

DL1A with CBD6S **User manual** 



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### **Preface**

#### Dear User.

We are delighted that you have chosen a product from LINAK®.

LINAK systems are high-tech products based on many years of experience in the manufacture and development of actuators, electric control boxes, controls and chargers.

This User Manual does not address the end-user. It is intended as a source of information for the manufacturer of the equipment or system only, and it will tell you how to install, use and maintain your LINAK electronics. It is the responsibility of the manufacturer of the end-use product to provide a User Manual where relevant safety information from this manual is passed on to the end-user.

We are sure that your LINAK product will give you many years of problem-free operation. Before our products leave the factory they undergo full function and quality testing. Should you nevertheless experience problems with your systems, you are always welcome to contact your local dealer. LINAK subsidiaries and some distributors situated all over the world have authorised service centres, which are always ready to help you.

LINAK provides a limited warranty on its products. This warranty is, however, subject to correct use in accordance with the specifications, maintenance being done correctly, and any repairs being carried out at a service centre, which is authorised to repair LINAK products. Changes in installation and use of LINAK products/ systems can affect their operation and durability. The products are not to be opened by unauthorised personnel. You can review the full terms of the LINAK warranty on the LINAK website www.linak.com/warranty.

The User Manual has been written based on of our present technical knowledge. We are constantly working on updating the information and we therefore reserve the right to carry out technical modifications.

#### LINAK A/S

## Important information

Important information on LINAK® products can be found under the following headings:



## Warning!

Failure to comply with these instructions may result in accidents involving serious personal injury.



Failing to follow these instructions can result in the product being damaged or being destroyed.

# **Safety instruction**



## General

Safe use of the system is possible only when the operating instructions are read completely and the instructions contained are strictly observed.

Failure to comply with instructions marked with the "NOTE" symbol may result in serious damage to the system or one of its components.



It is important for everyone who is to connect, install, or use the systems to have the necessary information and access to this User Manual. Follow the instructions for mounting — risk of injury if these instructions are not followed.



The appliance is not intended for use by young children or infirm persons without supervision.



If there is visible damage on the product it must not be installed.



Note that during construction of applications, in which the actuator is to be fitted, there must be no possibility of personal injury, for example the squeezing of fingers or arms.



Assure free space for movement of application in both directions to avoid blockade.

## Before installation, re-installation, or troubleshooting:

- Stop the DL1A
- Switch off the power supply and pull out the mains plug.
- Relieve the DL1A of any loads, which may be released during the work.

## Before start-up:

- Make sure that the system has been installed as instructed in this User Manual.
- Make sure that the voltage of the control box is correct before the system is connected to the mains.
- System connection. The individual parts must be connected before the control box is connected to the mains. See the User Manual for LINAK actuators, if necessary.

## **During operation:**

- If the control box makes unusual noises or smells, switch off the mains voltage immediately.
- Take care that the cables are not damaged.
- Unplug the mains cable on mobile equipment before it is moved.
- The products must only be used in an environment, that corresponds to their IP protection.

## Misc.

The actuator system has a sound level below 55 dB(A) in typical applications.

Updated manuals and declarations can always be found here: www.linak.com/deskline

## Only for EU markets



This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.



Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

# **Only for Non EU markets**



Persons who do not have the necessary experience or knowledge of the product/products must not use the product/products. Besides, persons with reduced physical, sensory or mental abilities must not use the product/ products, unless they are under surveillance or they have been thoroughly instructed in the use of the apparatus by a person who is responsible for the safety of these persons.



Moreover, children must be under surveillance to ensure that they do not play with the product.



It is the operator's responsibility to ensure that there is free space for the application to move without risk for the operator or bystanders before operating the application.

## Misuse



Do not overload the actuators – this can cause danger of personal injury and damage to the system.



Do not use the actuator system for lifting persons. Do not sit or stand on a table while operating – risk of personal injury.



Do not use the system in environments other than the intended indoor use

## **Repairs**

In order to avoid the risk of malfunction, all DESKLINE® repairs must only be carried out by authorised LINAK service centres or repairers, as special tools must be used and special gaskets must be fitted. Products under warranty must also be returned to authorised LINAK service centres.

Further information on DESKLINE warranty can be found on the LINAK website www.linak.com/warranty.



### Warning!

If any of the DESKLINE® products are opened, there will be a risk of subsequent malfunction.



