



## Hänel Installation Instructions Height detection light curtain

## Lean-Lift Multi-Space



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### 1. General instructions

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#### Caution

These Installation Instructions are intended for specially trained and authorised technicians employed by the Hänel factory or by Hänel representatives.

All safety instructions and general instructions provided in the corresponding Operating Manual "MANL-LL" or "MANL-MS" and in the corresponding Installation Instructions "INST-LL-S" or "INST-LW" or "INST-MS" for the Lean-Lift or Multi-Space must be followed at all times.

In addition, the "Safety Rules & Requirements" provided in the Memorandum for Technical Field Service "SICHA" and the "Safety Rules" from the Training of Auxiliary Personnel for Technical Field Service "SICHKK" must be observed!



#### Intended use

For Lean-Lift or Multi-Space with height detection light curtain 45MLA-F. The height detection light curtain is used solely to correctly detect the stored article height and articles projecting over the container edge; it does not assume any safety function.

The AllenBradley 45MLA-F types from manufacturer Rockwell Automation (from approx. model year 05/2015) and CEDES Object 100F from manufacturer CEDES Safety&Automation (from approx. model year 2006) have an identical design and differ only in the power cable and the colour of the evaluation unit and the light curtain housing.

Any other use shall be considered non-compliant use.



## 2. Installation Requirements

1. Before starting the installation, secure the extractor, or cross-member with extractor, against descending or falling.



**! DANGER**

The extractor or cross-member with extractor is a suspended load that can fall.

Therefore, whenever working inside the lift, you have to lower it to ground level.

If this is not possible, you have to secure them using the locking device. (See operating manual "MANL-LL", Work inside the lift by authorised personnel - Securing the extractor or operating manual "MANL-MS", Work inside the lift by authorised personnel - Securing the cross-member with extractor).

2. Switch off the main switch (Q2) and secure it from being switched on again using a padlock.



**! DANGER**

**Risk of electrocution!**

### SAFETY INSTRUCTIONS



**The lift must be de-energised before work begins.**

- Switch off main switch (Q2).
- Secure the main switch (Q2) from being switched on again.
- Verify that the lift has been de-energised.
- Cover or block off neighbouring live parts. (Switch off external voltage source for multi-unit network and lock it using tool WZ-67)

3. Before entering the inside of the lift, secure the actuator of the safety switch on the service door (S3) with a padlock.



### SAFETY INSTRUCTIONS

**Secure the actuator latch!**

Before all work, secure the actuator latch of the service door from being switched on again using a padlock.

