

PD21 AC/DC ADAPTER

PD21 POWER SUPPLY

Installation Instructions

(Translation of the original installation instructions)

Foreword

Disclaimer and exclusion of liability

DewertOkin is not responsible for damage resulting from:

- failure to observe these instructions,
 - changes made to this product which have not been approved by DewertOkin, or
 - the use of replacement parts which have not been approved or manufactured by DewertOkin.
- We reserve the right to make unannounced technical changes in the course of our continual product improvement process!

Creation of a complete operating instruction manual for the entire end product

These instructions are only intended to be used by the end-product manufacturer. They should not be given to the operator of the end product. The factual information contained within may be used as a basis when creating the end-product manual.

The warning and danger notices are best suited for use in the end product's manual. However it is not sufficient to simply follow these notices. You should also carry out an internal risk assessment for your end product. This can then be used as the basis for the safety notices in your manual.

These installation instructions do not contain all information required to safely operate the end product. They only describe the installation and operation of the product as partially completed machinery.

The instructions are intended for the technicians responsible for manufacturing an end product and not for the operators of the end product.

Notice for customers in EU nations

Inspection Authority (TÜV Rheinland) testing mark

The construction of the PD21 has been inspected by the Inspection Authority (TÜV Rheinland). The TÜV Rheinland also monitors the production of the PD21. The official TÜV Rheinland certifies this construction inspection and production monitoring.



Figure 1 TÜV Rheinland testing mark

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1. General Information

1.1 Configurations

The AC/DC ADAPTER PD21 and POWER SUPPLY PD21 are referred to here by the name PD21, unless reference is being made to a model-specific feature.

1.2 About these installation instructions

These installation instructions must be followed closely in order to install the PD21 successfully and safely in the end product. These instructions are not an operating manual for the end product.

These instructions will help you to minimize danger. They will also help you to maximize the reliability and lifespan of the end product.



CAUTION

The notices in these instructions must be followed! Following the guidelines during installation and connection procedures will help to minimize:

- the risk of accident and injury, and
- damage to the PD21 or to the end product.

These installation instructions have been written with due care and attention. However, we cannot guarantee that the data, images and drawings are complete and correct nor do we accept any liability for the information contained therein, unless required by law.

1.3 Safety notices contained in the installation instructions and operating instructions for the entire machine

The manufacturer of the end product (the machine) is only permitted to operate the PD21,

- when the end product, is in compliance with all protective measures specified in the Machinery Directive 2006/42/EC, and
- when the manufacturer expressly declares the compliance of the end product.

The manufacturer of the end product must create a manual for the users of that product. The safety notices in the end-product manual must be written based on the end product's risk assessment.

1.4 Conventions used

Notices which do not relate to safety are indicated in these instructions with a symbol:

- ▶ Triangular notice symbol

Safety notice explanations



WARNING

WARNING indicates a hazardous situation which could result in death or serious injury.



CAUTION

CAUTION indicates a hazardous situation which could result in minor or moderate injury.

NOTICE


NOTICE is used to address practices which are not related to personal injury but may result in damage to the product or surroundings.

2. Safety notices

2.1 Proper and intended usage

The PD21 is intended for use:

- as a power supply unit for suitable DewertOkin drive systems,

 CAUTION
<p>Risk of accident</p> <p>The PD21 should only be used for the applications described above. Any other form of usage is not permitted and can lead to accidents or destruction of the unit. Such non-approved applications will lead immediately to the expiration of all guarantee and warranty claims on the part of the end-product manufacturer against the manufacturer.</p>

2.1.1 Improper usage

Be sure to follow the notices below concerning improper usage. You should include them in your product manual in order to inform the users of your end product.

The PD21 may not be used:

- in any environment where combustible or explosive gases or vapours (e.g., anaesthesiology) may be present,
- in the proximity of open fires or other heat sources (such as furnaces, ovens or direct sunlight),
- as a power source for toys or games,
- in any application that will be cleaned with an automated washing system,
- in a moist environment, or
- outdoors.

The PD21 can be used by children of 8 years and older, persons with reduced physical, sensory or mental capabilities, or persons with lack of experience or knowledge when they are supervised or instructed concerning the safe use of the device and when they understand the resulting risks. Do not allow children to play with this device. The cleaning and user maintenance must not be carried out by children without supervision.

- ▶ You should only use spare parts which have been manufactured or approved by DewertOkin. Only these parts will guarantee a sufficient level of safety.

2.2 Selection and qualification of personnel

The using of the PD21 in the end product may only be performed by qualified personnel.

2.3 Ratings plate for the PD21

- ▶ The ratings plate shown is an example; the specifications for your PD21 may differ from this illustration.

