DL4S system with CBD6S
User manual
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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/system 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 LINAK product/system, 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 warranty on all its products. This warranty, however, is 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.

The User Manual has been written based on 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
Valid for:

This User Manual is valid for the following products:
(See the first 3 - 5 characters on the label)

Columns: 1 single DL4S or 2 in parallel

Control boxes: CBD6S 200W, CBD6S 300W

Controls: DP1U / DPF1M (if memory function is required)
DPT / DPF1C / DP1CS (if memory function and display is required) or
DPA / DPB / DPH / DP1K / DP1V / DPF1K (if only up/down is required)
DPF1D (If display is required)
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 DL4S
• Pull out the mains plug.
• Relieve the DL4S 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 noise 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 55dB(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.

**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 workshops or repairers, as special tools must be used and special gaskets must be fitted. Lifting units under warranty must also be returned to authorised LINAK workshops.

⚠️ 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.

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: CBD6S
- Linear Actuators: DB5, DB6, DB7, DB9, DB12, DB14, DB16, LA23, LA31
- Desk Panels: DPA, DPB, DPH, DPF, DPG1K, DPG1M, DPG1B, DPG1C, DPT, DP1, DP1CS, DP1K, DP1V, DP1U
- RF Controls: HB10RF, HB20RF, RFT, RFRL
- Accessories: BA001, SLS, Kick & Click

comply 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:

1.5.1 Electricity supply

The relevant technical documentation is compiled in accordance with part B of Annex VII and that this documentation or part hereof will be transmitted by post or electronically to a reasoned request by the national authorities.

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, 2017-12-08

John Kling, B.Sc.E.E.
Certification and Regulatory Affairs
Authorized to compile the relevant technical documentation
**Misc. on the DESKLINE® DL4S 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 - 60 months on DESKLINE® (NEW)**

This will be valid for all DESKLINE® products produced after the 1st of May 2015.

Products produced before 1st of May 2015 will still be covered by 36 months.

Products used in DESKLINE application: If these products are used in another application, they will be covered by 18 months warranty.

If there is any doubt that returned products are within the warranty period it is to be treated as if they are covered by the warranty. We recommend that you use the date of the Control box or actuator as reference if possible. We will have our purchase no. printed on the label.

**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.

**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 connection to electrical earth (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.

⚠️ The cleaners and disinfectants must not be highly alkaline or acidic (pH value 6-8).
ETL-marking
Due to space limitations, the complete ETL-marking demands are not represented on the marking plates.

The full ETL Recognized Component markings are shown here.

C/N 120690
Conforms to UL962
Cert. to CSA Std. C22.2 No. 68-09
ETL Recognized Component mark for Canada and United States

C/N 9901916
Conforms to UL962
Cert. to CSA Std. C22.2 No. 68-09
ETL Recognized Component mark for Canada and United States

C/N 4008003
Conforms to UL962
Cert. to CSA Std. C22.2 No. 68-09
ETL Recognized Component mark for Canada and United States

C/N 4008004
Conforms to UL962
Cert. to CSA Std. C22.2 No. 68-09
ETL Recognized Component mark for Canada and United States

C/N 4008005
Conforms to UL962
Cert. to CSA Std. C22.2 No. 68-09
ETL Recognized Component mark for Canada and United States

C/N 4008671
Conforms to UL962
Cert. to CSA Std. C22.2 No. 68-09
ETL Recognized Component mark for Canada and United States

C/N 4009507
Conforms to UL962
Cert. to CSA Std. C22.2 No. 68-09
ETL Recognized Component mark for Canada and United States
Description of the DESKLINE® DL4S system

Each DESKLINE® DL4S lifting units is equipped with a motor and parallel/memory drive is ensured by means of software in the CBD6S (SMPS) 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.

Application of the DESKLINE® DL4S system:
Irrespective of the load the duty cycle 10% ~ 6 min./ hour or max. 2 min. at continuous use 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.