### Warning!

The DESKLINE® systems do not withstand cutting oil.

## Manufacturer's declaration

#### **DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY**

LINAK A/S Smedevænget 8 DK - 6430 Nordborg

Herewith declares that LINAK DESKLINE® products as characterized by the following models and types:

Control Boxes: CBD6Sa000bOA-c09 (Where -a: can be P, C or H, -b: can be 2, 3 or 4 and -c: can be 0 or

Linear Actuators: LA31

Built in actuator(s): DB5, DB6, DB14,

Lifting Columns: DL1A, DL4S, DL2, DL5, DL6, DL7, DL8, DL9, DL10, DL11, DL12, DL14, DL15, DL16,

DL17, DL18, DL19, DL20, DL21

Desk Panels: DPA, DPB, DPH, DPF1K, DPF1M, DPF2K, DPF3K, DPF1C, DPF1D, DPF1U, DPF1W, DPF4T, DPG1K, DPG1M, DPG1B, DPG1C, DPT, DP1V01, DP1CS, DP1K, DP1U, DP2K, DP3K, DPN, DPWA Accessories: BLE2LIN002, BLE2LIN003, DESK SENSOR 1, USB2LIN, DCConnector

complies with the following parts of the Machinery Directive 2006/42/EC, ANNEX I, Essential health and safety requirements relating to the design and construction of machinery:

1.1.2 a) Special use\*

1.1.2 b) Selection of the most appropriate methods\*

1.1.2 c) Foreseeable misuse\*
1.1.2 d) Operator constrains due to the use of personal protective equipment\*

1.1.3 Materials and products\*

1.2.1 Safety and reliability of control systems

1.2.2 Control devices. Shape, readability, overview 1.2.3 Starting

1.2.4 Stopping\*

1.5.1 Electricity supply 1.5.10 Radiation, EMC. Emission of electromagnetic radiation, X-rays,  $\gamma$ -rays\*

1.5.11 External radiation

\*need to be further evaluated in the end product

We confirm that prior to market introduction the relevant technical documentation is compiled in accordance with part B of Annex VII and the assembly instruction pursuant to Annex VI.

This documentation or part hereof will be transmitted by post or electronically to a reasoned request by the national authorities

The products mentioned in this document are to be combined for use in height adjustable furniture.

This partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC where appropriate.

Nordborg, 2020-10-28

LINAK A/S Dragan Macura,

Regulatory Compliance Manager Deskline and Homeline Segments

Authorized to compile the relevant technical documentation

### EC DECLARATION OF CONFORMITY

LINAK A/S Smedevænget 8 DK - 6430 Nordborg

hereby declares under our sole responsibility that LINAK Actuator System for DESKLINE composed of:

Control Box(s) CBD6Sa000b0A-c09

(Where -a: can be P, C or H, -b: can be 2, 3 or 4 and -c: can be 0 or 7)

And

Linear Actuator(s)

LA31: 31abcH-defff50S, (Where -a: can be 1, 3, 6 or 7; - b can be from 1 to 8, or A or B; - c

can be from 0 to 4: - d can be 0 or 1: - e can be 0 or 1: - fff can be max 500)

Built in actuator(s)

DB5, DB6, DB14: DBabbcdefghhhiii, (Where: - a: can be 5, 6 or 14,; - b: can be 0, 1, 3 or 9; - c: can be 0, 1, B, L or S; - d: can be 0, 1 or 2; - e: can be 0, A, B or X; - f: can be 0, or A: - g: can be from 0. M. S or E: - hhh; can be from 000 to 675; - iii; can be from 000 to

630)

Lifting Column(s)

Standard columns: DLabcdefghhhiii, (Where: - a: can be 1A, 4S, 5, 6, from 8 to 12, from 14 to 21; - b: can be 0, 2, 3 or 5; - c: can be 0, A, B, D, W or x; - d: can be 0, 1, L, R or X; e: can be A, B, D or X; - f: can be 0, N, M, P or x; - g: can be 0 or E; - hhh: can be from

600 to 1100; - iii: can be from 000 to 785);

DL12: DL12abcdefggghhh (where - a can be A or B; - b can be 0 or E; -c can be 0, L, R or X; - d can be A, B, D or X; - e can be 0 or M; - f can be 0 or E; - ggg can be max 1100;

- hhh can be max 785)

