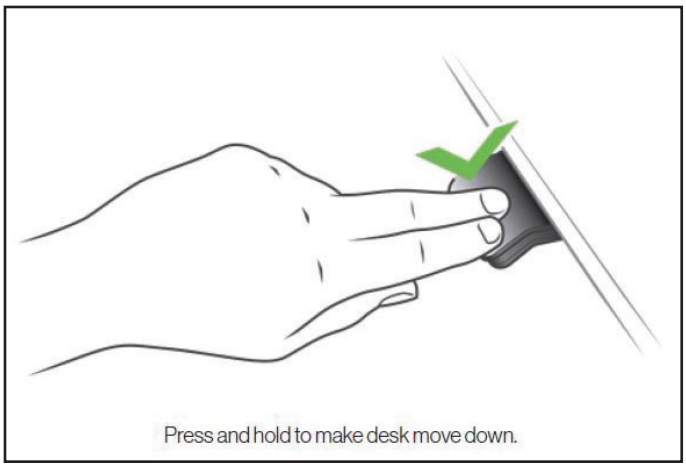
Height Adjustable Furniture
Trouble Shooting Guide

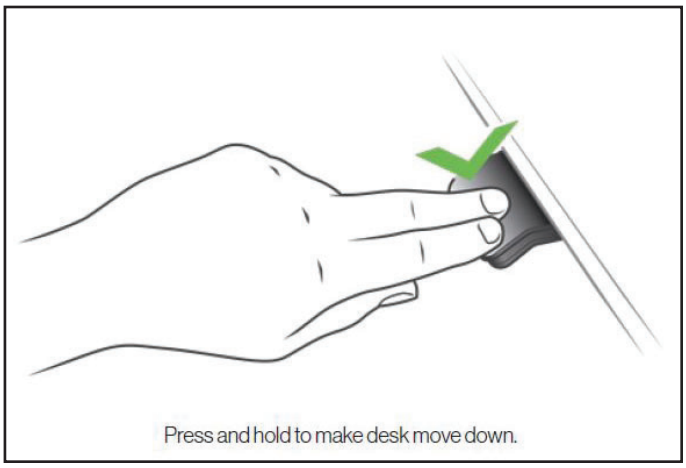
nienkämper
International Inc.

Customer Support: 1.800.668.9318
Email: mail@nienkamper.com
Web: www.nienkamper.com

nienkämper



Step 1
Initialize height adjustable by pushing down on the handle. Push down until the desk is at the lower limit. Briefly release down.
Press and hold down for 5 seconds, wait until all desk movement has stopped, then release.
If successful, you should see a slight up/down movement of the table.



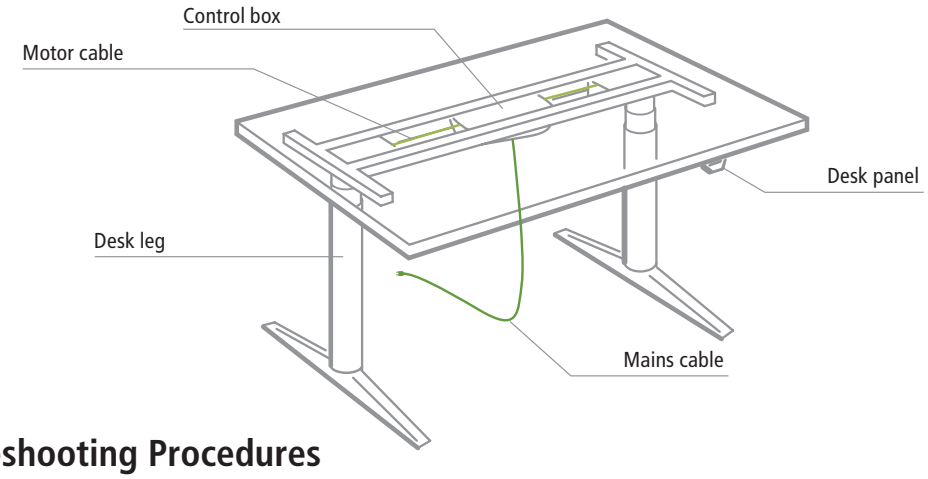
Step 2
Raise desk to maximum height. Confirm no obstructions. Lower desk to the lowest height. Confirm no obstructions.

