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<td>15.1 Maintenance plan ....................................................</td>
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<td>16 Accessories ..................................................................</td>
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<td>16.1 Safety accessories ..................................................</td>
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<td>16.2 General accessories ................................................</td>
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1 Revision

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<th>Revision 1.0 → 2.0</th>
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<tr>
<td>34</td>
<td>Item 3b) “Connect the cable..” deleted.</td>
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<tr>
<td>43</td>
<td>New Note added</td>
</tr>
<tr>
<td>45</td>
<td>New sentence; “A battery will also be detected..” added. Text update; “..and also detect an eventual expansion unit.” added</td>
</tr>
<tr>
<td>51</td>
<td>Two new sentences added in 14.2.5 Emergency Unit Error.</td>
</tr>
<tr>
<td>52</td>
<td>New row added.</td>
</tr>
<tr>
<td>57</td>
<td>Text change; “..with batteries” added New item; “Electrical emergency unit with batteries and two motors” added Text change; “..with elastic cord” added Drawing references added Text change in section “Electrical emergency unit with batteries”.</td>
</tr>
</tbody>
</table>
2 Important information

2.1 Important notice

To avoid bodily injury, material damage and malfunction of the product, the instructions contained in this manual must be strictly observed during installation, adjustment, repairs and service etc. Only Entrematic-trained technicians should be allowed to carry out these operations. Save these instructions.

2.2 Electronic equipment reception interference

This equipment may generate and use radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, it may cause interference to radio, television reception or other radio frequency type systems. It has been designed to comply with the emission limits in accordance with EN 61000-6-3 (US market FCC 47 CFR part 15 B), which are designed to provide reasonable protection against such interference in a residential installation.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Re-orient the receiving antenna.
• Relocate the receiver with respect to the equipment.
• Move the receiver away from the equipment.
• Plug the receiver into a different outlet so that equipment and receiver are on different branch circuits.
• Check that protective earth (PE) is connected.

If necessary, the user should consult the dealer or an experienced electronic technician for additional suggestions.

Please act according to your local regulations and dispose of your old product(s) and packaging properly. The correct disposal will help prevent potential negative consequences for the environment and human health.

Entrematic products are equipped with electronics and may also be equipped with batteries containing materials which are hazardous to the environment. Remove this material from the operator before it is scrapped and make sure that it is disposed of safely as was done with the packaging.
3 Introduction

This manual contains the necessary details and instructions for the installation, maintenance and service of the Sliding Door Operator Entrematic EMSL T.

The Entrematic EMSL T is designed to be surface-mounted to the wall or beam. It is easy to install for both new construction and retrofit application, and it can be adapted to a wide range of door requirements.

A Entrematic EMSL T operator ensures all-around safety. It can be combined with the full range of Besam safety units, such as presence and motion sensors.

Each installation is, however, unique and must therefore be equipped and adjusted for the application-relevant safety requirements, just like maintenance must be performed as specified for the selected product in a given environment.
4 Design and function description

Design
The sliding door operator Entrematic EMSL T works electro-mechanically. The motor, control unit, transmission – and optional emergency unit and electromechanical locking device – are all assembled in a support beam with integrated cover. The motor and gear box transmit movement to the door leaves by means of tooth belts. The door leaves are fitted to door adapters/carriage wheel fittings and hang on a sliding track. The guiding at the bottom is carried out by means of floor guides.

Function
Opening
When an opening impulse is received by the control unit the motor starts and transmits movement to the door leaves, which move to the open position.

Closing
The closing starts when no OPENING IMPULSE is received and the HOLD OPEN TIME has run out.

Safety functions integrated in the operator
To permit safe passage between closing doors, the doors immediately reverse if an obstruction is detected, then resume their interrupted movement at low speed to check whether the obstruction has disappeared or not. If an obstruction is detected between opening doors and surrounding walls or interior fittings, the doors immediately stop and then close after a time delay.

Microprocessor for precise control
The microprocessor has a routine for self-monitoring, which detects any interference or faulty signals in door operation. If an input signal does not correspond to the preprogramming, the microprocessor automatically takes necessary actions to ensure safe door operation.

Emergency escape
The Entrematic EMSL T can be combined with an emergency unit that automatically opens or closes¹ the doors in the event of a power failure and can also be interfaced with the fire alarm or smoke detector. Safety can be further reinforced by incorporating a break-out fitting. This enables the doors and side screens to swing outwards in an emergency situation by applying a defined pressure at the front edge.

Doors used for emergency escape in buildings such as hospitals and homes for elderly people may not be locked or put in programme selection OFF.

¹ Electrical emergency unit only
## 5 Technical specification

<table>
<thead>
<tr>
<th>Technical Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td><strong>Mains power supply</strong></td>
<td>120 V AC -10 % to 240 V AC +10 % 50/60 Hz fuse 10 AT</td>
</tr>
<tr>
<td><strong>Note!</strong> Switch with clearly marked OFF-position, having a contact separation of at least 3 mm in all poles, must be incorporated in the fixed wiring and installed at a minimum height of 1,5 m and not accessible for the public.</td>
<td></td>
</tr>
<tr>
<td><strong>Power consumption</strong></td>
<td>Max. 250 W</td>
</tr>
<tr>
<td><strong>Auxiliary voltage</strong></td>
<td>24 V DC, 640 mA</td>
</tr>
<tr>
<td><strong>Recommended max. door weight</strong></td>
<td>EMSL T-1: 100 kg/leaf EMSL T-2: 75 kg/leaf</td>
</tr>
<tr>
<td><strong>Clear opening</strong></td>
<td>EMSL T-1: 1000 – 3990 mm EMSL T-2: 1600 – 4000 mm</td>
</tr>
<tr>
<td><strong>Opening and closing speed</strong></td>
<td>variable up to approx. 1.4m/s (EMSL T-2)</td>
</tr>
<tr>
<td><strong>Hold open time</strong></td>
<td>0-60 s</td>
</tr>
<tr>
<td><strong>Ambient temperature</strong></td>
<td>-20 °C to +50 °C</td>
</tr>
<tr>
<td><strong>Relative humidity (non-condensing)</strong></td>
<td>max. 85 %</td>
</tr>
<tr>
<td><strong>Approvals</strong></td>
<td>Third party approvals from established certification organizations valid for safety in use and escape route safety. For details see Declaration of Conformity.</td>
</tr>
</tbody>
</table>
| **For indoor use only** | }
6 Models

Two main models are available:

- **EMSL T-2**: for bi-parting doors, consisting of two pairs of door leaves which are sliding away from each other to form a common door opening.
- **EMSL T-1**: for single sliding doors with two sliding door leaves.