### 3. Installation instructions:

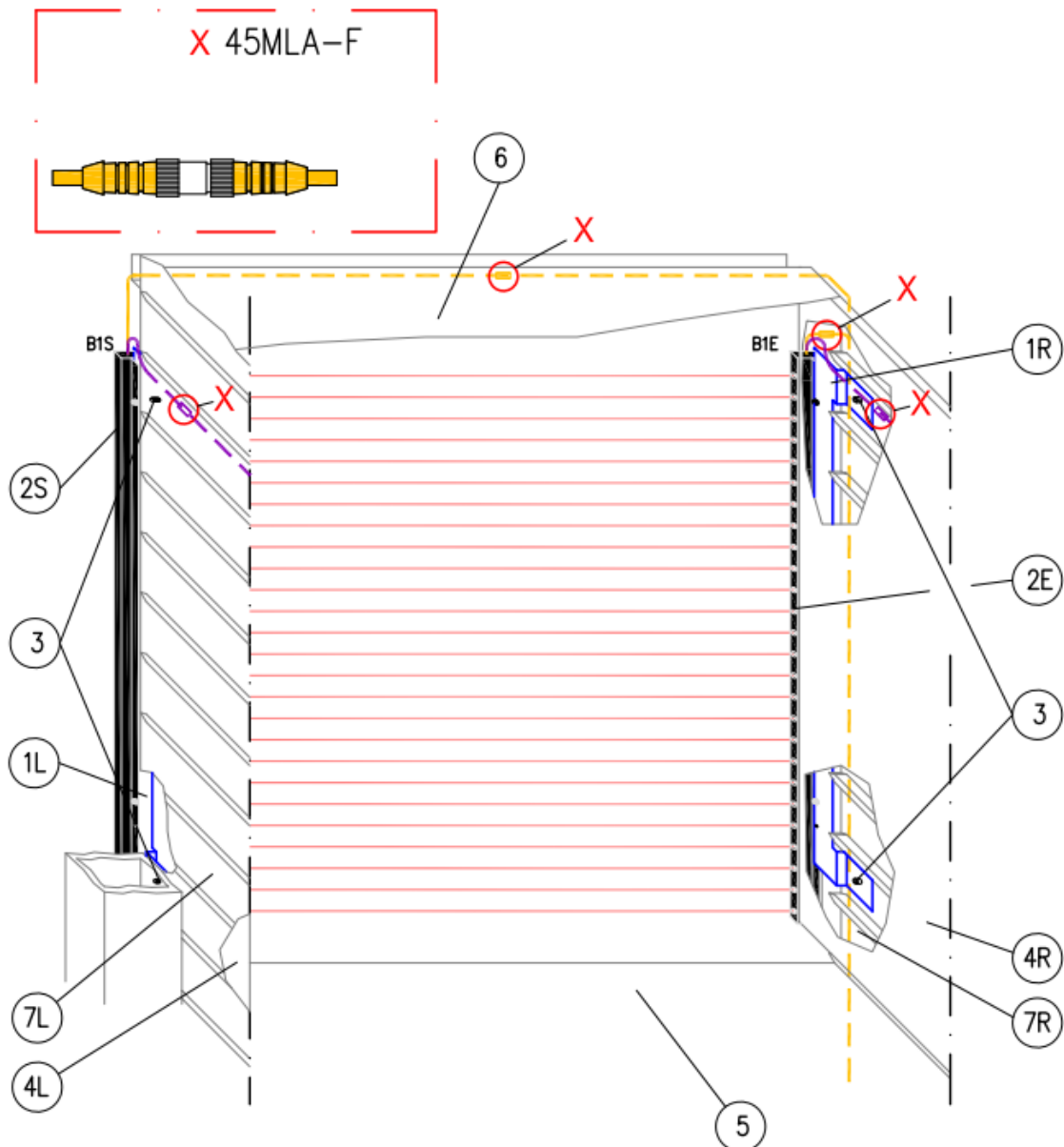


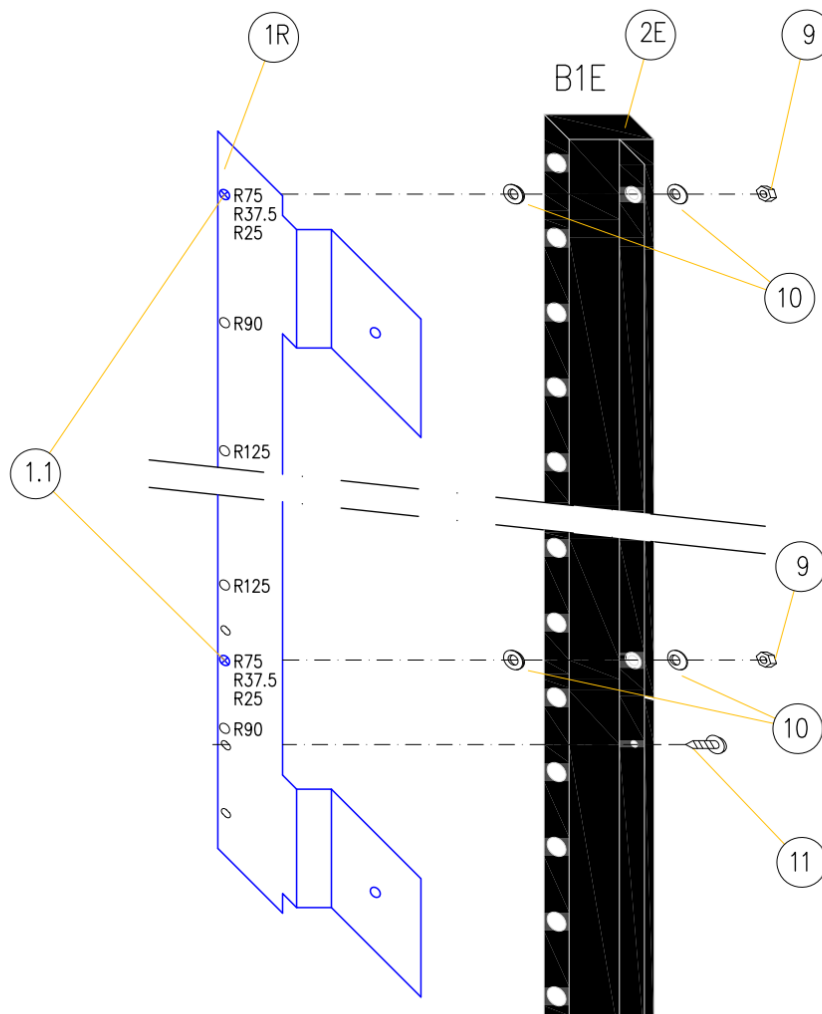
Fig. 1: Height detection light curtain in access point

| Item | Description                                   | Item | Description               |
|------|-----------------------------------------------|------|---------------------------|
| 1R   | Right bracket                                 | 4L   | Left side panel           |
| 1L   | Left bracket                                  | 5    | Bottom access point cover |
| 2E   | Receiver array B1E                            | 6    | Top access point cover    |
| 2S   | Transmitter array B1S                         | 7R   | Right side part           |
| 3    | Socket head cap screw DIN912 /ISO4762 - M8x16 | 7L   | Left side part            |
| 4R   | Right side panel                              |      |                           |

Cable routing for Type width  $\leq 3260$

Cable routing for Type width  $> 3260$

### 3. Installation instructions: (continued)



| Item                | Description                                                                                         |
|---------------------|-----------------------------------------------------------------------------------------------------|
| 1R                  | Right bracket                                                                                       |
| 1.1                 | Threaded bolt CH-M5-12 (press-fitted)                                                               |
| 2E                  | Receiver array B1E                                                                                  |
| 9                   | Nut DIN 439 /ISO 4035 - M5 (4x)                                                                     |
| 10                  | Spherical washer DIN 6319 - C 6.4 (8x)                                                              |
| 11                  | Cross recessed pan head sheet-metal screw DIN 7981 /ISO 7049 - St4.8x9.5-F-H (2x)                   |
| R75<br>R37.5<br>R25 | Position of the threaded bolts for slot increments 75, 37.5, 25 mm (2.95", 1.46", 0.98") (as shown) |
| R90                 | Position of the threaded bolts for slot increment 90 mm (3.54")                                     |
| R125                | Position of the threaded bolts for 125 mm (4.92") spacing                                           |

Fig. 2: Installing receiver array on right bracket (for Type width ≤ 3260)



#### NOTE

For type width > 3260, other brackets (item 1R and 1L) are used than those displayed in Fig. 2, which have only one possible position for fastening the arrays (item 2E and 2S).

