MOUNTING INSTRUCTIONS

HS comfort drive
Timber, Timber-Alu covered

Only for use by certified specialists!
Table of content

Important safety instructions ........................................................................................................................................... 4 - 7
Abbreviations .................................................................................................................................................................... 8
Warranty ............................................................................................................................................................................. 8
Disposal ............................................................................................................................................................................. 8
EC declaration of incorporation ...................................................................................................................................... 9
Operation ........................................................................................................................................................................... 10
Explanation of terms .......................................................................................................................................................... 11
Manual release/locking in case of power failure
  in the closed state ........................................................................................................................................................... 12
  in the open state ............................................................................................................................................................. 13
Parts overview ................................................................................................................................................................. 14 - 15
Preparatory actions ........................................................................................................................................................... 16
Preparation of electrical connection ............................................................................................................................... 16
Cut-outs for circuit board ................................................................................................................................................ 17
Cut-outs for drive unit ...................................................................................................................................................... 18
Locking, control- and current transition ....................................................................................................................... 19
Cut-outs for lock case, lift-drive and hook-box .................................................................................................................. 20
Positioning of the drive pin .............................................................................................................................................. 21
Borings for manual unlocking handle ............................................................................................................................ 22
Mounting driving unit ...................................................................................................................................................... 23
Mounting of deflection tooth belt .................................................................................................................................. 24
Mounting of cover profile ............................................................................................................................................... 25
Mounting of tooth belt .................................................................................................................................................... 26
Connect drive-pin with toothbelt .................................................................................................................................... 27
Mounting of guide track .................................................................................................................................................. 28
Mounting circuit board ................................................................................................................................................... 29
Mounting of magnets ....................................................................................................................................................... 30
Mounting of the support plates for cover electronics ..................................................................................................... 30
Possibilities of cable routing ........................................................................................................................................... 31
Mounting of current transition and control keypad ....................................................................................................... 32
Mounting of hook locking part ........................................................................................................................................ 33
Mounting of rollers ........................................................................................................................................................... 34
Table of content (continuation)

Mounting of gear ........................................................................................................................................... 35
Lubrication of hook drive gears and striker plates ....................................................................................... 36
Mounting of drive support ............................................................................................................................... 36
Hooking the sash ............................................................................................................................................ 37
Adjustment of tension of tooth belt .................................................................................................................. 38
Cover profile cut to length ............................................................................................................................... 39
Mounting cover profile for tooth belt ............................................................................................................. 40
Coupling of lift drive ....................................................................................................................................... 41
Electrical connection ...................................................................................................................................... 42 - 48
Check / Adjust DIP switch ............................................................................................................................... 49
Triggering of ‘Full-Init’ and ‘Home-Init’ .......................................................................................................... 50
First start up (‘Full-Init’) ................................................................................................................................. 50 - 51
Standard operation .......................................................................................................................................... 52
Teach-in run (‘Home-Init’) ............................................................................................................................. 53
Safety function check ‘reversing’ ..................................................................................................................... 54
Mounting of the cover electronics ................................................................................................................... 55
Mounting of the cover for manual release / locking .................................................................................... 55
Fault elimination .............................................................................................................................................. 56
Maintenance / repair ....................................................................................................................................... 56
Care ................................................................................................................................................................. 57
Technical specification ................................................................................................................................... 58 - 59
Mounting and Installation IR-Light curtain ....................................................................................................... 60 - 65
Installation IR-Presence sensor ....................................................................................................................... 66
Connection of 1-button control pushbutton .................................................................................................... 67 - 70
WARNING!

Important safety instructions

The safety of personnel requires that the following instructions be observed. Incorrect installation can lead to severe injury!

Declaration of Conformity / state of the art
The drive has been constructed and tested in conformity with all applicable European directives. A corresponding declaration of incorporation is available. You may not operate the equipment unless a declaration of conformity is available for the overall system. The drive complies with the state of the art and requires qualified personnel for installation, maintenance, etc.

Personnel
Professional execution of electrical connection has to be entrusted to trained electricians! (as specified e. g. in DIN VDE 1000-10). The mounting of the drive has to be performed by personnel, which has been instructed acc. to the state of the art and acc. to recognised rules of technology.

Intended use
› A power-operated (lift and) slide window with horizontally slidable sashes is used as a side entrance and side exit between two separate locations, in order to link interior and exterior.
› Use of the HS/S comfort drive only for sashes with a weight of max. 300 kg (integrated anti-trap protection).
   Depending on the risk assessment, for sash weights of 300 ... 440 kg additional safety devices, such as light curtain, presence sensor or key switch have to be installed.
› The complete element has to be mounted perpendicularly.
› For maintenance purposes all components of the window element have to be freely accessible.
› In closed position, the sash is lowered and locked by means of locking hooks.
› The lift and slide window cannot be used as emergency door for fire protection, smoke protection or as escape door.
› For version with lift drive: in case of power failure it is possible to manually lift, lower and slide the movable sash with a plug-in handle. This enables a release / locking in open / closed position.

Select the required mounting material in accordance with the structure and the respective load and use additional mounting material if necessary. Any included mounting material will only correspond to parts of the required material.
Important safety instructions (continuation)

Any individual applications or modifications of the drive which are not in compliance with intended use are explicitly prohibited. We shall not be liable for any damage to personnel or material resulting from non-compliance with this provision.
Pay attention to the ‘Guidelines / advice on the product and on liability’ (VHBH) of the Quality Assurance Association: Locks and Hardware.

Storing documents / instructions
Store these instructions for future reference and maintenance. Make these installation instructions available to the end user and provide instructions.

Installation und operation
Prior to installation: Test window and safety elements. The physical integrity and smooth operation of the window must be ensured.
All works (installation, adjustment etc.) have to be done in currentless condition.
Before installing the drive, it must be verified that the drive’s temperature range has been adapted to its operating environment.
To fasten the parts, use screws with sufficient length, so that they can reach into the steel reinforcement in case of PVC profiles.
No other persons are allowed in the vicinity of the drive when a key switch with off presetting (DEAD-MAN switch) is actuated.

WARNING: Never connect the drive / control keypad to 230 V of voltage!
The drive may only be operated at very low safety voltage. Otherwise, there is danger to life!

CAUTION: Failure to follow the work steps will destroy the drive. Improper handling endangers the material. Do not allow any liquid to enter the interior of the device! No objects or dirt shall be left on the running rail.

Risk of crushing and pinching!
To avoid misuse, a risk assessment acc. to Machinery Directive 2006/42/EC is required at the installation site. Protective measures are to be applied according to EN 60335-2-103/2016-05. Depending on the risk assessment, for sash weights of 300 ... 440 kg additional safety devices, such as light curtain, presence sensor or key switch have to be installed.
Important safety instructions (continuation)

⚠️ The drive opens and closes windows automatically.
It is stopped by overload cutoff. However, the compressive force is sufficient to crush fingers if you
act carelessly.
Do not reach into the window rebate or the drive while the drive is running!