Troubleshooting

Glossary of Common Terms

- **Components**
  - » **Desk leg (DL)** – The lifting columns, typically with powder coated steel profiles, responsible for lifting the working load of the application.
  - » **Control box (CBD6S)** – Both the computer and power supply of the system.
  - » **Desk panel (DP)** – The user interface. Depending on the model, it is used to activate the application, set memory positions, display the height, display error codes, connect to mobile apps, and give reminders to the user.
  - » **Motor cable** – Transmits low voltage power (18-39 VDC) from the control box to the desk legs, and also transmits PIEZO signals when available from the desk leg.
  - » **Mains cable** – Transmits high voltage power (120 VAC in US and Canada) to the control box.
- **Other**
  - » **Initialize** – Procedure to reset all desk legs to the fully retracted position so that the control box knows where they are.
  - » **Reference** – Any group of desk legs that run in parallel when an Up or Down command is sent to the control box. It is possible to have a custom control box configuration that allows for more than one Reference. [Example: Two (2) desk legs on Reference #1 (Channels #1 and #2) to lift a work surface, and one (1) LA31 on Reference #2 (Channel 3) to adjust a monitor array.]

Desk diagram:



Standard Troubleshooting Procedures

P1 – Initialize the control box ("reset")

> *Note: This is commonly the solution when a complaint is that a desk will move down but not up. When a control box requires initialization, this is how the system is programmed to behave.*

STEP 1. Hold Down button on desk panel to ensure the desk is retracted to its lower limit (whether it's the fully retracted hard stop, or a configured lower limit).

STEP 2. Briefly release Down

STEP 3. Press and hold Down for 5 seconds, wait until all desk movement has stopped, then release

- **a.** If initialization is successful, you should see a slight up/down "handshake" movement of the desk legs
- **b.** If you have a desk panel with display, you should also see E01 during this part of the procedure.

P2 – Check all cable connections

STEP 1. Mains cable, connected to both the control box and power outlet.

STEP 2. All motor cables, connected to both the control box and desk leg.

- **a.** Assuming a standard control box configuration, these must be connected in channels 1 and 2, or channels 1, 2 and 3 for a 3-leg table. They can't be connected in channels 1 and 3 or 2 and 3 unless there is a configuration on the control box specifying this arrangement.

STEP 3. Desk panel cable, connected to the control box in either port A1 or A2 (doesn't matter which)

P3 – Check for obstructions

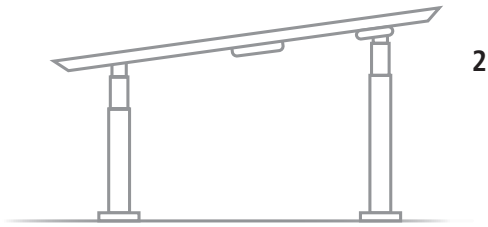
STEP 1. Check under, above and on the sides of the desk for any obstructions that could prevent movement in either direction.

The next two procedures (P4 and P5) are for a two leg desk system. The same concepts can be used for a three leg system using Channel 3 and so forth.

P4 – Check for faulty component(s) WITH error codes (digital display on Desk Panel, or on app via Bluetooth)

Notes: Check the error code list in the appendix of this troubleshooting guide for assistance. The code should read E##. Some error codes are channel-specific which can help pinpoint the problem.

Symptom	Procedure
System will move down but not up	**1.** Initialize (**P1)**
System unresponsive (no power to display with any button is pressed). If any of these steps activates the digital display, initialize the system (**P1**).	**1.** Check mains cable connection **2.** Test power outlet using another device (lamp, phone charger, etc.) **3.** Plug in a new switch and test **4.** Connect all existing cables to a new control box and test
System is powered, but will not initialize	**1.** Try pressing and releasing the down button a few times before pressing and holding for 5 seconds. **2.** Also, be aware if the control box has a special configuration: If the desk is programmed with a lower stroke limit, so as to avoid a collision with something like a file cabinet, it is possible that it also has a custom, longer Forced Initialization Time. This is the time required to hold Down before initialization begins. Sometimes this is 10 seconds or longer. **3.** If you have a standard control box without a special configuration (i.e. "Plug & Play"), try to initialize each leg in Channel 1 by itself, with nothing else plugged into the motor channels on the control box. Also, swap the motor cables so that a different motor cable is used to initialize Channel 1 by itself. The problem could be a faulty desk leg or a faulty motor cable.
Channel-specific error (Ex: E41 – Channel 1 overload) – *Everything except PIEZO errors* (E59-E63)	**1.** Swap the motor cable connections at the control box (Motor cable #1 from channel 1 to 2, motor cable #2 from channel 2 to 1). If It remains E41, there could be a problem with the application (load or obstruction on one side) or a bad control box. If the error changes to E42, go to step 2. **2.** Swap the motor cable connections at the desk legs, so that the leg that was originally connected to Channel 1 is back in Channel 1, but with the motor cable that was originally connected to Channel 2. If it remains E42, it is most likely a bad motor cable, now connected to Channel 2. If it goes back to E41, it is most likely a bad desk leg, now connected to Channel 1.

