



# **PD18 POWER SUPPLY**

## **Installation Instructions**

**(Translation of the original installation instructions)**



# Foreword

## Document revision history

Version	Date	Modification, change
1.0	07/18	First release

## 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.

## Usage in medical products

The PD18 POWER SUPPLY is not a medical product. If used in a medical end product, you (the end manufacturer) are obliged to ensure compliance with EC directives and to ensure that other pertinent medical product regulations are maintained.

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# 1. General Information

These installation instructions must be observed in order to install this PD18 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.



## 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 PD18 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.

### Availability of this document

As manufacturer of the end product, you are obligated to comply with Machinery Directive 2006/42/EC. This directive stipulates that the installation instructions must be kept on file for governmental inspection purposes.

## 1.1 Safety notices within the installation instruction and the operating instructions for the entire machine

The manufacturer of the complete machine (the end product) is only permitted to operate the PD18 POWER SUPPLY (by itself an incomplete machine)

- when the end product (for which the PD18 POWER SUPPLY is intended) 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.

## 1.2 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, if not avoided, could result in death or serious injury.



## CAUTION

CAUTION indicates a hazardous situation which, if not avoided, 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 PD18 POWER SUPPLY is intended for use

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



#### CAUTION

##### Risk of accident

This PD18 POWER SUPPLY should only be used for the applications described above. Any other use is forbidden. Improper usage 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 PD18 POWER SUPPLY 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 PD18 POWER SUPPLY 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

This PD18 POWER SUPPLY should only be installed into the end product by someone who has completed training in electronic motor assembly or has equivalent qualifications.

You should only install this PD18 POWER SUPPLY when you are qualified to do so. Otherwise, a properly qualified person should be found for this task.

### 2.3 Ratings plate for the PD18 POWER SUPPLY

- ▶ The ratings plate shown is an example; the specifications for your PD18 POWER SUPPLY may differ from this illustration.

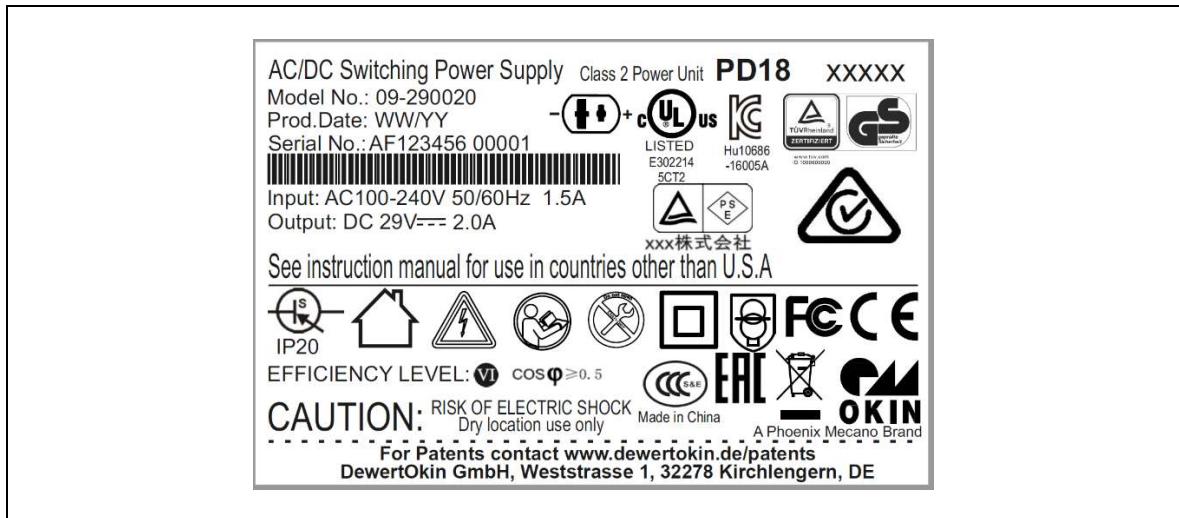










Figure 1 Example: Ratings plate for the PD18 POWER SUPPLY

<b>PD18</b>	Model name
Class 2 Power Unit	Power supply in compliance with UL1310
xxxxxx	Model ID number
Model No.	Model number
Prod.date	Calendar week / year
Serial No.	Serial number
Input: AC100-240V 50/60 Hz	Input voltage and frequency
1.5 A	Current consumption
Output: DC 29 V = 2.0 A	Output voltage and permitted max. output current during continuous operations
IP20	Protection degree
	Switched-mode power supply
	Use in dry rooms only!
	Protection class: II
	Short-circuit-proof safety transformer



	Compliance
EFFICIENCY LEVEL: 	Efficiency class
	Follow all special disposal instructions!
	LSP socket

### 3. Description

The PD18 POWER SUPPLY is an external power supply unit intended to supply power to drives and controllers from DewertOkin. The PD18 POWER SUPPLY is connected to the mains power using a mains power cord. The PD18 POWER SUPPLY has a non-referenced (unearthed) circuit which is separated from the supply voltage by means of doubled reinforced insulation.

