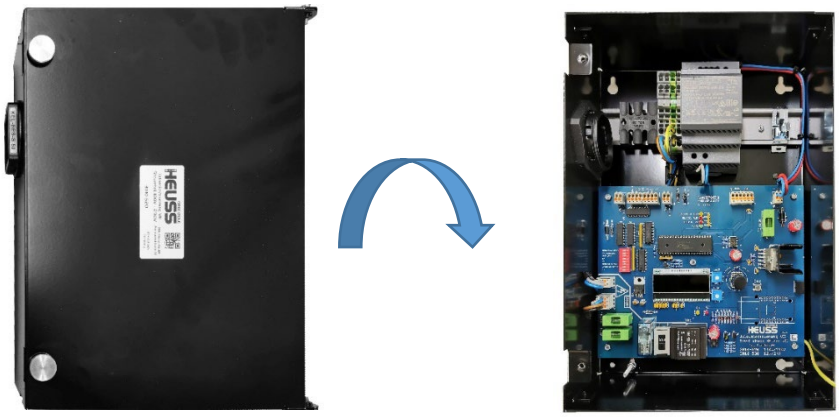
User Manual for

OTTO HEUSS Swell control VII 12V-28V DC

Order number: 3010-530

for electrical operation of swell shades



Otto Heuss GmbH
Amtsgerichtsstr. 12
35423 Lich, Germany

+49 6404 9169 0
info@ottoheuss.com
www.ottoheuss.de

Date: 04.04.2023; FW-Version 2.3; HW-Version Rev. 1 – 24V

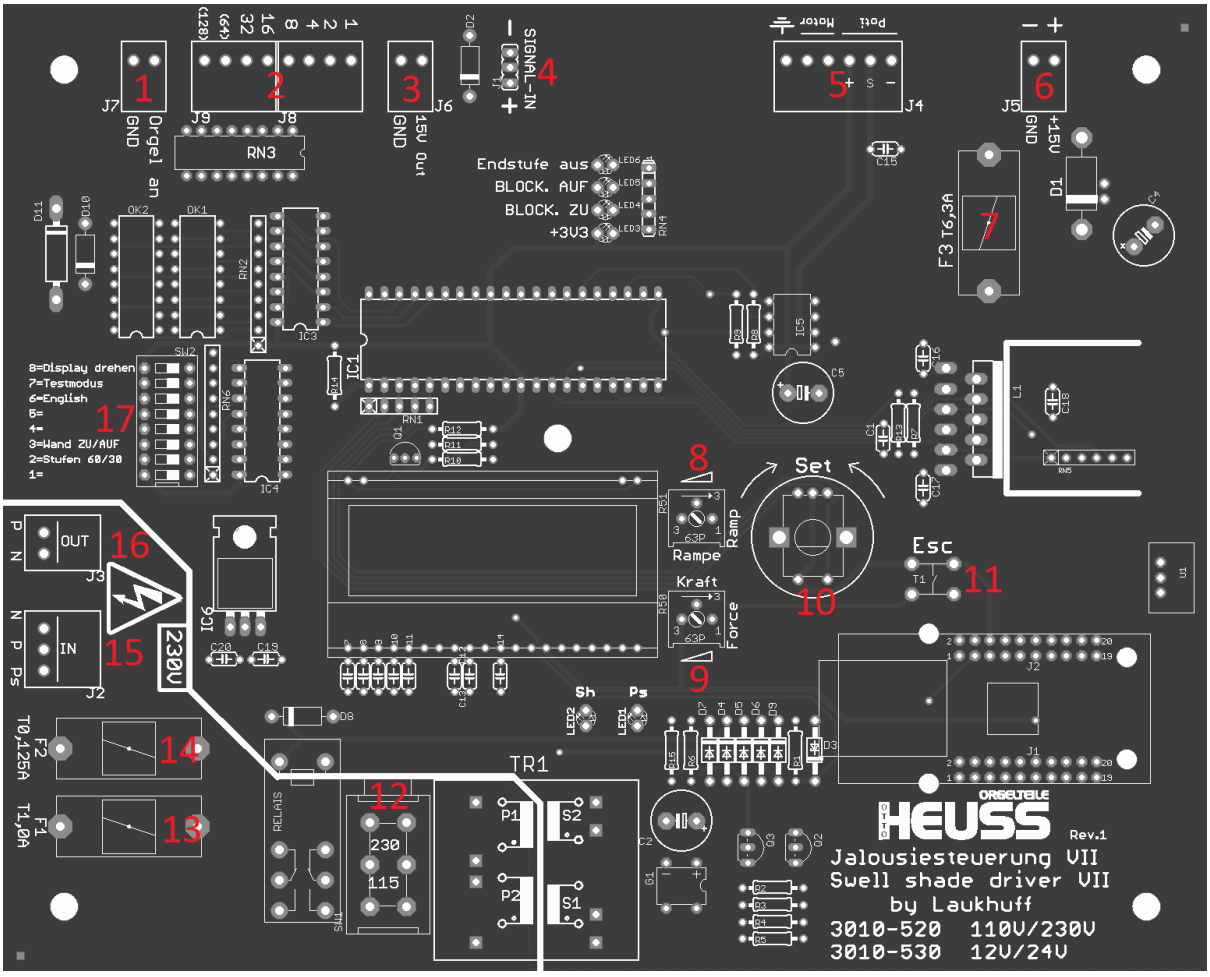
User manual for swell control type VII

Table of contents

User manual for swell control type VII

1 Wiring diagram

1. Organ-ON connector (please also connect GND with the minus of the PLC-system or similar).
2. graycode connector (64/128 not in use)
3. graycode encoder or AD converter - power supply connector
4. signal IN jumper (to select the input polarity of the signal inputs)
5. motor connector
6. 15V input (main board power supply)
7. 6.3A fuse (15V)
8. potentiometer acceleration ramp
9. potentiometer force
10. rotary encoder with push button function, when pressed
11. ESC/Menu push button
12. not assigned in 24V version
13. not assigned in 24V version
14. not assigned in 24V version
15. not assigned in 24V version
16. not assigned in 24V version
17. DIP switch (special functions and settings)



User manual for swell control type VII

2 Introduction: In Memoriam

In its original version, the blind control VII was developed by the company August Laukhuff GmbH. In the spring of 2021, the company submitted itself to a protective shield procedure; an investor was sought without success. As a result, business activities were discontinued as of June 30, 2021.
In the course of this, the company Otto Heuss GmbH acquired the data and knowledge of the company Laukhuff for this and other products.

Announcement August Laukhuff GmbH:
We are pleased to announce that Otto Heuss Organ Parts has been awarded the contract to continue production of the S.1 and Sill. They will continue these sophisticated products and maintain the same quality standards as Laukhuff.

