

DL15/DL16 system 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/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 $\mathsf{LINAK}^{\circledast}$ 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 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.

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:

CBD6S
DB5, DB6, DB7, DB9, DB12, DB14, DB16, LA23, LA31
DL1A, DL2, DL4S, DL5, DL6, DL7, DL8, DL9, DL10, DL11, DL12, DL14, DL15,
DL16, DL17, DL19, BASE1
DPA, DPB, DPH, DPF, DPG1K, DPG1M, DPG1B, DPG1C, DPT, DP1, DP1CS,
DP1K, DP1V, DP1U
HB10RF, HB20RF, RFT, RFRL
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 Eling

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

Declaration of confirmity

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: EN 61000-6-1:2007, 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+A11:2014

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 Eling

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

Original Declaration

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 UU92 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

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 U1962 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:

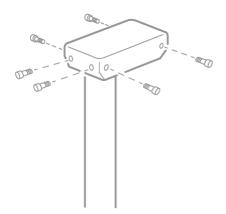
- 1 control box CBD6S 200W or CBD6S 300W (SMPS Switch Mode Power Supply)
- 1 single DL15/DL16 or 2, 3 or 4 parallel
- 1 exchangeable mains cable
- 1, 2, 3 or 4 motor cables
- 1 DP1U/DPF1M (if memory function is required) DP1C/WDPL/DPT/DPF1C/DP1CS (if memory function and display are required) or 1 DPA/DPB/DP1K/DP1V/DPF1K (if only up/down is required) DPF1D (if display is required)

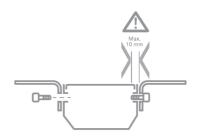
Mounting guidelines for the DESKLINE® DL15/DL16 system



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

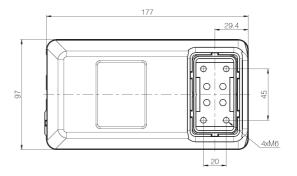
DL motor housing: be aware of the screw length.



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)

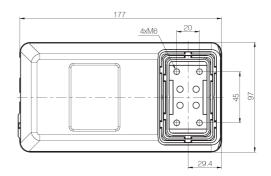
The DL15 is supplied with 4 threaded holes M6 for mounting of the foot. We advise you to fasten the foot by means of 4 screws M6 of a good quality (min. 8.8) and of a suitable length. M6 screws must not go further than 20 mm into the DL15 column. The thrust moment must not exceed 10 Nm in the bottom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



The 4 holes in the bottom of the column are placed from each other 45/20 mm respectively.

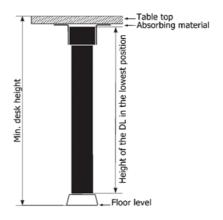
Mounting guidelines for the DL16 (foot part)

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.

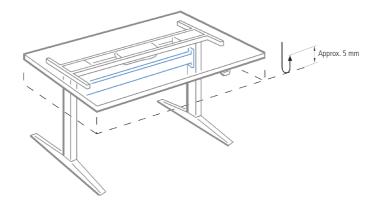


The 4 holes in the bottom of the column are placed from each other 45/20 mm respectively.

Mounting of the desk (misc.)



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 countersinked 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

Installation of CBD6S (SMPS)



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 ±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 DL15/DL16 system

ightarrow 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).

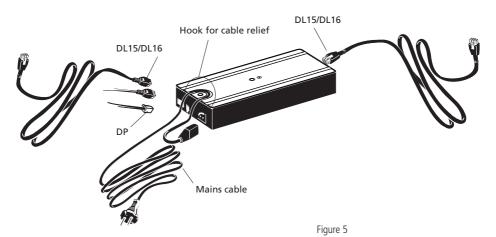


Connecting the system

- 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.



Figure 4



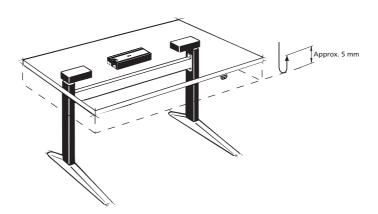
Initialisation of the DESKLINE DL15/DL16 parallel system

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:

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 casted 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
DL15/DL16	Х	Х	Х	Х	
CBD6S (SMPS)	Х	Х	Х	Х	
DPXX		Х	Х	Х	

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.

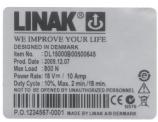
If leaking batteries are discovered in the product, the batteries must be removed at once to minimise damage to the product. If leaking batteries are left in the product it might become defective.

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

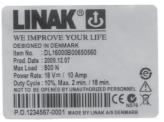
If exposed to the contents of a leaking battery, please wash with soap and water. If irritation persists, please seek medical attention. In case of eye contact, please flush eyes thoroughly with water for 15 minutes and seek medical attention."