Symptom	Procedure
Desk is uneven 	**1.** Initialize the desk. If both legs begin to run down, complete the initialization. If only one leg moves, stop and move to Step 2. **2.** Check motor cable connections. Check to ensure motor cables are not pulled during movement. With a standard, Plug & Play control box, it's possible that only one leg is connected, and connected to Channel 1. In this case, it will initialize and run Channel 1 only. If there is only one leg but it's connected to Channel 2, it will not initialize. **3**. If a motor cable was disconnected, try initializing again. **4.** If unsuccessful, connect the desk leg from Channel 2 into Channel 1, with nothing in Channel 2, and initialize. **5.** Try initializing the same leg that's in Channel 1, but with a different motor cable. If it still won't initialize, replace the desk leg.

P5 – Check for faulty component WITHOUT error codes (no digital display on Desk Panel, no Bluetooth)

Symptom	Procedure
System will move down but not up	**1.** Initialize (**P1**)
System will not initialize. OR System won't complete the full range of motion. ***– After each of these steps, attempt to initialize (P1).***	**1.** Check mains cable connection. Test power outlet using another device (lamp, phone charger, etc.) **2.** Plug in a new switch. **3.** Connect all existing cables to a new control box. **4.** Try pressing and releasing the down button a few times before pressing and holding for 5 seconds.

	5. Also, be aware if the control box has a special configuration: If the desk is programmed with a lower stroke limit, so as to avoid a collision with something like a file cabinet, it is possible that it also has a custom, longer Forced Initialization Time. This is the time required to hold Down before initialization begins. Sometimes this is 10 seconds or longer. **6.** If you have a standard control box without a special configuration (i.e. "Plug & Play"), try to initialize each leg in Channel 1 by itself, with nothing else plugged into the motor channels on the control box. Also, swap the motor cables so that a different motor cable is used to initialize Channel 1 by itself. The problem could be a faulty desk leg or a faulty motor cable.
Desk is uneven	**1.** Desk is uneven (**P4**)

Appendix

What is the Control Box Thinking?

There are many clever procedures, checks and measurements performed in the control box. Here is a brief description of what the control box is trying to accomplish while it is activating an application:

- **Safe activation of the application**
  - Parallel, even movement of all desk legs in the application is critical.
    - The control box does not directly know the position of each desk leg. Instead, the position of each leg is constantly calculated via Hall pulses from each motor. The legs on a single reference are not allowed to be more than +/- 5 Hall pulses out of sync. For a standard DL, this amounts to +/- 0.55 mm.
    - Motor cable disconnections are also detected as errors.
  - If PIEZO technology is present in the desk leg, the control box monitors for PIEZO "collision" signals from each channel. When a PIEZO signal is sensed, movement is immediately stopped and, if there is room, the system is ran in the opposite direction a small distance.
  - Anytime the control sees an incomplete signal, or more than one signal (multiple keys pressed, multiple desk panels activated at the same time), an error is determined and no movement is allowed at that moment. This is to prevent an action of movement that is not intended by the user.
- **Protection from equipment damage**
  - Internal temperature of the control box is monitored.
  - Maximum current draw for each motor channel, as well as the system as a whole, is measured. When the current exceeds an allowable limit, an error is presented.

DPH

The DPH Desk Panel is a small, compact and user-friendly panel, which can be used for all kinds of height adjustable desks from heavy-duty workstations to standard office desks. The desk panel is made of foil and has the basic up and down function for adjusting a desk. Because of a small size the DPH is very easy to integrate in the design of the tabletop of a desk, kitchen table or similar. Besides availability in either black or white, the DPH can be customised.

