

AC/DC ADAPTER PD23

POWER SUPPLY PD23

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 PD23 has been inspected by the Inspection Authority (TÜV Rheinland). The TÜV Rheinland also monitors the production of the PD23. 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 About these installation instructions

These installation instructions must be followed closely in order to install the PD23 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 PD12/PD13 POWER SUPPLY 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.

1.2 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 PD23,

- 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.

1.3 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 PD23 is intended for use:

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



CAUTION

Risk of accident

The PD23 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.

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 PD23 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 PD23 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.

- ▶ Verwenden Sie nur Ersatzteile, die von DewertOkin hergestellt oder freigegeben wurden. Nur diese gewährleisten eine ausreichende Sicherheit.

2.2 Selection and qualification of personnel

The using of the PD23 in the end product may only be performed by qualified personnel.









2.3 Ratings plate of the PD23

- ▶ The ratings plate shown is an example; the specifications for your PD23 may differ from this illustration.



Figure 2 Example: Ratings plate for the PD23

AC/DC ADAPTER PD23	Model name
Class 2	Power Supply in compliance with UL1310
Match No.: PD23	Part designation
Model No.: ZB-A290020-MB	Model number
xxxxx	Model 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 PD23 is an external power supply unit intended to supply power to drives and controllers from DewertOkin. The PD23 is connected to the mains by using a power plug adapter. The PD23 has a non-referenced (unearthed) circuit which is separated from the supply voltage by means of doubled reinforced insulation.

A shield cover is used for connecting a drive or drive control unit to the PD23.

3.1 Components of the PD23

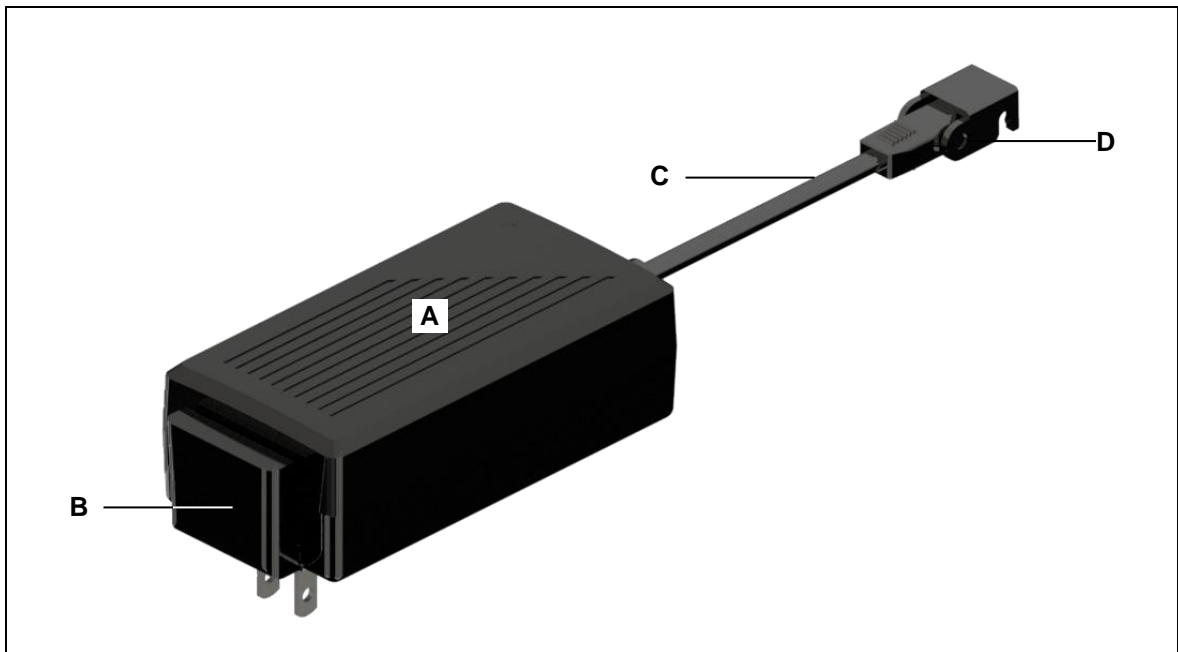


Figure 3 Components of the PD23

A PD23

B Power supply via power adapter

C Connection cable for
drive or control unit

D Pull-out protection

3.1.1 Power adapter of the PD23



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.