DL7: DL73a0b00470645 (where - a can be 0 or R; - b can be A, B, C or D)

DL2: DL2abCcdefffggg (where - a can be 3, 6 or 7; - b can be from 0 to 3; - c can be A or B; - d can be 0, F or G; -e can be from 0 to 7; -fff can be from 300 to 500; -ggg can be from 445 to 655)

BASELIFT: BASE1000A0F100100

DPA, DPB, DPH, DPF1K, DPF1M, DPF2K, DPF3K, DPF1C, DPF1D, DPF1U, DPF1W, Desk Panel(s)

DPF4T, DPG1K, DPG1M, DPG1B, DPG1C, DPT, DP1V01, DP1CS, DP1K, DP1U, DP2K, DP3K, DPN, DPWA

BLE2LIN002, BLE2LIN003, DESK SENSOR 1, USB2LIN, DCConnector, CHUSB Accessories

Complies with EMC Directive: 2014/30/EU according to following standards: EN 61000-6-2:2005/AC:2005

EN 61000-6-3:2007/A1:2011/AC:2012

Complies with Low Voltage Directive 2014/35/EU according to the standard: EN 60335-1:2012+AC:2014+A11:2014+A13:2017+A1:2019 +A14:2019 +A2:2019

EN 62233:2008 + AC:2008

Complies with RoHS2 Directive 2011/65/EU and RoHS3 Directive 2015/863 (amending Annex II to Directive 2011/65/EU) according to the standard: EN 50581:2012

And the applicable Desk Panels and Accessories complies with the Radio Equipment Directive 2014/53/EU according to the standards listed in the RED DoC for the individual radio products

Additional information:

The system does also comply with the standard: EN 61000-6-2:2019 and EN 13849-1:2015 SRP/CS Cat. B, PL = b and SRESW PL = b Note 1: Exempted CBD6S with SW03003007 printed on the label

Nordborg, 2021-11-24

LINAK A/S Dragan Macura

Dragan Macura
Regulatory Compliance Manager
Deskline and Homeline Segments
Authorized to compile the rejevant technical documentation

Original Declaration

The RoHS mark is only applicable for the end product. Therefore, it must be obtained by the manufacturer of the end products. LINAK® can, however, supply the required material information on our products.

For more information, visit: <a href="https://www.linak.com/about/declarations/">https://www.linak.com/about/declarations/</a></a>

or contact: chemicalcompliance@linak.com

## Misc. on the DESKLINE® DL1A system

This system is a DESKLINE system developed for desks and for indoor use in offices. Do not use it in industrial kitchens or in other environments that have to be cleaned with aggressive detergents.

Do not bolt the legs to the floor so that free movement is prevented. This could cause serious damage to the legs in fault situations.

### Warranty

This DESKLINE product is subject to warranty pursuant to the terms of LINAK DESKLINE Warranty Paper, available on the LINAK website www.linak.com/warranty.

#### Maintenance

Clean dust and dirt on the outside of the system at appropriate intervals and inspect them for damage and breaks. Inspect the connections, cables, and plugs and check for correct functioning as well as fixing points.

### Cleaning the desk panel

Clean your desk panel with a soft damp cloth. Universal cleaning detergents may be used.



For disinfection of the desk panel, use a 70 percent isopropyl alcohol either as a wipe or add a small amount to a soft cloth.





The desk panel is not a sealed unit and there are electronics inside it.

If liquids or moisture enter an opening, the PCB may be damaged, and the desk panel ruined.

#### Thus:

- Avoid moisture penetrating any openings as this may damage the PCB inside the desk panel
- Avoid spraying the cleaning agent or disinfectant directly on the desk panel as moisture may penetrate openings damaging the PCB inside the desk panel



- Cleaning agents and disinfectants must not be highly alkaline or acidic (pH value must be 6 to 8), and they must not contain bleach or chlorine
- Do not use hand sanitizer gel as a cleaning agent

### Service of double-insulated products:



A Class II or **double insulated** electrical appliance is one which has been designed in such a way that it does not require a safety electric earth connection (US: ground).

The basic requirement is that no single failure can result in dangerous voltage becoming exposed so that it might cause an electric shock and that this is achieved without relying on an earthed metal casing. This is usually achieved at least in part by having two layers of insulating material surrounding live parts or by using reinforced insulation.

There is no earthing/grounding means provided on the product, and no earthing/grounding means is to be added to the product.