LAUKHUFF®

In memory of the August Laukhuff GmbH, your almost 200 years of existence and your merits for the worldwide organ building we dedicate these lines to the colleagues from Weikersheim.

3 Technical data

Force	max. 15kg
Operating voltage	12 - 28V DC
Input power	100W
Travel	200mm max.

4 Mechanical connection

Attention: Make sure that the motor section is securely and firmly anchored to prevent it from tearing off. Very high working forces can occur when moving large swell shades.

The motor of the swell controller is vibration-damped and installed in a robust aluminum housing. There are four holes on the top and bottom of the housing, which are further decoupled by rubber inserts.

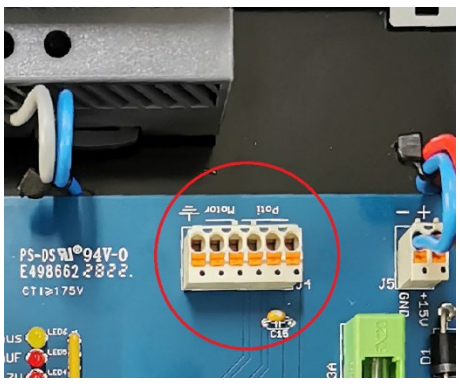
The swell shade motor is equipped with a clevis to which the swell shade wall is connected. This clevis together with the vibration damper can also be screwed on the other side of the drive rod, the drive can thus be used on both sides.

If required, the drive can also be supplied with an angle joint.

Attention: Never reach into the openings of the drive section. High working forces of up to 15kg prevail. Danger of crushing!

5 Connection instructions for the organ builder

All white 12-28V terminals on the board are connectors and can be disconnected.



5.1 Connection cable for the motor

Control unit and motor are delivered with a connection cable, in the standard version this is 2m long. Successful tests have been carried out with cables up to 10m long, but there is a risk of interference from external influences over longer distances. Keep the cable as short as possible. To avoid disturbances (e.g.

trembling of the swell walls), no other live cables should cross this cable or run parallel to it.

