DL15/DL16 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 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 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: DL15, DL16

Control boxes: CBD6S 200W, CBD6S 300W

Controls: DP1U/DPF1M (if memory function is required)
           DP1C/WDPL/DPT/DPF1C/DP1CS (if memory function and display are required)
           DPA/DPB/DP1K/DP1V/DPF1K (if only up/down is required) or
           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.

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**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 the application in both directions to avoid blockade.
Before installation, re-installation or troubleshooting:
• Stop the DL15/DL16
• Switch off the power supply and pull out the mains plug.
• Relieve the DL15/DL16 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 the 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.

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
Lifting Columns  DL1A, DL2, DL4S, DL5, DL6, DL7, DL8, DL9, DL10, DL11, DL12, DL14, DL15,
                DL16, DL17, DL19, BASE1
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

[Signature]

LINAK A/S
John Kling, B.Sc.E.E.
Certification and Regulatory Affairs
Authorized to compile the relevant technical documentation
Misc. on the DESKLINE® DL15/DL16 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 error 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.

Service of double insulated products:

Class II

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

Product produced at
LINAK A/S

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

Product produced at
LINAK US Inc

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

Product produced at
Flextronics Electronics Co Ltd

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

Product produced at
Wirear International Group Ltd
Description of the DESKLINE® system

Each DESKLINE® actuator/column is equipped with a motor and parallel/memory drive is ensured by means of software in the CBD6S that also takes account of an 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® 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 system range contains the following products:
• 1 control box CBD6S 200W or CBD6S 300W (SMPS - Switch Mode Power Supply)
• 1 single DL15/DL16 or 2, 3 or 4 parallel
• 1 exchangeable mains cable
• 1, 2, 3 or 4 motor cables
• 1 DP1U/DPF1M (if memory function is required) DP1C/WDPL/DPT/DPF1C/DP1CS (if memory function and display are required) or 1 DPA/DPB/DP1K/DP1V/DPF1K (if only up/down is required) DPF1D (if display is required)
Mounting guidelines for the DESKLINE® DL15/DL16 system

The lifting units are normally mounted with the motor housings upwards and pointing towards each other. The steel motor housing is supplied with 6 pcs. of M6 threaded holes meant for mounting on the desk frame.

The motor housing is supplied with 6 pcs. of M6 threaded holes meant for mounting on the desk frame. We advise you to fasten the desk frame by means of 6 pcs. of M6 screws of a good quality and a suitable length, which must not go further into the motor housing than max. 10 mm. The thrust moment must not exceed max. 7.5 Nm.

Use all 6 threaded mounting holes M6 for screws. Thrust moment is 7.5Nm

DL motor housing: be aware of the screw length.

It is recommended to use all 6 pcs of the M6 threaded holes. As the tabletop amplifies the sound we advise you to place a vibration/shock-absorbing material between the tabletop and the table frame.
Mounting guidelines for the DL15 (foot part)

The DL15 is supplied with 4 threaded holes M6 for mounting of the foot. We advise you to fasten the foot by means of 4 screws M6 of a good quality (min. 8.8) and of a suitable length. M6 screws must not go further than 20 mm into the DL15 column. The thrust moment must not exceed 10 Nm in the bottom plate thread.

Mounting guidelines for the DL16 (foot part)

The DL16 bottom is supplied with 4 M6 threaded holes meant for mounting of the foot. We advise you to fasten the desk foot by means of 4 pcs. M6 screws of a good quality (min. 8.8) and a suitable length. M6 screws must not go further than 20 mm into the DL16 column. The thrust moment must not exceed 10 Nm in the bottom plate thread.
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 bottom plate thread.
Example of how to mount a 2 parallel DESKLINE® DL15/DL16 system

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 desktop.

To avoid damage of the lifting unit there must be min. 1 mm space between the end of the screw for the mounting bracket and the surface of the lifting unit (see figure 1). The use of any longer screws will come into contact with the inner parts. This will result in an irregular operation or even damage the lifting unit.

The DESKLINE® DL15/DL16 system can only be used in push applications with the motor housing mounted upwards.

The end stop system in the DL is based on a buffer system meaning that you must be aware of the lengths when initialising. The products must be able to drive:

- Inward direction: built-in dimension - tolerances – 5 mm
- Outward direction: built-in dimension + stroke length + tolerances + 5 mm
Mounting guidelines CBD6S (SMPS)

The control box is to be fastened with 1 - 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.

CBD6S 200W and CBD6S 300W

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 the 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 motor cables 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.
Electrical connection of the DL15/DL16 system:

The DESKLINE® DL15/DL16 system is to be connected as shown on figure 4. Each DL15/DL16 is to be connected to the sockets on the control box by means of the motor cables, which have a 6-pin plug in each end.

Finally, the mains cable is to be mounted and power switched on.

Please note that the control box must only be connected to the voltage stated on the label.

Voltage must not be connected to the CBD6S until all actuators/legs have been connected. This must be observed to ensure that the CBD6S can detect, which actuators/legs have been connected.
Initialisation of the DESKLINE DL15/DL16 parallel system

The DESKLINE system is initialised by pressing the down button once or twice and holding it down until the DL15/DL16 runs into end stop. It will then automatically run approx. 3 mm out again and hereafter slowly run in again. Do not release the down button until the movement has stopped completely.

If the button is released before the sequence is completed then the initialisation is interrupted and must be started again from the beginning.

It is sometimes necessary to press the down button twice to start the initialisation, this is because the system can be in different modes when the initialisation starts.
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 products

As LINAK customers often ask us how our products can be disposed of 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</td>
</tr>
<tr>
<td></td>
<td>Plastic housing</td>
<td>Plastic recycling or combustion</td>
</tr>
<tr>
<td></td>
<td>Cable</td>
<td>Cable scrap or combustion</td>
</tr>
<tr>
<td></td>
<td>PCB boards</td>
<td>Electronics scrap</td>
</tr>
<tr>
<td>Control box</td>
<td>PCB boards</td>
<td>Electronics scrap</td>
</tr>
<tr>
<td></td>
<td>Plastic housing</td>
<td>Plastic recycling or combustion</td>
</tr>
<tr>
<td></td>
<td>Cable</td>
<td>Cable scrap or combustion</td>
</tr>
<tr>
<td></td>
<td>Transformer</td>
<td>Metal scrap</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>Cable scrap or combustion</td>
</tr>
<tr>
<td></td>
<td>PCB board</td>
<td>Electronics scrap</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>DL15/DL16</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CBD65 (SMPS)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>DPXX</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Disposal of batteries

Details regarding safe disposal of used and leaking batteries: Batteries should be disposed of in accordance with appropriate federal, state and local regulations. LINAK recommends that used or leaking batteries are disposed of 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 of 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 defective.
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."
Labels

Label for DL15

Label for DL16

Label for CBD6S 200W (SMPS)

Label for CBD6S 300W (SMPS)

up to 4 channels
DL15 lifting unit
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.
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*00000A-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/CS 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