

# **AC/DC ADAPTER PD22**

## **POWER SUPPLY PD22**

### **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.

# Table of contents

<b>Foreword</b>	<b>3</b>
<b>Disclaimer and exclusion of liability</b>	<b>3</b>
<b>Creation of a complete operating instruction manual for the entire end product</b>	<b>3</b>
<b>Table of contents</b>	<b>4</b>
<b>1. General Information</b>	<b>6</b>
1.1 About these installation instructions	6
1.2 Safety notices contained in the installation instructions and operating instructions for the entire machine	6
1.3 Conventions used	6
<b>2. Safety notices</b>	<b>7</b>
2.1 Proper and intended usage	7
2.2 Selection and qualification of personnel	7
2.3 Ratings plate of the PD22	8
<b>3. Description</b>	<b>10</b>
3.1 PD22 components	10
<b>4. Technical specifications</b>	<b>13</b>
4.1 Technical specifications of the PD22	13
4.2 Dimensionens of the PD22	14
<b>5. Installation</b>	<b>15</b>
5.1 Safety notices to observe during installation	15
5.2 Installation procedure	15
<b>6. Operating notes</b>	<b>17</b>
6.1 General information	17
<b>7. Troubleshooting</b>	<b>19</b>
<b>8. Maintenance and cleaning</b>	<b>20</b>
8.1 Maintenance	20
8.2 Cleaning	20
<b>9. Disposal</b>	<b>21</b>
9.1 Packaging material	21
9.2 PD22 components	21


<b>Additional information</b>	<b>22</b>
<b>EU Declaration of Conformity</b>	<b>24</b>

# 1. General Information

## 1.1 About these installation instructions

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

 <b>CAUTION</b>
<p>The notices in these instructions must be followed! Following the guidelines during installation and connection procedures will help to minimize:</p> <ul style="list-style-type: none"> <li>• the risk of accident and injury, and</li> <li>• damage to the PD22 or to the end product.</li> </ul>

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 PD22,

- 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

 <b>WARNING</b>
<p>WARNING indicates a hazardous situation which could result in death or serious injury.</p>

 <b>CAUTION</b>
<p>CAUTION indicates a hazardous situation which could result in minor or moderate injury.</p>


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

## 2. Safety notices

### 2.1 Proper and intended usage

The PD22 is intended for use:

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

 <b>CAUTION</b>
<p><b>Unfallgefahr</b></p> <p>The PD22 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 PD22 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 PD22 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 PD22 in the end product may only be performed by qualified personnel.

### 2.3 Ratings plate of the PD22









- ▶ The ratings plate shown is an example; the specifications for your PD22 may differ from this illustration.



Figure 2 Ratings plate for the PD22

<b>AC/DC ADAPTER PD22</b>	Model name
<b>CLASS 2</b>	Power Supply in compliance with UL1310
Match No.: PD22	Part designation
Model No.: ZB-H290020-T	Model number
xxxxx	Model ID number
Input: 100V - 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!
	Switched-mode power supply
	LSP socket
	Refer to the manual

### 3. Description

The PD22 is an external power supply unit intended to supply power to drives and controllers from DewertOkin. The PD22 is connected to the mains power by using a power cord. The PD22 has a non-referenced (unearthed) circuit which is separated from the supply voltage by means of doubled reinforced insulation.