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



CAUTION

Only use the proper power adapter that is permitted in your country. Be sure to use the correctly shaped plug, as shown in Figure 4.

The following illustration shows the proper power adapters for regional usage.

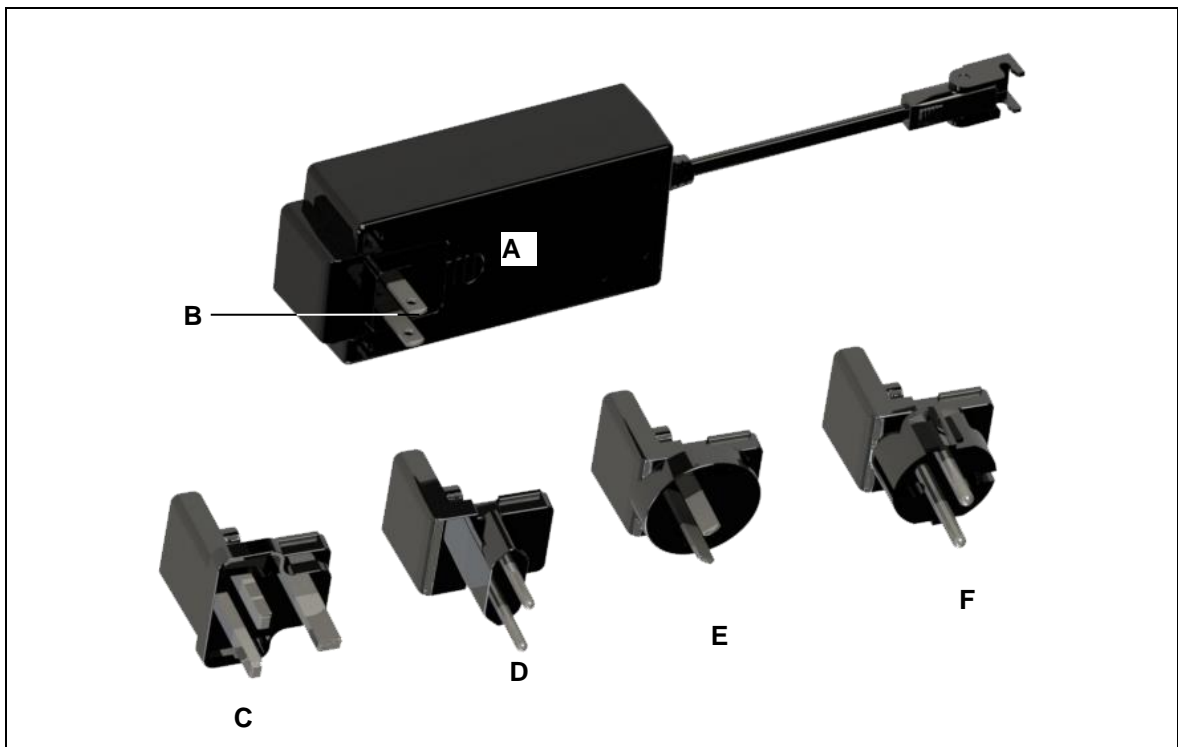


Figure 4 PD23

A PD23

C Power adapter (United Kingdom)

E Power adapter (Australian)

B Power adapter (USA)

D Power adapter (EURO flat plug)

F Power adapter (EURO)

3.1.2 Electrical Output

The outlet for the drive system is a LSP socket.