In Europe, a double insulated appliance must be labelled "Class II", "double insulated" or bear the double insulation symbol (a square inside another square).

Servicing a double-insulated product requires extreme care and knowledge of the system, and is to be done only by qualified service personnel. Replacement parts for a double-insulated product must be identical to the parts they replace.

## Description of the DESKLINE® DL1A system

Each DESKLINE® DL1A actuator is equipped with a motor and parallel/memory drive is ensured by means of software in the control box that also takes account of oblique load on the desk. Soft start and stop are also part of this software, which ensures a soft start and stop when adjusting the desk.

### The DESKLINE® DL1A system range contains the following products:

- 1 control box CBD6S 200 W or CBD6S 300 W (SMPS Switch Mode Power Supply)
- 1 single DL1A or 2, 3, or 4 parallel
- 1 exchangeable mains cable
- 1, 2, 3, or 4 motor cables
- DP1U/DPF1M/DPG1M/DPG1B (if memory function is required)
   DP1C/WDPL/DPT/DPF1C/DPG1C (if memory function and display is required)
   or DPA/DPB/DP1K/DP1V/DPF1K/DPG1K (if only up/down is required.)

#### Options:

Possibility of running extra actuators (LA31 with hall)

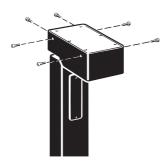
### Application of the DESKLINE® DL1A system:

Irrespective of the load, the **duty cycle 10** %  $\approx$  **2 minutes continuous use at full load followed by 18 minutes pause** stated in the data sheets, must **NOT** be exceeded as this will result in a superheating of the motor, the brake and the spindle nut. Exceeding the duty cycle will result in a dramatic reduction of the life of the system.

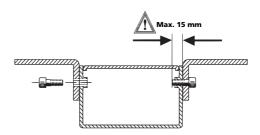
## Installation for the DL1A system

The aluminium motor housing is supplied with six M6 threaded holes for mounting on the desk frame.

- 1. Mount the motor housing on the top frame using six M6 screws with the following specifications: Quality: Min. grade 8.8
- Length: Max. 15 mm (plus top frame thickness). The screw must not go further than max. 15 mm into the motor housing
- 2. Fasten the screws thoroughly (torque: max. 7.5 Nm).



Always use six M6 screws for mounting the motor housing on the top frame



The mounting screws must not go further than max. 15 mm into the motor housing



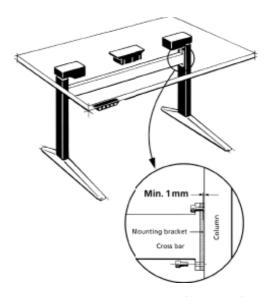
Sufficient stability of the desk is only obtained if all six M6 screws are used for mounting the motor housing on the top frame.



LINAK recommends using the DESKLINE® DL1A system in push applications with the motor housing mounted upwards.



To avoid damage of the lifting unit there must be at least 1 mm space between the ends of the two M8 screws for the mounting bracket and the lifting unit surface. Screws that are too long will come into contact with the inner parts. This will result in an irregular operation or even damage the lifting unit.

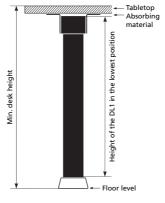


Requirement: Min. 1 mm space between ends of screws and lifting unit surface

# Mounting the tabletop

The sound from the lifting column spreads as vibrations to the tabletop which amplifies the sound. This can, however, be reduced..

1. Place vibration/shock-absorbing material between tabletop and top frame.

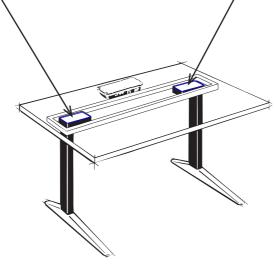


Assembled desk

## Placing the monitor

Placement of a monitor directly above the motor housing may cause malfunction of the monitor. Magnets inside the motor may interrupt the picture on the monitor depending on the distance and type of monitor. If this is the case, the problem may be solved by placing an iron plate/tube or another magnetic material, somewhat larger than the motor housing, between the

motor and the tabletop.



Recommended placement of an iron plate/tube or another magnetic material

## Installation of CBD6S (SMPS)



Do not pack the CBD6S in heat insulating material.

Place the CBD6S so it can emit heat through its surface to the surroundings.