The DPH switch does not have a digital read out or blue tooth. To diagnose an issue a Bluetooth® Adapter BLE2LIN002/BLE2LIN003 will need to be installed into the control box. The Desk control App will need to be down loaded and installed on a smart phone. Desk Control App is availible for iOS and Android on the App store.

Features:
- Up and down function via the arrows
- Colour: white or black with chrome print
- Black cable : 1580 mm straight with modular jack plug

Option:
- Customised colours and design

Usage:
- Ambient temperature +5 °C to +40 °C
- Compatible with CBD4, CBD5, CBD6
- Approved according to EN 60335-1 and UL962

Bluetooth® Adapter BLE2LIN002/BLE2LIN003

The Bluetooth® Adapter BLE2LIN002/BLE2LIN003 allows you to adjust your LINAK product wirelessly from the Desk Control™ App. Simply download the app, plug the adapter into your DESKLINE® control box, pair the adapter with your smartphone or tablet, and your application can now be adjusted via your smartphone or tablet.

The BLE2LIN002/BLE2LIN003 is a very compact unit requiring a minimum of space. No mounting is needed, just plug in the adapter and you are ready.

Features:

- Bluetooth® Low Energy Technology (Version 4.0 of the Bluetooth® specification)
- Small and compact size
- Just plug it in, no mounting required
- Easy pairing mode
- ZERO™ Power capable
- PVC-free
- Compatible with DESKLINE control box CBD6S
- Compatible with the Desk Control™ App, Desk Control™ Basic App and Desk Control™ basic SW
- Complies with FCC ID (PART 15C) and IC (RSS247)
- BLE2LIN002 is approved according to Giteki (Japan) and KC certification (Korea) Bluetooth® approvals
- BLE2LIN002 is the "*Full version*" of the Bluetooth® adapter in which all functions are enabled.
- BLE2LIN003 is the "*Limited version*" in which a few functions are disabled.

Usage:

- Ambient temperature: 5 to 40 °C
- Storage and transport temperature: -10 to +50 °C

Error codes

ERROR CODE	NAME	DESCRIPTION	POTENTIAL CAUSE	TROUBLESHOOTING
E01	Position Lost	The desk has an unknown position and needs to be initialized	» Position error » New Desk Leg added	• Initialize the system (**P1**)
E02	General Overload Up	Overload in upward direction has occurred	» Obstruction » Bad leg or motor cable	• Check all cable connections, (**P2**) initialize the system (**P1**) • Troubleshoot components by initializing 1 at a time (only possible with Plug & Play configuration) (**P4**)
E03	General Overload Down	Overload in downward direction has occurred	» Obstruction » Bad leg or motor cable	• Check all cable connections, (**P2**) initialize the system (**P1**) • Troubleshoot components by initializing 1 at a time (only possible with Plug & Play configuration) (**P4**)
E08	Watchdog	Indicate that software failed to kick watchdog	» Program fault	• Unplug mains cable for 15 sec • Initialize the system (**P1**) • Replace Control Box
E09	LIN collision	Collisions detected on the LIN bus	» Key pressed on two or more connected handset simultaneously » Multiple LINBUS devices activated	• Check if another desk panel is connected and being activated • Unplug all but one desk panel and test system
E10	Power fail	Power fail happened, or power regulator adjusted below 10%	» Mains cable pulled during driving » Internal fault » Only 1 battery for a 3- or 4-channel system » "E10 is a power fail, voltage on power supply drops below a certain limit, power removed"	• Check mains cable is not caught, and is allowed to freely travel • Use strain-relief loop built into control box • Use a 2nd battery; charge batteries
E11	Channel mismatch	Change in number of actuators since initialization	» Disconnection » Desk Leg added	• Check Motor cable connections and Integrity (**P2**) • Change Motor cable or Desk Leg • Initialize the system (**P1**)
E12	Position error	One channel have position different than others	» Too much back drive occurred	• Move table to fully retracted position • Initialize system (**P1**)
E13	Short circuit	Short circuit detected during operation	» Squeezed Motor Cable » Short in motor	• Check motor cable connections (**P2**) • Isolate and replace Motor Cable (**P4**) • Isolate and replace Desk Leg (**P4**)