⚠️ This device may be used by children age 8 and older as well as all persons without limited physical,
sensory or mental abilities or lack of experience and knowledge provided they act under supervision
or have received prior instructions on the safe use of the device and any hazards resulting from
using the device.
Children are not allowed to play with the device.
Cleaning and user maintenance must not be carried out by children without supervision.
Make sure there are no people or objects in the movement area of the sliding sash.
If the sliding sash element does not have additional safety devices, such as light curtain or presence
sensor, you have to operate the drive only when there is visual contact with the door.
Observe the run of the sash until the door has reached the end position.
Do not pass through remote-controlled doors until the door has stopped.
Make sure that remote controls do not come into the hands of children and are only used by people
who are familiar with the operation of the remotecontrolled door.
When operating with a remote control, there must be visual contact with the door if it does not have
an additional safety device (light curtain, presence sensor).
Please note that a button can be accidentally pressed on the hand-held transmitter (for example in
the pocket / handbag) and this can lead to an unintended door movement.
Make sure that there are no persons or objects in the movement area of the door when teaching-in
the door.

Testing
When installation is complete and after any changes to the system, check all functions by a trial run.

⚠️ Note:
If spare parts or extension components are required or desired, use only original spare parts.
No liability will be accepted and no guarantee nor service is granted if products made by outside
manufacturers are used.
Reliable operation without any damage and hazards requires that installation/setup be made
carefully in accordance with these instructions.
Important safety instructions (continuation)

Maintenance / repair
The power supply to the device must be interrupted for the duration of any cleaning or other types of maintenance operations.
Windows and drives must be checked for physical integrity at least once a year.
Free the drives from any contamination. Check the tightness of fixing and clamping screws. The tension of tooth belt has to be checked every year and the tooth belt has to be retensioned, if necessary (refer to section ‘Adjustment of tension of tooth belt’). The parts to be checked and the items to be maintained can be found in the maintenance check list (www.hautau.de). The end customer can perform all of the steps described. If deviating from the instruction steps, limitation of warranty claims must be expected.
Test the drive by trial run. Defective drives must be repaired at our factory. You may only use original spare parts.
The readiness for operation has to be checked regularly.

Care
Check all devices and cable connections for external damage and dirt. The operability of the control keypad must not be affected by, for example, structural measures or stored goods.
Use a soft, slightly dampened cloth to clean the housing components and the control keypad. To prevent damage to the surfaces, do not use any caustic chemicals, abrasive cleaners or agents containing solvents for cleaning. Provide the drive with durable protection against water and dirt.
Abbreviations

HS / S  Lift & Slide / Slide ...
LH  Length of lift drive
RAB  Outer frame width

Warranty

The drive is subject to HAUTAU’s Terms and Conditions (TC) (Internet: www.HAUTAU.de).

Disposal

The crossed-out wheeled bin symbol indicates that you must not dispose of this electrical appliance or electronic device in the household waste at the end of its service life. You can return it to free collection points for old electrical appliances in your area or to other centres where they accept old appliances for recycling. Contact your local council for addresses of collection points and centres. If the electrical appliance or electronic device contains personal data, you yourself are responsible for erasing data before you return it. You will find more information online at www.weeelogic.com or other websites on the WEEE Directive.
EG Einbauerklärung
EC declaration of incorporation

Der Hersteller:

HAUTAU GmbH
Wilhelm-Hautau-Straße 2
31691 Helpsen
Tel. +49 57 24 / 393-0

erklärt hiermit, dass die unvollständige Maschine:

Product bezeichnung: ATRIUM® HS / S comfort drive - MACO
Product designation: ATRIUM® HS / S comfort drive - MACO
Classification: laut Typenschild
serial number: see label

den folgenden grundlegenden Anforderungen entspricht:
is in accordance with the following basic standards:

- EG-Maschinen-Richtlinie 2006/42/EG
  EC machinery directive
- Sicherheit elektrischer Geräte für den Hausgebrauch DIN EN 60335-1:2012-10
  Household and similar electrical appliances - safety DIN EN 60335-2-103:2016-06
- EMV-Richtlinie 2014/30/EU
directive electromagnetic compatibility
- RoHS II 2011/65/EU

Die unvollständige Maschine darf erst dann in Betrieb genommen werden, wenn festgestellt wurde, dass die Maschine, in die die unvollständige Maschine eingebaut werden soll, den Bestimmungen der EG-Maschinen-Richtlinie (2006/42/EG) entspricht und die Konformitätserklärung gemäß Anhang II A vorgelegt.
The incomplete machine must not be put into operation till it has been ascertained, that the machine in which the incomplete machine is to be incorporated is in accordance with regulations of the EC machinery directive (2006/42/EG).

Der Hersteller verpflichtet sich, die speziellen Unterlagen zur unvollständigen Maschine einzelstaatlichen Stellen auf Vorlangen elektronisch zu übermitteln.
By request the manufacturer assumes responsibility for the electronic transmission of the special documentation concerning the incomplete machine to the accordant individual state office

Die zur Maschine gehörenden speziellen technischen Unterlagen nach Anhang VII Teil B wurden erstellt.
The special technical documentsations belonging to the machine according to Appendix VII Part B have been generated.

Die vorgenannten speziellen technischen Unterlagen können angefordert werden bei:
The aforementioned special documentation can be requested from:

HAUTAU GmbH
Wilhelm-Hautau-Straße 2
31691 Helpsen
Tel. +49 57 24 / 393-0

Helpsen, 18.09.2018

I.V. Dipl.-Ing (FH) Stefan Faatz
Leiter Entwicklung / CE Bauauftragter
Head of development / CE commissioner

Dipl.-Ing. Martin Beßner
Technische Geschäftsführung
Technical managing director
Operation

1. Green lights during movement of the lift / sliding drive
2. Yellow lights in case of fault

During Init run Yellow is flashing; after finishing the Init run, both LEDs are off

*) for HS comfort drive, only
Explanation of terms

**Left version**  
(sliding sash opening from the left to the right,  
drive module on the right)

**Right version**  
(sliding sash opening from the right to the left,  
drive module on the left)

As an example, a sash opening to the right is described within these mounting instructions. Measurements and procedures for sashes opening to the left have to be adapted accordingly. Measurements in mm.
Manual release / locking in case of power failure in the closed state

ATTENTION: Do not release the handle, guide the handle in the locked position, because it turns around quickly due to the sash weight, thus could cause heavy injuries (see point 5 and 6).

1. Switch off electricity primary sided before the power supply unit.
2. Remove the cap.
3. Insert the manual unlocking-handle into the gear and move it a little to left and right, to release the gear.
4. Install the unlocking key and rotate it to the glazing side until you hear a closure sound.
5. Now, you can lift the sash by means of a release handle, move it to the desired position and move it into the lowered position.

Locking

6. Insert the manual release handle back into the drive gear spindle and lift the door (6.1, 6.2). Slide the door shut and lock it.
7. Bring the coupling pin of the lift drive (A) in matching position to the drill hole of the drive rod (B). In order to couple lift drive and drive rod, turn the unlocking key towards the frame side (7.2).

WARNING:

If the manual unlocking-handle will not be pulled off before electrical start-up, this can lead to severe injuries!
ATTENTION: Do not release the handle, guide the handle in the locked position, because it turns around quickly due to the sash weight, thus could cause heavy injuries (see point 5 and 6).

1. Switch off electricity primary sided before the power supply unit.
2. Remove the cap.
3. Insert the manual unlocking-handle into the gear and move it a little to left and right, to release the gear.
4. Install the unlocking key and rotate it to the glazing side until you hear a closure sound.
5. Now, you can lift the sash by means of a release handle, move it to the desired position and move it into the lowered position.