The cable is connected to the outside of the motor and to the control unit at the point marked in red in the picture.

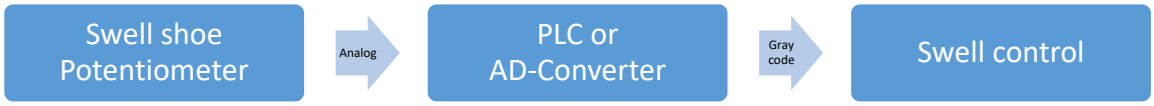
Cable connection from left to right: shield/black/red/brown/white/green (pre-wired in our company)

5.2 Connection of swell shoe to PLC/AD converter

The potentiometer from the swell shoe must be connected to the PLC or AD converter with a three-core **shielded cable** (3 x 0.5mm² [AWG20], max. length 20 meters), please consult the corresponding manuals of the products for exact connection information.

The inserted cables can be attached to the black strain relief on the mounting rail using the cable ties supplied. A used potentiometer cable can be fixed to the silver metal strain relief with ground connection for the cable shield by means of the supplied cable ties.

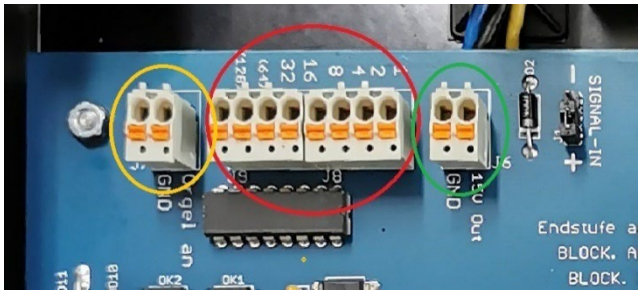
The AD converter (3010-570) is sold separately and can be mounted inside theswell control unit in the free space.



5.3 Connection of PLC/AD converter to swell controller

The connection for moving the swell motor is made via a cable between the PLC or AD converter and the swell controller.

On the control unit the cable of the Graycode is connected to the following red marked position. If you use the AD converter or an external Graycode encoder, you can supply it with power using the terminal marked green. The AD converter (3010-570) is available separately and can be mounted inside the swell control unit on the free space.



Connection table of the cables between the different components

Swell control PCB	Heuss-PLC-System	AD-Converter
1	1	2
2	5	4
4	2	8
8	6	16
16	3	32
32	7	64
64 and 128 remains free	4 remains free 8 can be used for "Organ ON", see next chapter	1 and AUX remains free

5.4 Organ ON signal 12-28V

Since the swell motor also switches off after the organ is switched off, but the swell wall should still open beforehand (for air circulation), it requires a signal to determine when the organ is "OFF". This can be done with a 12-28V signal (use either the eighth channel of the PLC output terminal or simply a fused plus potential from the organ).
To tell the controller that the organ is "ON" you can apply a 12-28V signal to the yellow marked terminal.

If you use an Otto Heuss PLC, the eighth channel of the output terminal is usually reserved for this signal and can be used for it.
Please note that you have to connect both "Organ on" and "GND" (minus).

5.5 Connection of 12-28V of organ power supply

The control unit of the swell control must be connected to the 12-28V DC power supply of the organ (or extra power supply, see Attention-note at the end of this section).
The power supply cables are connected to the WAGO terminals on the mounting rail.

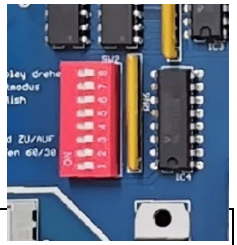
From left to right:

- Positive 9 – 36 VDC (Plus)
- Negative (Minus)
- Earth (PE)

The plus and minus cables connected to the circuit board are already pre-wired by us to the WAGO terminals and do not need to be connected by you.

The inserted cables can be fixed to the black strain relief, on the mounting rail by means of the supplied cable ties.

Attention: To ensure that the swell control still carries voltage after the organ has been switched off so that the swell wall can be moved open, it is recommended to connect the swell control to an extra power supply which is only switched off after a few seconds. For this purpose, your electrician can build a circuit for you, or we will be happy to implement this in our NOAH and MOSES organ subdistributions on request.