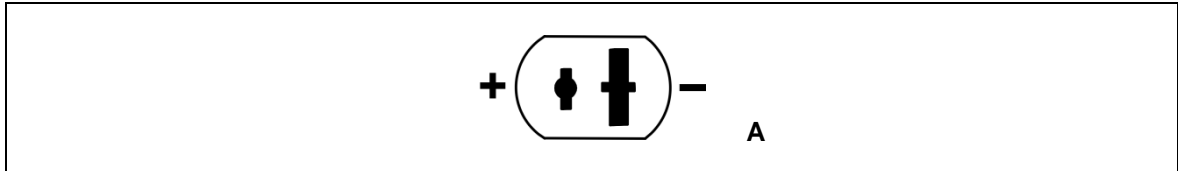



Figure 5 Electrical outlet

A Connection for LSP socket

4. Technical specifications

4.1 Technical specifications of the PD23

Mains power supply	100 - 240V 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)	$\leq 0.21\text{W}$
Degree of efficiency	≥ 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
Dimensions and weight	
Length x width x height	approx. 128 mm x 60 mm x 39 mm + plug
Weight	approx. 260 g
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 800 hPa to 1060 hPa
Height	< 2000 m

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!

4.2 Dimensionen of the PD23

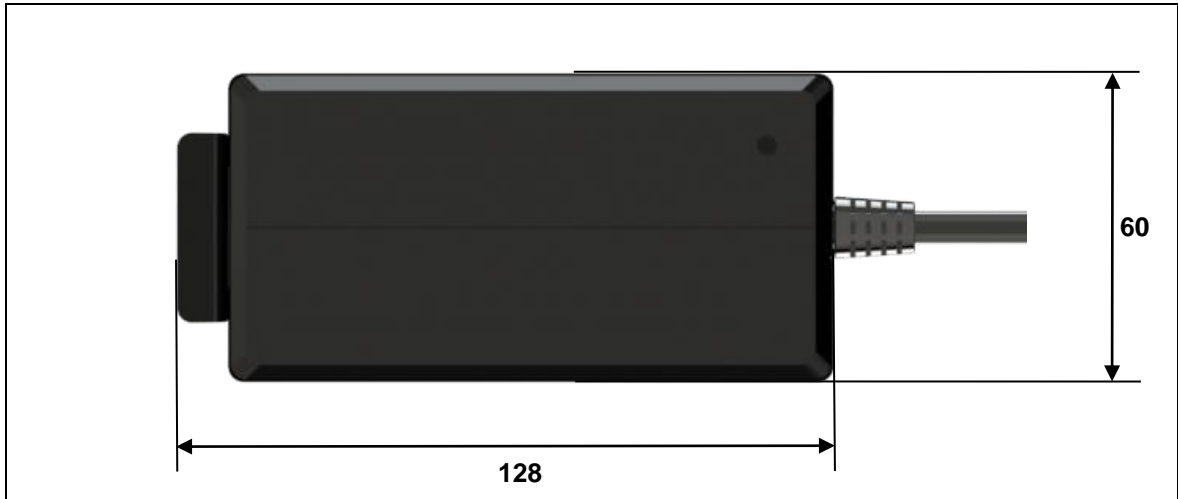


Figure 6 Dimensions of the PD23, top view (in mm)



Figure 7 Dimensions of the PD23, side view (in mm)

A Plug size

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 PD23 in the end product.

Avoiding electrical faults

The power adapter 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.

Mechanical construction

A pull-out protection protects the drive connections from mechanical damage and accidental unplugging.

5.2 Installation procedure

Before installing and connecting the PD23, 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 PD23

The PD23 is used without any mounting or bolting down required.

- ▶ 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 PD23 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 adapter 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 Connecting the power adapter

Schieben Sie den für das jeweilige Land zugelassenen Netzadapter in die Adapteraufnahme am PD23 bis es deutlich hörbar einrastet.

⚠ CAUTION

Only use the proper power adapter that is permitted in your country (Figure 4).