**EMSL T-2 (bi-parting)**

**EMSL T-1 (single sliding, right opening)**

**EMSL T-1 (single sliding, left opening)**

FW = Frame width
CL = Cover length (incl. end plates, 2 x 30 mm)
COW = Clear opening width
SW = Side screen width
DW = Door leaf width
7 Identification

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Support beam</td>
<td>13</td>
<td>Cover lock</td>
</tr>
<tr>
<td>2</td>
<td>Drive unit</td>
<td>14</td>
<td>Cover</td>
</tr>
<tr>
<td>3</td>
<td>Control unit</td>
<td>15</td>
<td>End plate</td>
</tr>
<tr>
<td>4</td>
<td>Carriage wheel fitting</td>
<td>16</td>
<td>Programme selector</td>
</tr>
<tr>
<td>5</td>
<td>Tension wheel</td>
<td>17</td>
<td>Floor guide</td>
</tr>
<tr>
<td>6</td>
<td>Tooth belt, fast moving outer doors</td>
<td>18</td>
<td>Locking device (option)</td>
</tr>
<tr>
<td>7</td>
<td>Tooth belt fitting</td>
<td>19</td>
<td>Electrical emergency unit (option)</td>
</tr>
<tr>
<td>8</td>
<td>Tooth belt, slow moving inner doors</td>
<td>20</td>
<td>Fast moving outer door leaf</td>
</tr>
<tr>
<td>9</td>
<td>Bracket (fixing the slow moving tooth belt to the top of the support beam)</td>
<td>21</td>
<td>Slow moving inner door leaf</td>
</tr>
<tr>
<td>10</td>
<td>Door stop</td>
<td>22</td>
<td>Side screen</td>
</tr>
<tr>
<td>11</td>
<td>Mains power connection block</td>
<td>23</td>
<td>Carrier bracket</td>
</tr>
<tr>
<td>12</td>
<td>Cable inlet</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8 Space required

COH = Clear opening height
DH = Door height (incl. door adapter)
FFL = Finished floor level

* Optional cover e.g. for full glass doors.
9 Mechanical installation

9.1 Checking

Check that the fixing material and the upper part of the door leaf have the necessary reinforce-
ments, and that the floor is level and smooth.

The beam/wall used to fix the support beam must be flat and smooth. If necessary use Entrematic
mounting spacers behind the support beam to keep its straightness.

<table>
<thead>
<tr>
<th>Fixing material</th>
<th>Minimum requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>5 mm*</td>
</tr>
<tr>
<td>Aluminium</td>
<td>6 mm*</td>
</tr>
<tr>
<td>Reinforced concrete</td>
<td>Min. 50 mm from the underside</td>
</tr>
<tr>
<td>Wood</td>
<td>50 mm</td>
</tr>
<tr>
<td>Brick wall</td>
<td>Expansion shell bolt, min. M6x85, UPAT PSEA B10/25 min. 50 mm from the underside</td>
</tr>
</tbody>
</table>

*Thinner wall profiles must be reinforced with rivnuts

Tools required

• Set of metric box spanners and wrenches
• Spirit level
• Tape rule
• Power drill and set of drill bits, Hammer drill
• Screw driver Torx (T10, T20 and T30)
• Centre punch
• Small flat blade screw driver for wire connection
• Screw driver for adjustment of potentiometers
• Wire stripper
• Plumb bob
• Cable strap tightener
9.2 Installation examples

9.2.1 Bi-parting doors (Entrematic EMSL T-2)
During installation the support beam is placed so that its centre line is aligned with the centre of the daylight width. This ensures that the support beam will be fixed symmetrically over the daylight width. See also Installation of support beam, on page.

9.2.2 Single sliding doors (Entrematic EMSL T-1)
See also Installation of support beam, on page 14.

**Recommended installation (Entrematic EMPS)**
To reduce the risk of finger traps the jamb is used as door stop for closing and labyrinth sealings are used between door leaves and fixed screen. The door leaves can be open fully and align with the fixed screen.

1. Door leaf
2. Fixed screen
3. Operator

COW = Clear opening width
LAP = Overlap (profile width)

**Alternative installation of door system (by others)**
If the distance measured between the glass pane of one door and the profile of the facing door/fixed screen exceeds 8 mm, the recommended installation above is not allowed by authorities in some countries owing to the risk of finger trap. To avoid this, the leading edge of the door leaves must not pass the mullion of the fixed screen but stop at least 25 mm before, see page 32.
9.3 Installation of support beam

**Marking and fixing**

To determine the installation height from the **highest point** of the finished floor:

a Measure the door leaf height **inclusive door adapter**.

b Add **110 mm**.

c Mark the installation height on the wall as determined under items 1 and 2.

d Mark for two holes 100 mm to the left and right of the support beam centre line.

e Drill the two holes, tap or plug and apply a screw in the left hole (key hole).

f Remove the cover, see page 34.

g Remove all screws 1) fixing the track[s] 2).

h Lift off the track[s] 2).

i Apply spacers 3) to the back of all support beam fixing holes.
j  Position the support bracket(s) 4 as shown in the illustration.

**EMSL T-2 (bi-parting doors)**

**EMSL T-1 (single sliding doors, RIGHT opening)**

**EMSL T-1 (single sliding doors, RIGHT opening)**

1  Screws fixing the track(s)  
2  Track (fast moving outer door leaf)  
3  Spacer  
4  Support bracket  

k  Hang up the support beam in the keyhole and apply another screw in the round hole 200 mm to the right.

l  Make sure that the support beam is level and tighten the key hole screw.

m  Compensate for possible sag at the ends of the beam and mark all remaining fixing holes.

n  Tilt or remove the support beam.

o  Drill the holes, tap or plug them.

p  If the wall is uneven, compensate by hanging Entrematic mounting spacers around the bolts before they are tightened.

q  Fix the support beam using bolts.
Note! The height of the bolt head must not exceed 6.5 mm.