6 Adjustment and calibration

6.1 DIP switch table

DIP-Switch 1	currently without function
DIP- Switch 2	This switch is used to determine whether the system operates with 30 or 60 steps. ON = 60 steps / OFF = 30 steps
DIP- Switch 3	This determines whether the wall is to move to OPEN position or to CLOSED position after switching off. ON = Wall moves CLOSED / OFF = Wall moves OPEN
DIP- Switch 4	currently without function
DIP- Switch 5	currently without function
DIP- Switch 6	With this switch the language of the display can be set.

	ON = English / OFF = German
DIP- Switch 7	To be able to test the motor without a swell shoe connected, the test mode can be activated. In test mode, the step can be changed with the rotary encoder on the circuit board
DIP- Switch 8	If the control cabinet has been installed upside down, the display can be rotated 180 degrees with this switch.

6.2 Adjustment motor travel

The travel to be covered by the motor can be conveniently set via the display.

1. Press the ESC key
2. Use the rotary control to select the "Travel" menu item

   and confirm with a press on the rotary control

3. Push the motor manually into CLOSED position
4. Select "CLOSE position" with the rotary control

5. Pressing the rotary control saves the position in the system

6. Push the motor manually to OPEN position
7. Select "OPEN position" with the rotary control

8. Pressing the rotary control saves the position in the system

In the test mode (chapter: 7.6) you can operate the swell motor directly with the rotary knob of the control and thus control the travel and the logarithmic movement curve.

7.3 Logarithmic curve setting

The way in which the swell control distributes the steps along the travel path can be changed in the menu via the Curve option. Because swell walls already cause large acoustic changes, especially in the range of small openings, a logarithmic curve with a flat course for small steps and a steep course for large steps usually leads to better results than a linear opening.

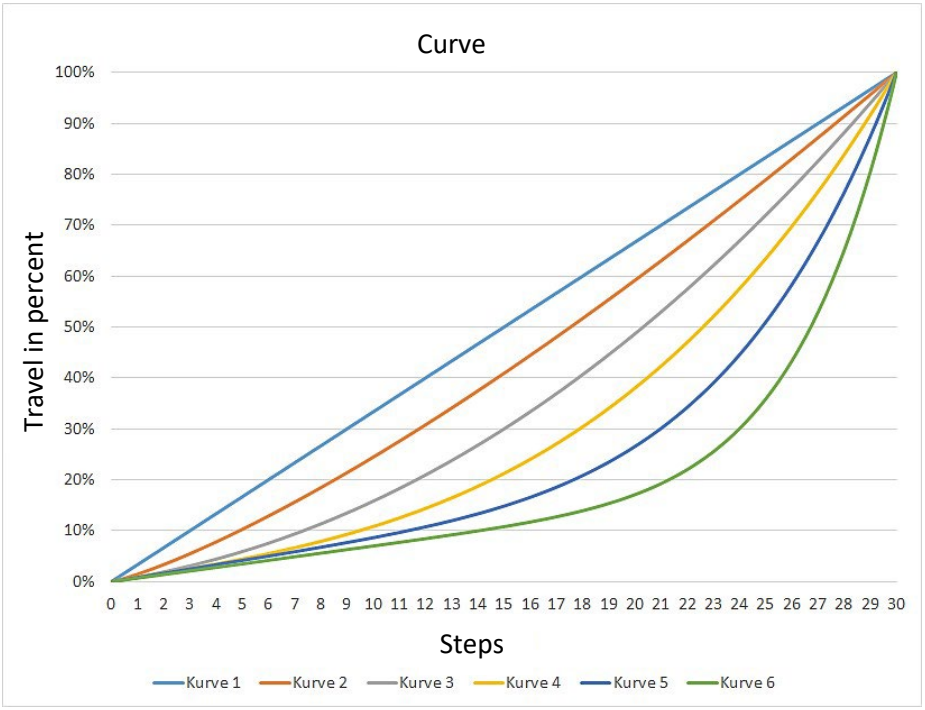
1. Press the ESC key
2. Use the rotary control to select the "Curve" menu item

   and confirm with a press on the rotary control
3. Select "Curve" with the rotary control

and confirm with a press on the rotary control

4. Now the desired curve can be selected with the rotary control

5. Pressing the rotary control saves the curve



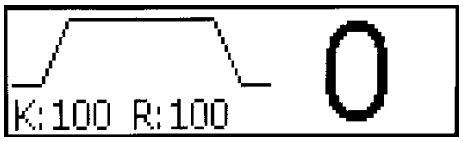
At 60 levels, the same curves are traversed, but with higher resolution.

