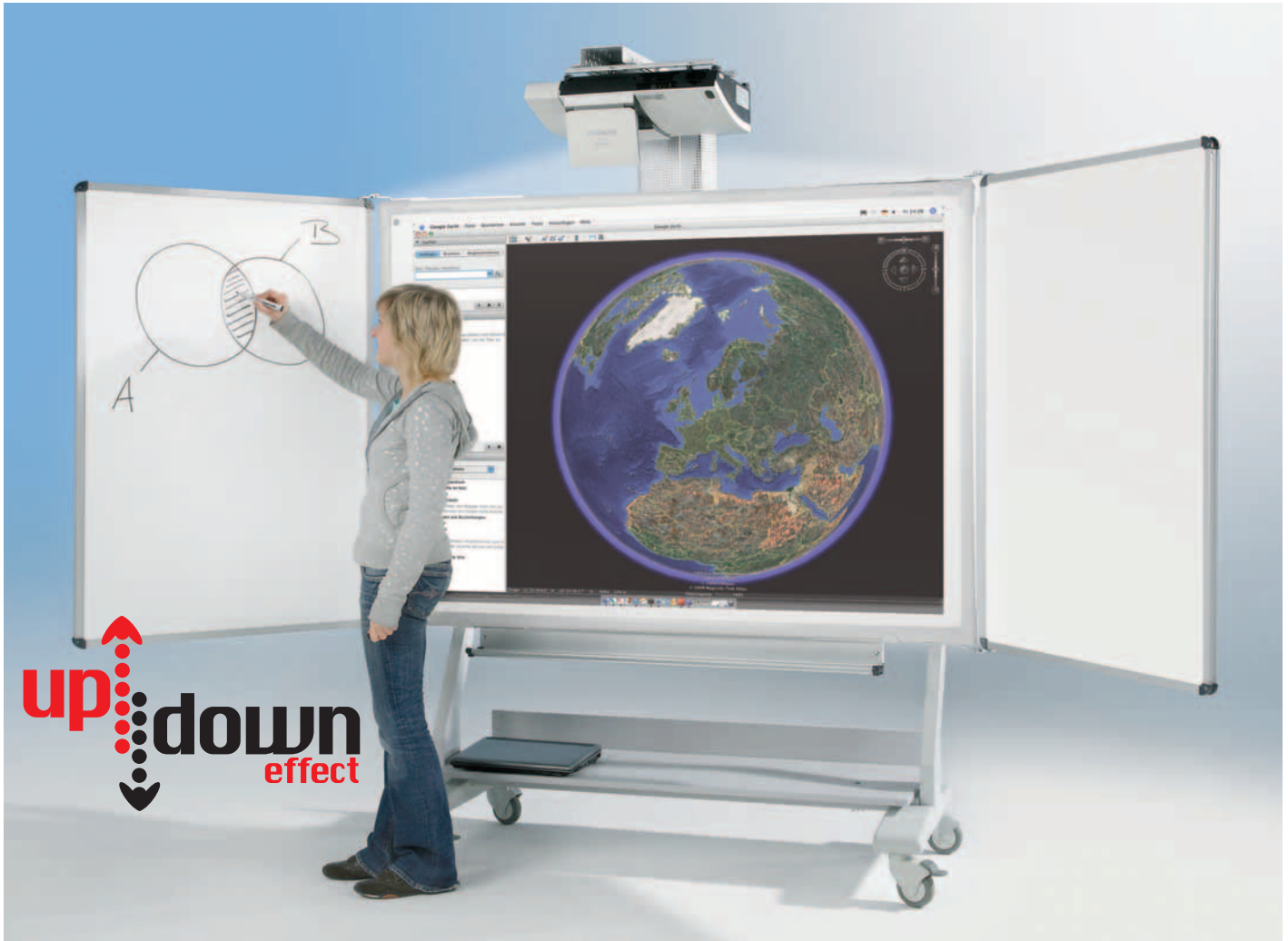


# Assembly instruction for Conen height adjustable system for interactive whiteboards



**CONEN**<sup>®</sup>  
Freude am Lernen...  
Joy in Learning...

## 1. Introduction

### 1.1 Welcome

Thank you for choosing our height adjustable system.

The Conen height adjustable system allows you to combine board and projector in one system.