#### 3.1 PD22 components

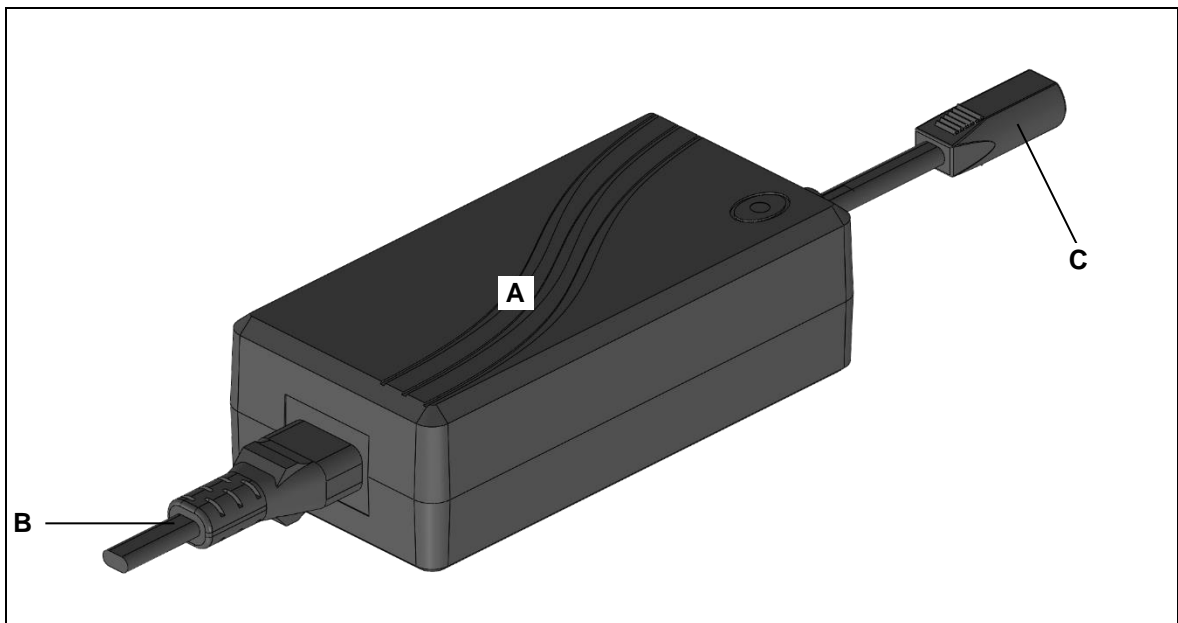



Figure 3 Components of the PD22

A PD22

B Power cord


C Connection cable for  
drive or control unit

3.1.1 Mains power connection for the PD22

 <b>WARNING</b>
<p><b>Electric shock</b></p> <p>Please follow these operating instructions carefully. You could be injured by fire or electrical shock if you do not follow these assembly instructions.</p>

**Netzkabel**

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

 <b>CAUTION</b>
<p>Only use the proper power cord that is permitted in your country. Be sure to use the correctly shaped plug, as shown in Figure 4.</p>