6.3 Force settings

You can adjust the force of the swell motor using a potentiometer next to the display.

0% force corresponds to approx. 80N (8kg).
50% force corresponds to approx. 115N (11.5kg).
100% force corresponds to approx. 150N (15kg).

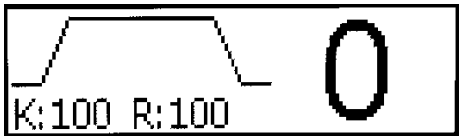
Increase the force if the motor does not reach the position of the set level.



Reduce the force if the motor does not stop when the set level is reached, but continues to make small movements.

6.4 Ramp setting

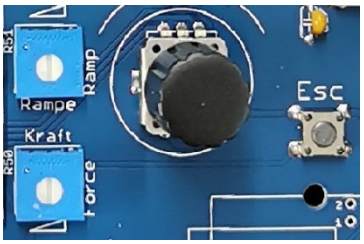
Use the "Ramp" potentiometer to set the acceleration and deceleration of the swell motor.
Adjust the ramp to higher values if the motor does not reach the end position.



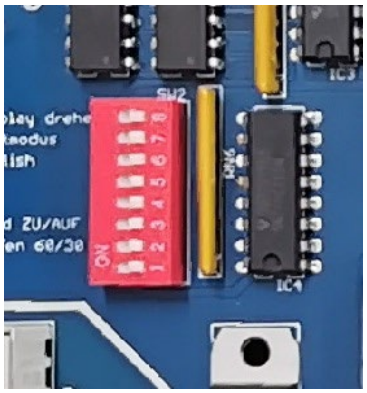
Reduce the ramp setting if the motor starts too jerkily.

6.5 Setting test mode

The test mode is very helpful for the configuration of the swell control.
After activating the test mode, the current level can be changed directly via the rotary encoder on the board.



All values (force, ramp, travel) behave as if the swell shoe in the console is actuated. This allows the system to be set up by one person, directly on the swell wall.



Only after deactivating the test mode, the step can be changed again by the swell shoe.

To activate the test mode, set DIP switch 7 to "ON".

7 Functions in use

7.1 Power stage shutdown

The control has a cut-off that switches off the power stage when the desired position is reached.

8.2 Overcurrent shutdown

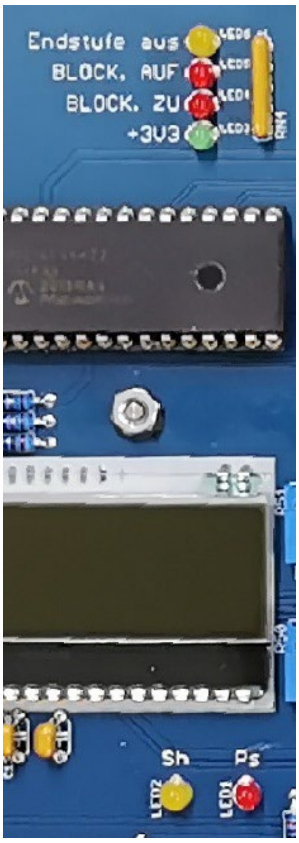
If the motor runs into a blockage or the swell wall is very sluggish, the system would be overloaded. In this case, the overcurrent shutdown intervenes and shuts down the output stage to prevent damage to the electronics.

7.2 Temperature monitoring

If the swell wall is difficult to move and/or is moved quickly for a long time, the temperature of the output stage will rise. In order not to exceed a temperature that is critical for the component, the system switches off at approx. 70°C (160°F) for 10 seconds. After cooling down, the swell functions again without restrictions.

7.3 LEDs

Ps	Sh	Description
0	0	The organ is switched off.
1	0	Switching on. The organ has been switched on, the control system is being initialized and will start working shortly.
1	1	Normal operation. The organ is switched on and the control is ready for operation.
0	1	Switching off. The organ has been switched off. The control remains in operation for a short time to move the swell wall to the desired desired rest position. The system then switches off.



Block. AUF/ZU (OPEN/ CLOSED)	Description
0	No error has occurred
1	The overcurrent shutdown has tripped. The swell wall moves very sluggishly or moved to a blockage.
Flashing	The swell wall has not reached the target position in the OPEN/CLOSED direction. The overcurrent shutdown has not triggered.