Steps 1 - 4 are omitted for arrays pre-installed at the factory.

| Step | Task                                                                                                                                                             | Note / illustration          |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| 1    | Fasten the receiver array (item 2E) to the bracket (item 1R) using a cross recessed pan head sheet-metal screw (item 11).                                        | See Fig. 2                   |
| 2    | Fasten the receiver array (item 2E) to the threaded bolts (item 1.1) using 4 spherical washers (item 10) and 2 nuts (item 9). Tighten the nuts only slightly.    | See Fig. 2                   |
| 3    | Fasten the transmitter array (item 2S) to the bracket (item 1L) using a cross recessed pan head sheet-metal screw (item 11).                                     | See Fig. 1, Fig. 2 (similar) |
| 4    | Fasten the transmitter array (item 2S) to the threaded bolts (item 1.1) using 4 spherical washers (item 10) and 2 nuts (item 9). Tighten the nuts only slightly. | See Fig. 1, Fig. 2 (similar) |
| 5    | Fasten the bracket (item 1R) to the right side part (item 7R) using 2 socket head cap screws (item 3).                                                           | See Fig. 1                   |

### 3. Installation instructions: (continued)

| Step | Task                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Note / illustration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6    | Fasten the bracket ( <i>item 1L</i> ) to the left side part ( <i>item 7L</i> ) using 2 socket head cap screws ( <i>item 3</i> ).                                                                                                                                                                                                                                                                                                                                       | See Fig. 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 7    | Route the cables of the transmitter and receiver array.                                                                                                                                                                                                                                                                                                                                                                                                                | See Fig. 1, Detail X<br><b>IMPORTANT NOTE</b><br>Do not kink the shielded connecting cables of the transmitter and receiver array. A minimum bend radius of 30 mm (1.18") must be maintained, which corresponds to the cable routing in the cable duct with a width of 60 mm (2.36").<br><br>For Type width $\leq 3260$ , the cables are routed in the top access point cover ( <i>item 6</i> ) or on the shaft side in a separate cable duct 15x15 mm (0.6x0.6").<br><br>For Type width $> 3260$ , the cables are routed in the side panels on the left ( <i>item 4L</i> ) and right ( <i>item 4R</i> ) at the front and then within the light curtain side panel for the electrical drawer or electrical tray.<br><br>See cable routing diagram "CABLELL1", "CABLELL2" or "CABLEMS1"<br>See Fig. 1<br><br>See cable routing diagram "CABLELL6"<br>See installation instructions "INST-LW"<br>See Fig. 1<br><br><b>NOTE:</b><br>For spare part orders, push the corresponding side panel forwards until the plug connection (detail X) can be reached, but do not remove the side panel completely. |
| 8    | Connect the transmitter and receiver array.                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 9    | Set height detection light curtain mains power supply unit in accordance with the table in Chapter 4.1.                                                                                                                                                                                                                                                                                                                                                                | <b>IMPORTANT NOTE</b><br>An incorrect setting can cause an incorrect height to be detected, resulting in significant consequential damage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 10   | Align the transmitter and receiver array according to the "Manufacturer Information" chapter4.<br><br><u>Alternating between the transmitter and receiver arrays, determine the outermost boundaries of uninterrupted light contact, then adjust it to the centre position. The cross recessed pan head sheet-metal screw (<i>item 11</i>) prevents a change of the vertical position during this process.</u><br><u>Securely tighten the nuts M5 (<i>item 9</i>).</u> | See Fig. 3<br>See Chapter 4<br><br>When installing the side panels, ensure that the transmitter and receiver array are not moved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