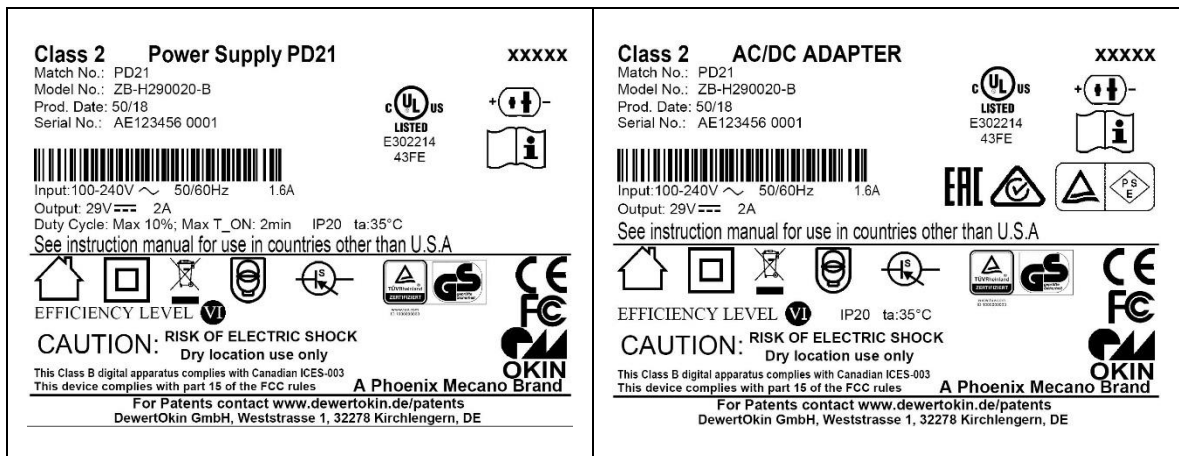










Figure 2 Example: Ratings plate for the PD21

Power Supply PD21	Model name
AC/DC ADAPTER PD21	Model name
Class 2	Power Supply in compliance with UL1310
Match No.: PD21	Part designation
Model No.: ZB-H290020-B	Model number
xxxxx	ID number
Input: 100-240V ~ 50/60Hz	Input voltage and frequency
1.6A	Current consumption
Output: 29V = 2A	Output voltage and max. output current during continuous operation
Prod.Date	Week / year
Serial No.	Serial number
EFFICIENCY LEVEL VI	Efficiency class

	Use in dry rooms only!
	Protection class II
	Short-circuit-proof safety transformer
	Mark of CE conformity
	Follow all special disposal instructions!
	LSP socket
	Switched-mode power supply
	Refer to the manual

3. Description

The PD21 is an external power supply unit intended to supply power to drives and controllers from DewertOkin. The PD21 is connected to the mains power by a power cord. The PD21 has a non-referenced (unearthed) circuit which is separated from the supply voltage by means of doubled reinforced insulation.

3.1 PD21 components

3.1.1 PD21 POWER SUPPLY

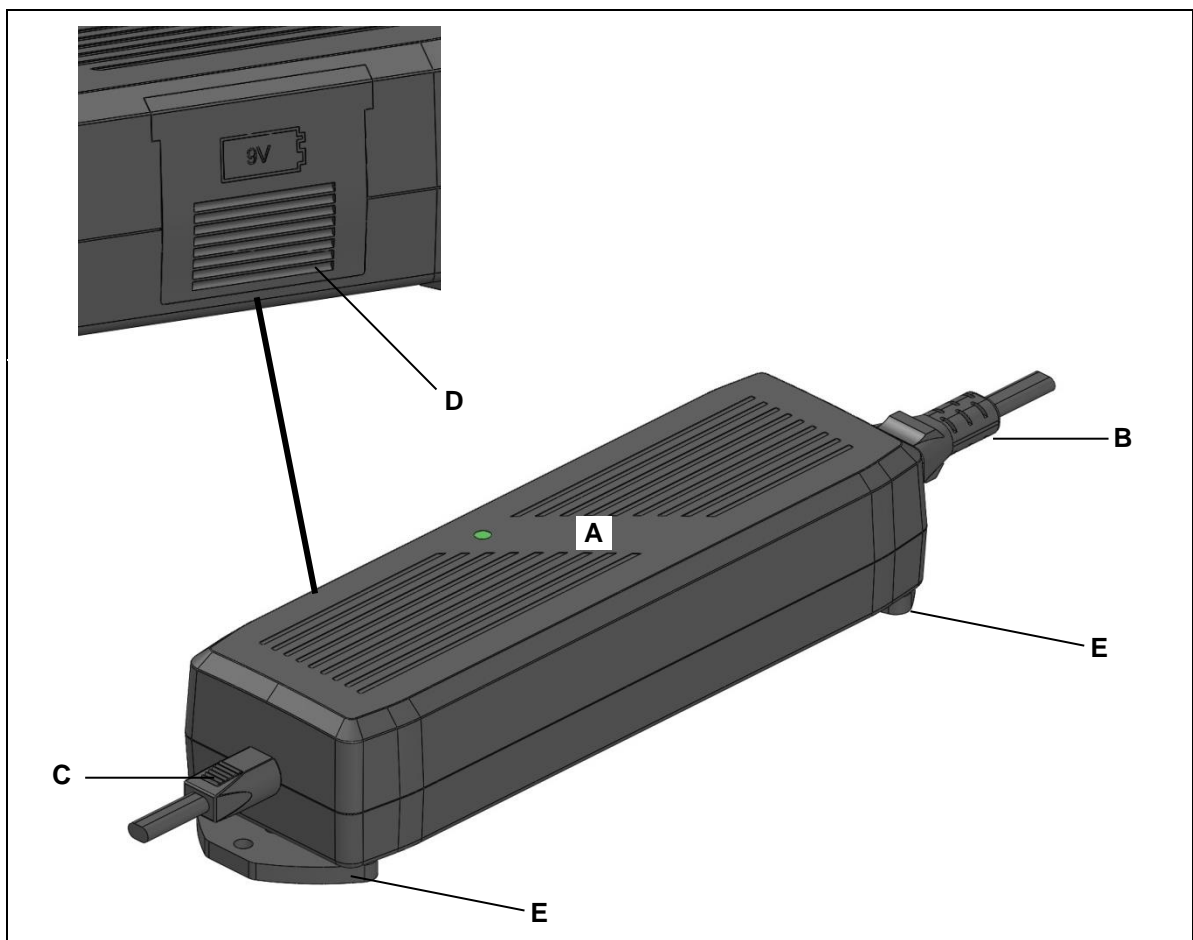


Figure 3 Components of the PD21 POWER SUPPLY

- | | |
|---|------------------------------|
| A PD21 POWER SUPPLY | B Power cord |
| C Pluggable connection cable for drive or control unit | D Battery compartment |
| E Mounting plate | |