## Mounting the CBD6S

- 1. Plug the mains cable into the CBD6S.
- 2. Place the mains cable in the groove for cable relief.



3. If needed, place the other cables in the grooves to optimise the desk design and manage the system cables.



- 4. Mount the CBD6S using two screws with a head diameter of 10 mm (8 to 10 mm can be used).
- 5. Fasten the mounting screws (max. torque 1 Nm).

#### Notes:

- If the control box is mounted in a top frame bar with the width of the motor housing, it can be mounted with one screw only
- The surface to which the control box is mounted should have an evenness better than  $\pm 0.5$  mm
- The control box can also be mounted using one or two M6 nuts and screw counterparts, see Dimensional drawings
- The mains plug must be accessible when the CBD6S is mounted so that the supply to the CBD6S can be disconnected if replacement is required.

For mounting and operation of the desk panel, please see the separate user manual for desk panels.

## Electric connection of the DL1A system



The control box must only be connected to the voltage stated on the label.



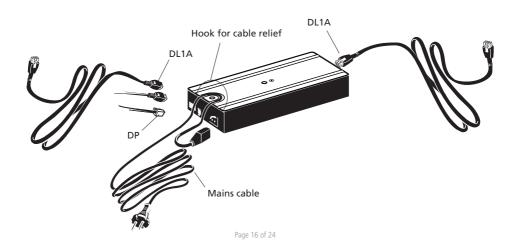
It is important to ensure that the motor cables are fixed, but not tightened, near the control box **and** near the columns. Fix the cable to the tabletop using a clip observing the **30 mm minimum bending radius (R)**.



### Connecting the system

- 1. Connect the first DL/DB to socket 1 next to port A2 on the control box using the 6-pin plug on the motor cable. Channel 1 is the channel closest to the control port.
- 2. Connect further DL/DB to sockets 2, 3 and 4 in sequence.
- 3. Connect the desk panel to control port A1 or control port A2.
- 4. Check that the voltage stated on the label corresponds to the mains power. If not, do **not** plug in mains cable.
- 5. Plug in the mains cable.
- 6. Switch on the power.





## Initialisation of the DESKLINE DL1A parallel systems

To obtain parallel operation of a DESKLINE® system it is necessary that the system at first activation drives the lifting units DL1 in end stop position bottom. Thus the control box registers the bottom position for each lifting unit.

If an extra actuator apart from the DL1 is connected to the system this actuator must also be initialised. Drive the actuator to inner posistion and then to outer position.

Besides the system has to be initialised when exchanging the lifting units or the control box.

## Accessories

## Ordering accessories

Order from your nearest LINAK® dealer or subsidiary.

## Accessories

Please contact your nearest LINAK dealer for information.



### Warning!

By unauthorised opening of the system there is a risk that it may malfunction at a later date.

## Spare parts

Please contact your nearest LINAK dealer for information on spare parts.

## Disposal of LINAK's products

As LINAK's customers often ask us how our products can be disposed or scrapped we have prepared this guidance that enables a classification to different waste fractions for recycling or combustion.

#### Guidance

We recommend our products to be disassembled as much as possible and divided into different waste groups for recycling or combustion.

For example, waste can be sorted into metals, plastics, cable scrap, combustible material, and recoverable resources.

Some of these main groups can be further divided into subgroups; e.g. metal can be divided into steel/aluminium/copper and plastic can be divided into ABS/PA/PE/PP.

As an example, the table below breaks down the different components in LINAK products to various recycling groups:

Product	Components	Recycling group
Columns/ Actuator :	Spindle and motor Plastic housing Cable PCB boards	Scrap Plastic recycling or combustion Cable scrap or combustion Electronics scrap
Control Box :	PCB boards Plastic housing Cable Transformer	Electronics scrap Plastic recycling or combustion Cable scrap or combustion Metal scrap
Handset/Control :	Plastic housing Cable PCB board	Plastic recycling or combustion Cable scrap or combustion Electronics scrap

By now almost all our cast plastic parts are supplied with an interior code for plastic type and fibre contents, if any.

## Main groups of disposal

Product main groups	Metal scrap	Cable scrap	Electronics scrap	Plastic recycling or combustion	Comments
DL1A	X	Х	X	X	
CBD6S			X	X	
DPXX		Х	Х	X	

## Disposal of batteries

Details regarding safe disposal of used and leaking batteries:

Batteries should be disposed in accordance with appropriate federal, state and local regulations. LINAK recommends that used or leaking batteries are disposed through local recycling system. Please do not throw used or leaking batteries in normal household waste or in nature. This will cause damage to the environment.