#### 3.1 Device components – PD18 POWER SUPPLY

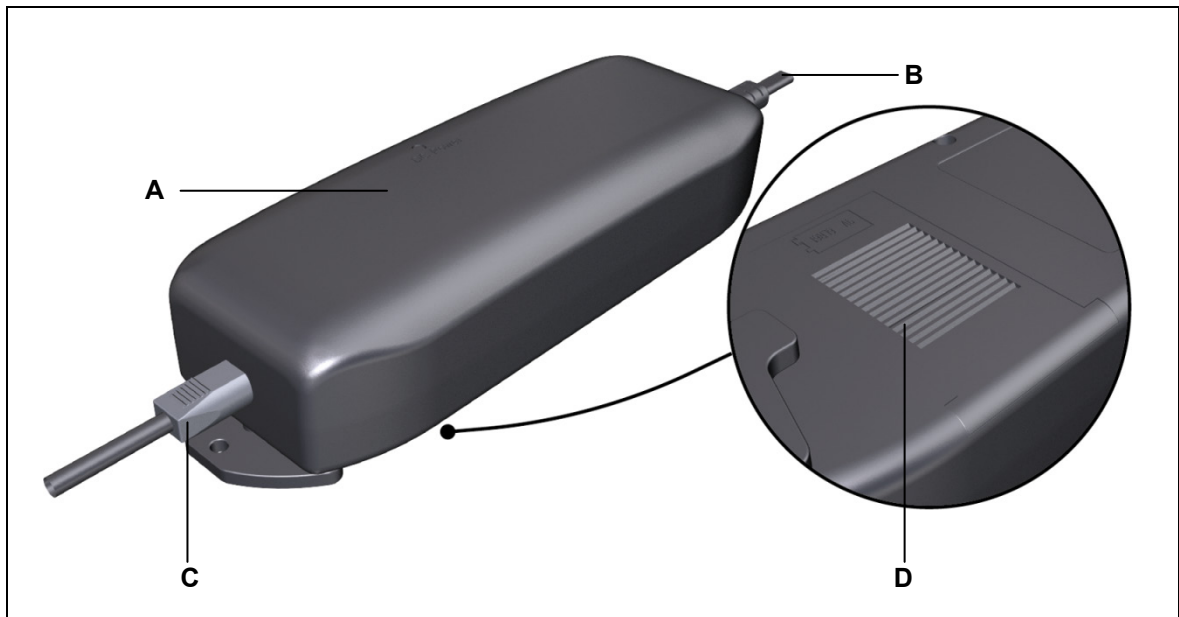


Figure 2 Components of the PD18 POWER SUPPLY

- |   |  |
|---|--|
| <b>A</b> PD18 POWER SUPPLY                          | <b>B</b> Power supply via the power cord |
| <b>C</b> Connecting cable for drive / control cable | <b>D</b> Battery compartment             |

##### 3.1.1 Battery-operated reset function for the PD18 POWER SUPPLY

The battery compartment in the PD18 POWER SUPPLY 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.

3.1.2 Power supply connection for the PD18 POWER SUPPLY

 <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>

**Power cord**

The appropriate power cord is included, depending on the regional version (USA, continental Europe (EURO), the UK, Australia or Japan).