The DESKLINE® DL4S system range contains the following products:
- 1 control box CBD6S 200W or CBD6S 300W (SMPS - Switch Mode Power Supply)
- 1 single DL4S or 2 in parallel
- 1 exchangeable mains cable
- 1 or 2 motor cables
- DP1U / DPF1M (if memory function is required) or DPT / DPF1C / DP1CS (if memory function and display is required) or DPA / DPB / DPH / DP1K / DP1V / DPF1K (if only up/down is required) or DPF1D (If display is required)
Mounting guidelines for DL4S

The mounting bracket for the crossbar is mounted on the largest profile. The cable is led out at the top of the small profile. This means that the column must always be mounted with the largest profile downwards.

A suitable desk height in the lowest position can be obtained by mounting the lifting unit on a 6-8 mm bottom plate by means of 4 pcs. of M6 countersunked screws. We recommend you to use screws of min. quality 8.8. The thrust moment must not exceed 10 Nm in the top and bottom plate thread.

Placing of a monitor directly above the leg may cause malfunction of the monitor. Magnets inside the motor may interrupt the picture on the monitor depending on the distance and the 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 DL4S, between the motor and the desktop.

Cable handling

Before mounting the DL4S to the table top, please lead the cable through the small plastic cable handler (see the blue part on the drawings below). This is to avoid squeezing the cable between the table top and the column during mounting because of misplacement of the cable. By guiding the cable through the cable handler, the cable will be securely fastened, which eases the mounting of the column.
Mounting guidelines CBD6S (SMPS)

The control box is to be fastened with 2 screws with a head diameter between ø 8 and ø 10 mm. Out of regard for the tension surface ø 10 mm is preferable due to lower surface tension. See drawing appendix for placing of mounting holes and the space the CBD takes up.

The CBD must not be packed in heat insulating material, but must be placed so that it can emit waste heat into the surroundings. There are no ventilation holes to consider, the CBD emits heat through the surface. The plug must be visible when the CBD is mounted so that the supply to the CBD can be disconnected at replacement, if any. The mounting screws on the control box must be fastened with a max. torque of 1 Nm. The mounting surface to which the control box is attached should have a surface evenness of better than ± 0.5 mm.

Bottom with cable grooves

The bottom of CBD6S (SMPS) is equipped with two cable grooves improving the cable management when mounting. The grooves can be used to bypass the CBD for both motorcables and the mains cable (EU version only) from one side to the other, giving a cleaner design.

Remember to lead the cables through the grooves before mounting the control box.

For mounting and operation of the desk panel, please see the separate user manual for desk panels.
**Anti-Collision™**

The function (anti-collision) is an option for the standard CBD6S (SMPS) control box. A system with anti-collision can limit material damages on a desk if a collision with a solid object should occur.

**Enabling the anti-collision**

To enable the anti-collision function a little plug called a dongle must be mounted in one of the 2 control ports. The function is only active when the dongle is mounted. – If you remove the dongle again you disable the function.

**Method of operation**

When the DL/DB’s are running the CBD6S (SMPS) monitors the current consumption on each channel using a special algorithm. If the current consumption on one channel is increased more than a predefined slope, a collision is assumed and all channels are stopped immediately and all DL/DB’s will start to run in the opposite direction (approx. 50 mm). This return drive is done automatically and continues with or without any control key pressed (for max. 2.5 sec.).

The anti-collision sensitivity is different in upward and downward direction. Upwards the force is approx. 20 kg. Downwards the load will be approx. 40 kg + the load on the DL/DB (the desk + what is on top of the desk). The 40 kg are needed to activate the anti-collision function.

**Situations where the anti-collision does not work**

There are situations where the anti-collision will not be activated. These situations are:

- If the collision happens during the initialisation phase
- If the collision happens within the first 1000 msec or after the control button has been released
- If the collision happens between the floor and the table and the load on the desk + the weight of the legs are lower than 40 kg
- If the collision happens over too long time, e.g. if the collision is with a soft object.
Accessories and repair

Ordering accessories
Order from your nearest LINAK® dealer or subsidiary.

Accessories
Please contact your nearest LINAK dealer for information.

Repairs
Systems should only be repaired by an authorised LINAK service centre or engineer. Systems to be repaired under warranty must be sent to an authorised LINAK service centre.

