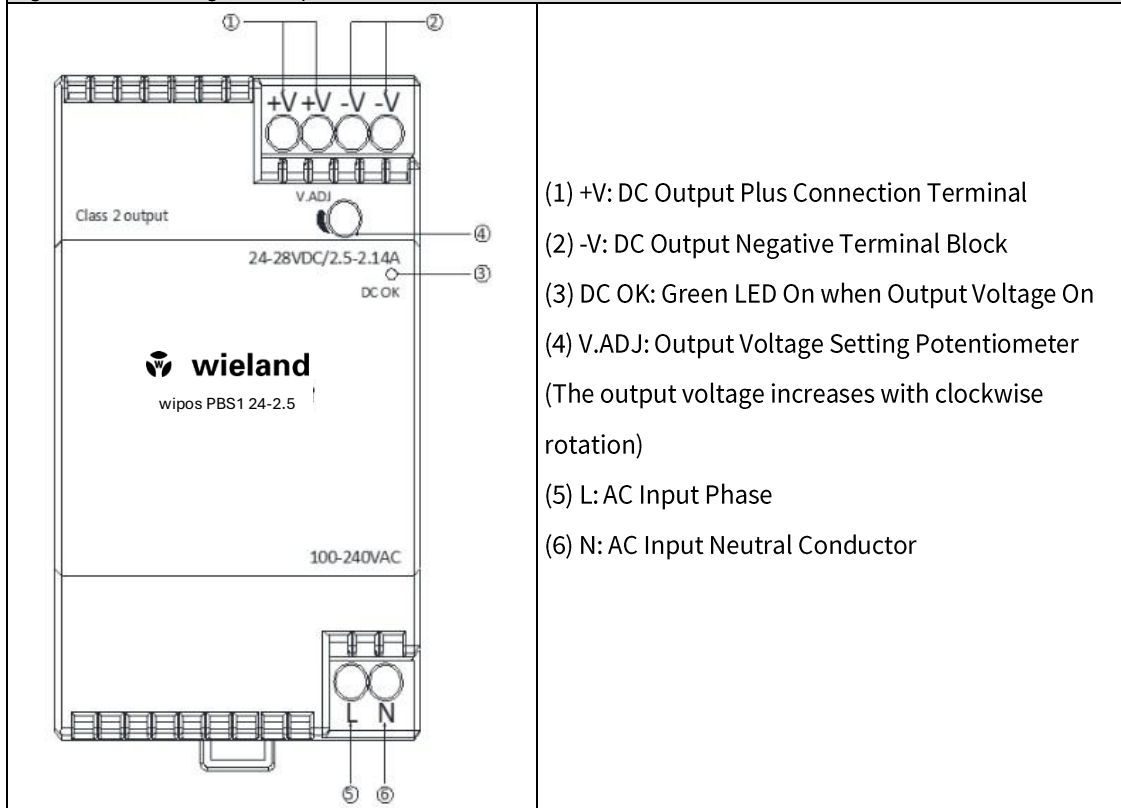


7.3 wipos PBS1 24-1.25



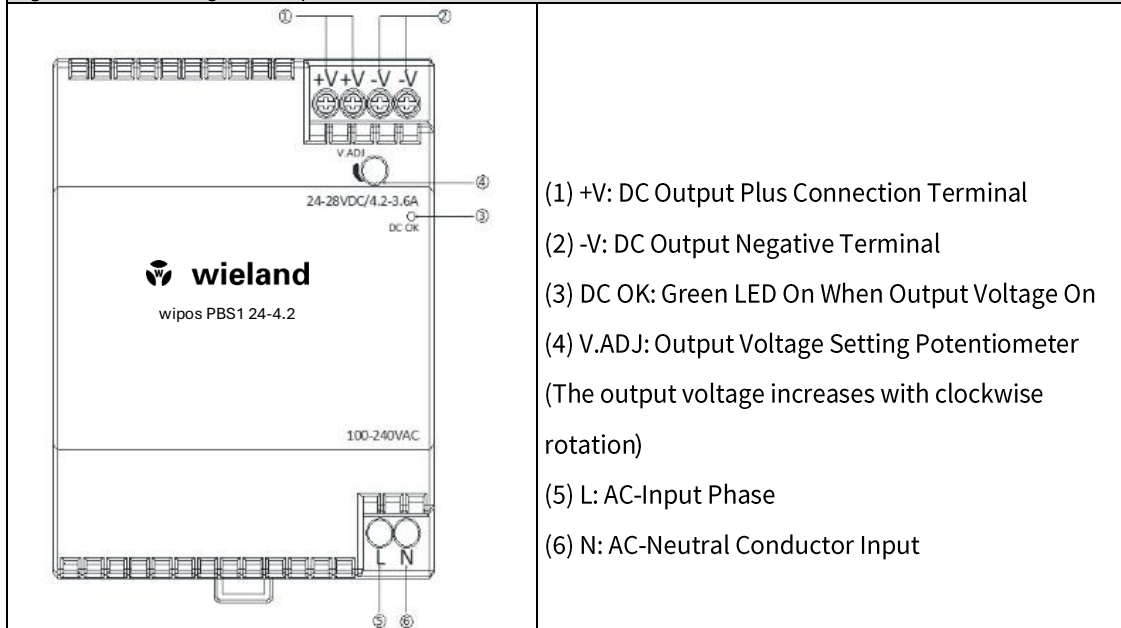
7.4 wipos PBS1 24-2.5

Fig. 4 Connection assignment wipos PBS1 24-2.5



7.5 wipos PBS1 24-4.2

Fig. 4 Connection assignment wipos PBS1 24-4.2

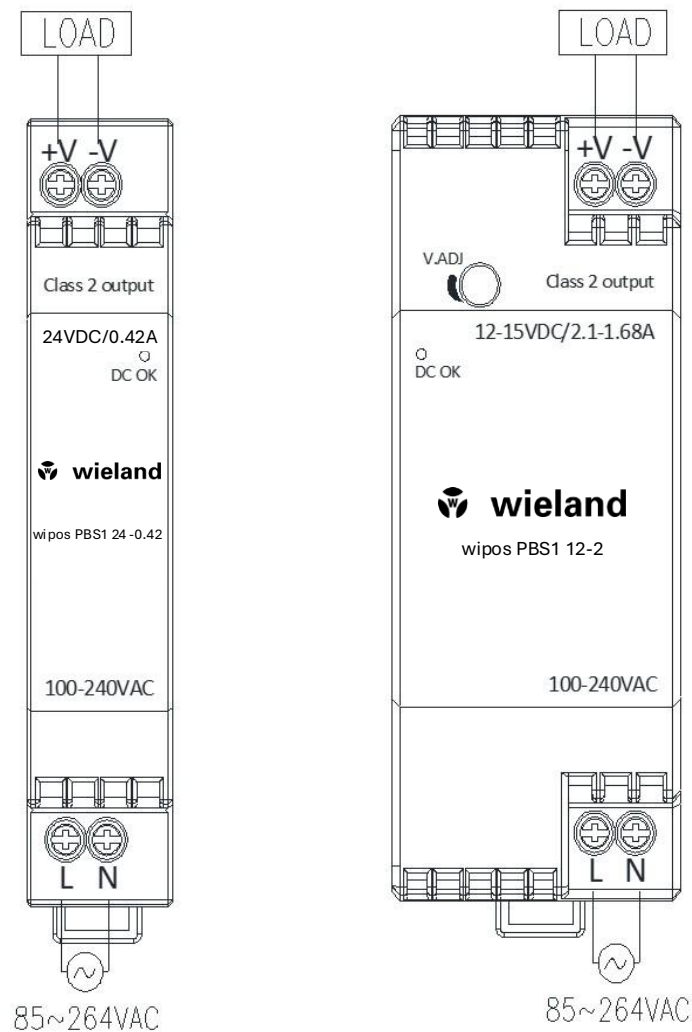


8 TERMINAL CONNECTIONS

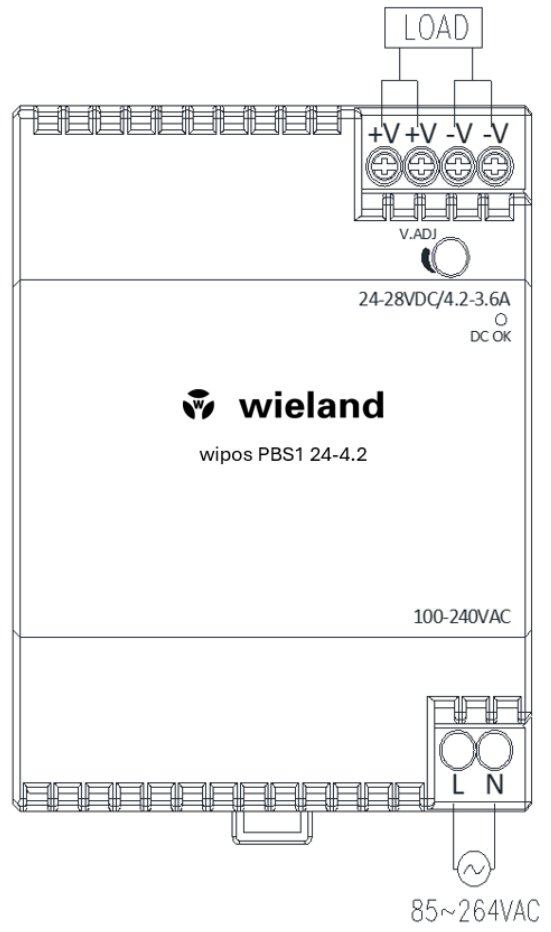
Make sure that the input is wired correctly. If connected incorrectly, the power supply will be damaged.

- The input voltage must be turned off when connected.
- Input and output lines should be twisted and separated to improve immunity.

The connection of input and output may only be made in the load-free state.



Terminal Connections



9 FUNCTIONAL DESCRIPTION AND ELECTRICAL CHARACTERISTICS

9.1 Input voltage range

The input voltage range is single-phase 85–264 V AC (47–63 Hz) (not safety compliant). For applications that require compliance with various safety standards (UL, CSA, EN), the input voltage range is 100-240 V AC (50/60 Hz). The power supply is designed for a voltage surge of 300 V AC for 5 seconds of operation. An input voltage out of specification can damage the device.