 <b>CAUTION</b>
<p>Only use the proper power cord that is permitted in your country. Be sure to use the correct plug adapter, as described in Figure 3.</p>

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

3.1.3 Floor unit, PD18 POWER SUPPLY

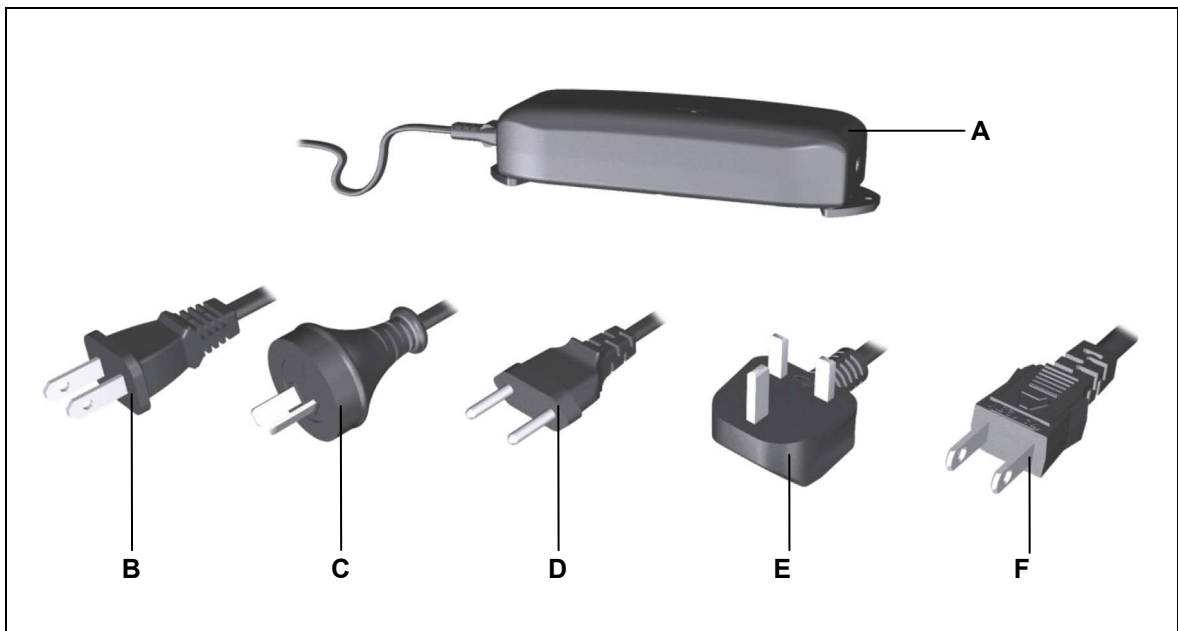


Figure 3 Example: PD18 POWER SUPPLY

- |  |  |
|--|--|
| <b>A</b> PD18 POWER SUPPLY                   | <b>B</b> Power cord (USA version)                |
| <b>C</b> Power cord (Australian version)     | <b>D</b> Power cord (continental Europe version) |
| <b>E</b> Power cord (United Kingdom version) | <b>F</b> Power cord (Japanese version)           |

**3.1.4 Electrical output (optional)**

An LSP plug is used to connect the drive system.



Figure 4 Electrical output: Connection for the LSP plug

## 4. Technical specifications

### 4.1 PD18 POWER SUPPLY

Mains power supply connection	100 – 240 V AC 50/60 Hz
Output voltage (under no load)	Max. 30 V DC
Output voltage / output current	Output: 29 V $\overline{=}$ 2 A for continuous operations
Output voltage / output current	24 V $\overline{=}$ 5.5 A for intermittent operations: 2 min./18 min. <sup>1)</sup>
Primary fuse	4.00 A
Standby (no load)	≤ 0.15 W (without load at the output)
Degree of efficiency	≥ 0.875
Power supply for the battery-operated reset function	Two nine-volt batteries (type 6LR61)
Protection class	II
Variants	LSP socket
Protection degree	IP20
Length of power cord <sup>2)</sup>	approx. 1200 mm
<b>Dimensions and weight</b>	
Length x width x height (with adapter plate)	Approx. 216 mm x 72 mm x 47 mm
Weight (with batteries)	Approx. 430 g
<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 +25 °C From +50 °F to +77 °F
Relative humidity	From 30% to 75%
Air pressure	From 800 hPa to 1060 hPa
Height	< 2000 m

<sup>1)</sup> Mode of operation: intermittent duty 2 min./18 min. This means that after the unit is operated with its rated load for up to two minutes 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 Dimensions of the PD18 POWER SUPPLY