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

3.1.2 Power cords of the PD22

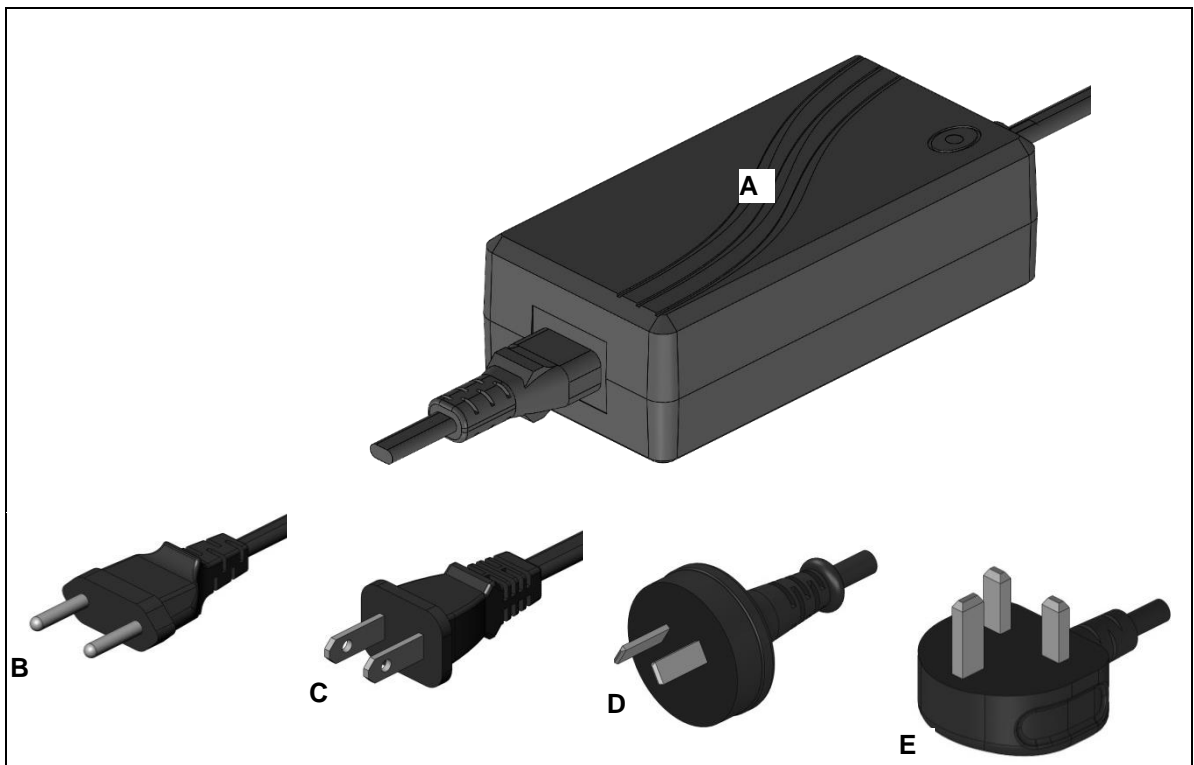


Figure 4 Example: PD22

- A PD22
- B Power cord (continental Europe version)
- C Power cord (USA version)
- D Power cord (Australian version)
- E Power cord (United Kingdom version)

### 3.1.3 Electrical Output

The outlet for the drive system is a LSP socket.

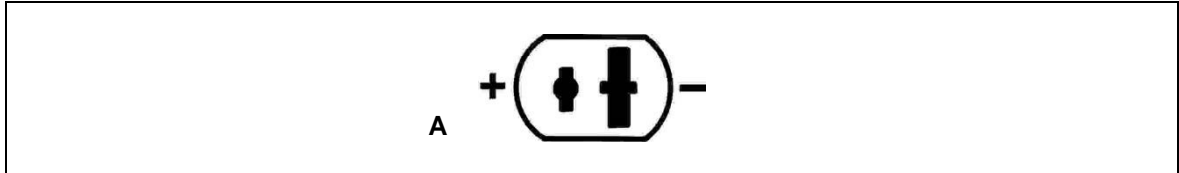


Figure 5 Electrical outlet

A Connection for LSP socket

## 4. Technical specifications

### 4.1 Technical specifications of the PD22

Mains power supply	100 - 240V AC 50/60Hz
Output voltage (under no load)	max. 31V DC
Output voltage / output power	Output: 29V $\approx$ 58W for continuous operations
Output voltage / output current	29V $\approx$ 2A for continuous operations
Primary fuse	T3.15A
Standby (no load)	$\leq$ 0.21W
Degree of efficiency	$\geq$ 0,88
Efficiency class	EFFICIENCY LEVEL <b>VI</b>
Mode of operations <sup>1)</sup>	Duty Cycle max 10%; max T ON 2min
Protection class	II
Protection degree	IP20
Length of power supply cable <sup>2)</sup>	< 2000mm
<b>Dimensions and weight</b>	
Length x width x height	approx. 120mm x 59mm x 37mm
Weight	approx. 230g
<b>Ambient conditions for operation, storage and transport</b>	
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

<sup>1)</sup> 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!