You can easily move the interactive board and the projector up and down and bring them into the preferred position. We differentiate between the wall mounted system with or without wings and the mobile system with or without wings. It is not necessary to adjust the picture after moving the board. The usage of a short distance projector or an ultra short distance projector guarantees, that you cannot see any shadow on the board. The height adjustable system enables the smallest and tallest to use the whole board.

This assembly instruction contains all information for installer and user of the height adjustable system.

### 1.2 Important Warnings

- Only included equipment should be used for installation.
- The total system weighs between 70 – 125 kg / 154 – 275 lb and should be installed with care.
- Before the installation of the wall mounted system the condition of the wall must be clear and suitable installation material must be used. Wall mounting work must be performed by a construction specialist.
- No unauthorised modifications or additions are to be made to the system.
- Do not hang from or climb on the system.
- Tighten all screws securely.
- Maximum allowable projector weight: G1: 7 kg/15 lb
- Allowable weight board plus projector:  
HVL: 66 lb (board) + 15 lb (projector) = 81 lb  
HVM: 66 lb (board) + 15 lb (projector) = 81 lb  
HVM-95: 82.5 lb (board) + 15 lb (projector) = 97.5 lb
- **Do follow the assembly instruction!**



**Please contact us for further information and support about the installation and use of this system.**

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### 1.3 Parts Check

After unpacking, make sure that all the following parts are present.

#### 1.3.1 Wall Mounted System without Wings

Packing unit	Content
HVL	<p>1 x spring tension mechanism            1 x tray with bottom brackets            2 x top bracket</p> <p><b>Fittings:</b></p> <ul style="list-style-type: none"> <li>• <b>For concrete wall mounting:</b> <ul style="list-style-type: none"> <li>4 x hexagon head wood screw M10 x 80</li> <li>4 x 10 mm washer</li> <li>4 x 12 mm concrete anchor</li> </ul> </li> <li>• <b>For the assembly of the other parts to the HVL:</b> <ul style="list-style-type: none"> <li>2 x hexagon head screw M8 x 40</li> <li>8 x hexagon head screw M10 x 16</li> <li>1 x hexagon head screw M10 x 20</li> <li>2 x screw nut M8</li> <li>4 x 8 mm washer</li> <li>1 x 10 mm washer</li> </ul> </li> </ul>
G1...	<p>1 x G1 arm            1 x G1 mount</p> <p><b>Fittings:</b></p> <ul style="list-style-type: none"> <li>1 x knurled head screw, thread M10</li> <li>4 x knurled head screw, thread M6</li> <li>4 x knurled head screw, thread M5</li> <li>4 x knurled head screw, thread M4</li> <li>4 x distance tube, diameter 15 mm, length 10 mm</li> <li>4 x distance tube, diameter 15 mm, length 20 mm</li> </ul>

Packing unit	Content
... or G2-EDA 100	1 x G2 arm 1 x G2 mount <b>Fittings &amp; tools:</b> 1 x hexagon head screw M10 x 20 4 x Allen head screw M6 x 15 4 x Allen head screw M6 x 20 2 x Allen head screw M8 x 25 8 x 6 mm washer 2 x 8 mm washer 1 x 10 mm washer 4 x 6 mm plastic washer 4 x distance tube, diameter 15 mm, length 15 mm 1 x knurled head screw, thread M10 4 x screw nut M6 1 x 5 mm Allen wrench 1 x 6 mm Allen wrench
... or G2-XL 50	1 x G2 arm 1 x G2 mount <b>Fittings &amp; tools:</b> 1 x hexagon head screw M10 x 20 4 x Allen head screw M4 x 10 2 x Allen head screw M8 x 25 4 x 4 mm washer 2 x 8 mm washer 1 x 10 mm washer 4 x 6 mm plastic washer 1 x knurled head screw, thread M10 1 x 3 mm Allen wrench 1 x 5 mm Allen wrench 1 x 6 mm Allen wrench

**For the assembly you need (not included):**

- 12 mm drill
- 13 mm wrench or ratchet
- 17 mm wrench or ratchet
- 2,5 mm Allen wrench
- 6 mm Allen wrench
- Phillips head screw driver