**Bi-parting**

<table>
<thead>
<tr>
<th>Support beam</th>
<th>Installation height</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBL = Support beam length.</td>
<td></td>
</tr>
<tr>
<td>FFL = Finished floor level.</td>
<td></td>
</tr>
<tr>
<td>LAP = Overlap (profile width).</td>
<td></td>
</tr>
</tbody>
</table>

**Single sliding**

| Support beam | Installation height |

SBL = Support beam length.
FFL = Finished floor level.
LAP = Overlap (profile width).
9.4 Installing the door adapter on top of the door leaf (frame doors by others)

For **Entrematic doors** the door adapters and door fittings are factory-mounted. Proceed on page, 21.

a If necessary cut the door adapter to correspond with the door leaf width.
b Make sure that the upper part of the door leaf is sufficiently reinforced.
c Establish the “Y” distance between the slow moving door leaf and the fixed screen/wall, considering door design and draught excluders.
d Place the door adapter on top of the door leaf. The distance “Y” serves to ensure the correct depth installation.
e Mark on the door leaf after the pre-drilled slotted holes. One slotted hole in each group of three has to be used as the attachment carries the whole weight of the door leaf.
f Drill and thread for M6 or use self-drilling screws (Tapitite) in the door leaf.
g The door adapter can be roughly adjusted for depth, ± 5 mm, in relation to the door leaf. This rough adjustment is to be carried out when the door adapter is fitted on the door leaf.
h Tighten the door adapter.
i Repeat the procedure above for the fast moving door leaf using the distance “Y” between the door leaves.

If a break-out unit is to be installed, a special break-out adapter has to be ordered and then always cut to size. See separate installation instructions.

1 Door adapter (standard)
2 Door leaf
9.5 Installing the carriage wheel fittings on the door adapter

9.5.1 Carriage wheel fitting

a. Adjust the vertical adjustment screw (3) to the lowest position.

b. Inner slow moving door leaves only: Replace the screws (2) with the enclosed screws (8) loosely. Let the wheel fitting settle to the lowest position.

1. Slotted hole for vertical adjustment
2. Fastening screw for outer fast moving door leaves
3. Vertical adjustment screw
4. Wheel fitting
5. Square hole for lock hook and for fixing the tooth belt fitting
6. Slotted hole for depth adjustment
7. Carriage fitting
8. Fastening screw for inner slow moving door leaves
9. Lock nut
10. Slot for anti-derailing device
9.5.2 Fast moving outer door leaves (left opening shown)

For **Entrematic doors** the door adapters and door fittings are factory-mounted. Proceed on page 21.

- a Fasten one carriage wheel fitting 40 mm from the door leaf trailing edge.
- b Fasten the other carriage wheel fitting 43 mm from the door leaf leading edge (measured from the estimated centre line with the door leaves in closed position).

**Note!** Make sure that the carriage wheel fittings are completely in line with the door adapter.
9.5.3 Slow moving inner door leaves (left opening shown)

a Fasten the carriage wheel fittings as close as possible to the leading and trailing edges but no less than 22 mm (see illustration below).

Note! Make sure that the carriage wheel fittings are completely in line with the door adapter.
9.6 Hanging the door leaves (bi-parting shown)

9.6.1 Slow moving inner door leaves

a. Ensure that the inner sliding track 1) in the support beam is clean.
b. Raise the door leaves and place them **carefully** over the floor guide 2). If any brackets in the support beam are interfering, mark the position and move temporarily.
c. Lean the door leaves against the support beam and lift the loose wheel fittings over the inner sliding track 1).
d. Adjust with the adjustment screw 3) until the door leaf is about 8 mm above the floor [adjustment range ± 7 mm (wall mounted), +5/-10 (beam mounted)]. Slide the door leaf over the floor guide 2) to check it is not jamming.
e. Tighten the fastening screws 4) and thereafter the adjustment screw 3). To secure the assembly tighten the lock nut 6).
f. Make sure the door leaves are parallel to each other and to the side screens. Close the doors as much as possible and ensure that the distance between the door leaves is equal at the top and bottom.
g. The anti-derailing device 5) consists of plastic wheel sleeve and screw.
h. Press the enclosed plastic wheels, with the thumb, into the slot in the support beam (see illustration).
i Apply the sleeve with screw in the plastic wheel and slide into the outer slotted fastening holes in the carriage wheel fittings (one in each fitting). Adjust horizontally to avoid jamming and tighten the screws firmly.

Note! All carriage wheel fittings should be adjusted in the same way.

1 Inner sliding track
2 Floor guide
3 Adjustment screw
4 Fastening screw
5 Anti-derailing device
6 Lock nut
Installing the wheel stay and transmission arm

a  Install the wheel stay 2) by means of the enclosed countersunk screw and washer 3) to the square hole on the carriage wheel fitting at the door leaf trailing edge as shown below.

b  Install the transmission arm 4) by means of the enclosed countersunk screw 5) to the square hole on the carriage wheel fitting at the door leaf leading edge as shown below.

Note! The wheels are factory mounted to fit a left opening door. When installing on a right opening door the wheels must be moved to the lower alternative fixing holes.
**Fitting the fixed stay, slow moving tooth belt and carrier bracket**

a. Push the door leaves to **open** position.

b. Hook the fixed stay 1) into the grooves in the top of the support beam, positioned close to the leading edge wheel 2) as shown in the illustration and tighten the two screws.

c. Fasten one end of the tooth belt 3) to the middle of the fixed stay 1) **with all teeth engaged** and fix it with a belt securing clip 4).

d. Pull the belt around the wheels and cut at the middle of the stay.

e. Tension the belt, fasten the other end to the stay **with all teeth engaged** and fix with a belt securing clip 4). Check and if necessary tension the belt by loosening the wheel screw 2) and tension with the adjustment screw 5). Retighten the wheel screw.

f. Fit the carrier bracket 6) to the tooth belt 3) close to trailing edge wheel 7) as shown in the illustration.

**Note!** Do not apply the enclosed belt securing clip(s) 4) until the fast moving door leaves have been installed. (See illustration on page 31).

g. Push the door leaves to closed position.

**Note!** Right opening shown, left opening mirror image.
9.6.2 Fast moving outer door leaves

a Re-hook the outer sliding track 2) and retighten 1) to all brackets.
b Ensure that the outer sliding track 2) in the support beam is clean.
c Raise the door leaves and place them carefully over the floor guide 4).
d Lean the door leaves against the track, with the labyrinth seal (if present on the inner door leaves) in the middle of the outer door leaf and with the carrier bracket 7) **between the carriage wheel fittings**. Lift the loose wheel fittings over the outer sliding track 2).
e Fasten the carrier bracket 7) to the carriage wheel fitting with the enclosed self tapping screw 8) and disengage the slow moving tooth belt from the carrier bracket.
f Adjust with the adjustment screw 5) until the door leaf is about 8 mm above the floor [adjustment range ± 7 mm (wall mounted), +5/-10 (beam mounted)]. Slide the door leaf over the floor guide 4) to check it is not jamming.
g Tighten the fastening screws 3) and thereafter the adjustment screw 5). To secure the assembly tighten the lock nut 9).
h Make sure the door leaves are parallel to each other and to the inner door leaves. Close the doors and ensure that the distance between the door leaves is equal at the top and bottom.
i The anti-derailing device 6) consists of plastic wheel sleeve and screw.
j Press the enclosed plastic wheels, with the thumb, into the slot in the outer sliding track (see illustration).
k Apply the sleeve with screw in the plastic wheel and slide into the outer slotted fastening holes in the carriage wheel fittings (one in each fitting). Adjust horizontally to avoid jamming and tighten the screws firmly.

