



**User manual**

**Protection System  
for motor control units**

**ACS-CB-SENS**

Rev 2



MOTION FOR YOUR LIFE



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## 1. Preface

Dear Customer,

Thank you for choosing an **ACS-CB-SENS** protection system for electric height-adjustable desks from **LOGICDATA Electronic & Software Entwicklungs GmbH**. You are now in possession of a state-of-the-art product that complies with all the relevant safety requirements.

### 1.1 Intended use

The protection system **ACS-CB-SENS** may only be used for the intended purpose, i.e. to control electric height-adjustable desks. The systems must be installed, put into operation and their function checked by qualified personnel.

### 1.2 Functionality

The **ACS-CB-SENS** incorporates the following features:

- Pinch protection
- Interaction with ISP (Intelligent System Protection)
- LogicConnector DATA for connection to compatible control units
- Possibility to activate and deactivate the protection system



### 1.3 Target group and previous knowledge

This user manual addresses the following people:

- Technicians who assemble and put electric height-adjustable desks into operation (by installing motors and control units, configuring control units, etc.)
- Furniture assembly, service and maintenance personnel who put electric height-adjustable desks into operation in showrooms or at the customer's

The following is required for installing, operating and configuring the protection system ACS-CB-SENS:



- Basic mechanical and electrical skills (with suitable qualifications)
- Reading the user manual

### 1.4 Symbols used in safety instructions

This user manual contains safety instructions with symbols drawing your attention to possible dangers and residual risks. They indicate the following:



**Danger:** this warning symbol advises you of imminent danger to people's lives and health.

*Failure to observe this warning may result in health problems, serious injuries and damage to property.*



**Caution:** this warning advises you of possible dangers from electric current.

*Failure to observe this warning may cause injuries and damage to property.*



**Note:** this symbol advises you of important information that must be noted for operating system safely.



**Danger:** this warning advises you of a possible risk of body parts being trapped or pinched in exceptional cases.

*Failure to observe this warning may result in health problems, serious injuries and damage to property.*



**Note:** you must read the user manual.



## 1.5 ISP (Intelligent System Protection)

ISP is an electronic state-of-the-art protection system developed by **LOGICDATA**. It also substantially reduces the risk of fingers being trapped or pinched.



**Danger:** in spite of ISP being in place, there may still be a risk of pinching in exceptional cases, as it is not only the control unit, but also the interaction between the mechanical and electronic systems that is responsible for cutting out the motor. In addition, the mechanical components, motor and ambient conditions all affect cut-out sensitivity.

As the control unit manufacturer, **LOGICDATA** cannot therefore eliminate this residual risk completely or accept any liability.



**Note:** the ISP-sensitivity and the ISP-cutoff value depend on the whole system (mechanical and electrical components). To evaluate the ISP-capability of a height adjustable table, please contact **LOGICDATA!**

Please note the following for maximizing ISP functionality:

To ensure the best possible pinch protection, a **mechanical brake** must be fitted that is applied when the electric height-adjustable desk moves down.



**Note:** without a mechanical brake, cut-out sensitivity may be reduced under load. However, if there is no load on the desktop, ISP will function properly even without a brake.



**Note:** as soon as ISP has stopped the electric height-adjustable desk from moving, you can then only adjust the desktop in the opposite direction (the safety feature initially prevents you from adjusting the desk in the same direction as triggered it).



## 1.6 Package contents

The ACS-CB-SENS system is supplied together with the following components as standard:

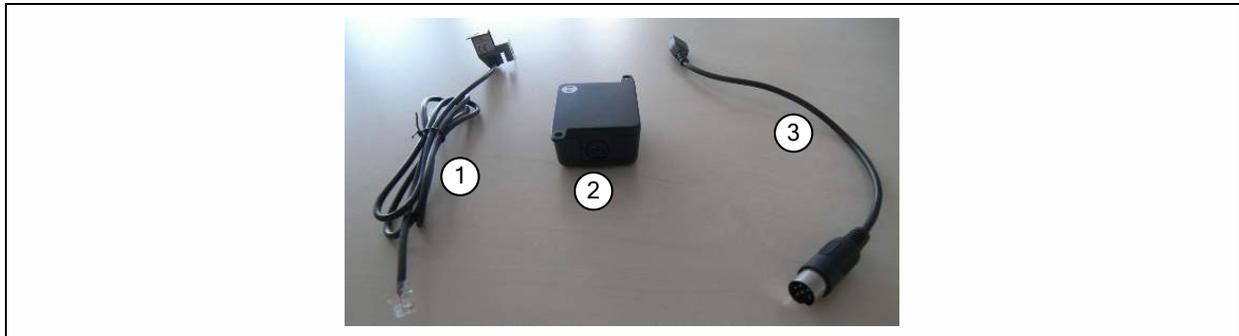


Figure 1: Package contents

- ① Sensor unit LOG-PRT-DMS-LD
- ② Evaluating processor unit ACS-CB-SENS
- ③ Connection cable LOG-CBL-CB-SENS

To operate the protection system ACS-CB-SENS, a LOGICDATA motor control unit with LogicConnector DATA is necessary (e.g. COMPACT-3).



**Note:** The screws which are necessary to mount the protection system are not included in the shipment.



**Note:** The motor control unit is not included in the shipment.

## 1.7 Unpacking

The ACS-CB-SENS comes packed in a cardboard box. Some components can be also sealed in plastic film. To unpack, proceed as follows:

1. Remove the cardboard and plastic film from the control unit components.
2. Check the package contents.
3. Dispose of the packaging materials.
4. Keep the user manual at hand for the operators.



**Note:** ensure eco-friendly disposal of the packaging materials (separate the plastic parts and cardboard for collection).



## 1.8 Safety instructions

This user manual contains safety instructions that draw your attention to any possible risks, thus enabling safe operation of the motor control unit together with the ACS-CB-SENS. Please observe these warnings and instructions at all times.

In this section you will find general safety instructions that do not refer to any particular steps or procedures. You will find the work-specific safety instructions in the relevant section of the manual. Additional warnings are given on the ACS-CB-SENS itself.

### 1.8.1 General safety instructions



**Note:** you must read the user manual carefully before installing or operating the ACS-CB-SENS.



**Caution:** do not open system components under any circumstances. There is a danger of electric shock.



**Danger:** it is not allowed to connect self constructed products to any interface of a system component. To prevent damage of the system, use only components suitable for **LOGICDATA** motor controls.



**Caution:** before connecting and disconnecting handswitches, you must unplug the power cord.



**Caution:** in the event of a malfunction (e.g. if the control unit keeps adjusting the desk because a movement key has jammed), please unplug the unit immediately.



**Danger:** do not expose system components to moisture, drips or splashes.



**Danger:** when changing the desktop position (especially without using pinch protection), there is a risk of pinching. You must therefore ensure that no people or objects are located in the hazardous area or can reach into it.



**Danger:** when changing the desktop position, there may in exceptional cases be a risk of pinching in spite of the safety features. You must therefore always ensure that no people or objects are located in the hazardous area or reach into it.



**Danger:** do not modify or make any changes to the control unit, the controls themselves or handswitches.



**Danger:** in the event of a fault (motor or component), whenever the desktop attempts to adjust the height it may move slightly before the safety cut-out is triggered. Please note that there is a potential risk of pinching in this case.



**Danger:** this device is not intended for use by individuals (including children) with limited physical, sensory or mental abilities or with a lack of experience and/or lack of expertise, unless they are supervised by a person responsible for their safety or have received instructions from that person on how to use the control unit.



**Danger:** children must be supervised at all times to ensure that they do not play with the control unit.



**Danger:** if the control unit's power cord is damaged, it must be replaced by the manufacturer or customer service or similarly qualified person in order to prevent any risks.



**Note:** only clean the system components with a dry or slightly moist cloth. Before cleaning, you must always unplug the power cord.



### 1.8.2 Important notes for OEMs

What we mean by OEMs are companies that purchase components from **LOGICDATA** and install them in their own products (e.g. electric height-adjustable desks).



**Note:** for reasons of EU conformity and product safety, we advise you to provide users of your products with a manual in the relevant EU language.



**Note:** when you ship your finished products, enclose a user manual containing all the safety instructions that consumers need to handle your product safely.



**Note:** the user manual for your finished product must contain the following note: you must read the user manual before you operate the product (electric height-adjustable desk).