ERROR CODE	NAME	DESCRIPTION	POTENTIAL CAUSE	TROUBLESHOOTING
E15	Power limit	System has reached its power limitation	» Mains cable pulled during driving » Internal fault » Many times will see this alongside E10 » "E15 is when power regulator has adjusted speed down on actuators without any significant current draw, usually caused by power supply dropping."	• Check mains cable is not caught, and is allowed to freely travel • Use strain-relief loop built into control box
E16	Key Error	Illegal keys pressed (handled internally in DP1C).	» Hitting multiple buttons simultaneously	• Check desk panel
E17	Safety missing	LIN bus unit does not support safety feature	» DP1C/DPF1C does not have up-to-date software	• Try DP with more recent software version (printed on label)
E18	Missing Initialization plug	A special service tool is required to change number of channels to the system	[BASELIFT Only] » Service tool missing from BASELIFT system when initializing	• Add service tool
E23	Ch1 missing	Channel 1 is detected missing	» Disconnection » Faulty motor cable » Faulty motor in leg	• Check Motor cable connections and Integrity (**P2**) • Change Motor cable or Desk Leg • Initialize the system (**P1**)
E24	Ch2 missing	Channel 2 is detected missing	» Disconnection » Faulty motor cable » Faulty motor in leg	• Check Motor cable connections and Integrity (**P2**) • Change Motor cable or Desk Leg • Initialize the system (**P1**)
E25	Ch3 missing	Channel 3 is detected missing	» Disconnection » Faulty motor cable » Faulty motor in leg	• Check Motor cable connections and Integrity (**P2**) • Change Motor cable or Desk Leg • Initialize the system (**P1**)
E26	Ch4 missing	Channel 4 is detected missing	» Disconnection » Faulty motor cable » Faulty motor in leg	• Check Motor cable connections and Integrity (**P2**) • Change Motor cable or Desk Leg • Initialize the system (**P1**)

ERROR CODE	NAME	DESCRIPTION	POTENTIAL CAUSE	TROUBLESHOOTING
E29	Ch1 type	Channel 1 is not same type as when initialized	» Change in Desk Leg type » Loose wire inside motor	• Check Desk Leg type • Change Desk Leg • Initialize the system (**P1**)
E30	Ch2 type	Channel 2 is not same type as when initialized or not same type as channel 1	» Change in Desk Leg type » Loose wire inside motor	• Check Desk Leg type • Change Desk Leg • Initialize the system (**P1**)
E31	Ch3 type	Channel 3 is not same type as when initialized or not same type as channel 1	» Change in Desk Leg type » Loose wire inside motor	• Check Desk Leg type • Change Desk Leg • Initialize the system (**P1**)
E32	Ch4 type	Channel 4 is not same type as when initialized or not same type as channel 1	» Change in Desk Leg type » Loose wire inside motor	• Check Desk Leg type • Change Desk Leg • Initialize the system (**P1**)
E35	Ch1 pulse fail	Channel 1 had to many pulse errors	» Loose/faulty cable » Hall sensor PCB	• Check motor cable connections and integrity (**P2**) • Change Desk Leg • Initialize the system (**P1**)
E36	Ch2 pulse fail	Channel 2 had to many pulse errors	» Loose/faulty cable » Hall sensor PCB	• Check motor cable connections and integrity (**P2**) • Change Desk Leg • Initialize the system (**P1**)
E37	Ch3 pulse fail	Channel 3 had to many pulse errors	» Loose/faulty cable » Hall sensor PCB	• Check motor cable connections and integrity • Change Desk Leg • Initialize the system (**P1**)
E38	Ch4 pulse fail	Channel 4 had too many pulse errors	» Loose/faulty cable » Hall sensor PCB	• Check motor cable connections and integrity (**P2**) • Change Desk Leg • Initialize the system (**P1**)
E41	Ch1 overload up	Overload up occurred on channel 1	» Leg is overloaded » Hit obstruction » Reached end stop (before initialization at upper end-stop occurs)	• Remove obstruction (**P3**) • Remove load • Initialize if necessary (**P1**)
E42	Ch2 overload up	Overload up occurred on channel 2	» Leg is overloaded » Hit obstruction » Reached end stop (before initialization at upper end-stop occurs)	• Remove obstruction (**P3**) • Remove load • Initialize if necessary (**P1**)