### 1.3.2 Wall Mounted System with Wings

Packing unit	Content
<p><b>HVM</b></p>	<p>1 x spring tension mechanism            1 x tray with bottom brackets            2 x top bracket</p> <p><b>Fittings:</b></p> <ul style="list-style-type: none"> <li>• <b>For concrete wall mounting:</b> <ul style="list-style-type: none"> <li>4 x hexagon head wood screw M10 x 80</li> <li>4 x 10 mm washer</li> <li>4 x 12 mm concrete anchor</li> </ul> </li> <li>• <b>For the assembly of the other parts to the HVM:</b> <ul style="list-style-type: none"> <li>2 x hexagon head screw M8 x 40</li> <li>8 x hexagon head screw M10 x 16</li> <li>1 x hexagon head screw M10 x 20</li> <li>2 x screw nut M8</li> <li>4 x 8 mm washer</li> <li>1 x 10 mm washer</li> </ul> </li> </ul>
<p><b>G1...</b></p>	<p>1 x G1 arm            1 x G1 mount</p> <p><b>Fittings:</b></p> <ul style="list-style-type: none"> <li>1 x knurled head screw, thread M10</li> <li>4 x knurled head screw, thread M6</li> <li>4 x knurled head screw, thread M5</li> <li>4 x knurled head screw, thread M4</li> <li>4 x distance tube, diameter 15 mm, length 10 mm</li> <li>4 x distance tube, diameter 15 mm, length 20 mm</li> </ul>

Packing unit	Content
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... or G2-XL 50	1 x G2 arm 1 x G2 mount <b>Fittings &amp; tools:</b> 1 x hexagon head screw M10 x 20 4 x Allen head screw M4 x 10 2 x Allen head screw M8 x 25 4 x 4 mm washer 2 x 8 mm washer 1 x 10 mm washer 4 x 6 mm plastic washer 1 x knurled head screw, thread M10 1 x 3 mm Allen wrench 1 x 5 mm Allen wrench 1 x 6 mm Allen wrench
FWW-7 / FWW-9	2 x wings 12 x sheet metal screw 4,2 x 25

**For the assembly you need (not included):**

- 12 mm drill
- 13 mm wrench or ratchet
- 17 mm wrench or ratchet
- 2,5 mm Allen wrench
- 6 mm Allen wrench
- Phillips head screw driver

### 1.3.3 Mobile System without Wings

Packing unit	Content
AB-Fahr	<p>1 x mobile stand (3 parts)</p> <p><b>Fittings:</b></p> <ul style="list-style-type: none"> <li>4 x hexagon head screw M10 x 55</li> <li>8 x 8 mm washer</li> <li>4 x 10 mm washer</li> <li>4 x Allen head screw M8 x 80</li> <li>4 x self locking nut M8</li> </ul>
HVL	<p>1 x spring tension mechanism</p> <p>1 x tray with bottom brackets</p> <p>2 x top bracket</p> <p><b>Fittings:</b></p> <div style="border: 1px solid #ccc; background-color: #e0f2f1; padding: 5px; margin: 5px 0;"> <p>• <b>For concrete wall mounting:</b></p> <ul style="list-style-type: none"> <li>4 x hexagon head wood screw M10 x 80</li> <li>4 x 10 mm washer</li> <li>4 x 12 mm dowel</li> </ul> </div> <p>• <b>For the assembly of the other parts to the HVL:</b></p> <ul style="list-style-type: none"> <li>2 x hexagon head screw M8 x 40</li> <li>8 x hexagon head screw M10 x 16</li> <li>1 x hexagon head screw M10 x 20</li> <li>2 x screw nut M8</li> <li>4 x 8 mm washer</li> <li>1 x 10 mm washer</li> </ul>
G1...	<p>1 x G1 arm</p> <p>1 x G1 mount</p> <p><b>Fittings:</b></p> <ul style="list-style-type: none"> <li>1 x knurled head screw, thread M10</li> <li>4 x knurled head screw, thread M6</li> <li>4 x knurled head screw, thread M5</li> <li>4 x knurled head screw, thread M4</li> <li>4 x distance tube, diameter 15 mm, length 10 mm</li> <li>4 x distance tube, diameter 15 mm, length 20 mm</li> </ul>

**Not for use with the mobile system!**

Packing unit	Content
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... or G2-XL 50	1 x G2 arm 1 x G2 mount <b>Fittings &amp; tools:</b> 1 x hexagon head screw M10 x 20 4 x Allen head screw M4 x 10 2 x Allen head screw M8 x 25 4 x 4 mm washer 2 x 8 mm washer 1 x 10 mm washer 4 x 6 mm plastic washer 1 x knurled head screw, thread M10 1 x 3 mm Allen wrench 1 x 5 mm Allen wrench 1 x 6 mm Allen wrench
PC-Ablage (optional)	1 x PC-shelf <b>Fittings:</b> 2 x carriage bolt M8 x 75 2 x 8 mm washer 2 x wing nut