### How to deal with leaking batteries.

Leaking batteries should be disposed as described above.

If leaking batteries are discovered in the product the batteries must be removed at once to minimise damage to the product. If leaking batteries are left in the product it might become defect.

It is recommended to use plastic gloves when handeling leaking batteries. The contents of a leaking batteries can cause chemical burns and respiratory irritation.

If exposed to the contents of a leaking battery, please wash with soap and water. If irritation persists, please seek medical attention. In case of eye contact, please flush eyes thoroughly with water for 15 minutes and seek medical attention."

## Labels

Label for DL1A



Label for CBD6S 200 W (SMPS)

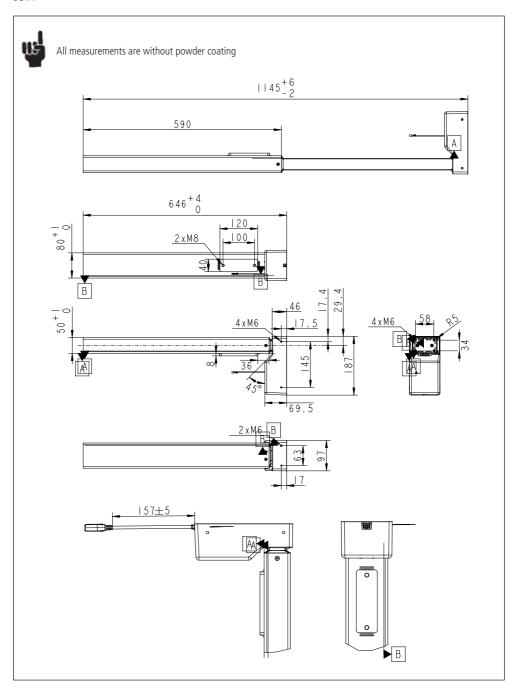


Label for CBD6S 300 W (SMPS) up to 4 channels

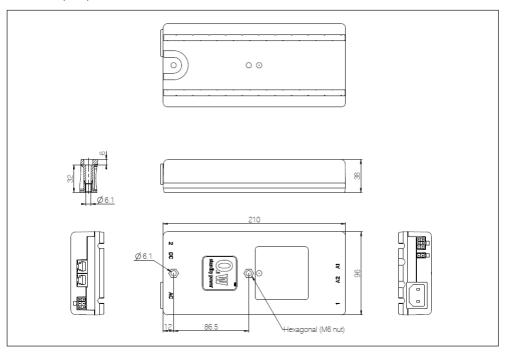


## **DRAWING APPENDIX**

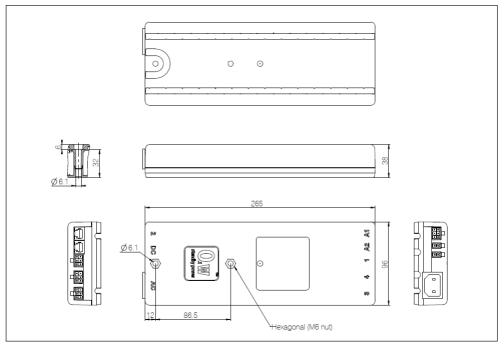
DL1A



## CBD6S 200W (SMPS)



## CBD6S 300W (SMPS) up to 4 channels



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### LINAK APPLICATION POLICY

The purpose of the application policy is to define areas of responsibilities in relation to applying a LINAK product defined as hardware, software, technical advice, etc. related to an existing or new customer application.

LINAK products as defined above are applicable for a wide range of applications within the Medical, Furniture, Desk and Industry areas. Yet, LINAK cannot know all the conditions under which LINAK products will be installed, used, and operated, as each individual application is unique.

The suitability and functionality of the LINAK product and its performance under varying conditions (application, vibration, load, humidity, temperature, frequency, etc.) can only be verified by testing, and shall ultimately be the responsibility of the LINAK customer using any LINAK product.

LINAK shall be responsible solely that the LINAK products comply with the specifications set out by LINAK and it shall be the responsibility of the LINAK customer to ensure that the specific LINAK product can be used for the application in question.

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