**Note!** All carriage wheel fittings should be adjusted in the same way.
1 Fastening screw, outer sliding track 6 Anti-derailing device
2 Outer sliding track 7 Carrier bracket
3 Fastening screw, wheel fitting 8 Self tapping screw
4 Floor guide 9 Lock nut
5 Adjustment screw
9.7 Installation of Entrematic floor guides (frame doors by others)

**Bi-parting operators**

Push the fast moving outer doors together and slide them until their meeting point is aligned with the centre of the clear opening width. Position the slow moving inner door leaves with required overlap to the fast moving door leaves.

**Single sliding operators**

Slide the fast moving outer door leaf to closed position. Position the slow moving inner door leaf with required overlap to the fast moving door leaf.

**Fast moving outer door leaf**

a  The door guides are fitted on the underside of the door leaf.
b  The door leaf can be adjusted ± 1.5 mm horizontally by turning the eccentric pin 180°.
c  For vertical adjustment, turn the pin complete turns.
d  Tighten the lock screw after the adjustment of the door leaf, to secure the setting.
**Slow moving inner door leaf**

The floor guides can be adjusted depthwise about ± 4 mm after being installed, using the eccentric nut underneath the plastic block.

Before installing the floor guide make sure that the plastic block is adjusted to the middle position to ensure full adjustability (±4 mm).

a  Push the door to closed position.
b  Fit the floor guide on the threshold so that the plastic block is in line with the trailing edge and depthwise in accordance with the instructions and illustrations for "Frame Doors by Others" on page 32.
c  Mark the position for the floor guide.
d  Push the door leaf sideways to clear the space.
e  Mark, drill and plug the three holes and fasten the floor guide.

---

1 Plastic block  
2 Door guide track  
3 Slow- moving door leaf  
4 Eccentric pin  
5 Lock screw  
6 Fast moving door leaf
9.8 Final adjustment of the door leaves

A final adjustment of the door leaves is necessary after the installation of the floor guides.

9.8.1 Depth adjustment

a The distance $A$, between the top of the door leaf and the fixed screen, and the distance $B$, between the door leaves, are to be adjusted by loosening the two screws connecting the carriage wheel fitting to the door adapter. The holes in the carriage wheel fitting are slotted and the door leaf/adapter can be adjusted $\pm 7$ mm. The distances $A$ and $B$ shall be 22 mm for Entrematic EMPS System. For frame doors made by others the distances $A$ and $B$ depend on the door leaf thickness and draught excluders. When draught excluders is used between the door leaf and the fixed screen and between the door leaves, they should seal equally for the total vertical height.

Note! Make sure that the carriage wheel fitting is completely in line with the door adapter.

Note! The carriage fittings 1 are turned 180°.

b The distance $C$ shall be equal to $A$ and the distance $D$ to $B$. With Entrematic floor guide on frame doors made by others, the distance $C$ can be adjusted $\pm 4$ mm with the eccentric nut on the floor guide and the distance $D$ can be adjusted $\pm 1.5$ mm with the eccentric pin.

---

![Diagram of Entrematic EMPS and Frame doors by others]

1 Carriage fitting
2 Door adapter (integrated in the door leaf for EMPS)
9.8.2 Height adjustment (final check)

The height adjustment is to be carried out with the vertical adjustment screw as described on page 21.

a  It is very important that the door leaf hangs vertically after the adjustment and that bi-parting doors are parallel in the closed position (no gap at the top or bottom).

b  The plastic block on the floor guide (frame doors by others) should not touch the upper surface of the door guide track.

c  If a draught excluder is used on the lower edge of the door leaf, it should only lightly touch the floor.

d  Check that all door leaves and fixed screens are parallel.

\[
\text{FFL} = \text{Finished floor level}
\]
9.9 Attachment of tooth belt fittings

The tooth belt fitting joining the belt ends is factory-mounted to the lower part of the tooth belt.

**Single sliding operators**

a Pull the tooth belt until the tooth belt fitting is just opposite the right square hole in the left carriage wheel fitting of the fast moving outer door leaf.

b Fasten the tooth belt fitting to the carriage wheel fitting with the enclosed flanged screw.

c Slide all doors to closed position. Fit the **slow moving tooth belt** to the carrier bracket 7) and secure with the belt clips (see illustration on page 24).

**Bi-parting operators**

a Push the fast moving outer doors together and slide them until their meeting point is aligned with the centre of the opening. **Make sure the door leaves do not change position during installation.**

b Pull the tooth belt 1) until the lower tooth belt fitting 2) is just opposite the left square hole in the carriage wheel fitting at the leading edge of the fast moving left door leaf.

c Fasten the tooth belt fitting 2) to the carriage wheel fitting with the enclosed flanged screw 5).

d Apply the enclosed tooth belt fitting 4) to the right square hole in the carriage wheel fitting at the leading edge of the fast moving left door leaf with the enclosed flanged screw 5).

e Attach the tooth belt fitting to the upper part of the belt and lock it with the enclosed belt securing clip 6).

f Slide all doors to closed position. Fit the **slow moving tooth belt** to the carrier bracket 7) and secure with the belt clips (see illustration on page 24).
9.10 Adjustment of the leading edge

a Push the doors by hand to desired opening.

**Note!** In case of frame doors made by others, the leading edge of the door leaf must not pass the mullion of the fixed screen but stop at least 25 mm before to avoid finger trap.

b Loosen the door stops, move them against the carriage wheel fittings and tighten firmly.

c Fasten the plastic sliding track(s) with the screw on top of the right door stop (single sliding) and with screws on both door stops (bi-parting).

d Check that required opening and finger protection (if any) are achieved. Entrematic EMPS is designed to give finger protection without consideration to the safety distance $F$.