**For the assembly you need (not included):**

- 13 mm wrench or ratchet
- 17 mm wrench or ratchet
- 2,5 mm Allen wrench
- 6 mm Allen wrench
- Phillips head screw driver

### 1.3.4 Mobile System with Wings

Packing unit	Content
AB-Fahr	<p>1 x mobile stand (3 parts)</p> <p><b>Fittings:</b></p> <ul style="list-style-type: none"> <li>4 x hexagon head screw M10 x 55</li> <li>8 x 8 mm washer</li> <li>4 x 10 mm washer</li> <li>4 x Allen head screw M8 x 80</li> <li>4 x self locking nut M8</li> </ul>
HVM	<p>1 x spring tension mechanism</p> <p>1 x tray bottom brackets</p> <p>2 x top bracket</p> <p><b>Fittings:</b></p> <div style="border: 1px solid #ccc; background-color: #e0f2f1; padding: 5px; margin: 5px 0;"> <p>• <b>For concrete wall mounting:</b></p> <ul style="list-style-type: none"> <li>4 x hexagon head wood screw M10 x 80</li> <li>4 x 10 mm washer</li> <li>4 x 12 mm dowel</li> </ul> </div> <p>• <b>For the assembly of the other parts to the HVM:</b></p> <ul style="list-style-type: none"> <li>2 x hexagon head screw M8 x 40</li> <li>8 x hexagon head screw M10 x 16</li> <li>1 x hexagon head screw M10 x 20</li> <li>2 x screw nut M8</li> <li>4 x 8 mm washer</li> <li>1 x 10 mm washer</li> </ul>
G1...	<p>1 x G1 arm</p> <p>1 x G1 mount</p> <p><b>Fittings:</b></p> <ul style="list-style-type: none"> <li>1 x knurled head screw, thread M10</li> <li>4 x knurled head screw, thread M6</li> <li>4 x knurled head screw, thread M5</li> <li>4 x knurled head screw, thread M4</li> <li>4 x distance tube, diameter 15 mm, length 10 mm</li> <li>4 x distance tube, diameter 15 mm, length 20 mm</li> </ul>

**Not for use with the mobile system!**

Packing unit	Content
... or G2-EDA 100	1 x G2 arm 1 x G2 mount <b>Fittings &amp; tools:</b> 1 x hexagon head screw M10 x 20 4 x Allen head screw M6 x 15 4 x Allen head screw M6 x 20 2 x Allen head screw M8 x 25 8 x 6 mm washer 2 x 8 mm washer 1 x 10 mm washer 4 x 6 mm plastic washer 4 x distance tube, diameter 15 mm, length 15 mm 1 x knurled head screw, thread M10 4 x screw nut M6 1 x 5 mm Allen wrench 1 x 6 mm Allen wrench
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FWW-7 / FWW-9	2 x wings 12 x sheet metal screw 4,2 x 25
PC-Ablage (optional)	1 x PC-shelf <b>Fittings:</b> 2 x carriage bolt M8 x 75 2 x 8 mm washer 2 x wing nut

**For the assembly you need (not included):**

- 13 mm wrench or ratchet
- 17 mm wrench or ratchet
- 2,5 mm Allen wrench
- 6 mm Allen wrench
- Phillips head screw driver

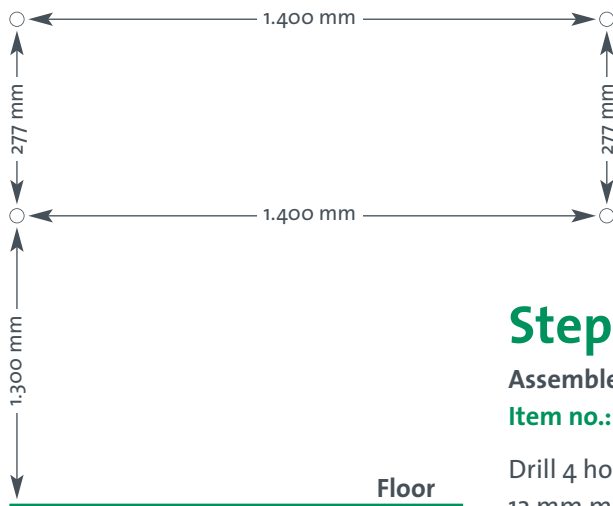
## 2. Assembly Instruction

### 2.1 Wall Mounted System

**Before the installation of the wall mounted system the condition of the wall must be clear and suitable installation material must be used. Wall mounting work must be performed by a construction specialist!**