3.1.2 PD21 AC/DC ADAPTER

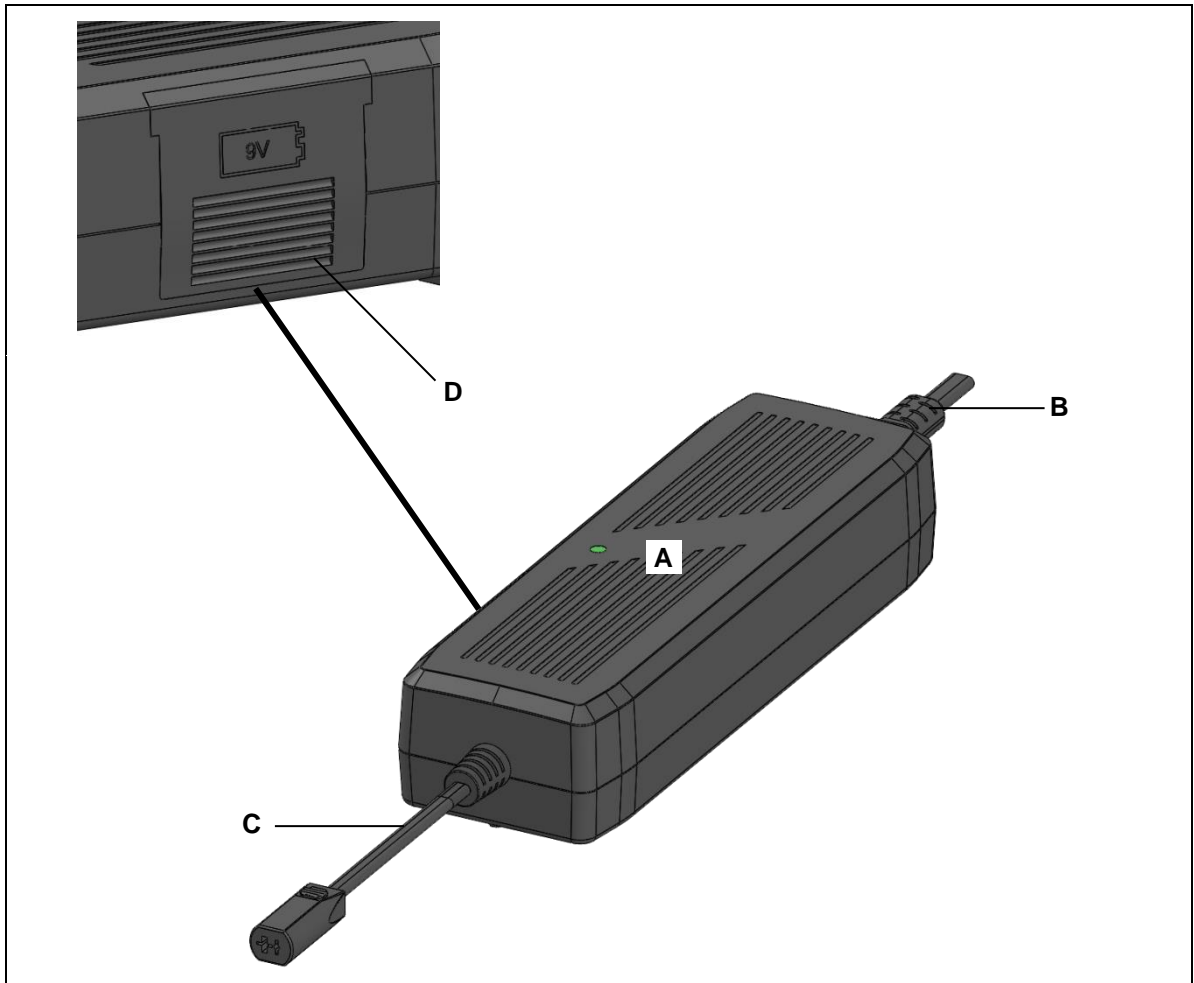


Figure 4 Components of the PD21 AC/DC ADAPTER

- A** PD21 AC/DC ADAPTER
- B** Power cord
- C** Fixed connection cable for drive or control unit
- D** Battery compartment

3.1.3 Battery-operated reset function for the PD21

The battery compartment in the PD21 holds two nine-volt batteries. The batteries are required if you need to use the battery-operated drive reset function (not dependent on the mains).



CAUTION

The battery-operated reset function is not a safety system and does not avert danger.

DewertOkin does not guarantee that the drive will function in the event of a power outage.

If the end-product manufacturer chooses to guarantee the functionality of the end product during a power outage, then the end-product manufacturer is responsible for arranging a mechanism to ensure this functionality.

3.1.4 Mains power connection for the PD21



WARNING

Electric shock

Please follow these operating instructions carefully. You could be injured by fire or electrical shock if you do not follow these assembly instructions.

Power cord

The appropriate power cord is included, depending on the regional version, in the USA, continental Europe, the UK or Australia.



VORSICHT

Only use the proper power cord that is permitted in your country. Be sure to use the correctly shaped plug, as shown in Figure 5.

- ▶ More information about the intended power supply cord can be found in the "Additional Information" section.