9.2 Output voltage range

The output voltage is set to the nominal value at the time of delivery. The output voltage of the wipos PBS1 24-0.42 cannot be adjusted. The V.ADJ trimmer on the front panel allows the output voltage to be adjusted within the specified range (see Adjustment Range Specifications).

Turning the trimmer clockwise increases the output voltage. Note that if the output voltage is too high, the surge protector (OVP) may trip and shut off the output voltage. Also, when increasing the output voltage, reduce the output current so as not to exceed the maximum output power.

9.3 Inrush current

This series uses power thermistors to protect the circuit from inrush currents. In case of high temperatures and renewed power, please select the input switch and fuse carefully.

9.4 Dielectric strength (OVP)

The surge protection function (OVP) (inverter shutdown, manual reset) is present. The original packaging works within a defined range (see specification). To reset the original packaging, disconnect the power supply for a few minutes and then plug it back in. The OVP value is fixed and cannot be set externally. Never apply an output voltage higher than the rated voltage to the output, as this can cause damage. In the case of inductive load, a protection diode must be connected in series to the output line.

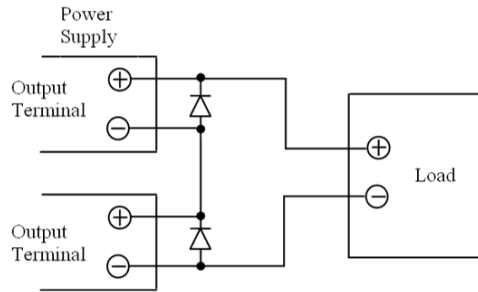
9.5 Overcurrent protection (OCP)

Hiccup mode with automatic recovery. The OCP function is activated when the output current exceeds the OCP specification. The output is automatically restored once the overload is resolved. Overload or short-circuit conditions must not last longer than 30 seconds, as this can lead to damage or insulation failures. Due to internal protection functions, an output short circuit causes a hiccup mode or latch-up function on the wipos PBS1 24-0.42, wipos PBS1 24-1.25 and wipos PBS1 12-2 and a hiccup mode on the wipos PBS 24-2.5 and wipos PBS1 24-4.2.