ERROR CODE	NAME	DESCRIPTION	POTENTIAL CAUSE	TROUBLESHOOTING
E43	Ch3 overload up	Overload up occurred on channel 3	» Leg is overloaded » Hit obstruction » Reached end stop (before initialization at upper end-stop occurs)	•Remove obstruction (**P3**) •Remove load •Initialize if necessary (**P1**)
E44	Ch4 overload up	Overload up occurred on channel 4	» Leg is overloaded » Hit obstruction » Reached end stop (before initialization at upper end-stop occurs)	• Remove obstruction (**P3**) • Remove load • Initialize if necessary (**P1**)
E47	Ch1 overload down	Overload down occurred on channel 1	» Hit obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)
E48	Ch2 overload down	Overload down occurred on channel 2	» Hit obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)
E49	Ch3 overload down	Overload down occurred on channel 3	» Hit obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)
E50	Ch4 overload down	Overload down occurred on channel 4	» Hit obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)
E53	Ch1 anti-col	Anti-collision triggered on channel 1	» Hit Obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)
E54	Ch2 anti-col	Anti-collision triggered on channel 2	» Hit Obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)
E55	Ch3 anti-col	Anti-collision triggered on channel 3	» Hit Obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)
E56	Ch4 anti-col	Anti-collision triggered on channel 4	» Hit Obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)
E59	Ch1 SLS/PIEZO	Safety limit switch activated on channel 1	» Hit Obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)
E60	Ch2 SLS/PIEZO	Safety limit switch activated on channel 2	» Hit Obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)
E61	Ch3 SLS/PIEZO	Safety limit switch activated on channel 3	» Hit Obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)
E62	Ch4 SLS/PIEZO	Safety limit switch activated on channel 4	» Hit Obstruction	• Remove obstruction (**P3**) • Initialize if necessary (**P1**)

ERROR CODE	NAME	DESCRIPTION	POTENTIAL CAUSE	TROUBLESHOOTING
E65	Ch1 pulse dir	Pulses counted wrong direction in channel 1	» Motor poles are crossed » Hall sensor Cables are crossed	• Check motor cable connections and integrity (**P2**) • Change Desk Leg • Initialize the system (**P1**)
E66	Ch2 pulse dir	Pulses counted wrong direction in channel 2	» Motor poles are crossed » Hall sensor Cables are crossed	• Check motor cable connections and integrity (**P2**) • Change Desk Leg • Initialize the system (**P1**)
E67	Ch3 pulse dir	Pulses counted wrong direction in channel 3	» Motor poles are crossed » Hall sensor Cables are crossed	• Check motor cable connections and integrity (**P2**) • Initialize the system (**P1**)
E68	Ch4 pulse dir	Pulses counted wrong direction in channel 4	» Motor poles are crossed » Hall sensor Cables are crossed	• Check motor cable connections and integrity (**P2**) • Initialize the system (**P1**)
E71	Ch1A short	Short circuit on channel 1 [If T-splitter is used, short circuit on 1A]	» Damage to motor cable » Damage to cable exiting leg (if applicable)	• Inspect motor cable for damage, replace if damaged • Inspect cable exiting leg (if applicable), replace if damaged.
E72	Ch1B short	Short circuit on channel 1 [If T-splitter is used, short circuit on 1B]	» Damage to motor cable » Damage to cable exiting leg (if applicable)	• Inspect motor cable for damage, replace if damaged • Inspect cable exiting leg (if applicable), replace if damaged.
E73	Ch2A short	Short circuit on channel 2 [If T-splitter is used, short circuit on 2A]	» Damage to motor cable » Damage to cable exiting leg (if applicable)	• Inspect motor cable for damage, replace if damaged • Inspect cable exiting leg (if applicable), replace if damaged.
E74	Ch2B short	Short circuit on channel 2 [If T-splitter is used, short circuit on 2B]	» Damage to motor cable » Damage to cable exiting leg (if applicable)	• Inspect motor cable for damage, replace if damaged • Inspect cable exiting leg (if applicable), replace if damaged.

Charging BA001

The BA001 can be charged either via the DESKLINE Control Box CBD6S or via the Switch Mode Power Supply SMPS006 using a DC cable with 2-poled minifit plug. LINAK offers various cables with straight plug which can be used (e.g. 0705894-200).

Actual capacity

Turn on the light for a few seconds by pressing the small black button below the LED light bars. The four LED light bars indicate the actual capacity.