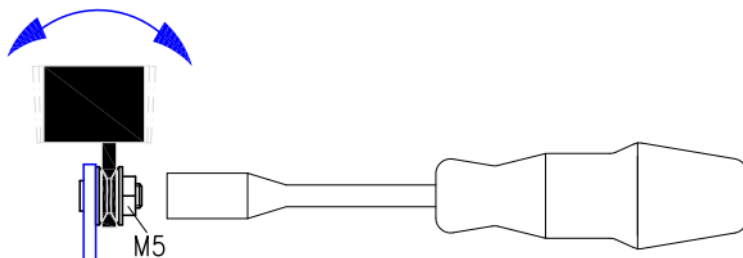


Fig. 3: Aligning the height detection light curtain

### 3. Installation instructions: (continued)

| Step | Task                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Note / illustration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11   | <p>Install the intermediate plate for the height detection system (<i>item 12</i>) between the lifts in the case of multiple immediately adjacent lifts, as shown in Fig. 4.</p> <p>To do so, insert the intermediate plate (<i>item 12</i>) into the upper side bracket (<i>item 15</i>) from above and, at the bottom, into the U-rail of the base (<i>item 14</i>).</p> <p>Position the intermediate plate (<i>item 12</i>) on the rectangular tube and use a sheet-metal screw (<i>item 13</i>) to fasten it on the existing hole in the U-rail of the base (<i>item 14</i>).</p> | <p>See Fig. 4 and Detail Y</p> <p> <b>Note</b></p> <p>The intermediate plate for height detection system (<i>item 12</i>) is necessary so that the transmitter and receiver arrays (<i>item 2S, 2E</i>) of the adjacent access points do not affect each other. Not required for lifts with high-speed door or for individual lifts. Only one intermediate plate for the height detection system (<i>item 12</i>) is installed between two lifts. The intermediate plate (<i>item 12</i>) for the rear access point is installed in the opposite way. For lifts with ribbon cable, the intermediate plate (<i>item 12</i>) is installed along with the additional side panel between the lifts. Refer also the Installation Instructions "LL-SCHLE".</p> <p> <b>DANGER</b></p> <p><b>Risk of electrocution!</b></p> <p>Do not damage any cables, as otherwise there is a risk of electric shock!</p> <ul style="list-style-type: none"> <li>• Check whether cables (cable carrier) are laid in this area behind the side bracket. If this is the case, remove the cables before drilling.</li> <li>• Take protective measures to keep the inside of the lift clean by covering the areas where metal cutting work is done using plastic sheets and adhesive tape; see installation instructions "INST-LL-S".</li> </ul> |

For an access height > 890 mm (35.0"), the intermediate plate (*item 12*) is not fastened on the U-rail of the base (*item 14*), but on the corresponding, existing side bracket. A Ø 4 mm (0.16") hole has to be drilled into this side bracket for the fastening.

For two intermediate plates (*item 12*) that are to be installed one directly above the other, the upper intermediate plate (*item 12*) has to be hooked in in the direction of the other lift.

For lifts with ribbon cable and an additional side panel between the lifts, the additional side panel has to be hooked in in the direction of the other lift.

3. Installation instructions: (continued)

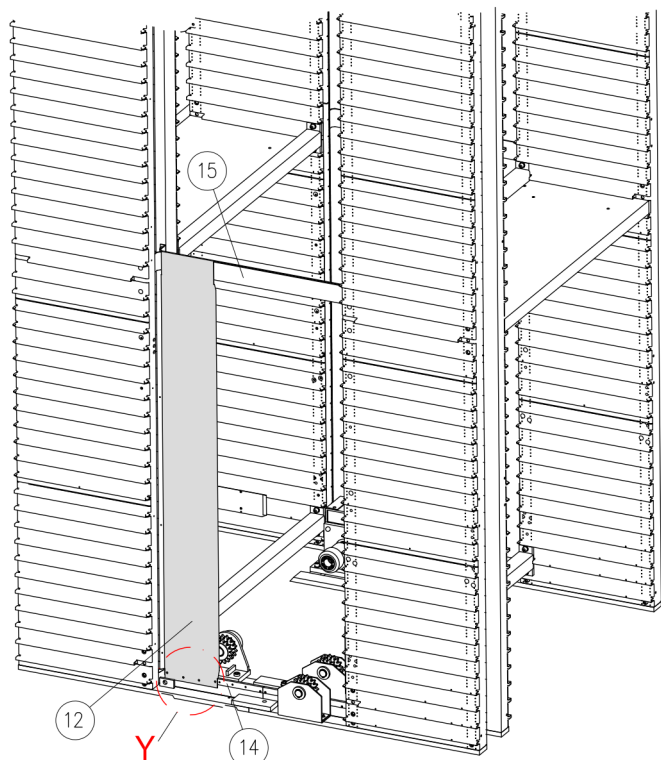
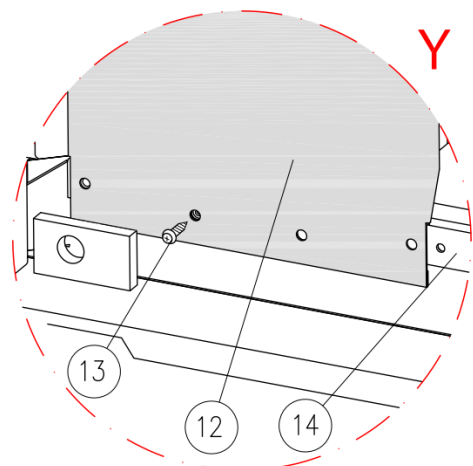


Fig. 4: Installing an intermediate plate (optional)



| Item | Description                                                                                                |
|------|------------------------------------------------------------------------------------------------------------|
| 12   | Intermediate plate for height detection system                                                             |
| 13   | Cross recessed pan head sheet-metal screw<br>DIN 7981 /ISO 7049 - St4.8x9.5-F-H<br>(1x intermediate plate) |
| 14   | U-rail base                                                                                                |
| 15   | Side brackets                                                                                              |