**Frame doors by others**

F = Safety distance (finger protection frame doors by others)

1 Door leaf
2 Fixed screen
3 Door stop
4 Carriage wheel fitting
9.11 Checking and adjusting the belt tension

The belt tension is factory adjusted and readjustment is normally not needed. If despite this the belt tension has to be corrected proceed in the following way:

a Loosen the two fixing screws (1).
b Tighten the belt adjustment screw (2) M6, to a torque of 1.1 Nm ± 0.1 Nm.
c Tighten the two fixing screws (1).
9.12 Installing/Removing the cover

Two pre-mounted rotary-locks in each end of the cover fit into a slot in the track. By turning the locks clockwise the cover is secured.

Installing

a The rotary-locks are made rectangular. Make sure they are turned “horizontally”.

b Fit the upper part of the cover into the hinge and place the cover support tool (optional) into the beam, to keep the cover open.

c i Connect the protective earth cable coming from the mains power connection box to the cover, see page 36.

ii Connect the cable coming from the programme selector (if installed in the cover) to the modular socket in the control unit, see page 37 and page 40.

iii Fix the cover support block with enclosed self-tapping screws in the centre of the cover. If electromechanical look is installed in the middle, move the block 100 mm in any direction.

d When properly installed and adjusted, attach the product label, which includes the CE mark on the right side of the lower part of the operator cover (see illustration).

e If the electrical connections are not terminated proceed to page 36.

f Remove the cover support tool and close the cover.

g Make sure the rotary-locks fit into the slot. Fasten the cover by inserting a 10 mm standard wrench from the underside and turn the rotary-locks clockwise (approx. 90°).
Removing is carried out in reverse order

1  Rotary lock
2  Slot in the support beam
3  Cover support block
10 Electrical connections

Note! During any work with the electrical connections the
- mains power and the
- electrical emergency unit must be disconnected.

Installation
a  Open the cover, see page 34.
b  Install extension unit EXU-4 or EXU-3 if required, see page 43.
c  Install and connect the mains cables, see below.
d  Carry out START-UP, see page 45.

Mains connection
a  Unscrew the fastening screw and remove the protective lid.
b  Connect the incoming mains power through the strain relief to the connection block as shown in the illustration below.
c  Connect the protective earth to the cover.
d  Put the protective lid back in place.

1 Protective lid
2 Mains connection block
3 Strain relief
4 Protective earth for the cover
10.1 Control unit

The control unit is equipped with:

10.1.1 Contacts for connection of standard units

10.1.2 Terminal block for connection of accessories

* Total load on 24 V DC = max. 640 mA
10.1.3 Function selector, FS, used to select special operating functions

The function selector switches are factory set to OFF.

<table>
<thead>
<tr>
<th>Function selector (FS)</th>
<th>OFF</th>
<th>ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Motor direction of rotation</td>
<td>CCW</td>
<td>CW</td>
</tr>
<tr>
<td>[CCW = bi-parting and single sliding, left opening]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[CW = single sliding, right opening]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Lock type (locked with/without power)</td>
<td>With</td>
<td>Without</td>
</tr>
<tr>
<td>3 Lock release</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>[To be set to ON if electric lock is installed]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Presence detection type (normally open/closed)</td>
<td>NO</td>
<td>NC</td>
</tr>
<tr>
<td>[Applies in common for the terminals 11, 12 and 13 on the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>control unit CUF and terminal 4 on the EXU-4]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Emergency unit type</td>
<td>Electrical</td>
<td>Mechanical</td>
</tr>
<tr>
<td>[To be set to OFF if no emergency unit is installed]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Emergency unit monitoring</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>[To be set in accordance with local authority requi-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rements]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Sensor monitoring</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>[To be set in accordance with local authority require-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ments]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Hold force on closed door (0 N / 45 N)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>[Setting ON always recommended]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note!** Press the LEARN BUTTON briefly after any FS adjustment to ensure proper configuration.
10.1.4 Potentiometers and learn button

The potentiometers are factory set to approx. 50% of the adjustment range.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSO: High speed opening</td>
<td>0.10 – 0.70 m/s</td>
</tr>
<tr>
<td>HSC: High speed closing</td>
<td>0.10 – 0.70 m/s</td>
</tr>
<tr>
<td>LS: Low speed</td>
<td>0.05 – 0.70 m/s</td>
</tr>
<tr>
<td>POP: Partial opening position</td>
<td>0 – 100%</td>
</tr>
<tr>
<td>KTD: Key hold open time</td>
<td>0 – 60s</td>
</tr>
<tr>
<td>TD: Hold open time</td>
<td>0 – 60 s</td>
</tr>
<tr>
<td>LB: LEARN BUTTON</td>
<td>See page 45</td>
</tr>
<tr>
<td>LED: Error indication</td>
<td>See page 49</td>
</tr>
</tbody>
</table>

Note! Press the LEARN BUTTON briefly after any potentiometer adjustment, to use the new configuration. The speed applies to single sliding operator.
10.1.5 Connection of programme selector

Programme selector PSO-5T
(Used for MEU with TÜV requirements)

This part can be broken off (see below) and installed in the mounting box PSMB-5.

Programme selector PSO-5R
(Mounted in the support beam)

Breakable perforation

Operator No. 2

Central control of an optional number of operators with programme selector PS-5M
With PS-5M in setting AUTO every connected operator are individually controlled by its own programme selector.

For remote control, break off and install this part in the mounting box PSMB-5.

To operator No. 3, 4 -> n and to central programme selector e.g. PS-5M.
10.1.6 Connection of activation units

*) Can be monitored
**) Only to be connected if inner impulse monitoring is required, FS-7 = ON

 Auxiliary terminal block and resistor termination to be mounted in the CUF terminals 1-3.
10.1.7 Side presence sensors

*) Can be monitored
***) If side presence impulse monitoring is not selected (= off), the sensor monitoring input should be connected to EXU-4: 1 (0 V DC)
10.2 Extension units

When functions beyond those implemented on the main control unit are required, two extension units are available, EXU-4 and EXU-3. These units are to be applied on top of the control unit (if not factory installed).

Note! When installing or replacing an extension unit the LEARN BUTTON LB must be pushed for a minimum of 2 seconds.