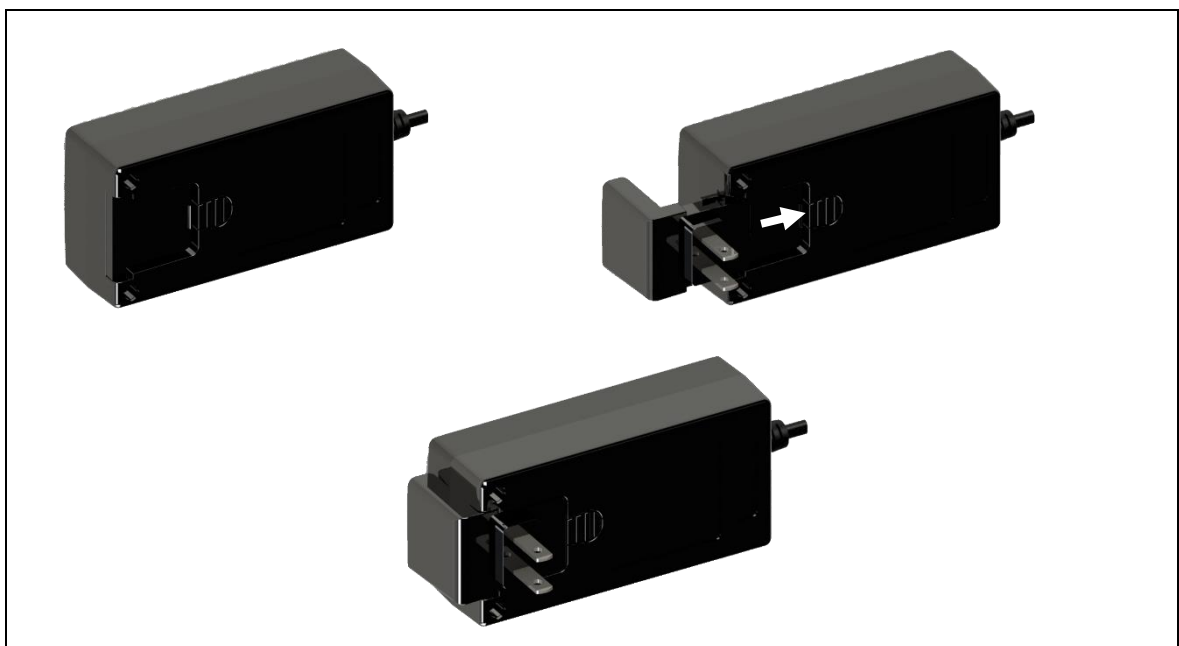


Figure 8 Example (AC adapter USA version): Connecting the power adapter

NOTICE

Insert the pluggable unit into the socket in an upright vertical position (as shown in Figure 9).