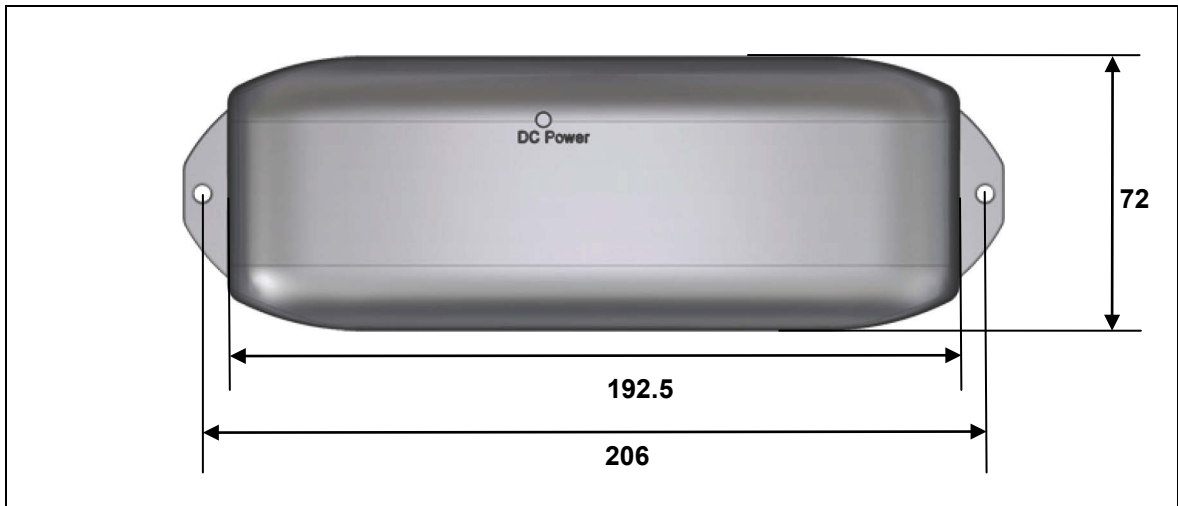


Figure 5 Dimensions of the PD18 POWER SUPPLY, top view (in mm)

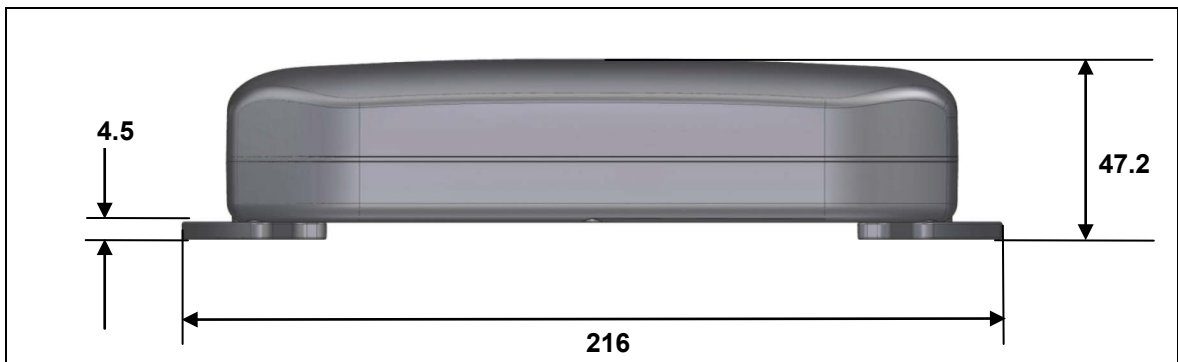


Figure 6 Dimensions of the PD18 POWER SUPPLY, side view (in mm)

## 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 PD18 POWER SUPPLY in the end product.

#### Avoiding electrical faults

The power supply cord (when available) 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 shield covering on the sockets protects the drive connections from mechanical damage and accidental unplugging.

### 5.2 Installation procedure

Before installing the PD18 POWER SUPPLY, 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 PD18 POWER SUPPLY

The PD18 POWER SUPPLY 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 section "Electrical connection").



#### 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 PD18 POWER SUPPLY – 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><b>NOTICE</b></p> <p>Both batteries should be replaced/inserted at the same time. Use batteries of similar:</p> <ul style="list-style-type: none"> <li>• age,</li> <li>• type,</li> <li>• manufacturer.</li> </ul>
---

- 1 Open the battery cover located on the bottom of the PD18 POWER SUPPLY.
- 2 Connect both batteries to the battery clips. Be sure not to reverse the polarity.
- 3 Insert the connected batteries into the battery compartment. Close the battery cover; push on until it clicks into place.