**Fitting the extension units EXU-4 or EXU-3 to the control unit CUF**

1. Fastening screws (2 pcs)
2. Tagstrip (long pins to be fitted into the EXU)
3. Extension unit, EXU-4 or EXU3
4. Label (EXU-4 or EXU-3)
5. Lid
6. Screw for fixing the lid
10.2.1 Extension unit, EXU-4

Following functions can be obtained with this unit:

- NC (normally closed)
- Common
- NO (normally open)

From battery [(12) 24 V DC]
- Battery wake up 1)
- Battery wake up common
- Emergency open input
- Emergency open common
- (+) 24 V DC 2)
- Close
- Side presence
- Interlock out
- Interlock in
- (−) 0 V DC

Error/Status indication relay, max. 48 V AC/DC, 1 A

Emergency opening push button (fireman’s opening) [non-locking]

PS-2
For disconnection of “Interlocking”

Battery fuse 10 AT

1) Connects the battery in absence of main power
2) Total load on all 24 V DC, max. 640 mA

Cable:
- min. 0.25 mm²
- max. 500 m

10.2.2 Extension unit, EXU-3

This extension unit has the functions non-monitored electrical emergency unit or convenience battery. The battery cable is to be connected to the EXU-3.

From battery [(12) 24 V DC]

Battery fuse, 10 AT
11 Start-up

After installing the operator, the START-UP and adjustment must be carried out in the following order (see also Electrical connections on page 36).

a Remove the mains power plug from the control unit CUF.
b Connect the mains power cables to the connection block.
c Make sure that FS-1 (direction of rotation) and FS-2 (locked with or without power) are correctly set.
d Unplug the programme selector. Unplug all activation units and presence sensors, terminals 1-16.
e Put the door in half open position. Apply the mains power plug to the control unit CUF and push the LEARN BUTTON LB for minimum 2 seconds. The door will now carry out a complete OPEN/CLOSE cycle at low speed to learn the opening width and the closed position. When finished, check that the door is closed.

Note! The LEARN BUTTON LB has different functions:

- Push LB briefly and adjusted potentiometer and/or function selector FS settings will be accepted. A battery will also be detected, if connected.
- If the LB is pushed for a minimum of 2 seconds, the operator will carry out a complete OPEN/CLOSE cycle at low speed to learn the opening width and the closed position and also detect an eventual expansion unit.

f To check the door movement, give opening impulse by strapping the terminals No. 1 and 2 on the control unit CUF.
g Remove the mains power plug from the CUF and install activation units, presence sensors, programme selector and accessories.
h Select correct functions with the function selector FS, for the connected accessories.
i Apply the mains power plug to the CUF, push shortly the LEARN BUTTON LB.

If necessary, adjust the door speeds and sensor detection field values to meet the specific application and regulation requirements.

Note! The LOW SPEED is self adjusting to optimal operation if the LOW SPEED potentiometer is set to max. Depending on authority or installation requirements the LOW SPEED can be further reduced.

Note! Press the LEARN BUTTON briefly after any FS or potentiometer adjustment to ensure proper configuration. Further parameters can be adjusted by using the Configuration Tool, CT. See separate manual.
12 Signage

Mandatory indicates that the signage is required by European directives and equivalent national legislation outside the European Union.

A. Product label: Mandatory
B. Emergency break-out: Mandatory, if applicable
C. Entrematic door sticker: Mandatory according to European directives and equivalent national legislation outside the European Union, to highlight the presence of the glass.
D. Supervision of child: Mandatory, if applicable (applied to both sides of the door). To be placed on entrances where the risk analysis shows use by children, elderly and disabled.
E. Operator designed for disabled people: Recommended, if applicable (applied to both sides of the door)
F. Activation by disabled people: Recommended, if applicable
G. No entry, identifying one-way traffic: Mandatory in GB and US, if applicable
H. Automatic door: Only mandatory in GB
J. Keep clear: Only mandatory in GB
13 Programme selectors and functions

13.1 Operation

The functions of the door are set with key programme selectors. The key must always be removed on emergency escape doors after changing settings.

- PSO-5R, can be fully remote-controlled by PS-5M.
- PSO-5T, can be remote-controlled, day/night by PS-2, used for MEU.
- PSMB-5, mounting box, flush or surface mounted on the side screen or on the wall close to the door.
- PS-5M, flush or surface mounted, for central control of an optional number of operators. In setting AUTO every connected operator are individually controlled by its own programme selector.
- PS-6, surface mounted on the side screen or on the wall close to the door.

**Mounted in the operator**

PSO-5R

PSO-5T

**Flush mounted**

PSMB-5

PS-5M

**Surface mounted**

PSMB-5

PS-5M

PS-6
### 13.2 Programme selector functions

<table>
<thead>
<tr>
<th>Programme Selector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OFF</strong></td>
<td>This function is only used on emergency escape doors after it is certain that all people have left the building. The door cannot be opened with inner and outer activation units. The door is locked if an electromechanical locking device has been fitted. The door can be opened partially with a key switch (if fitted). With an emergency push-button (if fitted) the door opens fully.</td>
</tr>
<tr>
<td><strong>EXIT</strong></td>
<td>Passage from inside only. The door is normally locked if an electromechanical locking device has been fitted. The door can only be opened with the inner activation unit or with a key switch/emergency push-button (if fitted).</td>
</tr>
<tr>
<td><strong>AUTO</strong></td>
<td>Two-way traffic, normal operation of the door. The door can be opened with the inner and outer activation units and with a key switch/emergency push-button (if fitted).</td>
</tr>
<tr>
<td><strong>AUTO PARTIAL</strong></td>
<td>Two-way traffic, AUTO PARTIAL is obtained. The door can be opened partially with the inner and outer activation units and with a key switch (if fitted). With an emergency push-button the door opens fully.</td>
</tr>
<tr>
<td><strong>OPEN</strong></td>
<td>The door is permanently open. The door can be moved by hand e.g. for window cleaning. All activation units except for the emergency push button (if fitted) are disconnected.</td>
</tr>
<tr>
<td><strong>RESET</strong></td>
<td>Set the programme selector to AUTO. Insert a narrow object in the small hole on the programme selector and push. The operator makes a system test of the battery (if selected), electro-mechanical lock, watch dog relay and closed position. The operator is now reset and ready for normal operation. <strong>Note!</strong> The RESET is not available on programme selector PS-5M.</td>
</tr>
<tr>
<td><strong>RESET</strong></td>
<td>Turn the key clockwise to the position “R” (six o’clock) and back to the requested setting. The operator makes a system test of the battery (if selected), electro-mechanical lock, watch dog relay and closed position. The operator is after closing reset and ready for normal operation. <strong>Note!</strong> The key cannot be removed in this position. <strong>Note!</strong> If monitored emergency unit is a demand, a test of the emergency unit is performed when the programme selector is turned from OFF or OPEN to any other position.</td>
</tr>
</tbody>
</table>

Note! The key cannot be removed in this position.
14 Troubleshooting

Before starting the troubleshooting, check that the programme selector setting is correct and then RESET the operator. Start the troubleshooting by checking the mechanical and electrical parts of the operator in the following order.