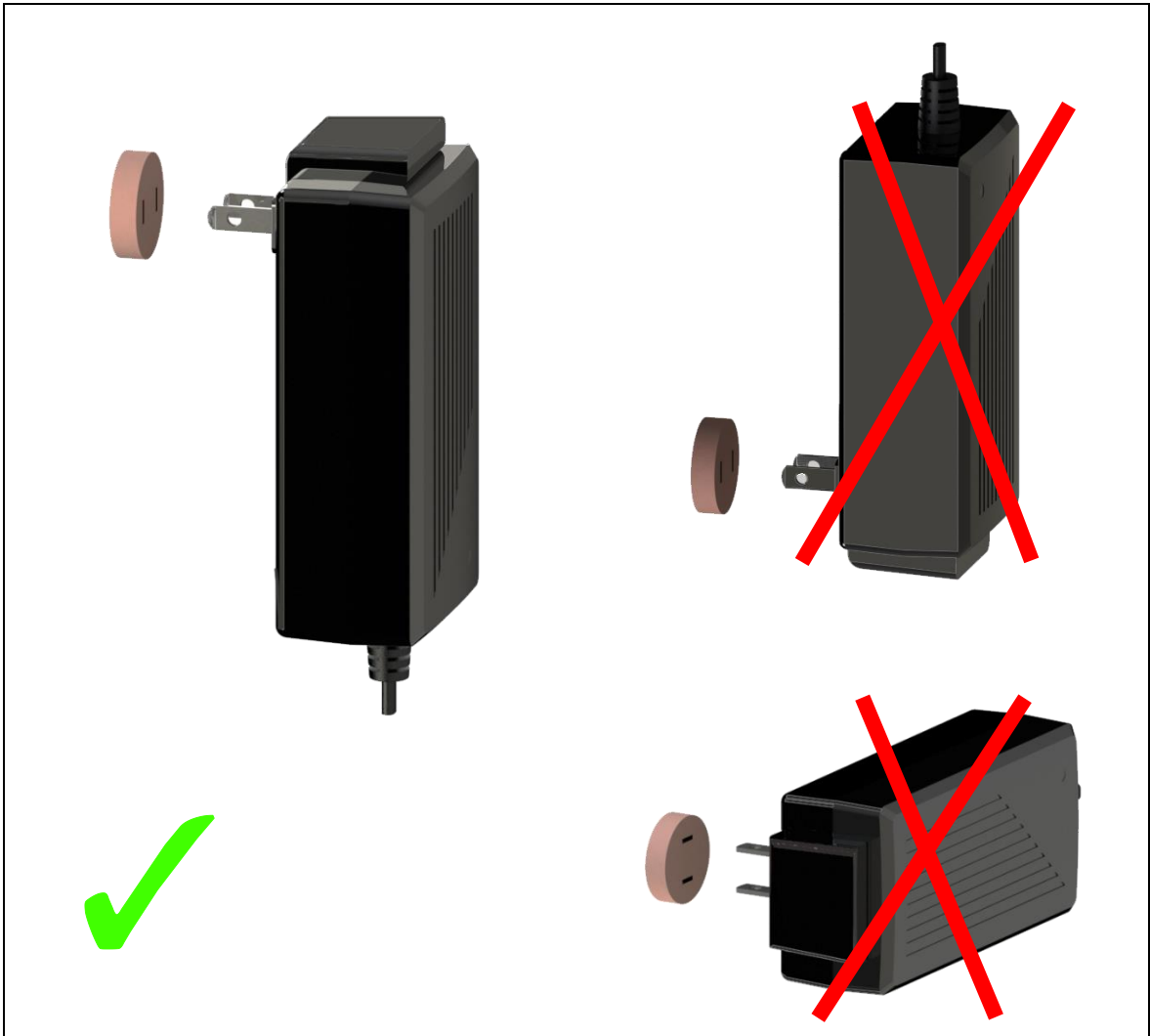


Figure 9 Plugging the PD23 into the socket (shown here: USA version of the power adapter)

5.2.4 Disconnecting the power adapter

Press on the locking clip (Figure 10) with your finger, then pull out the power adapter while pressing on the locking clip.