3.1.5 PD21 floor unit

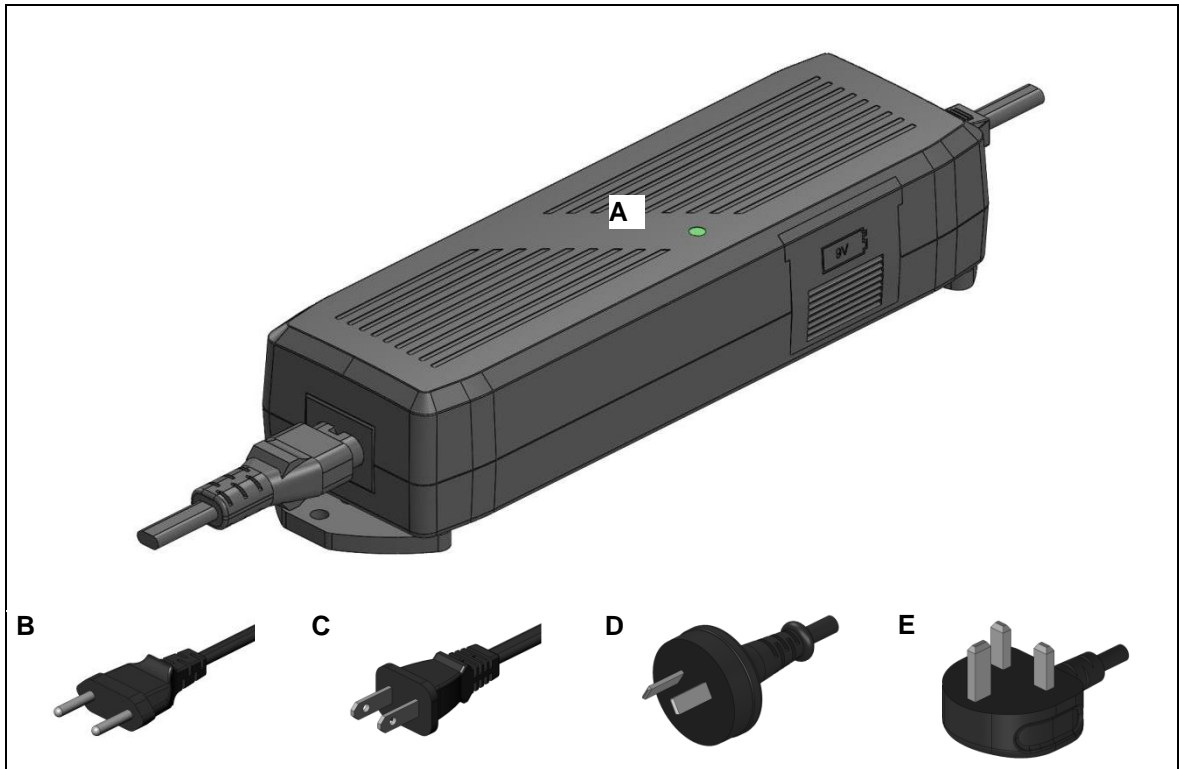


Figure 5 Example: PD21

- A PD21
- B Power cord (continental Europe version)
- C Power cord (USA version)
- D Power cord (Australian version)
- E Power cord (United Kingdom version)

3.1.6 Electrical output

The outlet for the drive system is a LSP socket.

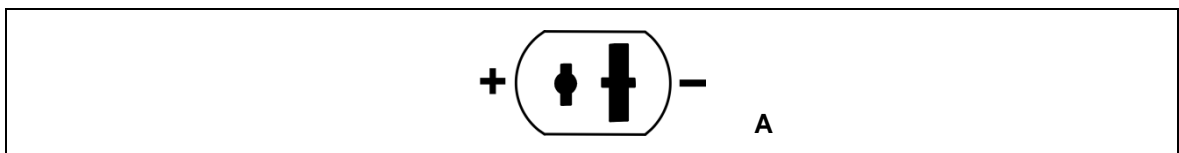


Figure 6 Electrical outlet

- A Connection for LSP socket

4. Technical specifications

4.1 PD21

Mains power supply	100 – 240 V AC 50/60Hz
Output voltage (under no load)	max. 31 V DC
Output voltage / output power	Output: 29V $\overline{\text{---}}$ 58W for continuous operations
Output voltage / output current	29V $\overline{\text{---}}$ 2A for continuous operations
Primary fuse	T3.15A
Standby (no load)	\leq 0.21W
Degree of efficiency	\geq 0,88
Efficiency class	EFFICIENCY LEVEL VI
Mode of operations ¹⁾	Duty Cycle max 10%; max T ON 2min
Protection class	II
Protection degree	IP20
Length of power supply cable ²⁾	< 2000mm
Dimensions and weight	
Length x width x height	approx. 192mm x 61mm x 38mm
Length x width x height with mounting plate	approx. 215mm x 61mm x 43mm
Weight without battery	approx. 290g
Battery-operated reset function	
Voltage	two nine-volt batteries (type 6LR61)
Ambient conditions for operation, storage and transport	
Transport / storage temperature	from -20°C to +50°C from -4°F to +122°F
Operating temperature	from +10°C to +40°C from +50°F to +104°F
Relative humidity	from 30% to 75%
Air pressure	from 800hPa to 1060hPa
Height	< 2000m

¹⁾ Mode of operation = Duty Cycle max 10%, max T ON 2 min. This means that after the unit is operated with 4A, it must then be paused for 18 minutes. The system can malfunction if this pause is not observed!

²⁾ Versions with a power cord shorter than 2 meters are only suitable for outlets near the floor.