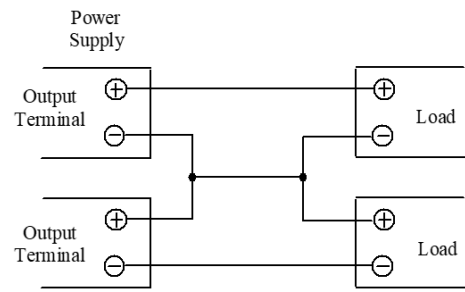
9.6 Series connection

For series operation, either method (A) or (B) is possible.

Method (A)

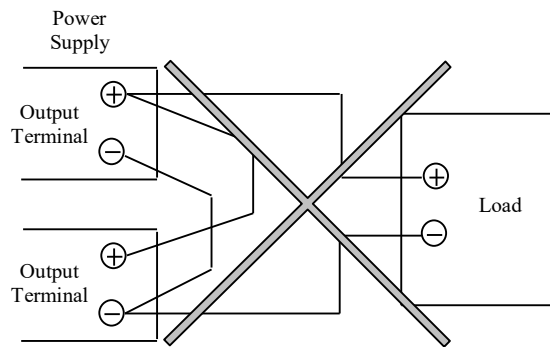


Method (B)



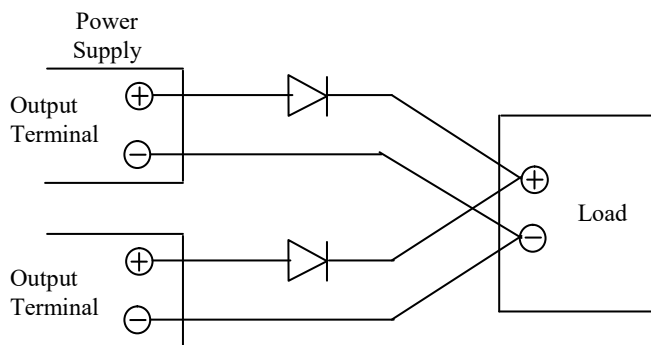
9.7 Parallel connection

(A) It is not possible to increase the output current.



(B) For use as a backup supply

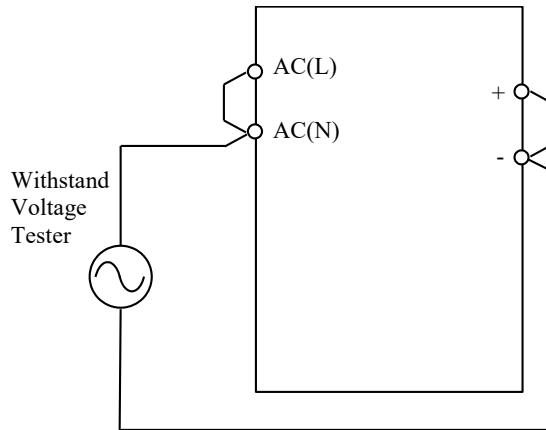
1. Increase the output voltage of the power supply by the forward direction (VF) voltage drop of the diode.
2. Set the output voltage of all power supplies to the same value.
3. Adhere to the specifications for output voltage and output power.



9.8 Dielectric strength

This series is designed to withstand a voltage of 3.0 kV AC between input and output for a period of one minute. When testing the dielectric strength, set the current limit of the tester to 20 mA. The applied voltage must be gradually increased from zero to the test value and then gradually reduced again to switch off. When using a timer, the power supply may be damaged by high impulse voltages when the clock is turned on or off. Connect input and output as follows.