The control unit, emergency unit and electromechanical lock are fixed with brackets in the support beam. To replace, the complete unit is to be loosened and replaced.

14.1 Mechanical checking and remedies

Disconnect the mains power. Unlock all mechanical locks. Pull the door leaf manually and check that the door can be easily moved over the complete sliding track/floor guide. If the door leaf stops or is hard to move, the reason may be sand, stones, rubbish etc. in the floor guide. The door leaf may also be jamming on the floor or on the draught excluders. Clean the floor guide, adjust the door leaf height/depth or take other necessary measures e.g. replacement of wear parts until the door leaf is running smoothly when manually operated.

14.2 LED indication and CT Error codes

The control unit is equipped with a light emitting diode LED for error indication. By means of the configuration tool CT, a more detailed error description (CT error codes) can be obtained. See also separate manual for CT.

14.2.1 Normal operation/Non-critical errors

During normal operation and for non-critical errors the LED on the control unit is illuminated.

14.2.2 Power failure (no error code)

If the LED is extinguished check the mains power, power supply cable and perform a RESET. If the problem remains replace the control unit.
14.2.3 LED indication

- **Sensor error**
  1 fast flash (0.2s), pause (1.0s) etc.

- **Emergency Unit error**
  2 fast flashes (0.4s), pause (1.0s) etc.

- **CUF error**
  3 fast flashes (0.6s), pause (1.0s) etc.

- **Motor/Encoder error**
  4 fast flashes (0.8s), pause (1.0s) etc.

- **Lock error**
  5 fast flashes (1.0s), pause (1.0s) etc.

- **Motor Temperature High**
  1 slow flash (1.8s), pause (0.2s) etc.

- **Normal operation/Non-Critical errors**
  Illuminated
14.2.4 Sensor Error

LED indication: 1 fast flash (0,2s), pause (1,0s), etc.

<table>
<thead>
<tr>
<th>CT error code</th>
<th>Reason</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence Impulse Error</td>
<td>The control unit doesn’t get a test answer, from the activation unit.</td>
<td>Make sure that the monitoring output is connected and the connections are OK.</td>
</tr>
<tr>
<td>Side Presence Impulse Error</td>
<td>The control unit doesn’t get a test answer, from the activation unit.</td>
<td>Make sure that the monitoring output is connected and the connections are OK.</td>
</tr>
<tr>
<td>Inner Impulse Error</td>
<td>The control unit doesn’t get a test answer, from the activation unit.</td>
<td>Replace the presence activation unit.</td>
</tr>
</tbody>
</table>

14.2.5 Emergency Unit Error

The door is opened and stays open

LED indication: 2 fast flashes (0,4s), pause (1,0s), etc.

<table>
<thead>
<tr>
<th>CT error code</th>
<th>Reason</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Unit Error</td>
<td>The door is prevented from fulfilling its emergency unit test within a stated time, due to broken or weak rubber band, high friction or jammed door.</td>
<td>Check rubber band tension or battery depending on configured &quot;Emergency Unit Type&quot; and make sure that the door can open to fully open position.</td>
</tr>
<tr>
<td></td>
<td>The battery voltage drops due to low capacity.</td>
<td>Charge or replace battery.</td>
</tr>
<tr>
<td></td>
<td>The battery voltage measurement is wrong.</td>
<td>Replace the EXU-4 extension unit.</td>
</tr>
<tr>
<td>Battery Error</td>
<td>The battery is disconnected or short-circuited.</td>
<td>Make sure that the cables are OK and connected.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the battery fuse.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Charge or replace battery.</td>
</tr>
</tbody>
</table>
14.2.6 **CUF error**

LED indication: 3 fast flashes (0.6s), pause (1.0s), etc.

<table>
<thead>
<tr>
<th>CT error code</th>
<th>Reason</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM Error</td>
<td>Internal RAM memory error.</td>
<td>RESET, and if the problem remains, replace the control unit.</td>
</tr>
<tr>
<td>ROM Error</td>
<td>Internal ROM memory error.</td>
<td>RESET, and if the problem remains, replace the control unit.</td>
</tr>
<tr>
<td>EEPROM Error</td>
<td>Serious internal EEPROM memory error.</td>
<td>RESET</td>
</tr>
<tr>
<td></td>
<td>Download a saved parameter set or DEFAULT parameter set and perform a RESET. If the problem remains, replace the control unit.</td>
<td></td>
</tr>
<tr>
<td>EEPROM Critical Write</td>
<td>Internal write EEPROM memory error. This error mainly occurs when it’s impossible to change a configuration parameter.</td>
<td>RESET</td>
</tr>
<tr>
<td></td>
<td>Try to change the configuration parameter that caused the problem, and if the problem remains, replace the control unit.</td>
<td></td>
</tr>
<tr>
<td>SMPS Over Voltage</td>
<td>The internal link voltage has for some reason increased to above 47 V.</td>
<td>RESET, and if the problem remains, replace the control unit.</td>
</tr>
<tr>
<td>A/D Converter Error</td>
<td>The internal A/D Converter or multiplexer is broken.</td>
<td>RESET, and if the problem remains, replace the control unit.</td>
</tr>
<tr>
<td>Lock Circuit Error</td>
<td>It is not possible to disconnect the lock with the lock relay.</td>
<td>RESET, and if the problem remains, replace the control unit.</td>
</tr>
<tr>
<td>Hardware Watchdog Error</td>
<td>It is not possible to disable the motor bridge.</td>
<td>RESET, and if the problem remains, replace the control unit.</td>
</tr>
<tr>
<td>Output Enable Error</td>
<td>Test of safety related circuits failing.</td>
<td>RESET, and if the problem remains, replace the control unit.</td>
</tr>
<tr>
<td>Register Error</td>
<td>Internal register error.</td>
<td>RESET, and if the problem remains, replace the control unit.</td>
</tr>
<tr>
<td>OS Error</td>
<td>Internal program error.</td>
<td>RESET, and if the problem remains, replace the control unit.</td>
</tr>
<tr>
<td>Flash Code Error</td>
<td>Serious internal programming error.</td>
<td>Replace the control unit.</td>
</tr>
<tr>
<td>Link Voltage Error</td>
<td>The internal link voltage measurement is wrong.</td>
<td>RESET, and if the problem remains, replace the control unit.</td>
</tr>
</tbody>
</table>
14.2.7 Motor / Encoder error

The motor and lock power are disconnected.
LED indication: 4 fast flashes (0,8s), pause (1,0s), etc.