Advise your customers that the user manual must be kept at hand in close proximity to the product (electric height-adjustable desk).



**Danger:** conduct a risk analysis of your product (electric height-adjustable desk) so that you can respond to any potential residual risks (e.g. by changing design features or adding notes to the user manual and/or placing warnings on your product).



**Note:** ensure that no unauthorized individuals (e.g. small children, people under the influence of drugs, etc.) can tamper with your product or the control unit.

### 1.9 Important note for service



**Danger:** only use original spare parts. Parts may only be replaced by qualified service technicians, otherwise the warranty/guarantee shall be null and void.



**Danger:** in the event of a fault, please contact customer service immediately. Only original spare parts may be used for repairing the control units. Parts may only be replaced by qualified service technicians, otherwise the warranty/guarantee shall be null and void.



## 2. Installation instructions

Mount the ACS-CB-SENS and the sensor unit(s) LOG-PRT-DMS-LD on the underside of the desktop. You will need the following tools for mounting:

- Screwdrivers (according to screw type)
- 1 Pencil
- 1 Drill machine (for drilling holes)



**Caution:** the power cord must be unplugged while the protection system control unit is being mounted.

To mount the system, proceed as follows:

1. The sensor unit LOG-PRT-DMS-LD must be mounted on the metal frame and on the desktop plate as well. There are 2 holes in the sensor unit for mounting it. The surface which must be mounted on the desktop plate is marked with a yellow dot.



Figure 2: the yellow dot marks the surface which must be mounted on the desktop plate



**Danger:** if the sensor unit is not mounted like shown in step 1, the protection system is ineffective! The surface marked with the yellow dot must be mounted on the desktop plate!

2. Drill the holes in the metal frame and the desktop plate. For mounting the LOG-PRT-DMS-LD on the desktop plate, use a screw that fits the desktop plate material. For mounting the LOG-PRT-DMS-LD on the metal frame, use a metric screw with a washer and a nut or a sheet metal screw. The holes must fit the chosen screw types.



**Note:** there is a dimensional drawing of the LOG-PRT-DMS-LD in the datasheet of the protection system ACS-CB-SENS! Use this drawing to check the positions of mounting holes in the metal frame and the desktop plate!



**Note:** the screws are not included in the shipment.



**Danger:** if the drilled holes are not aligned exactly to each other, the protection system is ineffective!



Figure 3: Mounting holes for the sensor unit

3. Attach the sensor unit in the mounting holes with appropriate screws.



Figure 4: Mounted sensor unit LOG-PRT-DMS-LD



**Note:** LOGICDATA recommends a locking torque of 3Nm for the connection to the metal frame and (according to the material of the desktop plate) 2-2,5Nm for the connection to the desktop plate.



**Danger:** if the screws are not tightened properly, the protection system is ineffective!



**Danger:** both screws (for the metal frame and the desktop plate) are absolutely necessary!



**Danger:** take precautions to prevent the loosening of the screws! If the screws are not tightened properly, the protection system is ineffective!

4. Mount the ACS-CB-SENS near the motor control unit. The sockets on the 2 opposite sides must be accessible.



Figure 5: ACS-CB-SENS mounted near the motor control unit



5. Connect the ACS-CB-SENS (DIN socket) with the motor control unit (LogicConnector DATA). Therefore, use the connection cable LOG-CBL-CB-SENS.