⚠️ 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:

<table>
<thead>
<tr>
<th>Product</th>
<th>Components</th>
<th>Recycling group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Columns/Actuator :</td>
<td>Spindle and motor</td>
<td>Scrap, plastic recycling or combustion, cable scrap or</td>
</tr>
<tr>
<td></td>
<td>Plastic housing</td>
<td>combustion, electronics scrap</td>
</tr>
<tr>
<td></td>
<td>Cable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCB boards</td>
<td></td>
</tr>
<tr>
<td>Control Box :</td>
<td>PCB boards</td>
<td>Electronics scrap</td>
</tr>
<tr>
<td></td>
<td>Plastic housing</td>
<td></td>
</tr>
<tr>
<td>Handset/Control :</td>
<td>Plastic housing</td>
<td>Plastic recycling or combustion</td>
</tr>
<tr>
<td></td>
<td>Cable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCB board</td>
<td></td>
</tr>
</tbody>
</table>

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

Main groups of disposal

<table>
<thead>
<tr>
<th>Product main groups</th>
<th>Metal Scrap</th>
<th>Cable scrap</th>
<th>Electronics scrap</th>
<th>Plastic recycling or combustion</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL4S</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>CBD6S (SMPS)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 enviroment.

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 handling 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."
Label for DL4S

Linak®

We improve your life
Designed in Denmark

Item No.: DL4S000800675560
Prod. Date: 2016.04.05
Max. Load: 700 N
Power Rate: 18 V  Max 10 A
Duty Cycle: 10%  Max 2 min / 18 min

⚠️ Not to be opened by unauthorized personnel

W/O #123456789-0001
CBD65 300W (SMPS) up to 4 channels
DECLARATION OF CONFORMITY

LINAK A/S
Smedevænget 8
DK - 6430 Nordborg

hereby declares that LINAK Actuator System composed of:

Control Box(s)  CBD6SP00020A-309  CBD6S*000*0A-709
(The ‘*’ in the product description can either be a character or a number, thereby defining the variation of the product)

And

Linear Actuator(s)  31, DB4, DB5, DB6, DB7, DB9, DB12, DB14, DB16, LA23 series and / or
Lifting Column(s)  DL1A, DL2, DL4, DL5, DL6, DL7, DL8, DL9, DL10, DL11, DL12, DL14, DL15, DL16, DL17, DL19, BASE1 series
And

Desk Panel(s)  DP1C, DP1K, DP1L, DP1V, DP1U, DPA, DPB, DPF, DPG, DPH, DPT, WDPL1 series

complies with EMC Directive: 2014/30/EU according to following standards:

complies with Low Voltage Directive 2014/35/EU according to the standard:

complies with RoHS2 Directive 2011/65/EU according to the standard:
EN 55581:2012

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

Nordborg, 2017-12-08

John Kling, B.Sc.E.E.
Certification and Regulatory Affairs
Authorized to compile the relevant technical documentation

Original Declaration
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 a 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 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.
All sales are subject to the Standard Terms of Sale and Delivery for LINAK. For a copy hereof, please contact LINAK.

While LINAK uses its best efforts to fulfil orders, LINAK cannot, for the same reasons as mentioned above, guarantee the availability of any particular product. Therefore, LINAK reserves the right to discontinue the sale of any product displayed on its website or listed in its catalogues or other written material drawn up by LINAK.

The user is responsible for determining the suitability of LINAK products for specific application. LINAK takes great care in providing accurate and up-to-date information on its products.

Terms of use
The user is responsible for determining the suitability of LINAK products for specific application. LINAK takes great care in providing accurate and up-to-date information on its products.

However, due to continuous development in order to improve its products, LINAK products are subject to frequent modifications and changes without prior notice. Therefore, LINAK cannot guarantee the correct and actual status of said information on its products.

While LINAK uses its best efforts to fulfil orders, LINAK cannot, for the same reasons as mentioned above, guarantee the availability of any particular product. Therefore, LINAK reserves the right to discontinue the sale of any product displayed on its website or listed in its catalogues or other written material drawn up by LINAK.

All sales are subject to the Standard Terms of Sale and Delivery for LINAK. For a copy hereof, please contact LINAK.