4.2 Dimensions of the PD21

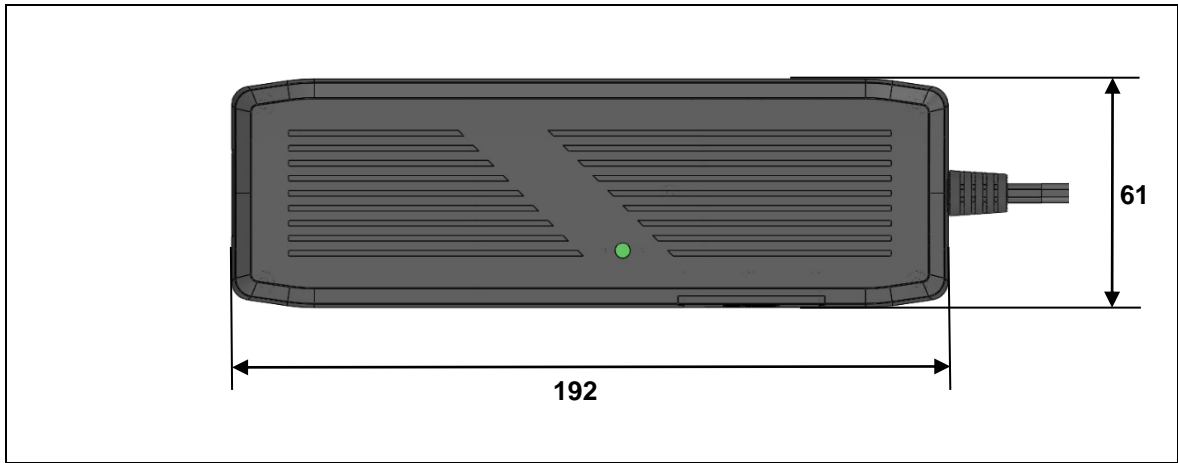


Figure 7 PD21 AC/DC ADAPTER, top view (in mm)

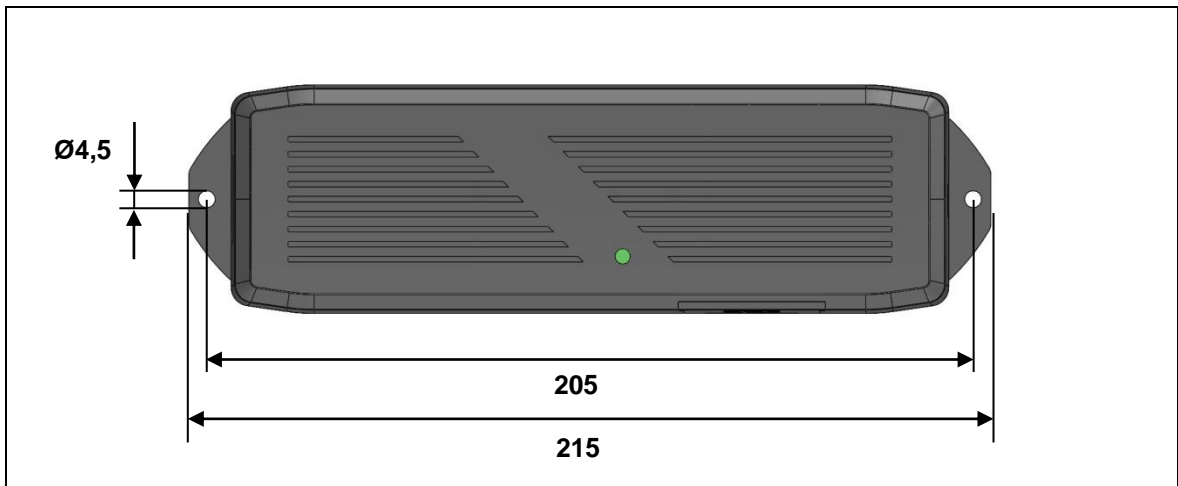


Figure 8 PD21 POWER SUPPLY, top view (in mm)

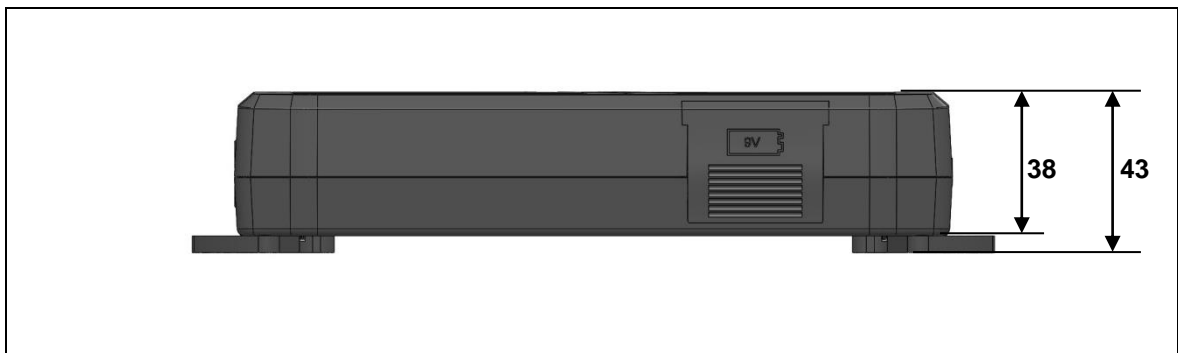


Figure 9 PD21, side view (in mm)

5. Installation

5.1 Safety notices to observe during installation

Basic safety rules must be followed in order to ensure that the end product can be continually operated in a safe manner. These rules must be observed while using the end product and while installing the PD21 in the end product.

Avoiding electrical faults

The power supply cord is designed to be connected to an outlet near the floor. Be sure to consider the length of the power cord when designing the dimensions for your application in order to minimize the associated risks.

5.2 Installation procedure

Before installing and connecting the PD21, make sure that you are observing all of the safety notices found in the "Safety notices to observe during installation" section.

5.2.1 Installing the PD21

The PD21 is used as an accompanying device without any mounting or bolting down required.

- ▶ As an accompanying device, you should be sure that any dangers presented by the cables are described in your end-product operating manual (refer to the "Electrical connection" section).



CAUTION

The mains power plug should be unplugged during the installation

5.2.2 Electrical connection



CAUTION

Elektrischer Schlag

Electrical components should be connected or disconnected only when the power supply cord is unplugged.

- ▶ There is a delay after the supply voltage is applied before the device actually turns on. Wait at least 7 seconds before initial commissioning.