| Step                        | Task                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Note / illustration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                       |                       |                                      |                   |                       |     |    |    |                                       |   |     |    |     |                                       |   |     |      |    |                                       |    |     |      |     |                                       |    |     |      |    |                      |    |     |      |     |                      |    |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-----------------------|--------------------------------------|-------------------|-----------------------|-----|----|----|---------------------------------------|---|-----|----|-----|---------------------------------------|---|-----|------|----|---------------------------------------|----|-----|------|-----|---------------------------------------|----|-----|------|----|----------------------|----|-----|------|-----|----------------------|----|
| 12                          | <p><u>only for Type width &gt; 3260:</u></p> <p>For "POSITIONING" the lift according to Technical Description "T-12NLL", make the adjacent entry for "NUMBER OF LIGHT BARRIERS":<br/>(Entries deviate from information in Technical Description "T-12NLL" or "T-14LL"!)</p> <div><p><b>Note</b><br/>Because of high-speed door switches B8 and B34, also ignore <b>one</b> slot increment from above by DIP switches 5 and 6.<br/>DIP switch 5 = ON<br/>DIP switch 6 = OFF<br/>See Chapter 4</p></div> | <table><tr><th>Access point opening height</th><th>Slot increment</th><th>Lighting fixture in the access point</th><th>Container version</th><th>NO. OF LIGHT BARRIERS</th></tr><tr><td>895</td><td>75</td><td>No</td><td>with die-punched bottom reinforcement</td><td>9</td></tr><tr><td>895</td><td>75</td><td>Yes</td><td>with die-punched bottom reinforcement</td><td>8</td></tr><tr><td>895</td><td>37,5</td><td>No</td><td>with die-punched bottom reinforcement</td><td>17</td></tr><tr><td>895</td><td>37,5</td><td>Yes</td><td>with die-punched bottom reinforcement</td><td>16</td></tr><tr><td>895</td><td>37,5</td><td>No</td><td>with centred divider</td><td>18</td></tr><tr><td>895</td><td>37,5</td><td>Yes</td><td>with centred divider</td><td>17</td></tr></table> | Access point opening height           | Slot increment        | Lighting fixture in the access point | Container version | NO. OF LIGHT BARRIERS | 895 | 75 | No | with die-punched bottom reinforcement | 9 | 895 | 75 | Yes | with die-punched bottom reinforcement | 8 | 895 | 37,5 | No | with die-punched bottom reinforcement | 17 | 895 | 37,5 | Yes | with die-punched bottom reinforcement | 16 | 895 | 37,5 | No | with centred divider | 18 | 895 | 37,5 | Yes | with centred divider | 17 |
| Access point opening height | Slot increment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Lighting fixture in the access point                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Container version                     | NO. OF LIGHT BARRIERS |                                      |                   |                       |     |    |    |                                       |   |     |    |     |                                       |   |     |      |    |                                       |    |     |      |     |                                       |    |     |      |    |                      |    |     |      |     |                      |    |
| 895                         | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | with die-punched bottom reinforcement | 9                     |                                      |                   |                       |     |    |    |                                       |   |     |    |     |                                       |   |     |      |    |                                       |    |     |      |     |                                       |    |     |      |    |                      |    |     |      |     |                      |    |
| 895                         | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | with die-punched bottom reinforcement | 8                     |                                      |                   |                       |     |    |    |                                       |   |     |    |     |                                       |   |     |      |    |                                       |    |     |      |     |                                       |    |     |      |    |                      |    |     |      |     |                      |    |
| 895                         | 37,5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | with die-punched bottom reinforcement | 17                    |                                      |                   |                       |     |    |    |                                       |   |     |    |     |                                       |   |     |      |    |                                       |    |     |      |     |                                       |    |     |      |    |                      |    |     |      |     |                      |    |
| 895                         | 37,5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | with die-punched bottom reinforcement | 16                    |                                      |                   |                       |     |    |    |                                       |   |     |    |     |                                       |   |     |      |    |                                       |    |     |      |     |                                       |    |     |      |    |                      |    |     |      |     |                      |    |
| 895                         | 37,5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | with centred divider                  | 18                    |                                      |                   |                       |     |    |    |                                       |   |     |    |     |                                       |   |     |      |    |                                       |    |     |      |     |                                       |    |     |      |    |                      |    |     |      |     |                      |    |
| 895                         | 37,5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | with centred divider                  | 17                    |                                      |                   |                       |     |    |    |                                       |   |     |    |     |                                       |   |     |      |    |                                       |    |     |      |     |                                       |    |     |      |    |                      |    |     |      |     |                      |    |
|                             | <p><u>Type width ≤ 3260:</u></p> <p>The entry for "NUMBER OF LIGHT BARRIERS" is made according to Technical Description "T-12NLL" or "T-14LL".</p>                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>See Technical Description "T-12NLL" or "T-14LL"</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                       |                       |                                      |                   |                       |     |    |    |                                       |   |     |    |     |                                       |   |     |      |    |                                       |    |     |      |     |                                       |    |     |      |    |                      |    |     |      |     |                      |    |
| 13                          | Check that the height detection light curtain functions correctly.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                       |                       |                                      |                   |                       |     |    |    |                                       |   |     |    |     |                                       |   |     |      |    |                                       |    |     |      |     |                                       |    |     |      |    |                      |    |     |      |     |                      |    |