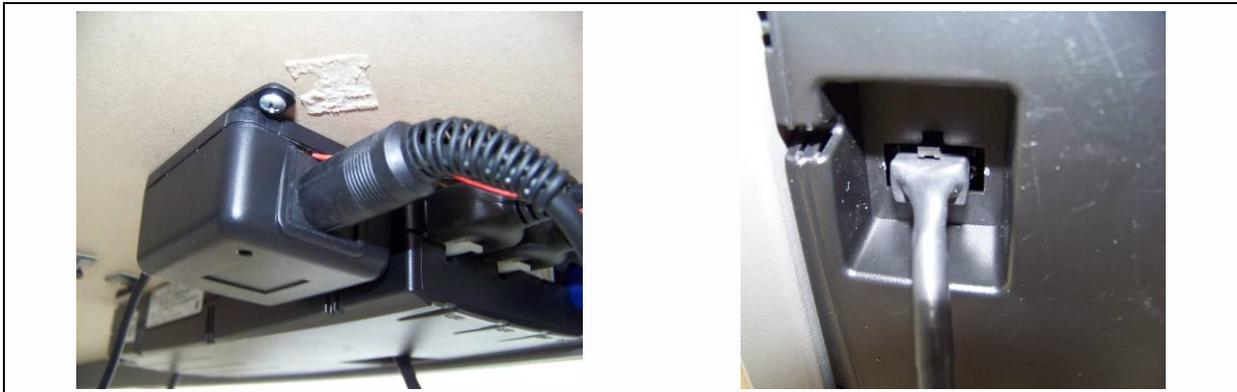


Figure 6: Connection cable for ACS-CB-SENS and motor control unit



**Danger:** be sure that the cable does not sag or that the cable is not stressed.

6. Connect the ACS-CB-SENS (RJ socket) to the sensor unit LOG-PRT-DMS-LD



Figure 7: Connection of the sensor unit to the ACS-CB-SENS



Figure 8: RJ sockets and labelling of socket 1



**Danger:** if only one sensor unit LOG-PRT-DMS-LD is used, connect it to the RJ socket marked with the number **1**!



**Note:** the ACS-CB-SENS can be driven with a second sensor unit LOG-PRT-DMS-LD as well. This second sensor unit must be connected to the complimentary RJ socket and it must be mounted according to the steps 1-3!



**Note:** If an ACS-CB-SENS is used in combination with the cascading function of motor control units, only one sensor unit LOG-PRT-DMS-LD shall be connected to the ACS-CB-SENS! This sensor shall be connected to the RJ socket marked with the number **1**.



**Danger:** be sure that the cable does not sag or that the cable is not stressed.



**Danger:** The RJ sockets on the ACS-CB-SENS may only be used to accommodate LOGICDATA-approved sensor units. Inserting other telecommunication-type connectors into these terminals may cause damage to the ACS-CB-SENS or other products in the table system.



To complete the installation, the motor control unit can be connected to mains power again. The control unit will click twice.



**Note:** wait at least 5 seconds after connecting the control unit to mains power. **During this time, it is not allowed to press a button on the handswitch!** The sensor will be recognized by the control unit and the protection system will be activated. The control unit will click twice again to display the operational readiness of the system.



**Note:** if the motor control unit is parameterized for a “Reset at first use” at initial operation, this reset must be done before the protection system can be activated!



**Danger:** if the protection system is changed (e.g. a second sensor unit is installed), a parameter adjustment is necessary. Please contact LOGICDATA in this case!



**Danger:** do not disconnect any protection system component when the control unit is connected to mains power!



## 3. Operating the system

### 3.1.1 Drive Back



**Note:** the function Drive Back is only active, if a pinch protection system (ISP, ACS-CB-SENS, switches or pinch protection strips) is available and activated in software!

After a safety function is triggered by ISP, the desktop automatically moves a defined distance in the opposite direction. This immediately prevents any possible risk of pinching.



**Danger:** in spite of **ISP** being in place, there may still be a risk of pinching in exceptional cases, as it is not only the control unit, but also the interaction between all the components in the electric height-adjustable desk that is responsible for cutting out the motor. In addition, the mechanical components, motor and ambient conditions all affect cut-out sensitivity.

As the control unit manufacturer, **LOGICDATA** does not have an effect on this residual risk and cannot therefore accept any liability.

Please follow the safety instructions in the manual and treat our product with due care.



### 3.1.2 Anti-Pinch configuration

If the pinch protection device ACS-CB-SENS is attached to a motor control unit, the risk of pinches is decreased. Based on the following possible situations, the ACS-CB-SENS can be activated:

- a) An ACS-CB-SENS is attached to the motor control unit.
- b) First use of the motor control unit in combination with ACS-CB-SENS
- c) An ACS-CB-SENS is attached to the motor control unit again after an error. In case of an error **E71** is shown on the handswitch display.

To **activate** the ACS-CB-SENS, go on as shown below:

1. Be sure that the ACS-CB-SENS is attached to the motor control unit properly.
2. Disconnect the mains supply of the motor control unit and wait at least 5 seconds.
3. Connect the mains supply of the motor control unit again and wait at least 5 seconds.