Capacity	Lit up LED light bars
0 to 5 %	None
5 to 25 %	LED1
25 to 50 %	LED1 and LED2
50 to 75 %	LED1, LED2 and LED3
75 to 100 %	LED1, LED2, LED3 and LED4

Notes:

- When the capacity is below 25 %, the audio alarm sounds once each time the BA001 is activated.
- The battery turns off to protect itself when the capacity is approx. 5 %. Below 5 % capacity, the audio alarm sounds once each time the BA001 is activated. No LED light bars can be lit.
- During charging, the LED light bars indicate the actual capacity.
- When the charging is complete the LED light bars turn off.
- Charging will not start if the capacity is above 75 %.
- The BA001 has a built-in protection to ensure battery and system lifetime.
- The battery limits the discharge current to approx. 10 A.
- The battery can go into a protected mode. Then a reset is made only after disconnecting the cable and in some cases charging the battery

Transportation by plane is not allowed for batteries that are more than 30 % charged.

The BA001 switches off

In overload situations, the LED light bars will still turn on when the button is pressed. However, if the capacity is below approx. 25 % it is not possible to identify if the BA001 has switched off due to overload or low capacity.

If the battery is sufficiently charged and still switches off, it is due to an overload situation.

Solution: Reset the battery

1. Disconnect cable from BA001.
2. Press button on BA001 for minimum 10 seconds to reset battery.
3. If no LED light bars turn on, charge battery.
4. Connect BA001 again.

Charging via CBD6S:

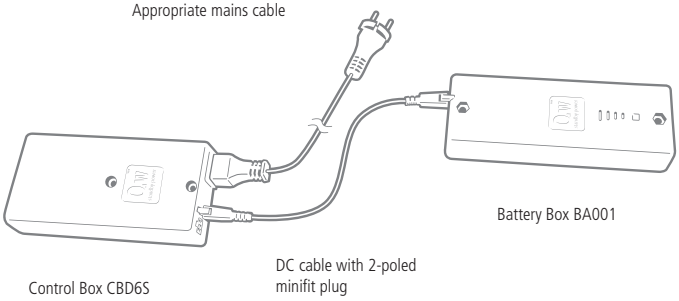
In a DESKLINE system, the BA001 is connected to the CBD6S. Preferably, charge the battery while it is mounted on the application.

1. Connect mains cable to CBD6S.
2. Plug cable into mains.

When the charging starts, the BA001 beeps twice. After approximately five hours (at room temperature, ≈ 20 °C), the BA001 is fully charged and the LED light bars turn off.

The BA001 can be charged via all CBD6S 200 W.

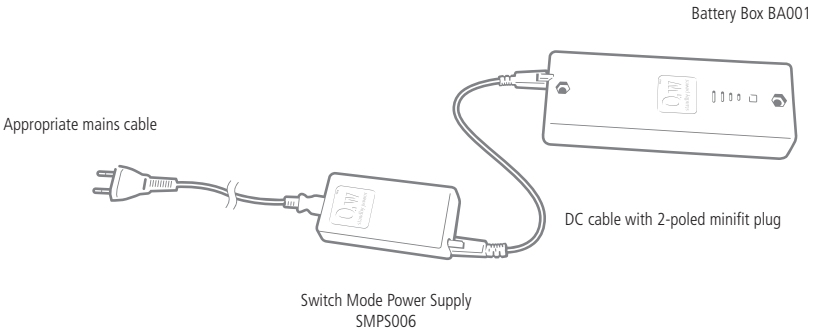
The BA001 can be charged via CBD6S 300 W delivered from factory with SW version 1.57 and later.



Charging via SMPS006:
In a HOMELINE application or in an application in which the battery box is dismounted/replaced during charging, the BA001 is typically charged via an SMPS006.

1. Connect BA001 and SMPS006 using DC cable.
2. Connect mains cable to SMPS006.
3. Plug cable into mains.

When the charging starts, the BA001 beeps twice. After approximately five hours (at room temperature, ≈ 20 °C), the BA001 is fully charged and the LED light bars turn off.



Note:

Change between mains supply and battery use on the CBD6S:
When you change from standard mains supply to the BA001, the very first operation may be at a lower speed/performance. The charge left in the control box after disconnection of the mains supply is still high. Thus, the control box assumes the mains supply is still connected and regulates according to mains supply characteristics.

After about 30 minutes, or after trying to operate without power, the charge is low enough to be detected as battery operation mode. Also, if operated with battery once, the control box detects the battery operation mode.