# Hänel Installation Instructions

## Height detection light curtain

# Lean-Lift

## Multi-Space

### 4. AllenBradley 45MLA-F manufacturer information

#### 4.1 Order code for type width ≤ 3260

| Type  | Order code for standard lengths | Sensors x slots                      | Array length [module length]           | Access point opening height / beam pitch                                                                          | Mains power supply unit DIP switch |                               |
|-------|---------------------------------|--------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------|
|       |                                 |                                      |                                        |                                                                                                                   | 1_2_3_4_                           | 5_6_7_8                       |
| 45MLA | 45MLA-FT0700P25                 | 28 x 25<br>10 x 75<br>6 x 125        | 720 mm (28.35")<br>[700 mm (27.56")]   | 880 mm (35.43") /<br>25 mm (0.98")<br>(880 mm (35.43") /<br>75 mm (2.95"))<br>900 mm (35.43") /<br>125 mm (4.92") | 0_0_0_0<br>0_1_0_0<br>0_0_1_0      | 0_0_0_0<br>0_0_0_0<br>0_0_0_0 |
| 45MLA | 45MLA-FT0700P37                 | 19 x 37.5 (1.48")<br>10 x 75 (2.95") | 720 mm (28.35")<br>[700 mm (27.56")]   | 880 mm (17.72") /<br>37.5 mm (1.48")<br>880 mm (17.72") /<br>75 mm (2.95")                                        | 0_0_0_0<br>1_0_0_0                 | 0_0_0_0<br>0_0_0_0            |
| 45MLA | 45MLA-FT0700P10                 | 65 x 10                              | 670 mm (26.378")<br>[650 mm (25.591")] | 880 (41.34") mm /<br>90 mm (0.98")                                                                                | 0_0_0_1                            | 0_0_0_0                       |

| Type  | Order code for special lengths | Sensors x slots                      | Array length [module length]            | Access point opening height / beam pitch                                     | Mains power supply unit DIP switch |                    |
|-------|--------------------------------|--------------------------------------|-----------------------------------------|------------------------------------------------------------------------------|------------------------------------|--------------------|
|       |                                |                                      |                                         |                                                                              | 1_2_3_4_                           | 5_6_7_8            |
| 45MLA | 45MLA-FT0650P25                | 26 x 25                              | 670 mm (26.378")<br>[650 mm (25.591")]  | 830 (41.34") mm /<br>25 mm (0.98")                                           | 0_0_0_0                            | 0_0_0_0            |
| 45MLA | 45MLA-FT0850P37                | 23 x 37.5 (1.48") 12 x 75 (2.95")    | 870 mm (34.252")<br>[850 mm (33.465")]  | 1030 mm (17.72") /<br>37.5 mm (1.48")<br>1030 mm (17.72") /<br>75 mm (2.95") | 0_0_0_0<br>1_0_0_0                 | 0_0_0_0<br>0_0_0_0 |
| 45MLA | 45MLA-FT1000P37                | 27 x 37.5 (1.48")<br>14 x 75 (2.95") | 1020 mm (40.157")<br>[1000 mm (39.37")] | 1180 mm (17.72") /<br>37.5 mm (1.48")<br>1180 mm (17.72") /<br>75 mm (2.95") | 0_0_0_0<br>1_0_0_0                 | 0_0_0_0<br>0_0_0_0 |
| 45MLA | 45MLA-FT0250P37                | 7 x 37.5 (1.48")<br>4 x 75 (2.95")   | 270 mm (10.63")<br>[250 mm (9.84")]     | 430 mm (17.72") /<br>37.5 mm (1.48")<br>430 mm (17.72") /<br>75 mm (2.95")   | 0_0_0_0<br>1_0_0_0                 | 0_0_0_0<br>0_0_0_0 |
| 45MLA | 45MLA-FT1100P37                | 30 x 37.5 (1.48")<br>15 x 75 (2.95") | 1095 mm (43.11")<br>[1075 mm (42.32")]  | 1255 mm (59.06") /<br>37.5 mm (1.48")<br>1255 mm (59.06") /<br>75 mm (2.95") | 0_0_0_0<br>1_0_0_0                 | 0_0_0_0<br>0_0_0_0 |
| 45MLA | 45MLA-FT1300P37                | 35 x 37.5 (1.48")<br>18 x 75 (2.95") | 1480 mm (58.27")<br>[1500 mm (59.06")]  | 1480 mm (59.06") /<br>37.5 mm (1.48")<br>1480 mm (59.06") /<br>75 mm (2.95") | 0_0_0_0<br>1_0_0_0                 | 0_0_0_0<br>0_0_0_0 |



### 4. AllenBradley 45MLA-F manufacturer information (continued)

#### 4.3 Display elements (continued)

##### AllenBradley 45MLA-F height detection light curtain

Two LEDs are integrated into the connecting caps of the transmitter and receiver.

| Status                                                                                                              | Green LED | Red LED  |
|---------------------------------------------------------------------------------------------------------------------|-----------|----------|
| Protective field clear                                                                                              | on        | off      |
| Protective field interrupted                                                                                        | off       | on       |
| Error in height measuring system                                                                                    | off       | flashing |
| Insufficient intensity due to dirt or range                                                                         | flashing  | off      |
| Power off or array not connected                                                                                    | off       | off      |
| EMC interference or transmitter strikes receiver of another height detection system (through inadequate adjustment) | on        | flashing |

##### DIP switches:

##### DIP switches 1-4:

DIP switches 1 to 4 allow the beam pitch of the light curtain to be increased by a multiple. Thus from the basic increments of 10 mm (0.394"), 25 mm (0.984") and 37.5 mm (1.476"), each multiple of these slots can be configured. Refer also to the order code table (Chapter 4.1).