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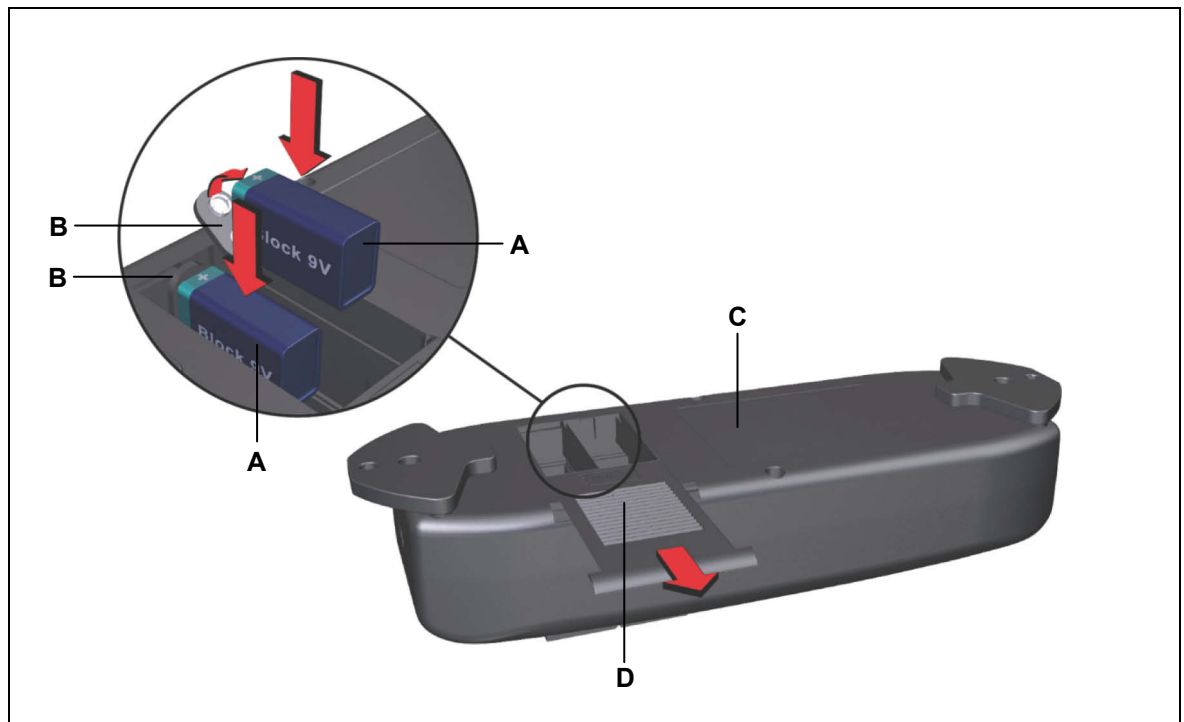


Figure 7 Connecting the batteries

- |  |                             |
|--|-----------------------------|
| <b>A</b> 9-V battery (type 6LR61)        | <b>B</b> Battery clip       |
| <b>C</b> PD18 POWER SUPPLY (bottom side) | <b>D</b> Battery case cover |

### 5.2.4 Connecting the drive/drive controller to the PD18 POWER SUPPLY

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

- For a drive with two available sockets, connect the PD18 POWER SUPPLY to the power supply socket. The other socket is intended for connecting a handset and labelled as such.
- If the drive only contains one possible connection, use a forked (Y) cable. The Y cable merges the connections from the handset and the PD18 POWER SUPPLY and then connects them to the drive.