Labels

Label for DL15



Label for DL16



Label for CBD6S 200W (SMPS)





Label for CBD6S 300W (SMPS)

 Date
 : 2014.02.07

 UIn
 : 90 V - 240 V ~, 48 Hz - 63 HZ

 PIn
 : 450 VE

 Dott
 : 12 VE - 40 VE

 Dot
 : Int. 10%, Max. 2 min./18 min.

 SW. P/NL:
 05002000 Ver. XXX

 Image: Dott
 : Int. 10%, Max. 2 min./18 min.

 NOT TO BE OPENED BY UNAUTHORIZED PERSONNEL
 Image: Dott

 Image: Dott
 : Image: Dott

 Image: Dott

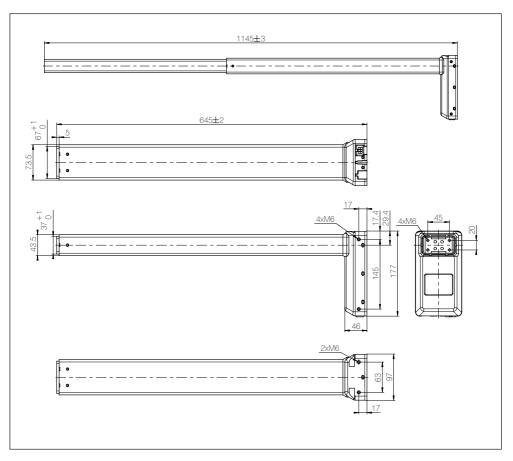
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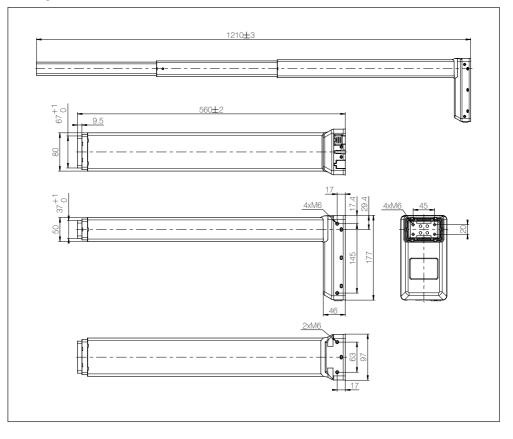
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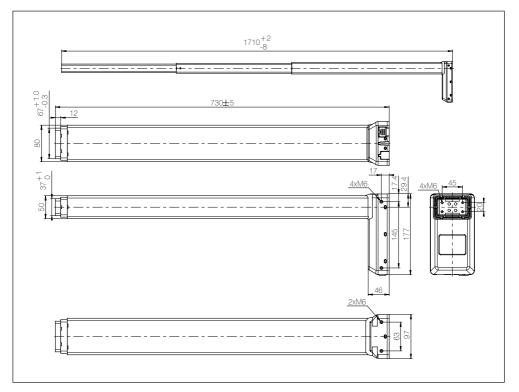
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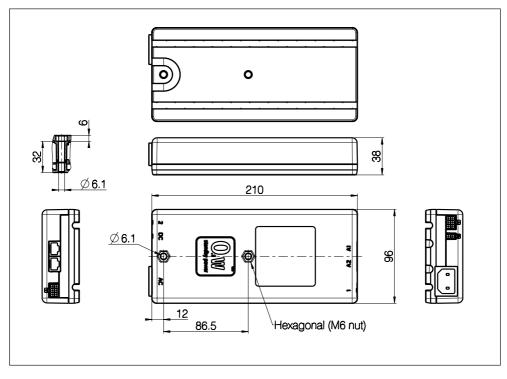
DRAWING APPENDIX

DL15 lifting unit

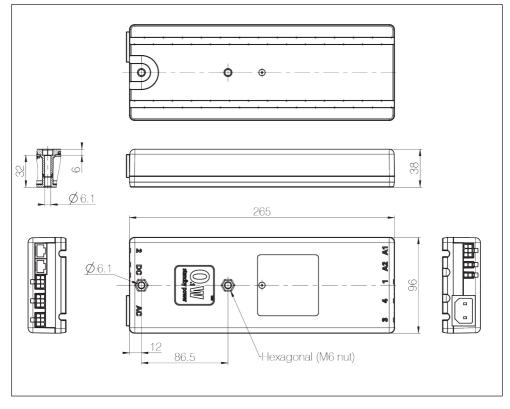








CBD6S 300W (SMPS) up to 4 channels



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.

FACTORIES

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