Routing the electrical cables

When routing the cables, be sure that:

- the cables cannot get jammed,
- no mechanical load (such as pulling, pushing or bending) will be put on the cables, and
- the cables cannot be damaged in any way.


Fasten all cables (especially the connecting cables) to the end product using sufficient kink prevention methods. Be sure that the design of the end product prevents the connecting cables from coming into contact with the floor during transport.

5.2.3 PD21 – connecting the nine-volt batteries

Connect the nine-volt batteries before you would like to perform a battery-operated reset. Replace the batteries after the reset function has been executed once. Both batteries should be replaced at the same time.

<p>NOTICE</p> <p>Both batteries should be replaced/inserted at the same time. Use batteries of similar:</p> <ul style="list-style-type: none"> • age, • type, • manufacturer.

- 1 Open the battery cover of the PD21.
- 2 Connect both batteries to the battery clips. Be sure not to reverse the polarity.
- 3 Insert the connected batteries into the battery compartment.
- 4 Then close the battery cover. Be sure that it snaps shut.

<p> CAUTION</p>
<p>The battery-operated reset function is not a safety system and does not avert danger.</p>

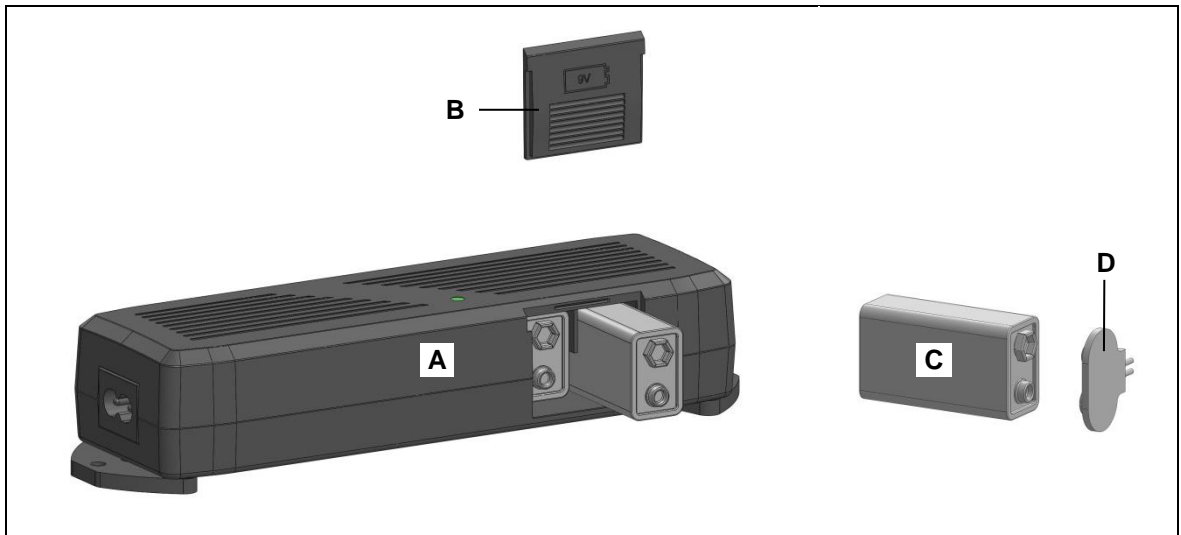


Figure 10 Connecting the batteries

A PD21

C 9-V battery (type 6LR61)

B Battery case cover

D Battery clip

5.2.4 Connecting the drive or drive control unit to the PD21

The drive system connection depends on the connection methods offered by the drive or drive control unit:

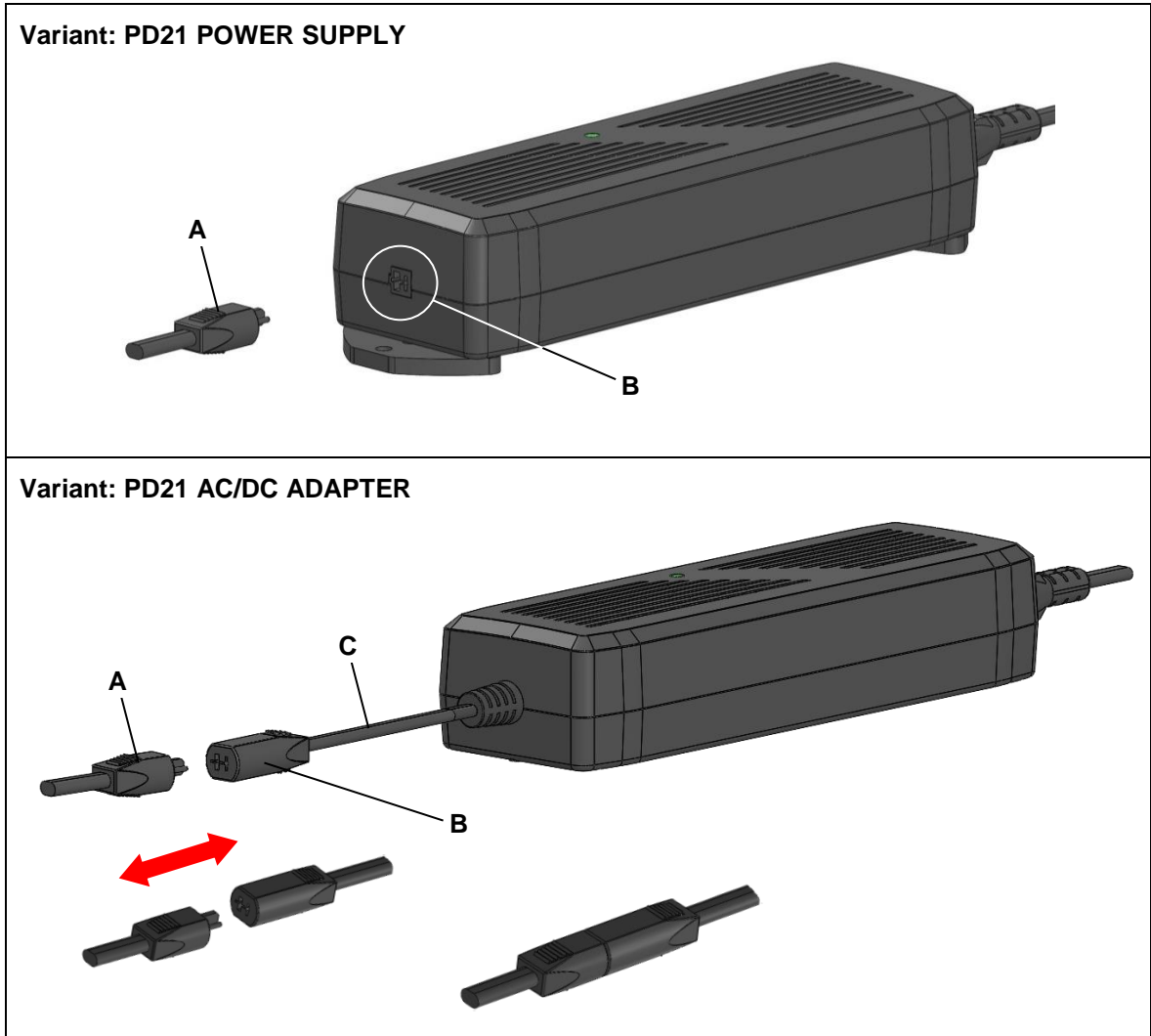


Figure 11 Connection for the drive or control unit

A Connection cable with LSP plug

B Connection socket

C Fixed connection cable

Use the appropriately labelled socket on the controller for the connection to the drive control unit.



CAUTION

You should only connect and disconnect the cables when they are completely disconnected from any live current!

- 1 Unplug the power plug from the outlet.
- 2 Connect the drive or drive controller plug into the socket.

After plugging the power plug into the power outlet:

- ▶ There is a delay after the supply voltage is applied before the device actually turns on. Wait at least 7 seconds before initial commissioning.

5.2.5 Removing the PD21

- 1 Unplug the power plug from the outlet.
- 2 Pull out the drive cable or the drive controller cable from the PD21.

6. Operating notes

The factual information contained within may be used when you are creating the end-product manual. The installation instructions do not contain all information required for the safe operation of the end product. They only describe the installation and operation of the PD21 as a partially assembled piece of machinery.

- ▶ When creating the operating instructions, remember that the installation instructions are intended for qualified specialists and are not for typical users of the end product.

6.1 General information

- ▶ Only drives and drive control units from DewertOkin should be connected to the PD21, since they have already been verified to work together.

Delayed start-up

After plugging the power plug into the power outlet:

- ▶ There is a delay after the supply voltage is applied before the device actually turns on. Wait at least 7 seconds before initial commissioning.

The use of a power cord



WARNING

Risk of accident

Please follow these operating instructions carefully. You could be injured by fire or electrical shock if you do not follow these assembly instructions.



CAUTION

Only use the proper power cord that is permitted in your country. Be sure to use the correctly shaped plug, as shown in Figure 5.

Reducing the risk of overheating with the thermal fuse



CAUTION

Risk of accident

The PD21 is equipped with a thermal fuse that triggers when the unit overheats. If the temperature control has triggered, remove the PD21 from the power supply, allow it to rest for 20 to 30 minutes and try again. If the unit still does not function, please contact your supplier or dealer.

Avoiding electrical risks

 CAUTION
--

Electric shock

Make sure that all live (current-carrying) parts of the drive system and power supply cannot be touched. In particular, be sure that unused power and control unit connections are covered adequately.
--

Emergency shutoff

In an emergency, disconnect the PD21 from the power outlet so that the connected drive or drive control unit shuts down. The power plug unit must always be accessible during operations so that it is possible to shut down the drive or drive control unit at any time.

Avoiding cable damage

Be sure that your operating instructions inform the user about the possible cable risks.

 CAUTION
--

Risk of accident

The cables (particularly the mains cable and connecting cable) should not be run over. In order to prevent injuries or damage to the PD21, no mechanical strain should be placed on the cables.

6.2 Battery-operated reset function for the PD21

The battery-operated reset function allows the drive system to be operated during a power outage. Two nine-volt batteries can be used to power the PD21 in the event of a power outage. The batteries should be connected only then when the outage occurs. The nine-volt are not included in the delivery. They can only be used to power the reset function once. The used batteries should then be replaced and properly disposed of.

 VORSICHT CAUTION

You should only connect and disconnect the cables when they are completely disconnected from any live current!
--

- ▶ Connect the nine-volt batteries first when you would like to perform a battery-operated reset. The batteries may only be used to power the reset function one time. Take out the batteries and dispose of them properly after the reset function has been carried out.
- ▶ If the end product is under a heavy load which prevents the reset function from operating, the strain or load on the end product must first be removed before a reset can be carried out.
- ▶ More information on connecting the batteries can be found in the „PD21 – “ section on page 17.

6.3 Note on battery usage

You will lengthen the lifespan of the batteries when you only use batteries of the same type in the PD21.

NOTICE

The following measures can be taken in order to avoid battery corrosion and resulting damages:

- Be sure to connect the correct poles (+ / -) on the batteries.
- Never attempt to recharge non-rechargeable batteries.
- If one battery is empty, clean the battery compartment and replace with two new batteries.

**NOTICE**

Both batteries should be replaced/inserted at the same time. Use batteries of similar:

- age
- type (type 6LR61),
- manufacturer.



7. Troubleshooting

This chapter describes troubleshooting methods for fixing problems. If you experience an error that is not listed in this table, please contact your supplier.