7.4 Resetting to factory settings

Use this function to delete the OPEN and CLOSE positions or to reset the swell to a basic functional state.

1. Press the ESC key
2. Use the rotary control to select the "Factory Reset" menu item and confirm by pressing the rotary control.

3. Pressing the rotary control again confirms that you really want to reset the system.

7.5 Display optionen

The brightness and contrast of the display can be changed in the settings.

Brightness

1. Press the ESC key
2. Use the rotary control to select the "Settings" menu item and confirm by pressing the rotary control.

3. Select "LCD brightness" and confirm with a press on the rotary control

4. Now the brightness can be changed with the rotary control and saved by pressing the rotary control.
5. Press the ESC key 2x to exit the menu

Contrast

1. Press the ESC key
2. Use the rotary control to select the "Settings" menu item and confirm by pressing the rotary control.

3. Select "LCD contrast" and confirm with a press on the rotary control

4. Now the contrast can be changed with the rotary control and saved by pressing the rotary control.
5. Press the ESC key 2x to exit the menu

8 Functions not in use

The functions mentioned below are not yet in use at OTTO HEUSS. However, to ensure that the swell control VII can also be used as a spare part for old Laukhuff swell controls, we have left these functions active until we also fully implement them in our products.

The Network Communication and External Display functions are not in use in the current version.

8.1 Network communication

(only for version with network interface)

With this swell control it is also possible to transmit the position of the engine via ipMIDI commands in a network. This has the advantage that only one network cable must be connected to the swell control. The maximum cable length here is 100m.

1. Press the ESC button
2. Use the rotary control to select the "Network" menu and confirm by pressing the rotary control.

3. The network communication can be activated and deactivated by pressing the rotary control.

MIDI channel

To be able to operate multiple swell motors in an existing network, the MIDI channel can be changed.

1. In the "Network" menu, use the rotary control to select the "MIDI Channel" menu and confirm by pressing the rotary control.

2. Now the MIDI channel can be set via the rotary control.

3. Pressing the rotary control saves the set channel

Attention: If the network communication is active, the sill can no longer be changed via the inputs of the swell shoe.

9.2 External display

(only for version with network interface)

To realize a swell display in the console even without a setter, there is the possibility to control the Ethernet display board.

1. Press the ESC key
2. Use the rotary control to select the "ext. Select "Display and confirm by pressing the rotary control.

3. By pressing the rotary control, the output of the external display can be activated and deactivated

Mode

There is also the possibility to send ipMIDI commands to synchronously control a second sill controller via network cable, for example.

1. In the "ext. Select the "Mode" menu item using the rotary control and confirm by pressing the rotary control.

2. Now the mode can be set via the rotary control

3. Press the rotary control to adopt the set mode.

Position

If an Ethernet display is already installed in the console, the position of the sill display on the display can be shifted in order not to overlap other display positions.

1. In the "ext. Display" menu, use the rotary control to select the "Position" menu item and confirm by pressing the rotary control.

2. Now the position can be set via the rotary control

3. Press the rotary control to adopt the set mode.

10 Precautions

Um einen sicheren Betrieb sicherzustellen, sind folgende Vorsichtsmaßnahmen zu beachten:

- Avoid placing the device near heat sources and/or in humid and/or dusty places.
- To avoid damage, the instrument must be securely and stably fastened due to high working forces.
- An organ is an electrical installation and must be wired, connected and commissioned professionally and in accordance with applicable standards and regulations.
- Avoid strong vibrations during transports, as they may cause damage to the electronics.
- The device should not be placed near equipment that emits high-frequency waves, such as TV sets, radio receivers, microphone systems, transmission towers, etc.
- Strict care must be taken to prevent liquids or metal chips from entering the interior of the unit, as they may cause damage.
- Do not carry out any unauthorized work on the electrical system.
- In the event of a defect, contact the manufacturer or your organ builder.
- Never reach into the openings of the drive part when the blind control is switched on. There are high working forces of more than 15kg. Danger of crushing!

9 Warranty

- Otto Heuss GmbH provides a two-year warranty from the date of delivery.
- The company Otto Heuss GmbH is not responsible for damage caused by incorrect handling.
- The company Otto Heuss GmbH assumes no responsibility for cancelled or impaired concerts, events or performances.