**Locking**

6. Insert the manual release handle back into the drive gear spindle and lift the door (6.1, 6.2). Slide the door shut and lock it.
7. Bring the coupling pin of the lift drive (A) in matching position to the drill hole of the drive rod (B). In order to couple lift drive and drive rod, turn the unlocking key towards the frame side (7.2).

**WARNING:**

If the manual unlocking-handle will not be pulled off before electrical start-up, this can lead to severe injuries!
Parts overview

Example: left version (sliding sash opening from the left to the right - view from inside)

*) not included within scope of delivery
**) in case of 1-button control pushbutton on site, only
Parts overview (continuation)

1. Drive unit
2. Circuit board
3. Power pack
4. Cover power pack
5. Upper guide unit with accessoires
6. Deflection tooth belt
7. Cover support
8. Cover profile
9. Tooth belt
10. Clamping plates drive unit bottom
11. Cover electronics timber
12. Support plate and magnet(s)
13. Cable for lift drive
14. Cable for control keypad
15. Control keypad
16. Cover for manual release / locking (in connection with lift drive)
17. Lift drive
18. Current transition
19. Contact delivery (in connection with lift drive)
20. Emergency release set (drive handle and universal key) (in connection with lift drive)
21. Hook locking part
22. Key switch
23. Connection box HS / S comfort drive
24. WLAN box
25. Pushbutton-Box
Preparatory actions

› All screwings have to reach sufficiently into the timber.
› Check parts for completeness.
› Required milling must be done in the workshop.
› Tools to be used (these have to be provided acc. to instructions):

<table>
<thead>
<tr>
<th>Torx T10/T20</th>
</tr>
</thead>
<tbody>
<tr>
<td>✦</td>
</tr>
<tr>
<td>✦</td>
</tr>
<tr>
<td>✦</td>
</tr>
<tr>
<td>🔧</td>
</tr>
<tr>
<td>🔧</td>
</tr>
</tbody>
</table>

Preparation of electrical connection

Example: left version (sliding sash opening from the left to the right - view from inside)

Connecting cable with 1,5 mm² cross-section
Cut-outs for circuit board
Cut-outs for drive unit
Locking, control- and current transition

<table>
<thead>
<tr>
<th>hook gear</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>size 4</td>
<td>145</td>
<td>733</td>
<td>1613</td>
</tr>
<tr>
<td>size 5</td>
<td>145</td>
<td>733</td>
<td>2045</td>
</tr>
</tbody>
</table>

hook gear size 4 position B is optional

<table>
<thead>
<tr>
<th>hook gear</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>size 4</td>
<td>1794</td>
</tr>
<tr>
<td>size 5</td>
<td>2342</td>
</tr>
</tbody>
</table>
Cut-outs for lock case ☀, Cut-outs for lift-drive ⭐, Cut-outs for hook-box ☀

<table>
<thead>
<tr>
<th>hook gear size 4</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>size 4</td>
<td>166</td>
<td>754</td>
<td>1634</td>
</tr>
<tr>
<td>size 5</td>
<td>166</td>
<td>754</td>
<td>2066</td>
</tr>
</tbody>
</table>

hook gear size 4 position B is optional

<table>
<thead>
<tr>
<th>Y</th>
<th>300 kg</th>
<th>46</th>
<th>56</th>
</tr>
</thead>
</table>

Cut-outs for lock case ☀, Cut-outs for lift-drive ⭐, Cut-outs for hook-box ☀
Positioning of the drive pin

Bolts may extend by max. 4 mm
Borings for manual unlocking handle

Bore holes for manual unlocking-handle and unlocking key

Bore holes for cover for manual release / locking

bore until depth of espag box, only

bore until depth of espag box, only
Mounting driving unit

It is recommended to mount on the loose rod.

By means of both pins, position the drive unit below the upper frame within the milled pocket and fasten it with 6 screws

Window screw (on site)

6x 4.5 x ...
Mounting of deflection tooth belt

It is recommended to mount on the loose rod.
Mounting of cover profile

It is recommended to mount on the loose rod.

Cut Y (frame with cover support, only)

Fastening

As needed!
Mounting of tooth belt

Mounting of the tooth belt should take place about in the half of the fixed part! (see p. 27)

1. Apply tooth belt form-fit by surrounding the drive wheel.

2. Deflection has to be released.

3. Apply tooth belt form-fit by surrounding the deflection wheel.

4.1 Cut tooth belt to length in such a way, that it can be fastened in hand-tight condition at both ends with 3 teeth each within the clamping part.

4.2 Position top clamping plate as shown on the lower clamping plate and both ends of the tooth belt.

4.3 Connect both clamping plates with 2 screws M4 x 10.

4.4 Mounting deflection again.

Dismantle the deflection to facilitate the toothed belt connection!
Connect drive-pin with toothbelt
Mounting of guide track

1. Release guide rail
2. Apply double-sided adhesive tape to the wood.
3. Glue to guide rail
4. Screw the stop bracket to the guide rail

2-part guide rail (passage and fixed area)
Mounting circuit board

Insert membrane grommet for optional accessories

Space for the circuit board

Covers flush with each other
Mounting of magnets

Mounting of the support plates for cover electronics
**Possibilities of cable routing**

The cables have to be fixed in such a way, that they cannot get in contact with moving parts. The holes to be drilled for cable feed-through have to be deburred carefully. **Danger of material damages!**

- **Attach binder to the cable**
- **Strap as a reserve for possible repair**
- **Align acc. to position of cap for manual release / locking (pay attention to hole for cable feed-through at control keypad!)**

- **Do not let cables to the circuit board get caught in rotating parts!**

**Cable to control keypad**

**Cable to current transition**
(lift drive, optional)
Mounting of current transition and control keypad

Current transition

1. Connect flat plug with the current transition
2. Tighten the current transition with 2 screws 4,0 x ... to the frame

Mounting control keypad

Align acc. to position of cap for manual release / locking, if possible
Mounting of hook locking part

The installation situation must always be selected in a way, that the MACO logo is positioned at the top!

Turn the strike plates 180°! If the strike plates are set too high, there is a risk that the handle will be skewed. The manufacturing tolerance can be compensated by turning the strikerplates.
Mounting of rollers

From a sash weight of 200 kg 2 additional 400 kg rollers must be used!
Mounting of gear

1.
Condition upon delivery:
Lift drive decoupled, motor position ‘sash raised’

ATTENTION:
Do not release the handle, guide the handle in the locked position, because it turns around quickly due to the sash weight, thus could cause heavy injuries.

In case of retrofitting of the element, the sash has to be brought into lowered position by means of the drive handle (release set).
Lubrication of hook drive gears and striker plates

**IMPORTANT:**
The hook drive gears and the striker plates are to be lubricated before the first startup!

Greases for fittings:
Adhesive lubricant with PTFE in spray form, e.g. OKS 3751 or equivalent.

Mounting of drive support

Window screw (on site)

Bolts may extend by max. 4 mm
Hooking the sash

1. Lift sash manually

2. Park sash and swivel it in

3. Position and lower the sash to the drive pin

4. Inset and fix guide on gear side

5. Connect drive pin with the sash

6. 1 x 4.5 x 50

**ATTENTION:**
Do not release the handle, guide the handle in the locked position, because it turns around quickly due to the sash weight, thus could cause heavy injuries.