Input ~ Output: 3kVAC 1min. (20mA)



9.9 Class 2 power source with limited power

UL1310 Class 2 Approved Models:

wipos PBS1 24-0.42

wipos PBS1 12-2

wipos PBS1 24-1.25

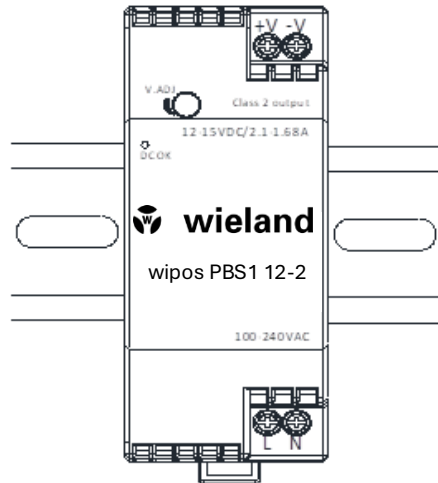
wipos PBS1 24-2.5

10 INSTALLATION POSITIONS

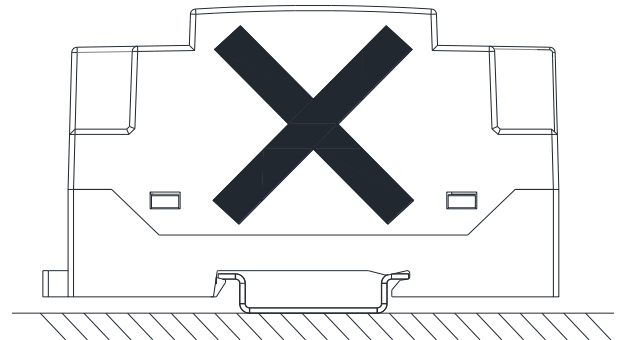
10.1 Installation Positions

The recommended standard mounting method is (A). Please do not use the assembly method (B). Please refer to the information below on derating. Do not exceed the permissible load limits. Keep the vents at the top and bottom clear, leaving ample space for cooling. For special applications, please contact your responsible sales partner regarding the installation situation.

Normal installation (A)



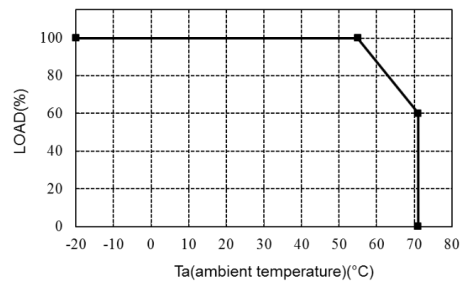
Rear mounting (B)



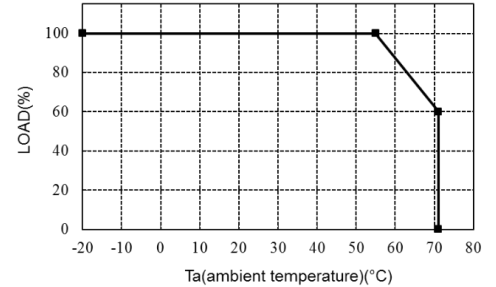
10.2 Output Power Reduction (Derating)

(Ta: measured at a distance of 50 mm or less below the device)