10 Disposal

Electrical equipment that is no longer required or defective should not be disposed of with household waste. It must be taken to a local collection point for proper disposal or dismantled and disposed of correctly by a specialist.

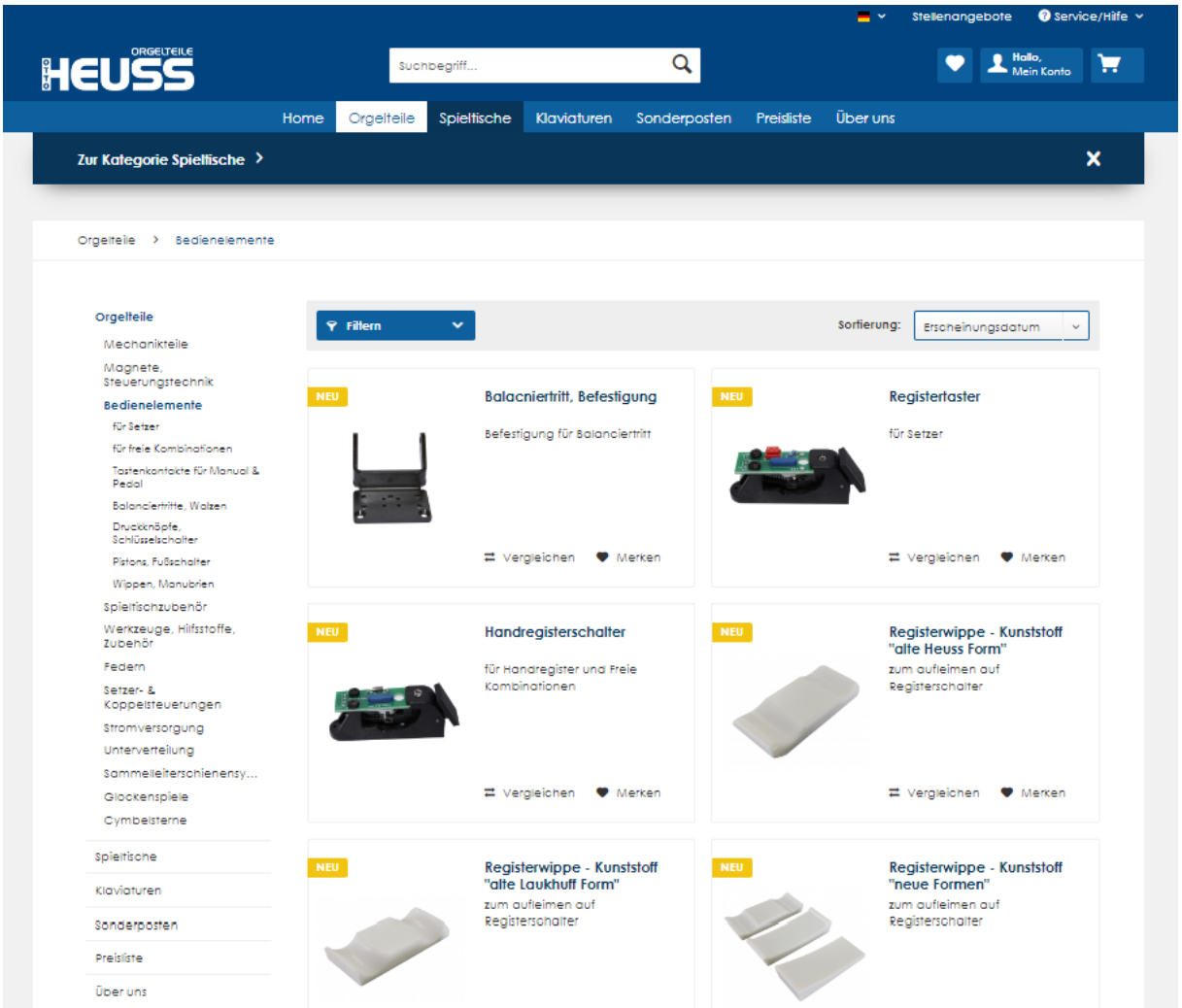
Used batteries and electrical devices must be disposed of separately in accordance with applicable regulations.

Do you already receive our newsletter?

Information about new and old products and changes.

Visit also our website

www.ottoheuss.de



Otto Heuss GmbH | Amtsgerichtsstr. 12 | 35423 Lich, Germany

+49 (0) 6404 9169 0 | info@ottoheuss.com | www.ottoheus