**DANGER**
High sash weights up to max. 300 kg!
Risk of serious injury due to improper use!
Adjustment of tension of tooth belt

1. Lift the sash and position it according to dimension ‘~ 500’

2. Put a load of 1.5 kg on the tooth belt

3. Measure dimension X

*) not included within scope of delivery

During annual maintenance, the tension of tooth belt must be checked. The tooth belt must be retensioned, if necessary.
Cover profile cut to length

Length of cover profile: \( L = \frac{RAB}{2} + 187 \)

1. \( \phi 2.5 \)
2. Delta PT 3 x 8
3. Torx T10

As needed!
Mounting cover profile for tooth belt

1. Separate drive pin from the sash
2. Close sash
3. Lay cover profile on the sash (3.1), put in position (3.2) and attach (3.3)
4. Sliding the sash to the drive pin and reconnect (see picture 1)

Demontage
1. Loosen the screws from the cover plate
2. Lay cover profile on the sash
3. Open the sliding sash to half of the fixed part
4. Coupling the lift drive
5. Separate drive pin from the sash
6. Remove cover plate from sash
7. Close and lower the sash
Coupling of lift drive

1. Insert emergency handle into sash (lowered state)
2. Lift sash, handle position 135°
3. Bring the coupling pin and the drill hole on the bolt into alignment.
4. Close by means of the unlocking bowl in the direction of the sash frame to couple the bolt to the drive.

**ATTENTION:**
Do not release the handle, guide the handle in the locked positon, because it turns arround quickly due to the sash weight, this could cause heavy injuries!
Electrical connection

Example: left version (sliding sash opening from the left to the right - view from inside)

Do not let cables to the circuit board get caught in rotating parts!

If an emergency STOP switch is connected, the bridge 1-9 has to be removed, also if a connection box will be used (refer to page 44).
Electrical connection (continuation)

Terminal assignment

<table>
<thead>
<tr>
<th>Terminal assignment</th>
<th>X1-1</th>
<th>X1-2</th>
<th>X1-3</th>
<th>X1-4</th>
<th>X1-5</th>
<th>X1-6</th>
<th>X1-7</th>
<th>X1-8</th>
<th>X1-9</th>
<th>X1-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal / extension terminal for the connection box</td>
<td>+24 V for ext. devices (light curtain, finger print sensor etc.)</td>
<td>test signal for light curtain</td>
<td>sensor signal of light curtain 2</td>
<td>sensor-signal of light curtain 1</td>
<td>control output for locking control</td>
<td>ext. OPEN control input (switching impulse of finger print sensor)</td>
<td>ext. CLOSE control input</td>
<td>ext. HAUTAU bus</td>
<td>emergency stop input</td>
<td>GND</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Terminal for lift drive</th>
<th>X3-1</th>
<th>X3-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>+24V or GND</td>
<td>GND or +24V</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Terminal for control keypad</th>
<th>X4-1</th>
<th>X4-2</th>
<th>X4-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>+24 V (red)</td>
<td>HAUTAU bus (brown)</td>
<td>GND (black)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Terminal for power supply</th>
<th>X5-1</th>
<th>X5-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>+24V</td>
<td>GND</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAUTAU bus service terminal, connection WLAN box</th>
<th>X6-1</th>
<th>X6-2</th>
<th>X6-3</th>
<th>X6-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>+24V</td>
<td>not used</td>
<td>HAUTAU bus</td>
<td>GND</td>
<td></td>
</tr>
</tbody>
</table>
Electrical connection (continuation)

Connection box

When using external safety equipment (e.g., IR-Light curtain or IR-Presence sensor - refer to corresponding section) the connection box has to be installed locally.

Condition upon delivery:
with bridge; when using an emergency STOP, the bridge has to be removed and the emergency STOP switch has to be connected to terminal X5

To be observed:
The cable has to be laid in such a way, that an unauthorized access from outside is impossible.

Connection of IR-Light curtain
1 brown (emitter and receiver)
2 white (emitter)
3 black (receiver)
4 blue (emitter and receiver)

Connection of emergency STOP switch
(or bridge between 1 and 2)
1 +24 V
2 Emergency STOP input

Connection of IR-Presence sensor
1 brown and pink
2 red
3 grey
4 blue and green

Connection of key switch
1 +24 V
2 CLOSE
3 OPEN

Connection of finger print sensor
1 +24 V
2 -
3 Switching impulse

Installation:
within a flush housing, max. 4 m away from the drive

HAUTAU bus service terminal, connection WLAN box
1 +24 V
2 HAUTAU bus
3 GND

not used (without function)
Electrical connection (continuation)

Connecting diagramm (examples)

Slide version

Circuit board drive module
HS / S comfort drive

Lift drive
HAUTAU bus

Power supply
Control keypad

Control keypad

in case of 1-button control pushbutton, refer to section ‘Connection of 1-button control pushbutton’

Power supply 24 V DC

Lift & Slide version

Circuit board drive module
HS / S comfort drive

Lift drive
HAUTAU bus

Power supply
Control keypad

Control keypad

in case of 1-button control pushbutton, refer to section ‘Connection of 1-button control pushbutton’

Power supply 24 V DC
Electrical connection (continuation)

Connecting diagramm (examples)

Die Adresse vom HS / S comfort drive ist 103 (Auslieferzustand). Siehe auch Montage- und Betriebsanleitungen ‘WLAN-Box’ und ‘Einbindung der WLAN-Box in einen Router’.

Slide version + WLAN box

Lift & Slide version + WLAN box

in case of 1-button control pushbutton, refer to section ‘Connection of 1-button control pushbutton’
Electrical connection (continuation)

Connecting diagramm (examples)

Lift & Slide version + WLAN box without EMERGENCY STOP switch

Key switch or Finger print sensor

Signal length: 0,5 ... 1 s

Circuit board drive module HS / S comfort drive

Lift drive contact delivery

Power supply 24 V DC

WLAN box

Control keypad

Lift & Slide version + WLAN box with EMERGENCY STOP switch

EMERGENCY STOP switch

Circuit board drive module HS / S comfort drive

Lift drive contact delivery

Power supply 24 V DC

Control keypad

WLAN box

in case of 1-button control pushbutton, refer to section 'Connection of 1-button control pushbutton'
Electrical connection (continuation)

Connecting diagram (examples)

Lift & Slide version + IR-light curtain and IR-presence sensor

ATTENTION!

When using an EMERGENCY STOP, the bridge X5 1 and 2 has to be removed.

In case of 1-button control pushbutton, refer to section 'Connection of 1-button control pushbutton'
Check/Adjust DIP switch

The running direction has to be checked before initialization!

**Example**: left version (sliding sash opening from the left to the right - drive right, view from inside)

Slide sash into centered position

**Example**: right version (sliding sash opening from the right to the left - drive left, view from inside)

Slide sash into centered position

System adjustments (on applicable) | ON (1) | OFF (0)
--- | --- | ---
1. left version |  |  
2. right version |  |  
3. Secondary (Scheme C) |  |  
4. Primary (Scheme C) |  |  
5. automatic/optional with finger print sensor (ekey) |  |  
6. DEAD-MAN’s mode **/with key switch |  |  

**) In case of first start-up ('Full-Init') or teach-in run ('Home-Init'), the sash runs in AUTOMATIC mode and afterwards in DEAD-MAN’s mode.

Press button ‘OPEN’: the sliding sash has to run ‘OPEN’. The sash runs approx. 100 mm and then stops automatically. If the sash does not run ‘OPEN’, on S2 the DIP-switch 1 has to be set ‘0’ (OFF).