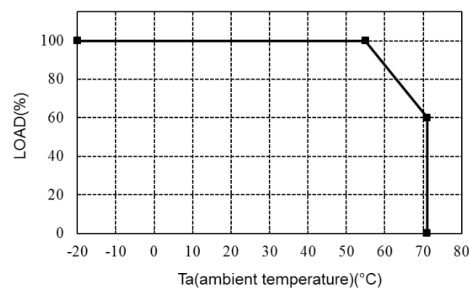
wipos PBS1 24-0.42



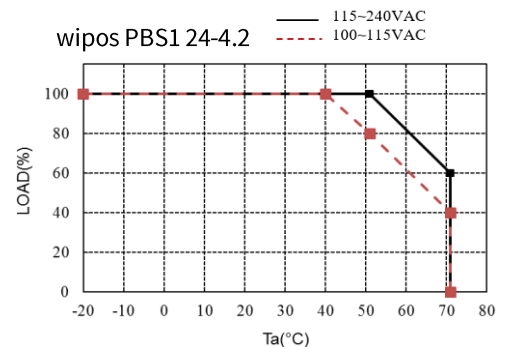
wipos PBS1 24-2.5



wipos PBS1 24-1.25 | PBS 12-2



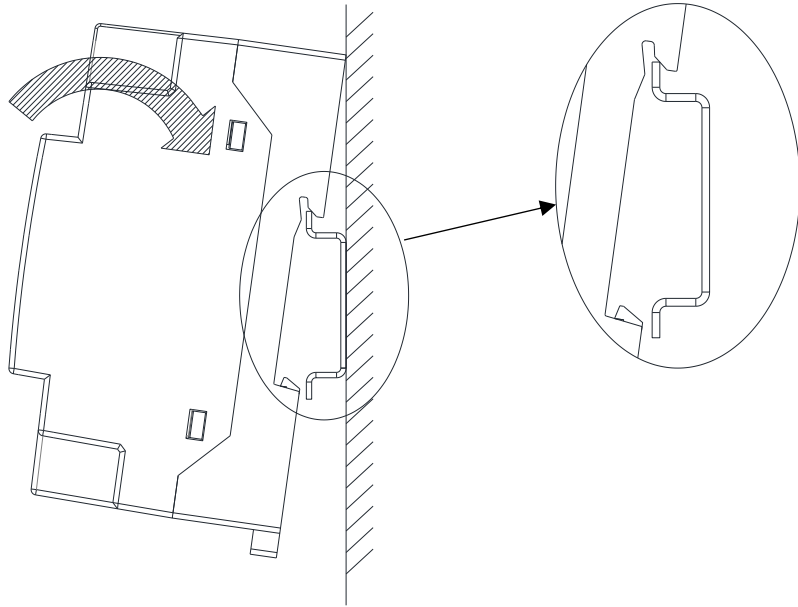
wipos PBS1 24-4.2



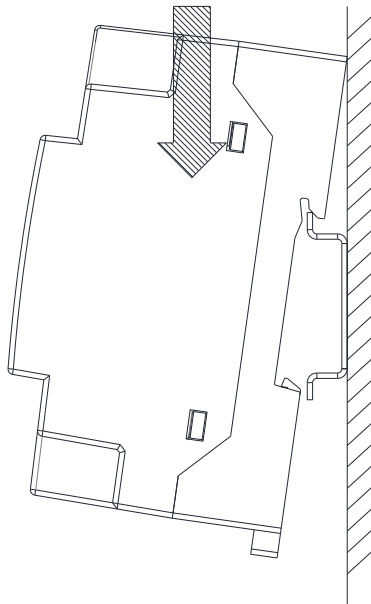
10.3 Mounting of the power supply on the DIN rail (TS35 or comparable)

Make sure the input and output lines are disconnected when mounting the power supply on the rail.

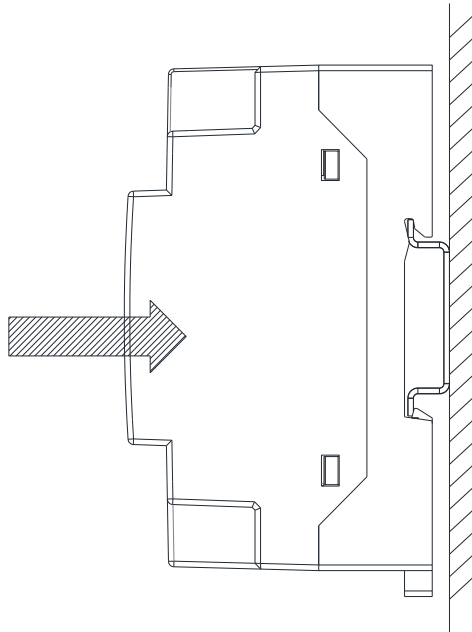
(1) Tilt the device slightly backwards and place it on the DIN rail.



(2) Slide it down until it rests against the stop.