**If you do not have a solid wall, the assembly materials are not included.**

#### 2.1.1 Wall Mounted System without Wings on a solid wall

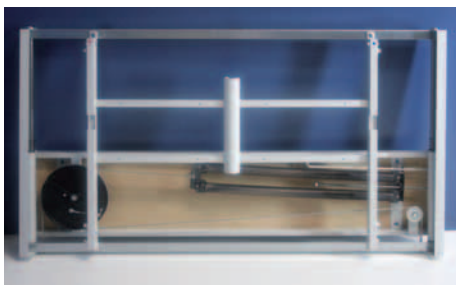


### Step 1

Assemble the spring tension mechanism to a concrete wall

**Item no.: HVL/HVM/HVM-95**

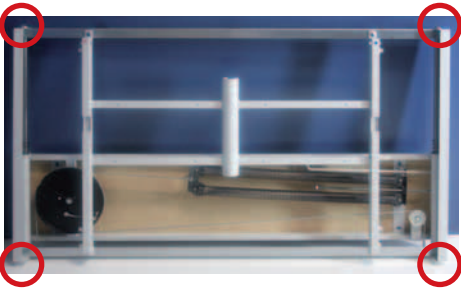
Drill 4 holes into the wall with a 12 mm masonry drill according to the drawing.



Fix the spring mechanism to the wall by using

**4 x 12 mm concrete anchor,**  
**4 x hexagon head wood screw** and  
**4 x 10 mm washer** to the wall.

The concrete anchors and screws included are suitable for solid walls **ONLY!**



## Step 2

### Remove the side covers

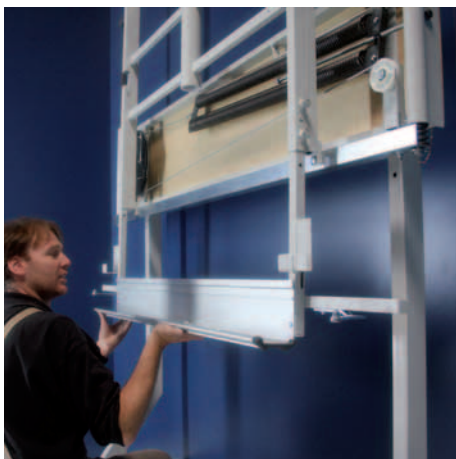
Release the 4 screws that hold the side covers **a little** and remove the covers.



## Step 3

### Install the pen tray

Loosen the upper and lower screws and remove the center screws at the lower end of the HVL/HVM/HVM-95.



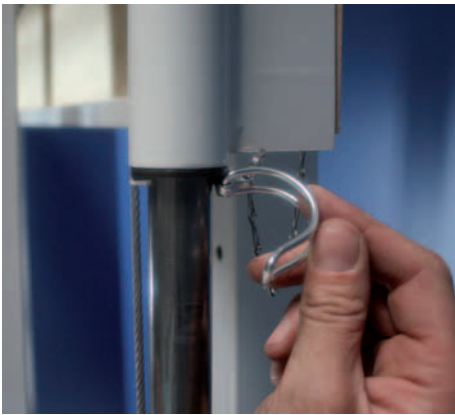
Slide the two arms, connected to the pen tray, into the frame of the spring tension mechanism.

Insert and tighten the center screws and secure the upper and lower screws.



## Step 4

Pull the mechanism down...



...and have a 2nd person to secure the system in its lowest position.



## Step 5

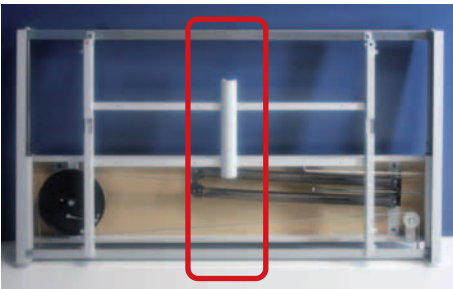
Install projector arm G1

Item no.: G1

Remove the tape from the plastic cap at the arm and remove the black knurled head screw.