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

## 4.2 Dimensionens of the PD22

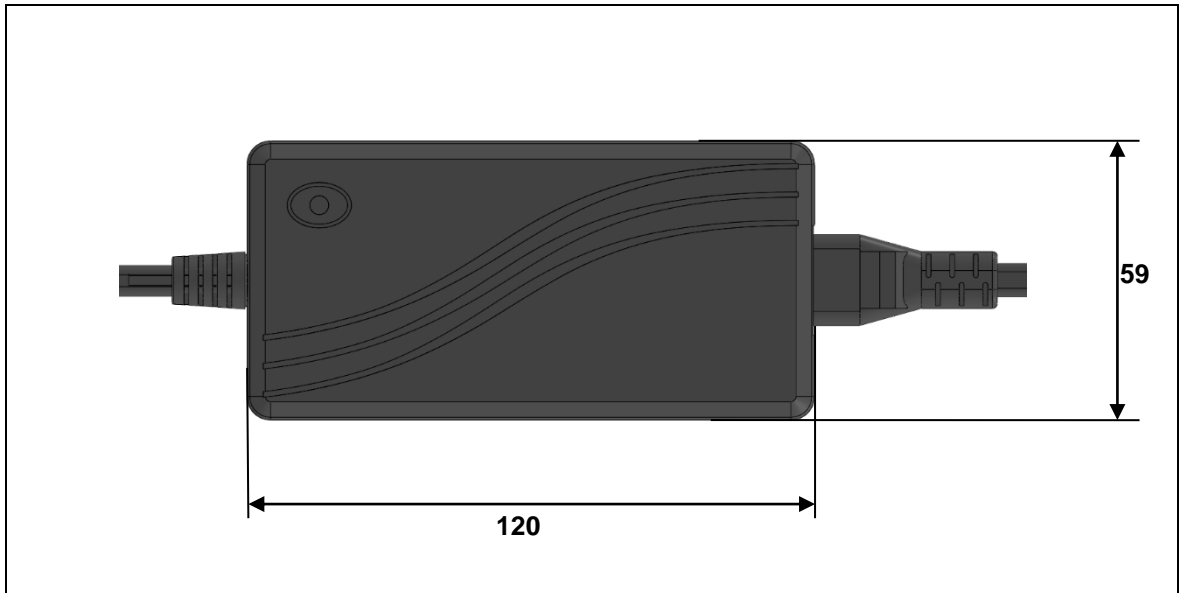


Figure 6 Dimensions of the PD22, top view (in mm)

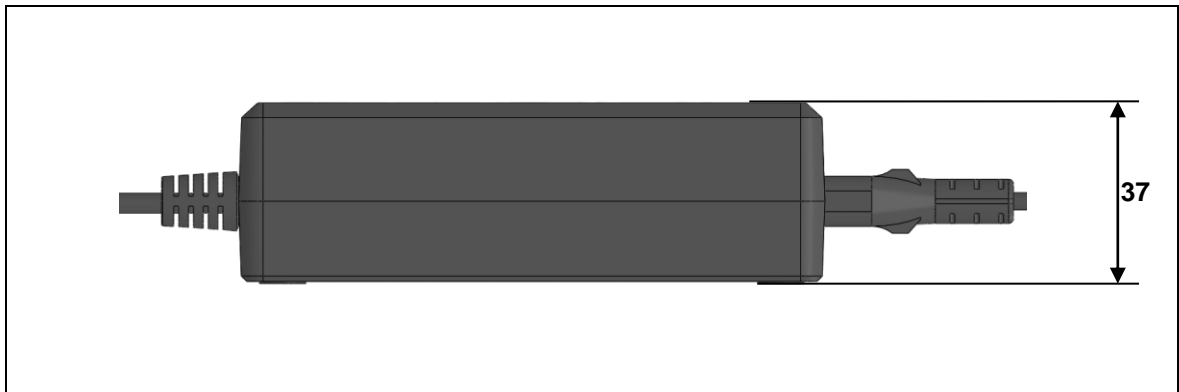


Figure 7 Dimensions of the PD22, side view (in mm)

## 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 PD22 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 PD22, make sure that you are observing all of the safety notices found in the “Safety notices to observe during installation” section.