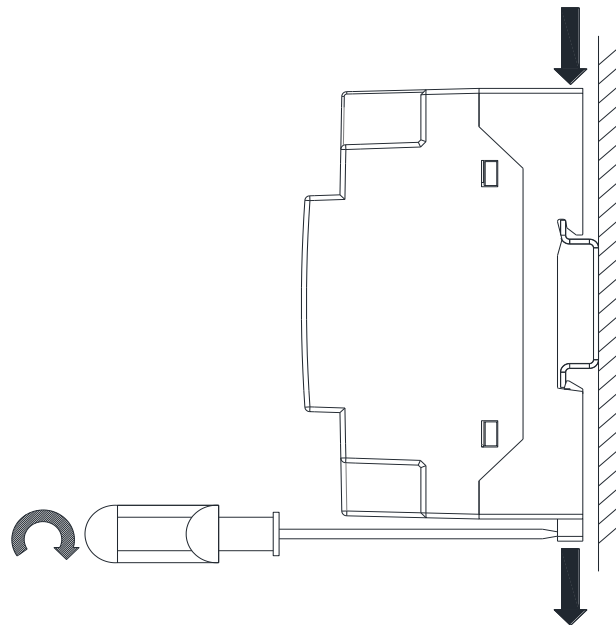


- (3) Press against the bottom front to lock.
Shake the device lightly to check the latch.



10.4 Disassembly of the power supply from the DIN rail

Turn off the main power supply and unplug the system. Move the removal hole down on the lower rear edge by turning it with a screwdriver. Gently lift (tilt) the lower front edge of the device and remove it.



11 WIRING METHOD

- The output load lines and the input lines must be routed separately and twisted to reduce the susceptibility to interference.
- Use leads that are as thick and short as possible to minimize impedance.
- Noise can be eliminated by connecting a capacitor to the load terminals.
- Electromagnetic interference (EMI) can be reduced by wrapping the cable several times around a toroidal core made of ferrite. Use a suitable, commercially available ferrite core.
- Recommended conductor type: solid wire or stranded wire, AWG 12-24 (stripping length: 4-5 mm, max. 5 mm).

12 INTERNAL AND EXTERNAL DESIGN OF THE FUSE

Make sure the input and output lines are separated before mounting the power supply on the rail.

(1) Information on internal backup:

wipos PBS1 24-0.42	2010T1A250V (Walter), (AC250V T1A)
wipos PBS1 12-2	2010T1.6A250V (Walter), (AC250V T1.6A)
wipos PBS1 24-1.25	2010T1.6A250V (Walter), (AC250V T1.6A)
wipos PBS1 24-2.5	2010T2A250V (Walter), (AC250V T2A)
wipos PBS1 24-4.2	0215004.MXEP (Littelfuse), (AC250V T4AH)

(2) Design of the external fuse:

When selecting the external fuses for the input line, consider the following information about the fuse design. When the mains voltage is switched on, an inrush current surge flows. Use a slow-blow fuse. Do not use a fast-acting fuse. The design of the fuse is based on the inrush current when the mains voltage is applied. Do not select the fuse based on the input current (RMS) under actual load conditions.

wipos PBS1 24-0.42	AC 250 V 1A ~ 8A
wipos PBS1 12-2	AC 250 V 1,6A ~ 8A
wipos PBS1 24-1.25	AC 250 V 1,6A ~ 8A
wipos PBS1 24-2.5	AC 250 V 2A ~ 8A
wipos PBS1 24-4.2	AC 250 V 4A ~ 8A

13 PBS1-1 SERIES UL508 APPROVAL CONDITION

1) Wire Requirement

- Use lines rated for at least 75°C.
- Use only copper conductors.

Connection	Suggested wiring	Max. Torque
INPUT (L, N)	Solid conductors and strands, AWG 12-24 (stripping length: 4-5 mm, max. 5 mm).	0.51N.m (4.5Lb.inch)
OUTPUT (+V, -V)	Solid conductors and strands, AWG 12-24 (stripping length: 4-5 mm, max. 5 mm).	0.51N.m (4.5Lb.inch)

- 2) Only for use in a pollution level environment 2
- 3) These products are intended for use at a maximum ambient temperature of 71 °C. When installing these products, please refer to Section 8-2 regarding power reduction (Derating).
- 4) For indoor use only

14 SERVICE AND SUPPORT

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