*) In case of 1-button control pushbutton, the available button will be pressed

After changing the S2 switch, the power supply unit must be disconnected from the power supply for at least 20 seconds.
Triggering of ‘Full-Init’ and ‘Home-Init’

‘Full-Init’ = factory reset
‘Home-Init’ = software reset

<table>
<thead>
<tr>
<th>Mode</th>
<th>control element</th>
<th>Type of initialization</th>
<th>Action</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTOMATIC mode (DIP switch 4 is ‘ON’)</td>
<td>Control keypad</td>
<td>Software reset (‘Home-Init’)</td>
<td>press STOP button for approx. 20 sec.</td>
<td>yellow + green LED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Factory reset (‘Full-Init’)</td>
<td>press STOP button for approx. 30 sec.</td>
<td>yellow + green LED</td>
</tr>
<tr>
<td></td>
<td>Control push-button with</td>
<td>Software reset (‘Home-Init’)</td>
<td>press pushbutton for approx. 20 sec.</td>
<td>Beep at pushbutton-box</td>
</tr>
<tr>
<td></td>
<td>pushbutton-box</td>
<td>Factory reset (‘Full-Init’)</td>
<td>press pushbutton for approx. 20 sec.</td>
<td>Beep at pushbutton-box</td>
</tr>
<tr>
<td>DEAD-MAN’s mode (DIP switch 4 is ‘OFF’)</td>
<td>Control keypad</td>
<td>Software reset (‘Home-Init’)</td>
<td>press STOP button for approx. 20 sec.</td>
<td>yellow + green LED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Factory reset (‘Full-Init’)</td>
<td>press STOP button for approx. 30 sec.</td>
<td>yellow + green LED</td>
</tr>
<tr>
<td></td>
<td>Control push-button with</td>
<td>Software reset (‘Home-Init’)</td>
<td>double click + press pushbutton for approx. 20 sec.</td>
<td>Beep at pushbutton-box</td>
</tr>
<tr>
<td></td>
<td>pushbutton-box</td>
<td>Factory reset (‘Full-Init’)</td>
<td>double click + press pushbutton for approx. 30 sec.</td>
<td>Beep at pushbutton-box</td>
</tr>
</tbody>
</table>

Finishing initialization wait approx. 1 min. or double click again

First start up (‘Full-Init’)

Overview

(Procedure refer to next page)
During first start-up, the sash executes a complete automatic initialization and runs in direction 'CLOSE' and 'OPEN' to determine and save the required parameters.
If DIP-switch 4 at the S2 switch is adjusted for DEAD-MAN, the sash first runs in AUTOMATIC mode and afterwards in DEAD-MAN's mode.

Sliding sash closes and opens during initialization automatically

Let the sash run until the yellow LED does not flash anymore*.

Green LED at the control keypad lights permanently, if the sash moves

yellow LED at the control keypad flashes during initialization

*) in case of 1-button control pushbutton: until beep at the pushbutton-box does not sound anymore

After initialization, the sash stops in position 'CLOSE'.
First start-up (‘Full-Init’, continuation)

Procedure

Complete automatic initialization
(the procedure can be interrupted by pressing ‘STOP’ at any time)

At the operating mode switch ‘0’ has to be set (condition upon delivery) or ‘3’ (**).

**ATTENTION:**
The anti-trap protection and all other safety devices are disabled!
The sash runs with slow speed.

Sash has to be opened (≥ 150 mm) and in raised position

Press ‘OPEN’ at the control keypad *
**ATTENTION:** press ‘OPEN’ once, only!

Sash runs approx. 100 mm in ‘OPEN’ direction; if not: check DIP switch (refer to concerning section)

Press ‘CLOSE’ at the control keypad *
After this, the initialization runs complete independently

Sash runs into ‘CLOSED’ position

When the sash ist closed, the system recognizes, whether a lift drive exists or not

Lift drive exists

Sash lowers

Sash remains in lowered position for a few seconds

Sash lifts independently

Sash slowly opens completely until the end of the element

Sash runs in direction ‘CLOSE’ until position close

The anti-trap protection and all other safety devices are enabled

Initialization is finished

*) in case of 1-button control pushbutton, the available button will be pressed
**) reduced stop range of 10 mm instead of approx. 130 mm before mechanical end position
**Standard operation**

In automatic mode during opening the sash stops approx. 130 mm* before the mechanical end position.

*) Operating mode switch in condition upon delivery (‘0’)

In case of version HAUTAU / MACO:
if the operating mode switch will be switched to position ‘3’, during opening the sash stops approx. 10 mm before the mechanical end position.

⚠️ This setting involves the risk of finger pinching in the area of the middle post. On the part of the operator, actions must be taken to prevent this. After adjusting the operating mode switch, a factory reset (‘Full-Init’) with complete automatic initialization has to be executed (refer to section Triggering of ‘Full-Init’ and ‘Home-Init’).

### Initialization in part, e.g. after power failure

**The anti-trap protection and all other safety devices are activated.**
The sash runs with standard speed.

<table>
<thead>
<tr>
<th>Element is ready for operation</th>
<th>Power failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press ‘CLOSE’ at the control keypad</td>
<td>refer to ‘Home-Init’</td>
</tr>
<tr>
<td>Sash closes with ‘normal’ speed</td>
<td></td>
</tr>
<tr>
<td>Sash is closed</td>
<td></td>
</tr>
<tr>
<td>Lift drive exists</td>
<td>No lift drive</td>
</tr>
<tr>
<td>Sash lowers and locks</td>
<td>Lock the sash by means of handle</td>
</tr>
<tr>
<td>Sash is ready for operation</td>
<td>Sash is ready for operation</td>
</tr>
</tbody>
</table>

**) reduced stop range of 10 mm instead of approx. 130 mm before mechanical end position

***) in case of 1-button control pushbutton, the available button will be pressed
Teach-in run (‘Home-Init’)

‘Home-Init’ = software reset

If DIP-switch 4 at the S2 switch is adjusted for DEAD-MAN, the sash first runs in AUTOMATIC mode and afterwards in DEAD-MAN's mode.

<table>
<thead>
<tr>
<th>Sash is opened</th>
<th>Sash is closed</th>
</tr>
</thead>
<tbody>
<tr>
<td>In case of e.g. power failure: yellow LED at the control keypad flashes *</td>
<td>Standard operation is possible</td>
</tr>
<tr>
<td>Press 'CLOSE' at the control keypad **</td>
<td></td>
</tr>
<tr>
<td>Sash closes slowly ('save speed')</td>
<td></td>
</tr>
<tr>
<td><strong>ATTENTION:</strong> The anti-trap protection and all other safety devices are disabled!</td>
<td></td>
</tr>
<tr>
<td>Lift drive exists</td>
<td>No lift drive</td>
</tr>
<tr>
<td>Sash lowers and locks</td>
<td>Sash remains in position ‘CLOSE’</td>
</tr>
<tr>
<td>Lock the sash by means of handle</td>
<td></td>
</tr>
<tr>
<td>Sash is ready for operation</td>
<td>Sash is ready for operation</td>
</tr>
</tbody>
</table>

*) or beep at pushbutton-box in case of 1-button control pushbutton
** in case of 1-button control pushbutton, the available button will be pressed
Safety function check ‘reversing’

1  ✓
Teach-in run (‘Home-Init’) was carried out, sash is opened

2
Position hard object (e.g. tool box) between sash and frame, lean against the frame

3
Press ‘CLOSE’ at the control keypad (in case of 1-button control keypad, the available button will be pressed)

4
Sash runs against the hard object, stops and runs again in direction ‘OPEN’ partially

To avoid scratches at the frame or at the sash, the object should be covered with a suitable fabric.