##### DIP switches 5-6:

DIP switches 5 and 6 define how many slots can be ignored starting from above (cable outlet).

| Number of ignored slots | DIP switch 5 | DIP switch 6 |
|-------------------------|--------------|--------------|
| 0                       | 0            | 0            |
| 1                       | 1            | 0            |
| 2                       | 0            | 1            |
| 3                       | 1            | 1            |

##### DIP switches 7-8:

DIP switches 7 and 8 currently have no function.



##### Note

A change of the DIP switch setting is accepted only after a power-up.

### 4. AllenBradley 45MLA-F manufacturer information (continued)

#### 4.4 Diagnostics and troubleshooting

| Fault                                                                         | Cause                                                                                         | Action                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No function, no LED display on controller.                                    | No mains supply.                                                                              | Check mains supply.                                                                                                                                                                                                                                                                                                          |
| No LED display on transmitter or receiver.                                    | No cable connection to transmitter or receiver.                                               | Check cable connection to transmitter or receiver, replace cables if necessary.                                                                                                                                                                                                                                              |
| LED on the light curtain is always red even though protective field is clear. | Transmitter and receiver are turned 180° out of position.                                     | Rotate transmitter and receiver.                                                                                                                                                                                                                                                                                             |
|                                                                               | System insufficiently aligned.                                                                | Correct installation.                                                                                                                                                                                                                                                                                                        |
|                                                                               | Lenses covered or dirty.                                                                      | Clear light path.                                                                                                                                                                                                                                                                                                            |
|                                                                               | Optional feature (e. g. with high-speed door)                                                 | When the high-speed door is closed, the light curtain is always interrupted.                                                                                                                                                                                                                                                 |
|                                                                               | Element defective.                                                                            | First, remove the transmitter and receiver and simply hold them across from each other. If the LED on the transmitter and the LED on the receiver are still red, incorrect installation can be eliminated as the cause of the problem. Then, replace the transmitter and/or receiver. If necessary, also replace the cables. |
|                                                                               | Control device defective.                                                                     | Replace control device.                                                                                                                                                                                                                                                                                                      |
| LED D2 flashes red (system fault).                                            | Transmitter and/or receiver not connected correctly.                                          | Are the red LEDs in the transmitter and receiver also flashing? If not, check the connection of the arrays. If yes, the transmitter and receiver connection may have been switched around.                                                                                                                                   |
|                                                                               | Transmitter or receiver array is defective.                                                   | First, replace the transmitter. If the problem persists, replace the receiver. If necessary, replace the cables.                                                                                                                                                                                                             |
|                                                                               | Control device defective.                                                                     | Replace control device.                                                                                                                                                                                                                                                                                                      |
| LED D2 flickers red for a short time                                          | EMC interference                                                                              |                                                                                                                                                                                                                                                                                                                              |
|                                                                               | External infrared source strikes receiver (for example, transmitter of a neighbouring system) | Install a partition wall (see Chap. 3)                                                                                                                                                                                                                                                                                       |
|                                                                               |                                                                                               |                                                                                                                                                                                                                                                                                                                              |
| LED D1 flashes green (intensity).                                             | Transmitter and receiver are poorly aligned with each other.                                  | Correct the power-up of the controller and installation.                                                                                                                                                                                                                                                                     |

### 4. AllenBradley 45MLA-F manufacturer information (continued)

#### 4.4 Diagnostics and troubleshooting (continued)

| Fault                         | Cause                                                     | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wrong values are transmitted. | DIP switch setting does not match the desired beam pitch. | Correct the DIP switch setting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                               | Incorrect beam pitch of the light curtain.                | Replace light curtain.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                               | Power cable longer than 10 m (32' 9.7")                   | Shorten or replace the cable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                               | Poor earthing or none at all.                             | Check earth connection<br>45MLA-F-CTRL / 45MLA-F systems are designed so that they can be earthed via the transmitter and receiver array (via the fastening) or the control device. However, if the system is earthed at both the control device and the transmitter and receiver arrays, there is a danger of earthing loops! For this reason, omit earthing of the control device for now. If the transmitter and receiver arrays are not earthed, you can refrain from connecting the earth to the controller for now. In certain cases, connecting the earth to the controller as the last step can reduce EMC-induced interference in the system.    |
|                               | Jumper position in the control device is incorrect.       | Correct jumper position.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                               | Control device defective.                                 | Replace control device.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Objects are not detected.     | Reflection (reflective surface parallel to measurement).  | Prevent reflective surface (e. g. using black paint).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                               | Control device defective.                                 | Replace control device.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                               | Jumper position in the control device is incorrect.       | Correct jumper position.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                               | Interface wiring is incorrect.                            | Correct the wiring and compare it with circuit diagram.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Spontaneous malfunction.      | External light sources or optical sensors.                | Darken external light sources.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                               | Poor earthing or none at all.                             | Check earth connection<br>45MLA-CTRL-F100 / 45MLA-F systems are designed so that they can be earthed via the transmitter and receiver array (via the fastening) or the control device. However, if the system is earthed at both the control device and the transmitter and receiver arrays, there is a danger of earthing loops! For this reason, omit earthing of the control device for now. If the transmitter and receiver arrays are not earthed, you can refrain from connecting the earth to the controller for now. In certain cases, connecting the earth to the controller as the last step can reduce EMC-induced interference in the system. |
|                               | Loose contact.                                            | Replace cable, control device and/or optical arrays                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