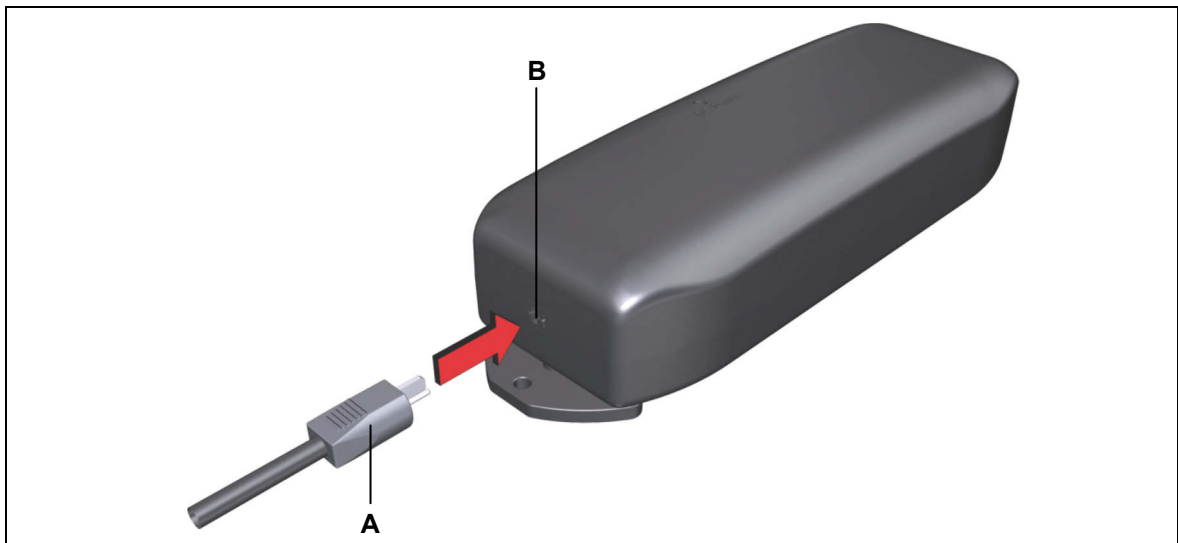


Figure 8 Connection for the drive/drive controller

A Connection cable with LSP plug

B Connection socket

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

#### CAUTION

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

- 1 Pull out the mains plug from the outlet.
- 2 Connect the drive/drive controller plug or the plug from the Y cable 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 Installing the PD18 POWER SUPPLY

- 1 Pull out the mains plug from the outlet.
- 2 Remove the connecting cable of the drive/drive controller or the Y-cable plug from the PD18 POWER SUPPLY.

## 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 assembly and operation of the PD18 POWER SUPPLY 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 PD18 POWER SUPPLY, 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 and optional 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 cord that is permitted in your country. Be sure to use the correct plug adapter, as described in Figure 3.

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



#### CAUTION

##### Risk of accident

The PD18 POWER SUPPLY is equipped with a thermal fuse that triggers when the unit overheats. If the temperature control has triggered, remove the PD18 POWER SUPPLY 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 of a connected drive or drive control unit

Unplug the PD18 POWER SUPPLY from the power outlet if there is an emergency. The mains power plug must be accessible at all times during operation so that it can be unplugged when the drive or drive controller need to be powered down.

### 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 PD18 POWER SUPPLY, no mechanical strain should be placed on the cables.

## 6.2 Battery-operated reset function

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 PD18 POWER SUPPLY 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.

**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 "PD18 POWER SUPPLY – connecting the nine-volt batteries" 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 PD18 POWER SUPPLY.

**NOTICE**

The following measures can be taken in order to avoid battery corrosion and resulting damages to the PD18 POWER SUPPLY:

- 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) and
- 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 PD18 POWER SUPPLY requires no special maintenance.

### 8.2 Cleaning

- ▶ Clean the PD18 POWER SUPPLY as needed using a dry anti-static cloth.

<b><i>NOTICE</i></b>
<ul style="list-style-type: none"><li>• Be sure to unplug the PD18 POWER SUPPLY's power cord before you begin cleaning.</li><li>• Do not use a cleanser that contains benzene, alcohol or similar solvents.</li><li>• Be sure that you do not damage the connecting cables during the cleaning.</li></ul>

## 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 Components in the PD18 POWER SUPPLY

The PD18 POWER SUPPLY consists of electronic components, cables and metal and plastic parts. You should observe all corresponding national and regional environmental regulations when disposing of the PD18 POWER SUPPLY.

The disposal of the 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.



This PD18 POWER SUPPLY 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

### PD18 POWER SUPPLY

Power cable recommended for use in the USA and Canada:

Power cable (refer to UL 1310)				
Flexible cord type	Conductor (wire) cross-section	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

Power cable recommended for use outside of the USA and Canada:

Power cable (refer to IEC/EN 61558-1)				
Flexible cord type	Conductor (wire) cross-section	Number of conductors	Cord length	
			Minimum	Maximum
H05VV-F, H05VVH2-F, H05RR-F	0.75 mm <sup>2</sup>	2	2 m	4 m

## 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 Kirchlegern

Germany

declares that the following products

### **POWER SUPPLY PD18 with DewertOkin components**

meets the requirements of the following EU directives:

**Electromagnetic Compatibility Directive 2014/30/EU**

**Low Voltage Directive 2014/35/EU**

**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**

Applied standards:

- 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

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

Kirchlegern, Germany. June 26, 2018



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Managing Director



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