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check was successful: (Lift-) Slide-System has to be labelled according to the EC machine directive</td>
<td>Check was not successful: Teach-in run (‘Home-Init’) and safety function check ‘reversing’ have to be repeated</td>
</tr>
<tr>
<td>The (Lift-) Slide-System may be put into operation</td>
<td></td>
</tr>
</tbody>
</table>

If the check was not successful repeatedly, the (Lift-) Slide-System has to be taken out of operation and disconnected from mains as well as a service company has to be consulted for the purpose of troubleshooting. Otherwise, severe injuries could be the consequence.

Check was successful:
(Lift-) Slide-System has to be labelled according to the EC machine directive

The (Lift-) Slide-System may be put into operation
Mounting of the cover electronics

Mounting of the cover for manual release / locking

(for HS comfort drive, only)
Fault elimination

<table>
<thead>
<tr>
<th>Event</th>
<th>Meaning</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>yellow LED at the control keypad lights *</td>
<td>fault</td>
<td>› press the (STOP-) button at the control keypad ('error reset', the lighting stops *)&lt;br&gt; › press the (OPEN-) button:&lt;br&gt; in case of normal run: everything is ok; if the yellow LED continues to light *:&lt;br&gt; - software reset by pressing the (STOP-) button for approx. 20 s ('Home-Init' - both LEDs light for approx. 3 s * - please follow section Teach-in run ('Home-Init');&lt;br&gt; - if the (STOP-) button will be pressed for approx. 30 s, a factory reset will be executed ('Full-Init' - both LEDs light for approx. 3 s * - please follow section First start-up ('Full-Init'))</td>
</tr>
<tr>
<td>Power failure (operating mode switch in position '0' or '3')</td>
<td>fault</td>
<td>› if sash is open: Home-Init is necessary (yellow LED flashes *):&lt;br&gt; › press the (CLOSE-) button at the control keypad (sash runs in direction CLOSE and sets position to '0')&lt;br&gt; › in case of closed sash: no action required, because sash has recognized the position&lt;br&gt; ATTENTION: During Home-Init all safety devices are disabled!</td>
</tr>
<tr>
<td>no response after pressing the STOP-button for at least 30 s</td>
<td>fault</td>
<td>› switch the operating mode switch to 'S' and disconnect the power supply unit from the power supply for at least 20 s&lt;br&gt; › connect the power supply again&lt;br&gt; › after approx. 3 s: switch the operating mode switch to 'O' - please follow section First start-up ('Full-Init')</td>
</tr>
<tr>
<td>Drive reversed (sash runs back approx. 100 mm)</td>
<td>sash moved against an obstacle</td>
<td>error reset by pressing the (STOP-) button (the lighting of the yellow LED stops *) &lt;br&gt; *) respectively 2x beep sequence in case of 1-button control keypad (at the pushbutton-box)</td>
</tr>
</tbody>
</table>

Maintenance / repair

Maintenance check list: refer to HAUTAU document 500797.
The power supply to the device must be interrupted for the duration of any cleaning or other types of maintenance operations.
Windows and drives must be checked for physical integrity at least once a year.
Free the drives from any contamination. Check the tightness of fixing and clamping screws. The tension of tooth belt has to be checked every year and the tooth belt has to be retensioned, if necessary (refer to section ‘Adjustment of tension of tooth belt’). The parts to be checked and the items to be maintained can be found in the maintenance check list (www.hautau.de).
The end customer can perform all of the steps described. If deviating from the instruction steps, limitation of warranty claims must be expected. Test the drive by trial run. Defective drives must be repaired at our factory. You may only use original spare parts. The readiness for operation has to be checked regularly.
Care

Check all devices and cable connections for external damage and dirt. The operability of the control keypad must not be affected by, for example, structural measures or stored goods.

Use a soft, slightly dampened cloth to clean the housing components and the control keypad. To prevent damage to the surfaces, do not use any caustic chemicals, abrasive cleaners or agents containing solvents for cleaning. Provide the drive with durable protection against water and dirt.
Technical specification

**Complete system**
(Lift drive and sliding drive)
‘HS comfort drive’

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sash width (FB)</td>
<td>720 to 3235 mm</td>
</tr>
<tr>
<td>Sash height (FH)</td>
<td>1870 to 2850 mm</td>
</tr>
<tr>
<td>Outer frame width</td>
<td>max. 6500 mm</td>
</tr>
<tr>
<td>Max. sash weight</td>
<td>300 kg</td>
</tr>
<tr>
<td>Max. sliding force of drive</td>
<td>200 N</td>
</tr>
</tbody>
</table>

**Electrical characteristics**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>24 V DC (-10%, +30%)</td>
</tr>
<tr>
<td>Permitted voltage range</td>
<td>21,6 to 31,2 V DC</td>
</tr>
<tr>
<td>Max. allowable ripple</td>
<td>≤ 20% related to rated voltage</td>
</tr>
<tr>
<td>Current consumption</td>
<td>4 A at 24 V</td>
</tr>
<tr>
<td>Max. power consumption</td>
<td>100 W</td>
</tr>
<tr>
<td>Switching-off in each position (blockade)</td>
<td>yes, safety switching-off (blockade) in direction OPEN and CLOSE until 300 kg</td>
</tr>
<tr>
<td>Protection class</td>
<td>III safety extra-low voltage SELV</td>
</tr>
</tbody>
</table>

**Connection and operation**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duty cycle</td>
<td>20 cycles or ED 30</td>
</tr>
<tr>
<td>Lifetime</td>
<td>25,000 cycles (class 5 EN 13126-1)</td>
</tr>
<tr>
<td>Reading out of operating conditions</td>
<td>yes</td>
</tr>
<tr>
<td>Maintenance</td>
<td>once a year, acc. to general maintenance guidelines</td>
</tr>
<tr>
<td>Connection to WLAN-Box</td>
<td></td>
</tr>
<tr>
<td>Address (delivered condition)</td>
<td>103</td>
</tr>
</tbody>
</table>

**Installation and environmental conditions**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal temperature</td>
<td>20 °C</td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>-5 to +60 °C (environmental category 1 acc. to VdS 2580)</td>
</tr>
<tr>
<td>Protective system</td>
<td>IP 40 acc. to DIN EN 60529</td>
</tr>
<tr>
<td>Environmental conditions</td>
<td>for dry environments, only; no dew formation, no aggressive fumes, no dusty environments</td>
</tr>
</tbody>
</table>

**Notes for power supply and control**

- Switching power supplies (SNT) and transformer power supplies suitable for C-load with power reserves for the moment of switching-on and switching-off of the drives
- Low voltage (24 V) overvoltage category I must be guaranteed

**Approvals and certificates**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical safety</td>
<td>yes, acc. to EN 60335-1 and EN 60335-2-103</td>
</tr>
<tr>
<td>EMV compatibility</td>
<td>yes, acc. to DIN EN 55014-1, 55014-2 und 61000-6-3</td>
</tr>
</tbody>
</table>
### Sliding drive