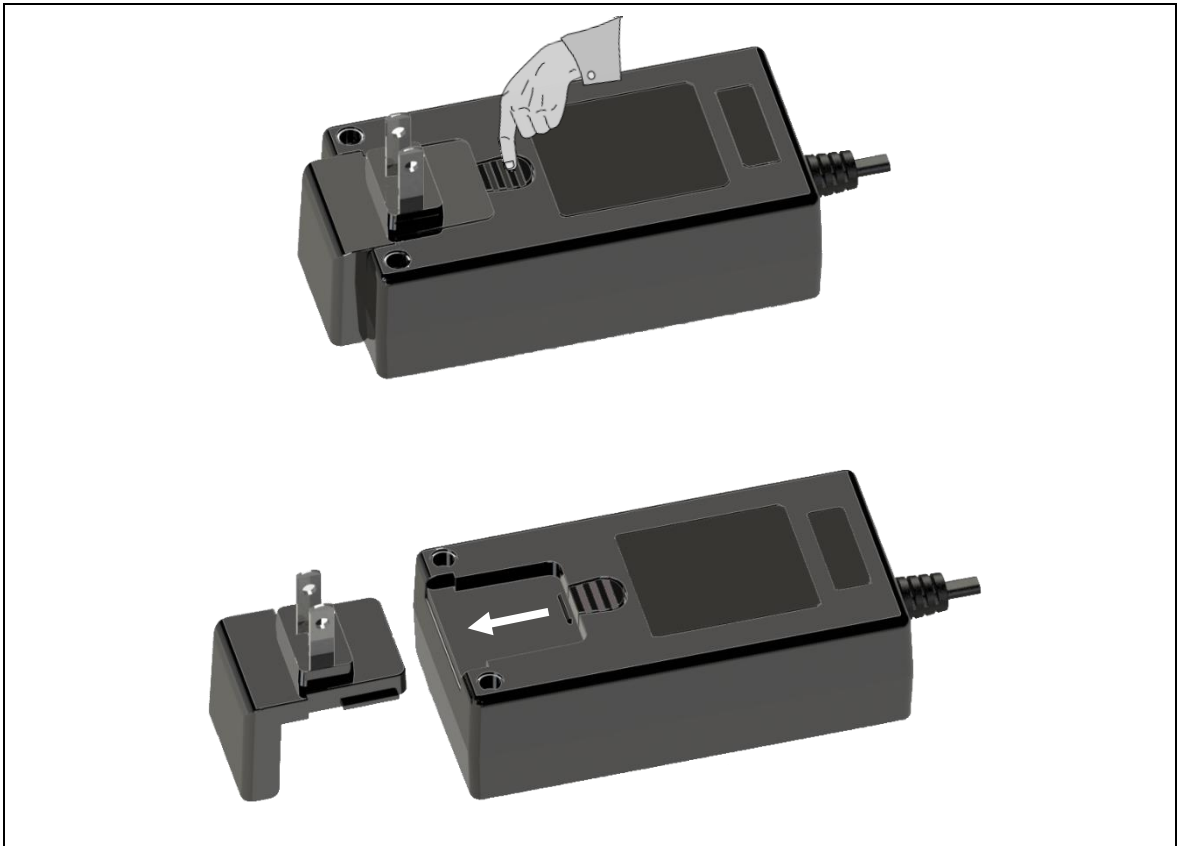


Figure 10 Removing the power adapter (shown here: USA version of the power adapter)

5.2.5 Connecting the drive or drive control unit to the PD23

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

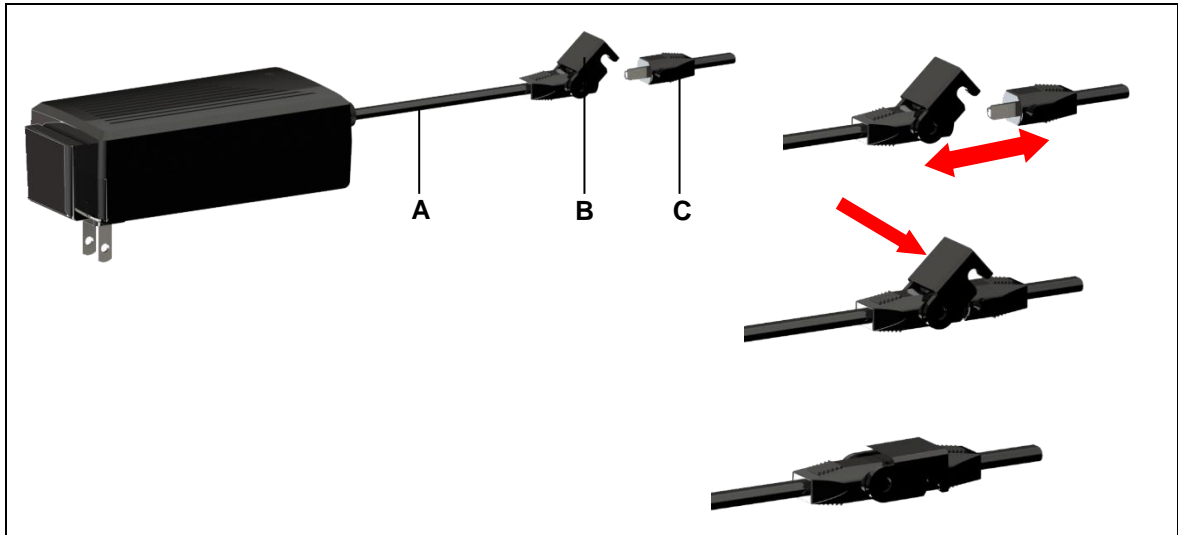


Figure 11 Connection for drive or control unit

A Connection cable

B Pull-out protection

C Connection cable with LSP plug

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 PD23 from the outlet.
- 2 Open the pull-out protection (Figure 11).
- 3 Connect the drive/drive controller plug into the socket.
- 4 Close the pull-out protection, until it snap in.