**Note:** wait at least 5 seconds after connecting the control unit to mains power. **During this time, it is not allowed to press a button on the handswitch!** The sensor will be recognized by the control unit and the protection system will be activated. The control unit will click twice again to display the operational readiness of the system.



**Note:** if the motor control unit is parameterized for a “Reset at first use” at initial operation, this reset must be done before the protection system can be activated!



**Note:** error codes can only be displayed on handswitches with display function!

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**Danger:** in spite of ACS-CB-SENS being in place, there may still be a risk of pinching in exceptional cases, as it is not only the control unit, but also the interaction between all the components in the electric height-adjustable desk that is responsible for cutting out the motor. In addition, the mechanical components, motor and ambient conditions all affect cut-out sensitivity.

As the control unit manufacturer, **LOGICDATA** does not have an effect on this residual risk and cannot therefore accept any liability.

Please follow the safety instructions in the manual and treat our product with due care.

Based on the following possible situations, the ACS-CB-SENS can be deactivated:

- a) An ACS-CB-SENS is disconnected from the motor control unit.
- b) A defective sensor shall be deactivated.

The error code **E71** is shown on the handswitch display not later than 8 seconds after disconnecting the ACS-CB-SENS or if a defective sensor is detected.

To **deactivate** the ACS-CB-SENS, go on as shown below:

1. Be sure that the ACS-CB-SENS is disconnected from the motor control unit.
2.  Press and hold the **desktop up** key until the desktop reaches the highest position.
3. The motor control unit clicks three times to confirm that the ACS-CB-SENS configuration is deactivated.



**Note:** in case of an error, **E71** is shown on the handswitch display. Additionally, the control unit clicks three times every time a handswitch button is pressed.



**Note:** error codes can only be displayed on handswitches with display function!



**Danger:** deactivating the ACS-CB-SENS causes a higher risk of pinching. Other anti-pinch mechanisms like **ISP** stay active.

As the control unit manufacturer, **LOGICDATA** does not have an effect on this residual risk and cannot therefore accept any liability.

Please follow the safety instructions in the manual and treat our product with due care.



## 4. Technical data

Supply voltage	5VDC $\pm$ 10%
Ambient temperature	0-30°C
Relative humidity (for operation)	5-85% (non condensing)
Storage and transport temperature	-40-85°C
Relative humidity (for storage)	5-90% (non condensing)
Dimensions ACS-CB-SENS (L x B x H) [mm]	55x50x30
Tolerances	according to DIN ISO 2768-1 c



**Danger:** do not connect any other sensor units than LOG-PRT-DMS-LD to the ACS-CB-SENS!



## 5. Appendix

In this section you will find detailed information on the following topics:

- Possible faults and remedies
- Error messages on the handswitch display

### 5.1 Possible faults and remedies

#### Drives do not stop in case of a pinch

Possible cause	Remedy
ACS-CB-SENS is not connected to the motor control unit	Connect the ASC-CB-SENS to the motor control unit (see chapter 0)
LOG-PRT-DMS-LD is not connected to the ACS-CB-SENS	Connect the LOG-PRT-DMS-LD sensor unit to the ACS-CB-SENS (see chapter 0)
Sensor configuration deactivated	Activate the sensor unit (see chapter 3.1.2)

### 5.2 Error messages on the handswitch display



The display reads **E** + an error code.

Cause	Remedy
There is a fault in the system.	Proceed as indicated in the following error list.

Code	Description	Remedy
60	Collision protection	Remove jammed objects from the driving area. Desk might be overloaded → remove load from desktop. Contact customer service.
71	Anti-Pinch configuration changed	See chapter 3.1.2 to activate or deactivate the anti-pinch configuration



## 6. Further information

### 6.1 End of life disposal

When you no longer require the ACS-CB-SENS protection system, please note the following for disposal:



**Note:** ensure eco-friendly disposal of all the control unit components (separate the plastic and electronic parts for collection).

Also ensure eco-friendly disposal of all the other components (drives, cables, etc.).



**Note:** this product is RoHS compliant according to directive 2002/95/EC!



**Note:** this product is REACH compliant according to directive 2006/121/EC (Edict 1907/2006)

### 6.2 Manufacturer

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