- ▶ Only qualified specialists who have received electrician training should carry out troubleshooting and repairs.

Problem	Possible cause	Solution
The drive or drive control unit is not functioning.	There is no mains supply voltage.	Connect the mains power.
	The drive or drive control unit is defective.	Please contact your supplier or sales agent.
The drive is suddenly not capable of movement.	The overheating protection or system protection has been triggered.	Remove the overload (change or remove the load). Allow the system to rest for 20 to 30 minutes with the mains power unplugged. If this does not resolve the problem, contact your supplier or distributor.
	The unit's fuse may have been triggered.	Please contact your supplier or sales agent.
	There is no mains supply voltage.	Connect the mains power.
	A lead-in connection has been interrupted (mains power, auxiliary drive or handset).	Check the cables and reinsert them, if required.
Battery-operated reset does not function.	Battery is empty.	Check the batteries and replace if necessary.
	Battery is not connected.	Connect the batteries.

8. Maintenance and cleaning

8.1 Maintenance

- ▶ The PD21 requires no special maintenance.

8.2 Cleaning

- ▶ Clean the PD21 as needed using a dry anti-static cloth.

NOTICE

- Be sure to unplug the PD21's power cord before you begin cleaning.
- Never clean the PD21 in an automated washing system or with a high-pressure cleaner. Do not allow fluids to penetrate the drive. Damage to the system could result.
- Do not use a cleanser that contains benzene, alcohol or similar solvents.
- Be sure that you do not damage the connecting cables during the cleaning.

9. Disposal

9.1 Packaging material

The packaging material should be sorted into recyclable components and then disposed of in accordance with the appropriate national environmental regulations (in Germany according to the recycling law KrWG from 01.06.2012; internationally according to the EU Directive 2008/98/EC (Waste Framework Directive WFD as of 12.12.2008)).

9.2 PD21 components

The PD21 consists of electronic components, cables and metal and plastic parts. You should observe all corresponding national and regional environmental regulations when disposing of the PD21.

Die Entsorgung des Produkts unterliegt in Deutschland dem Elektro-G, international der EU-Richtlinie 2012/19/EU (WEEE) oder den jeweiligen nationalen Gesetzgebungen.



The PD21 should not be disposed of with normal household waste!



9.3 Batteries

The disposal of the batteries is regulated in the EU by Battery Directive 2006/66/EC, in Germany by the BattG battery law of 25.6.2009, and internationally by any applicable national laws and regulations.



These batteries should not be disposed of with normal household waste!

Additional information

PD21

Power cable recommended for use in Europe:

Power cable (refer to IEC/EN 61558-1)				
Flexible cord type	Conductor size	Number of conductors	Cord length	
			Minimum	Maximum
H05VV-F, H05VVH2-F, H05RR-F	0,75 mm ²	2	2 m	4 m

Power cable recommended for use in the USA and Canada:

Power cable (refer to UL 1310)				
Flexible cord type	Conductor size	Number of conductors	Cord length	
			Minimum	Maximum
SP-2, SPE-2, SPT-2, SV, SVE, SVT	18 AWG	2	0.91 m (3 feet)	3 m (10 feet)
S, SE, SO, SP-3, SPT-3, ST, STO, SJ, SJE, SJO, SJT, SJTO	18 AWG	2	0.91 m (3 feet)	Not specified

Instruction For Use

Class 2 Power Unit

Version 1.0

INTENDED USE

The switching Power Supply (SPS) are intended to supply with safe extra low voltage. The SPS is an appliance inlet type (or directly plugged in a socket outlet) while the device to be supplied is connected with a cord and plug from SPS. Observe and follow the instructions and cautions as follows. Otherwise SPS damage and/or serious injury may occur, save the instructions for further reference.

IMPORTANT SAFETY INSTRUCTIONS – SAVE THESE INSTRUCTIONS.

DANGER – TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, CAREFULLY FOLLOW THESE INSTRUCTIONS.

Connections:

- Only connect with supply equal to the voltage shown on the SPS;
- Only connect with a load which does not exceed the rated load of the SPS;
- Only use the SPS in conjunction not in the U.S.A., use an attachment plug adapter of the proper configuration for the power outlet.

Ambient Conditions:

- Operating temperature: 0°C ~ 30°C
- Operating relative humidity: 20% ~ 95%
- Storage temperature: 0°C ~ 60°C
- Storage relative humidity: 20% ~ 95%
- Do not operate near fire or in high temperature ambient;
- Do not use this SPS in a dusty ambient;
- Only operate the SPS in dry rooms indoors;
- Do not expose to water or other conductive liquid electric shock hazard.

CAUTION: Risk of Electric Shock

Dry location only.

See instruction manual for use in countries other than the U.S.A

MAINTENANCE:

- Check the power supply cord and output cord for damage before use;
- Check the enclosure for cracks or other damage before use;
- ATTENTION: Do not operate the SPS if the connection cords or the enclosure are damaged. A damaged SPS cannot be repaired. Disable the damaged SPS in an obvious way. So that it won't represent a hazard to others. Please dispose off a damaged SPS according to the local regulations;
- The SPS may be cleaned with a damp towel, but may never get in direct contact with water. After cleaning please make sure that the SPS is dried completely;
- Do not use any organic solvents (petrol, alcohol, etc.) for cleaning the SPS. The case of the SPS may be damaged and explosive vapors may develop. Do not use any sharp edged objects for cleaning;
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack experience and knowledge unless they have been given supervision or instruction concerning use of the appliance by person responsible for their safety;
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard;
- Fuse only replaceable by qualified professional.

NOTE:

This Class B digital apparatus complies with Canadian ICES-003.

This device complies with part 15 of the FCC rules. Operation is subject to the follow two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This equipment has been tested and found to comply with the limits for Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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