#### 5.2.1 Installation the PD22

The PD22 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

##### Electric shock

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 Connecting the drive or drive control unit to the PD22

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

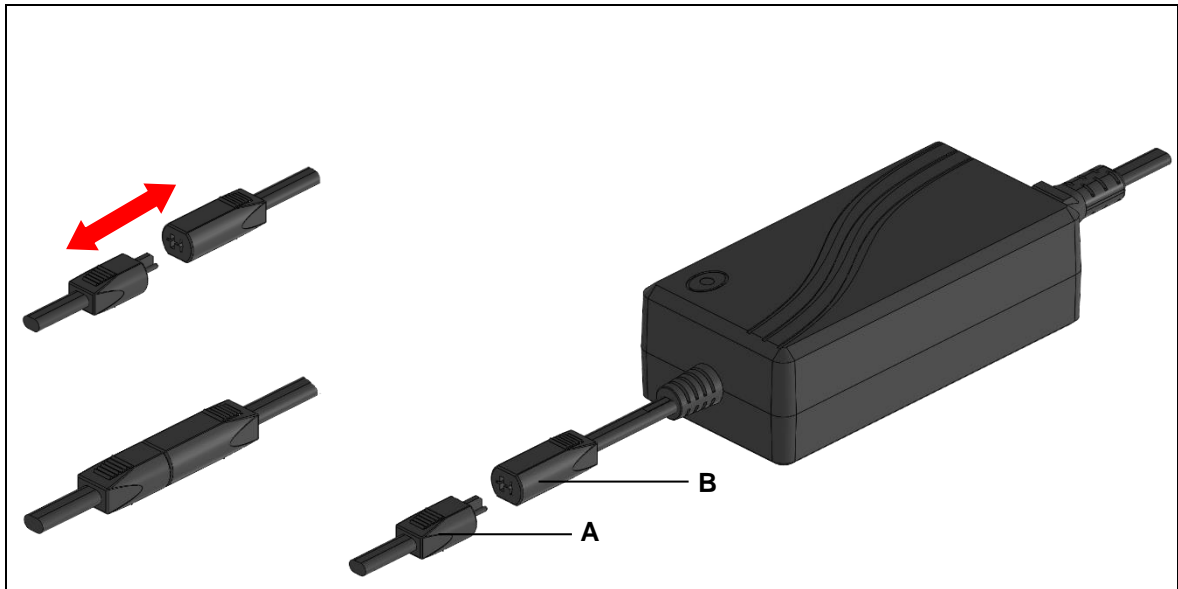


Figure 8 Connection for drive or control unit

**A** Connection cable with LSP plug

**B** Connection socket

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/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.

### 5.2.4 Removing the PD22

- 1 Unplug the power plug from the outlet.
- 2 Pull out the drive cable or the drive controller cable from the PD22.



## 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 PD22 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 PD22, 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 4.

#### Reducing the risk of overheating with the thermal fuse



#### CAUTION

##### Risk of accident

The PD22 is equipped with a thermal fuse that triggers when the unit overheats. If the temperature control has triggered, remove the PD22 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 PD22 from the power outlet so that the connected drive or drive control unit shuts down. The power plug 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 (particularly the mains cable and connecting cable) should not be run over. In order to prevent injuries or damage to the PD22, 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.
Antriebe lassen sich plötzlich nicht mehr verfahren/bewegen.	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 PD22 requires no special maintenance.

### 8.2 Cleaning

- ▶ Clean the PD22 as needed using a dry anti-static cloth.

**NOTICE**

- Be sure to unplug the PD22 power cord before you begin cleaning.
- Never clean the PD22 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 PD22 components

The PD22 consists of electronic components, cables and metal and plastic parts. You should observe all corresponding national and regional environmental regulations when disposing of the PD22.

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 PD22 should not be disposed of with normal household waste!

## Additional information

### PD22

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 <sup>2</sup>	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.

## 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 PD22<sup>1)</sup>**

**POWER SUPPLY PD22<sup>1)</sup>**

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

<sup>1)</sup> mit DewertOkin Komponenten

<sup>1)</sup> with DewertOkin components



DewertOkin GmbH  
Weststraße 1  
32278 Kirchlengern, Germany  
Tel: +49 (0)5223/979-0  
Fax: +49 (0)5223/75182  
<http://www.dewertokin.de>  
[Info@dewertokin.de](mailto:Info@dewertokin.de)

ID No.: 90329