**Electrical characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>24 V DC (-10%, +30%)</td>
</tr>
<tr>
<td>Permitted voltage range</td>
<td>21.6 to 31.2 V DC</td>
</tr>
<tr>
<td>Max. allowable ripple</td>
<td>≤ 20% related to rated voltage</td>
</tr>
<tr>
<td>Current consumption</td>
<td>4 A at 24 V</td>
</tr>
<tr>
<td>Switching-off in each position</td>
<td>yes, safety switching-off in direction OPEN and CLOSE until 330 kg</td>
</tr>
</tbody>
</table>

**Material and mechanical characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission sound pressure level LpA</td>
<td>≤ 70 dB(A)</td>
</tr>
<tr>
<td>Sliding force</td>
<td>200 N</td>
</tr>
<tr>
<td>Max. sliding force</td>
<td>440 kg</td>
</tr>
<tr>
<td>Operating speed</td>
<td>75 mm/s (factory setting)</td>
</tr>
<tr>
<td>Non-halogen</td>
<td>no</td>
</tr>
<tr>
<td>Silicone-free</td>
<td>no</td>
</tr>
<tr>
<td>RoHS compliant</td>
<td>yes</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-5 to 60 °C</td>
</tr>
<tr>
<td>Protective system</td>
<td>IP 40 acc. to DIN EN 60529</td>
</tr>
<tr>
<td>Max. cycles</td>
<td>20</td>
</tr>
</tbody>
</table>

### Lift drive

**Electrical characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>24 V DC (-15%, +30%)</td>
</tr>
<tr>
<td>Permitted voltage range</td>
<td>20.4 to 31.2 V DC</td>
</tr>
<tr>
<td>Max. allowable ripple</td>
<td>≤ 20% related to rated voltage</td>
</tr>
<tr>
<td>Current consumption</td>
<td>2 A</td>
</tr>
<tr>
<td>Switching-off OPEN / CLOSE</td>
<td>built-in limit switch</td>
</tr>
<tr>
<td>Protection class</td>
<td>III safety extra-low voltage SELV</td>
</tr>
</tbody>
</table>

**Material and mechanical characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission sound pressure level LpA</td>
<td>≤ 70 dB(A)</td>
</tr>
<tr>
<td>Mech. emergency release</td>
<td>yes</td>
</tr>
<tr>
<td>Non-halogen</td>
<td>no</td>
</tr>
<tr>
<td>Silicone-free</td>
<td>no</td>
</tr>
<tr>
<td>RoHS compliant</td>
<td>yes</td>
</tr>
<tr>
<td>Lift time</td>
<td>approx. 6 s</td>
</tr>
<tr>
<td>Max. sash weight</td>
<td>300 kg</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-5 to 60 °C</td>
</tr>
<tr>
<td>Protective system</td>
<td>IP 40 acc. to DIN EN 60529</td>
</tr>
<tr>
<td>Max. cycles</td>
<td>20</td>
</tr>
</tbody>
</table>
Mounting and Installation IR-light curtain

Pars overview

Light curtain (Emitter and Receiver)
# Mounting and Installation IR-light curtain (continuation)

**Technical data IR-light curtain**

<table>
<thead>
<tr>
<th>Light curtain</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage</td>
<td>14 up to 30 V DC</td>
</tr>
<tr>
<td>Current consumption</td>
<td>60 mA at 24 V DC</td>
</tr>
<tr>
<td>Max. inrush current</td>
<td>&lt; 2 A per edge</td>
</tr>
<tr>
<td>Ripple</td>
<td>10%</td>
</tr>
<tr>
<td>Output</td>
<td>max. 120 mA</td>
</tr>
<tr>
<td>Response time</td>
<td>25 up to 100 ms</td>
</tr>
<tr>
<td>Wavelength</td>
<td>infrared 925 nm</td>
</tr>
<tr>
<td>No. of sensors per edge</td>
<td>16</td>
</tr>
<tr>
<td>No. of beams per sensor</td>
<td>46</td>
</tr>
<tr>
<td>Operating range</td>
<td>0,8 up to 6 m</td>
</tr>
<tr>
<td>Max. ambient light</td>
<td>75,000 Lux</td>
</tr>
<tr>
<td>Dimensions</td>
<td>2000 mm (L) x 12 mm (W) x 16 mm (D)</td>
</tr>
<tr>
<td>Cable length</td>
<td>2 x 5 meter connecting cable</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20 °C up to +65 °C</td>
</tr>
<tr>
<td>Vibration</td>
<td>IEC 60068-2-29, EN 50155, EN 50121</td>
</tr>
<tr>
<td>Shock</td>
<td>IEC 60068-2-6, EN 50155, EN 50121</td>
</tr>
<tr>
<td>EMV Emission</td>
<td>EN61000-6-3, EN 50155, EN 50121</td>
</tr>
<tr>
<td>EMV immunity</td>
<td>EN61000-6-2, EN 50155, EN 50121</td>
</tr>
<tr>
<td>Enclosure rating</td>
<td>IP 65</td>
</tr>
<tr>
<td>Material</td>
<td>aluminium</td>
</tr>
<tr>
<td>Profil colour</td>
<td>aluminium anodised</td>
</tr>
</tbody>
</table>
Mounting and Installation IR-light curtain (continuation)

Main features

› Self calibrating, fault tolerant
› Easy installation without alignment
› Dense surveillance area
› Robust and reliable
› Integrated diagnostics
› Off time delay, adjustable

Functional description

Between emitter E and receiver R a high density surveillance area is built up with straight and crossed beams. A built-in calibration feature of each individual beam to eliminate any adjustment, suppress light interference or control influence from dirt. Automatically adjust the power to provide the optimal operating conditions. These features give an outstanding functional reliability. Any interruption of the surveillance area by an object or a person will be detected and the output signal will be switched.

Notes for installation
Mounting and Installation IR-light curtain (continuation)

Notes for installation (continuation)

Due to the large optical aperture angle and the automatic calibration feature there is no alignment needed as long as the light curtains are within the specified aperture angle, (fig. 2).

For installation of the light curtains please note ...

› that the emitter and the receiver profiles are not installed 180° turned to each other; that means, both cables have to exit the profile in the same direction (fig. 1).
› that the profiles are not stretched or squeezed (fig. 4).
› that the fixing basis is flat enough.
› that the connecting cable is not exposed to tractive or shearing forces.
› that the cable is fixed and conduited safely and with large bending radius (fig. 3).
› to avoid dirt on the light curtains.
› to avoid contamination by oil or greasy fluids.
› that during operation, no sash, cable etc. extend into the surveillance field (fig. 5).
› to avoid interference with foreign infrared light sources like other light curtains, energy saving lamps, direct sun light etc. at receiver curtain R (fig. 6).
› to clean the profiles with soap water, because solvents destroy them.
› to make sure that the operating range corresponds with the specification of the light curtain.

IMPORTANT WARNING:
This product is not a safety sensor to protect human life or human injury from dangerous parts of machinery.
Installation IR-Light curtain

The range of detection has to be adjusted in such a way, that the function will be ensured.