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.

5.2.6 Removing the PD23

- 1 Unplug the PD23 from the outlet.
- 2 Open the pull-out protection (Figure 11).
- 3 Pull out the drive cable or the drive controller cable from the PD23.

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 PD23 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 PD23, since they have already been verified to work together.

Delayed start-up

After plugging the PD23 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 adapter



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 adapter that is permitted in your country. Be sure to use the correctly shaped plug, as shown in Figure 4.

Reducing the risk of overheating with the thermal fuse



CAUTION

Risk of accident

The PD23 is equipped with a thermal fuse that triggers when the unit overheats. If the temperature control has triggered, remove the PD23 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 PD23 from the power outlet so that the connected drive or drive control unit shuts down. The PD23 must always be accessible during operations.

Avoiding cable damage

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

**CAUTION****Risk of accident**

The cables should not be run over. In order to prevent injuries or damage to the PD23, no mechanical strain should be placed on the cables.

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.

8. Maintenance and cleaning

8.1 Maintenance

- ▶ The PD23 requires no special maintenance.

8.2 Cleaning

Clean the PD23 as needed using a dry anti-static cloth.

NOTICE

- Be sure to unplug the PD23 before you begin cleaning.
- Never clean the PD23 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 PD23 components

The PD23 consists of electronic components, cables and metal and plastic parts. You should observe all corresponding national and regional environmental regulations when disposing of the PD23.

The disposal of the end product is regulated in Germany by Elektro-G, internationally by the EU Directive 2012/19/EC (WEEE), or by any applicable national laws and regulations.



The PD23 should not be disposed of with normal household waste!



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.

EG-Konformitätserklärung

Nach Anhang IV der EMV-Richtlinie 2014/30/EU

Nach Anhang IV der EU-Niederspannungsrichtlinie 2014/35/EU

Nach Anhang VI der RoHS-Richtlinie 2011/65/EU

Der Hersteller

EU Declaration of Conformity

In compliance with Appendix IV of the EMC-Directive 2014/30/EU

In compliance with Appendix IV of the LVD-Directive 2014/35/EU

In compliance with Appendix VI of the EU RoHS Directive 2011/65/EU

The manufacturer:

DewertOkin GmbH
Weststraße 1
32278 Kirchlengern
Deutschland - Germany

erklärt hiermit, dass das Produkt

declares that the following product

AC/DC ADAPTER PD23¹⁾

POWER SUPPLY PD23¹⁾

die Anforderungen folgender EG-Richtlinien erfüllt:

meets the requirements of the following EU directives:

Richtlinie über elektromagnetische Verträglichkeit 2014/30/EU

Electromagnetic Compatibility Directive 2014/30/EU

Niederspannungsrichtlinie 2014/35/EU

Low Voltage Directive 2014/35/EU

RoHS-Richtlinie 2011/65/EU des Europäischen Parlaments und des Rates vom 8. Juni 2011 zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten.

RoHS Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Angewendete Normen

Applied standards:

- EN 60335-1:2012/A13:2017
- EN 55014-1:2006/A1:2009/A2:2011
- EN 55014-2:1997/A1:2001/A2:2008
- EN 61000-3-2:2014
- EN 61000-3-3:2013
- EN 61558-1:2005+A1:2009
- EN 61558-2-16:2009+A1:2013
- EN 62233:2008

Konstruktive Änderungen, die Auswirkungen auf die in der Montageanleitung angegebenen technischen Daten und den bestimmungsgemäßen Gebrauch haben, das Produkt also wesentlich verändern, machen diese Konformitätserklärung ungültig!

This declaration of conformity is no longer valid if constructional changes are made which significantly change the drive system (i.e., which influence the technical specifications found in the instructions or the intended use)!



Kirchlengern, Germany 26. February 2019

Dr.-Ing. Josef G. Groß
Geschäftsführer / Managing Director

¹⁾ mit DewertOkin Komponenten

¹⁾ with DewertOkin components

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