Screw the knurled head screw into the upper hole of the projector arm.



Pull all the projector cables through the adapter...



...and then through the projector arm.



Put the projector arm into the adapter.

The projector arm can be pushed sideways, parallel to the board, in order to move the system through the door. (Mobile System)

To improve stability and oscillation fix the arm in the adapter with the M10 x 20 screw and 10 mm washer, which you can find inside the HVL/HVM/HVM-95 packing unit. (Wall Mounted System)

#### Install projector arms G2-EDA 100 & G2-XL 50

**Item no.: G2-EDA 100 / G2-XL 50**

The projector arms G2-EDA 100 and G2-XL 50 have to be installed after board and eventually wings are fixed.



## Step 6

### Assemble the interactive board

Loosen the screws that hold the two bottom brackets. These brackets will afterwards hold the board.



with wings

Slide the two top brackets into the system.



without wings



Position the board on the bottom brackets, then raise the top brackets enough to get the board into final position.

The board should stand on the bottom brackets and be held with the top brackets.

Assure that the board is centered.



### Assemble the Promethean AB 100 series or the Promethean AB 300 range.

Remove the bottom brackets.

Attach the board to the frame, using the hooks on the back of the board.

Fix the top brackets



Push the board backwards against the vertical surface of the **bottom brackets** & secure the screws.

Push the board backwards against the vertical surface of the **top brackets** & secure the screws.



## Step 7

Install the projector

Item no.: **G1**

Maximum allowable projector weight: 7 kg /15 lb

Attach the projector to the universal mount, using the screws supplied.



Slide the mount over the projector arm and secure it by the screws.

Slide the plastic cap over the projector arm and attach the cables to the projector.

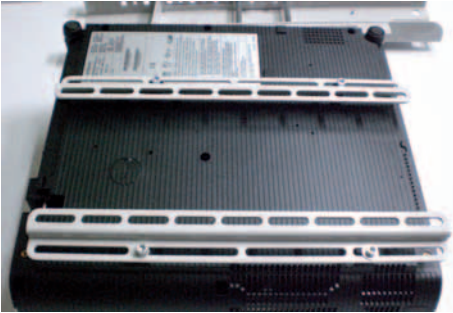


Install the projector

Item no.: **G2-EDA 100**

For projector Hitachi EDA 100 & EDA 101

Assemble the arm first. Put the projector arm into the adapter. Fix the arm in the adapter with the M10 x 20 screw and 10 mm washer.



Now assemble the projector mount:

Place the spacer sleeves on top of the mounting holes on the projector. Screw the 2 rails to the projector with 2 M6 x 25 screws.



Assemble the mount with 4 M6 x 20 screws and M6 nuts to the rails. The mount has to be positioned in the center of the lense.



Remove the Allen head screw and loosen the knurled head screw at the projector arm.

Slide the mount underneath the knurled head screw and secure it. Secure the projector mount also by the two Allen head screws.



Use the crank at the projector arm to adjust the height of the projector.

**Attention! Lower the arm to move the system through a door!**



Use the M6 Allen head screws and the M10 x 135 hexagon head screws to adjust the distance of the lense to the projection area.



Install the projector

Item no.: **G2-XL 50**  
 For projector Sanyo XL 50

Assemble the arm first. Put the projector arm into the adapter. Fix the arm in the adapter with the M10 x 20 screw and 10 mm washer.



Put 4 x 6 mm plastic washers on top of the holes in the projector. Put the mount onto the washers. Now put the 4 mm washers on top of the mount and fix the mount with 4 M4 x 10 Allen head screws.



Remove the Allen head screws and release the knurled head screw at the projector arm.

Slide the mount underneath the knurled head screw and fix it. Fix the projector mount also with the two Allen head screws.



Use the crank at the projector arm to adjust the height of the projector.

**Attention! Lower the arm to move the system through a door!**



Use the M6 x 20 Allen head screw to adjust the distance of the lense to the projection area.



Use the M6 x 30 Allen head screw on top of the mount to level the picture out horizontally.



## Step 8

### Adjust the spring tension mechanism

You can adjust the balance by turning the screw located on the right hand side of the mechanism. Use a 17 mm ratchet.