### 4. AllenBradley 45MLA-F manufacturer information (continued)

#### 4.5 Type plate

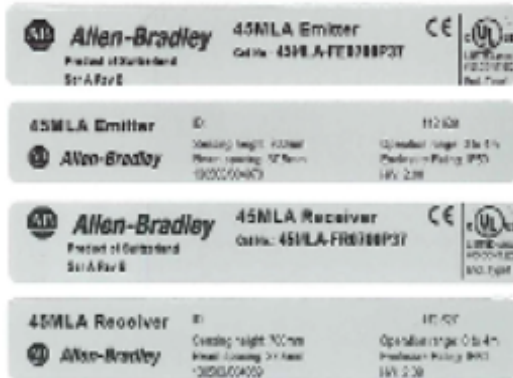


Fig. 6: Labels of a 45MLA-F height detection light curtain



#### Caution:

The integrated beam pitch is specified on the labels (Fig. 5) of the bars.

Before commissioning a controller, it is mandatory to check the DIP switch setting (Chapter 3) and the beam pitch of the connected light curtain system. An incorrect DIP switch setting can cause an incorrect height to be detected, resulting in significant consequential damage to a system.

#### 4.6 Technical data

##### AllenBradley 45MLA-CTRL-F100 controller:

| General data          |                                                                                                                          |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------|
| Installation position | No restrictions                                                                                                          |
| Temperature range     | Ambient temperature during operation: 0 to +55 °C (+32 to 131 °F)<br>Storage temperature: -25 to +70 °C (-13 to +158 °F) |
| Protection class      | IP54                                                                                                                     |
| Maximum power input   | 2.9 W @ 100 mA                                                                                                           |

##### AllenBradley 45MLA-F height detection light curtain:

| General data                                                              |                                                                                                                 |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Maximum cable length<br>- Transmitter<br>- Receiver                       | 10 m (32' 9.7")<br>10 m (32' 9.7")                                                                              |
| Temperature range                                                         | -20 to +55 °C (-4 °F to +131 °F) for operation (non-condensing)<br>-20 to +60 °C (-4 °F to +140 °F) for storage |
| Relative humidity                                                         | 15 to 95% (non-condensing)                                                                                      |
| Protection class                                                          | IP50                                                                                                            |
| Maximum external light                                                    | Up to 50000 lux                                                                                                 |
| Ranges (clearance between transmitter/receiver)<br>- Minimal<br>- Maximum | 0 mm<br>to 4000 mm (0 to 157.480")                                                                              |

### 5. Removal

1. Before starting the removal, secure the extractor, or cross-member with extractor, against descending or falling.



**! DANGER**

The extractor or cross-member with extractor is a suspended load that can fall.

Therefore, whenever working inside the lift, you have to lower it to ground level.

If this is not possible, you have to secure them using the locking device. (See operating manual "MANL-LL", Work inside the lift by authorised personnel - Securing the extractor or operating manual "MANL-MS", Work inside the lift by authorised personnel - Securing the cross-member with extractor).

2. Switch off the main switch (Q2) and secure it from being switched on again using a padlock.



**! DANGER**

**Risk of electrocution!**

#### SAFETY INSTRUCTIONS



**The lift must be de-energised before work begins.**

- Switch off main switch (Q2).
- Secure the main switch (Q2) from being switched on again.
- Verify that the lift has been de-energised.
- Cover or block off neighbouring live parts. (Switch off external voltage source for multi-unit network and lock it using tool WZ-67)

3. Before entering the inside of the lift, secure the actuator of the safety switch on the service door (S3) with a padlock.



**Secure the actuator latch!**

Before all work, secure the actuator latch of the service door from being switched on again using a padlock.

4. To remove the height detection light curtain, correctly follow the reverse order of steps as that described previously in Chapter 3.

5. After removal, dispose of the structural components in an environmentally responsible manner (see Installation Instructions "INST-LL-S" or "INST-LW" or "INST-MS", Disposal instructions).



## 6. Annex

### Revision notes

- |                                                                                                |            |
|------------------------------------------------------------------------------------------------|------------|
| Last issue dated:                                                                              | 2007-05-29 |
| • Added chapter on manufacturer information                                                    | 2007-11-21 |
| • Screws revised                                                                               | 2008-08-13 |
| • Intermediate plate added, interference added                                                 | 2013-06-17 |
| • AllenBradley 45MLA added                                                                     | 2015-04-14 |
| • Type width > 3260 added                                                                      | 2015-07-17 |
| • Order codes changed, Fig. 1 revised                                                          | 2015-11-04 |
| • File name from HEIGHT100 to HEIGHT, height detection type                                    | 2016-07-11 |
| • Screws updated; access opening heights updated                                               | 2018-06-08 |
| • Slot increment 37.5 for type width > 3260 added; installation of intermediate plate expanded | 2018-10-11 |
| • Setting DIP switches 5 and 6 for type width > 3260 added                                     | 2019-03-15 |
| • Page 9: Container version added in table                                                     |            |

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