The range of detection will be defined by $\alpha$ and $X$ or $\beta$ and $Y$, and the width of the element.
Mounting and Installation IR-light curtain (continuation)

Installation

Connect the light curtain according to the connecting diagram. At each edge is a LED above which displays the status of the light curtain:

<table>
<thead>
<tr>
<th></th>
<th>LED colour</th>
<th>LED on</th>
<th>LED off</th>
<th>LED flashing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiver</td>
<td>orange</td>
<td>Power ok and object detected</td>
<td>no power or no object</td>
<td>optical element</td>
</tr>
<tr>
<td>Emitter</td>
<td>green</td>
<td>power ok</td>
<td>no power</td>
<td></td>
</tr>
</tbody>
</table>

Trouble shooting

If the IR-light curtain does not operate as expected, observe the following trouble shooting guide step by step:

1. Power up light curtain system (receiver and emitter edge).

2. Check supply voltage both on emitter and receiver. Is the green indicator LED in the emitter edge on and is the orange LED in the receiver edge on when there are obstacles between the emitter and the receiver? Is the supply voltage between 14 and 30 Volts DC? The ripple on the DC voltage should not exceed more than 10% of the mean voltage within the min. and max. range.

3. If the output signal of the receiver is not stable during the closing of the sash, make sure that
   a. the distance between the cables of the light curtain and possible electromagnetical disruptive factors is as wide as possible.
   b. there are no obstacles between the emitter and the receiver. Make sure that obstacles does not enter the light path.
   c. the edges are properly installed and aligned so that they cannot swing or vibrate and therefore lose line or sight between themselves.
   d. the optical elements of the edges are clean and not full of dust or dirt. Although the light curtain is very tolerant to this condition, its performance is much better when it is clean.

4. If the sash is closing even with an obstacle, there are two possible reasons:
   a. output selector not properly set (see step 2 and 3).
   b. faulty / defective system wiring or defective receiver edge.
Mounting IR-Presence sensor

For installation and additional equipment, please use separate instructions for the presence sensor ('safety sensor') IXIO-ST supplied.

Parts overview

IR-Presence Sensor
('Safety sensor')

Wiring the sensor

For installation and additional equipment, please use separate instructions for the presence sensor ('safety sensor') IXIO-ST supplied.

IMPORTANT:
Before operating the IR presence sensor, the automatic test must be programmed to 'ON' using the BEA remote control as follows:

Test
(Monitoring)
Connection of 1-button control pushbutton

Features

› for installation in a flush housing (deep version)
› the HS / S comfort drive control electronics automatically detects, whether a 3-button control keypad or a Pushbutton-Box with a pushbutton is connected
› Power supply via the HAUTAU bus
› for operation via only one button for OPEN, STOP and CLOSE
› a buzzer on the board serves to signal errors and conditions

Equipment overview

1. Power supply and connection to HS comfort drive circuit board, terminal X4
2. Connection for pushbutton
3. Buzzer for signalling (within the housing)
4. Connecting cable (Length: 10 m)

Installation of the Pushbutton-Box

The Pushbutton-Box is designed for installation in an on-site flush housing (deep version). The place of installation has to be dry and easy accessible. An inspection flap or similar is recommended. It is not necessary to fasten the Pushbutton-Box within the flush housing. For an extended terminal compartment an electronic flush housing is recommended.
Connection of 1-button control pushbutton (continuation)

Terminal connection diagram

Circuit board drive module HS/S comfort drive
(illustration may differ)

![Connection diagram](image)

Operation

The control unit memorizes the last movement of the sash. To protect the system, the commands will be ignored when pressing the button random short consecutively.

HS/S comfort drive in automatic mode: by pressing the button for about 20 seconds continuously, the software will be reset (‘Home-Init’); by pressing the button for about 30 seconds continuously, a factory reset (‘Full-Init’) is carried out.

HS/S comfort drive in DEAD-MAN’s mode: to get into this special mode, a double click is necessary. Only afterwards, by pressing the button for about 20 seconds continuously, the software will be reset (‘Home-Init’); by pressing the button for about 30 seconds continuously, a factory reset (‘Full-Init’) is carried out. To leave the special mode, it is necessary to double click the button again or to wait about 1 minute. The reset of the software respectively the factory reset will be confirmed each by an audible signal.
Connection of 1-button control pushbutton (continuation)

Signalling

The buzzer to signal errors and conditions cannot be switched off. Therefore it will be activated only in case of compelling necessity to inform the user/operator of the drive system. The buzzer does not serve to present different causes of error that can be corrected by the Service, only. The buzzer provides assistance for the user/operator.

<table>
<thead>
<tr>
<th>Event</th>
<th>Beep sequence</th>
<th>Activation and duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>in case of all errors, which lead to safety stop of the HS/S comfort drive</td>
<td></td>
<td>in case of pressing the button, only</td>
</tr>
<tr>
<td>during opening/closing in case of initialization</td>
<td></td>
<td>until the initialization will be finished</td>
</tr>
<tr>
<td><strong>ATTENTION:</strong> During initialization all safety devices are disabled!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confirmation beep in case of software reset ('Home-Init') after about 20 seconds. To reset, the operating button has to be pressed for at least 20 seconds.</td>
<td></td>
<td>one-time</td>
</tr>
<tr>
<td>Confirmation beep in case of factory reset ('Full-Init') after about 30 seconds. For factory reset, the operating button has to be pressed for at least 30 seconds.</td>
<td></td>
<td>one-time</td>
</tr>
<tr>
<td>after double click onto the pushbutton</td>
<td></td>
<td>1 minute or until pushbutton is pressed again</td>
</tr>
</tbody>
</table>
Connection of 1-button control pushbutton (continuation)

Technical data

<table>
<thead>
<tr>
<th>Operating supply</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage</td>
<td>24 V DC (-10 % / + 30 %)</td>
</tr>
<tr>
<td>Ripple</td>
<td>≤ 20% related to nominal voltage</td>
</tr>
<tr>
<td>Current consumption</td>
<td>max. approx. 14 mA</td>
</tr>
<tr>
<td></td>
<td>Standby approx. 4 mA</td>
</tr>
<tr>
<td>Power consumption</td>
<td>max. approx. 0.4 W</td>
</tr>
<tr>
<td></td>
<td>Standby approx. 100 mW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material and mechanical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions; W x H x D</td>
</tr>
<tr>
<td>Housing</td>
</tr>
<tr>
<td>Colour</td>
</tr>
<tr>
<td>Non-halogen</td>
</tr>
<tr>
<td>Silicone-free</td>
</tr>
<tr>
<td>RoHS compliant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acoustic signalling</th>
</tr>
</thead>
<tbody>
<tr>
<td>of errors and conditions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAUTAU Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire length</td>
</tr>
<tr>
<td>Cable cross-section</td>
</tr>
<tr>
<td>Type of cable</td>
</tr>
<tr>
<td>Number of drives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Installation and environmental conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal temperature</td>
</tr>
<tr>
<td>Ambient temperature range</td>
</tr>
<tr>
<td>Installation situation</td>
</tr>
<tr>
<td>Applicable for outdoor installation</td>
</tr>
<tr>
<td>Protection system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approvals and certificates</th>
</tr>
</thead>
<tbody>
<tr>
<td>RoHS compliant</td>
</tr>
<tr>
<td>Protection cla</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Connectivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>any 1-pole pushbutton with normally open contact for flush / surface mounting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use for HS/S comfort drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>from Software-Version 5.0 for the main board of the drive</td>
</tr>
</tbody>
</table>
Would you like everything from a single source?

HAUTAU, a specialist in sliding products, is part of the MACO Group. At MACO you get complete solutions for your large surfaces, windows and doors – for timber, PVC and aluminium: Experience our versatile system range, with comprehensive service included. Discover more on www.maco.eu and www.hautau.de or contact your customer advisor.