Turn clockwise to increase the tension

Turn counter-clockwise to decrease the tension



## Step 9

### Assemble the side covers

Attach the side covers to the mechanism again and tighten the 4 screws.

## 2.1.2 Wall Mounted System with Wings



### Step 1

Perform as described in the **steps 1 – 6**, in chapter „2.1.1 Wall Mounted System without Wings“, page 12 – 17.

### Step 2

Install the whiteboard wings

Item no.: FWW-7 / FWW-9

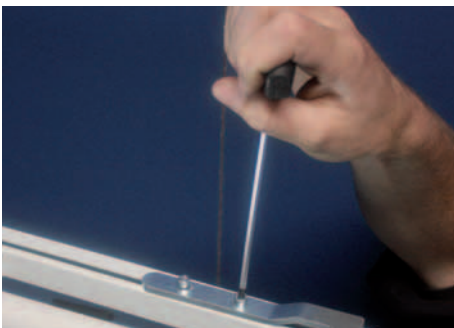
Unpack the wings. Leave the protective foil on the whiteboards until installation is finished.



Fix the whiteboard wings to the hinges, using the screws supplied (3 screws per hinge).

Align the whiteboard wings.

Make sure that the gap between the two wings is equal at top and bottom.



Tighten the screws after aligning the wings.

### Step 3

Perform as described in the **steps 7 – 9**, in chapter „2.1.1 Wall Mounted System without Wings“, page 17 – 20.

2.2.1 Mobile System without Wings



**Step 1**

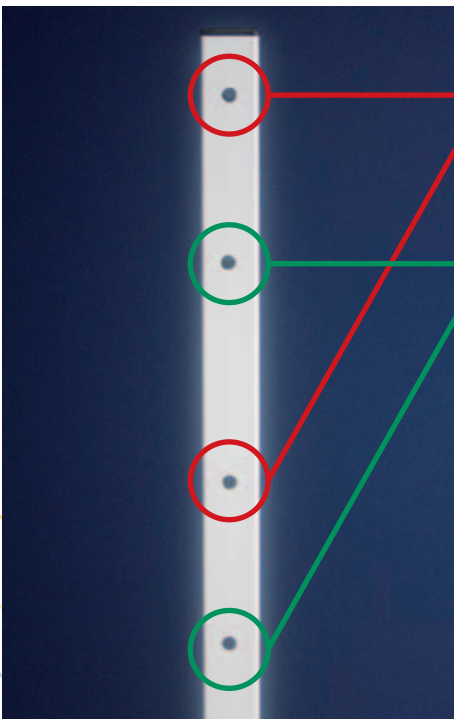
Install the mobile stand

**Item no: AB-Fahr**

Attach the center bar to the feet with the M10 x 55 screws.



Put the mobile stand on its feet.



Use the upper and third hole to attach the system to the stand, in case the door has a **height less than 210 cm / 82.68"**

Use the second and fourth hole, in case the door has a **height less than 197 cm / 77.56"**



Put the M8 x 80 screws in the upper holes from the back side of the frame. Use two washers.



Tap the screws to the frame. This will make it easier to mount the spring tension mechanism to the mobile stand.



Place the spring tension mechanism on the stand. Install washers & nuts on the taped screws. Install and tighten the remaining screws, washers and nuts. Tighten all screws securely!

## Step 2

Perform as described in the **steps 3 – 8**, in chapter „2.1.1 Wall Mounted System without Wings“, page 13 – 20.



## Step 3

Install the PC shelf to the mobile stand

**Item no.: PC-ABLAGE (optional)**

Put the PC shelf on the frame.

Position the screws and gently drive them through the PC shelf.



Secure the wing nuts.

## 2.2.2 Mobile System with Wings



### Step 1

Perform as described in **step 1**, in chapter „2.2.1 Mobile System without Wings“, page 22 – 23.

### Step 2

Perform as described in the **steps 3 – 6**, in chapter „2.1.1 Wall Mounted System without Wings“, page 13 – 17.

### Step 3

Perform as described in **step 2**, in chapter „2.1.2 Wall Mounted System with Wings“, page 21.

### Step 4

Perform as described in the **steps 7 – 8**, in chapter „2.1.1 Wall Mounted System without Wings“, page 17 – 20.

### Step 5

Perform as described in **step 3**, in chapter „2.2.1 Mobile System without Wings“, page 24. The PC-shelf is an optional feature.