<table>
<thead>
<tr>
<th>CT error code</th>
<th>Reason</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encoder Error</td>
<td>The encoder, encoder cable, or Motor cable is damaged.</td>
<td>Make sure that the encoder cable and the motor cable is connected.</td>
</tr>
<tr>
<td></td>
<td>Wrong Motor type is selected.</td>
<td>Check Motor Type configuration with the CT-Tool.</td>
</tr>
<tr>
<td>Motor Current Error</td>
<td>The Motor cable or Encoder cable is damaged.</td>
<td>Make sure that the encoder cable and the motor cable is connected.</td>
</tr>
<tr>
<td></td>
<td>Wrong Motor type is selected.</td>
<td>Check Motor Type configuration with the CT-Tool.</td>
</tr>
<tr>
<td>Encoder Cable Error</td>
<td>The encoder cable is damaged.</td>
<td>Make sure that the encoder cable is connected.</td>
</tr>
</tbody>
</table>

14.2.8 Lock error

The motor and lock power are disconnected.
LED indication: 5 fast flashes (1,0s), pause (1,0s), etc.

<table>
<thead>
<tr>
<th>CT error code</th>
<th>Reason</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock Failure</td>
<td>The lock or something else was preventing the door from opening the first 14 mm from closed position.</td>
<td>Make sure that the lock is operating without friction. Make sure that HOLD FORCE and LOCK RELEASE are set correctly.</td>
</tr>
</tbody>
</table>

14.2.9 Motor Temperature High

The door is opened and stays open.
LED indication: 1 slow flash (1,8s), pause (0,2s), etc.

<table>
<thead>
<tr>
<th>CT error code</th>
<th>Reason</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Temperature High</td>
<td>The duty cycle of the door is too high for the current speed settings and HOLD OPEN TIME.</td>
<td>If the motor is warm, put the door in PS OPEN and wait for at least 1 minute. Reduce speeds and increase HOLD OPEN TIME.</td>
</tr>
<tr>
<td></td>
<td>The heavy-duty motor is replaced with a normal duty motor.</td>
<td>Put the door in PS OPEN and wait for at least 5 minutes.</td>
</tr>
</tbody>
</table>

Note! This error is not removable by RESET, only by setting the door in programme selection OPEN with the power on.
14.2.10 Non-Critical errors

These errors don't influence the door operation but are logged in the error log, and can only be displayed by means of the CT-Tool.

LED indication: Illuminated

<table>
<thead>
<tr>
<th>CT error code</th>
<th>Reason</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Error</td>
<td>The cable to the CT-Tool was removed before performing DISCONNECT from the CT-Tool.</td>
<td>Connect the CT-Tool and DISCONNECT from the CT-Tool before removing the cable.</td>
</tr>
<tr>
<td>EEPROM Access Error</td>
<td>The EEPROM queue is full.</td>
<td>Too many events to log in the event log. Reduce the number of events to log in the event log configuration.</td>
</tr>
<tr>
<td>EEPROM Non-critical Write Error</td>
<td>The control unit cannot write error log, event log, or service log information to the EEPROM memory.</td>
<td>RESET, and if the problem remains, replace the control unit if it is important to read log information.</td>
</tr>
</tbody>
</table>

14.3 After remedy or replacement the operator has to be checked as follows:

a  Study the door movement and adjust the functions to the values required for a smooth door operation.

b  Check that correct functions and values have been selected for the installed accessories and that the installation complies with valid regulations and requirements from the authorities.

c  Clean the cover and the doors.
15 Maintenance/Service

Regular inspections should be made according to national regulations and product documentation by a Entrematic-trained and qualified technician. The number of service occasions should be in accordance with national requirements and product documentation. This is especially important when the installation concerns a fire-approved door or a door with an emergency opening function.

a Remove dust and dirt from the operator. Dirt on the sliding track should be removed with methylated spirits. If necessary replace the sliding track.

b None of the parts need lubrication.

Note! Note! The force for redundant opening with MEU is created with help of elastic cords. The material for these cords may be slowly degraded if exposed to lubricants.

c The tooth belt must be kept dry and clean. Check the belt tension.

d Check that all nuts and bolts are tightened well.

e Adjust, if necessary, the door leaf speed, the HOLD OPEN TIME and the door leaf position to comply with valid regulations and requirements.

f Check that the function of emergency escape units always is operational.

g If an electromechanical lock, LDP (locked with power) or LDB (bi-stable), is installed check the function as follows:

• Set the programme selector to EXIT. The door should open and close without any sound from the lock.

• Set the programme selector to OFF. Make sure the door can not be opened by pulling the door leaf in the opening direction.

• When the programme selector is set back to EXIT, two clicking sounds (LDB) or one clicking sound (LDP) indicate that the lock is unlocked. The door should then open and close without any sound from the lock.
15.1 Maintenance plan

The table below shows the recommended interval - in months - when to replace parts during preventive maintenance.

<table>
<thead>
<tr>
<th>Part</th>
<th>Part Number</th>
<th>Cycles/hour in operation</th>
<th>Abusive Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low Traffic</td>
<td>Medium Traffic</td>
</tr>
<tr>
<td>Electrical emergency unit battery</td>
<td>33550475</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Mechanical emergency unit elastic cord</td>
<td>331700121</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td><strong>Floor guide shoe</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td>33830064</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td>Felt padded</td>
<td>33831622</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Break-out</td>
<td>830792</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Carriage wheel</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double</td>
<td>331000525</td>
<td>36</td>
<td>24</td>
</tr>
<tr>
<td>Anti-derailing</td>
<td>33550716</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sliding track</td>
<td>33701596</td>
<td>48</td>
<td>36</td>
</tr>
<tr>
<td>Tooth belt</td>
<td>33735251</td>
<td>60</td>
<td>48</td>
</tr>
</tbody>
</table>

Check that all required signage, see page 46, is applied and intact. Also check other consumable parts, such as brushes, door stops and glazing rubbers.
16 Accessories

16.1 Safety accessories

Even though the EMSL T is installed to comply with all applicable safety regulations, it is possible to enhance safety/comfort with the following add-ons (please contact your local Entrematic company for detailed description).

• Combined motion and presence sensors
• Separate presence sensors

16.2 General accessories

Your EMSL T can be further improved with the following add-ons (please contact your local Entrematic company for detailed description).

• Cover
  Made in clear anodized aluminium as standard. Paint finished in RAL colours or anodizing optional.
• Motion and presence sensors, see separate manuals or installation drawings.
• Programme selectors, see page 47 and separate installation drawings 656037 and 656058.
• Electrical locks
  Locked with power, locked without power or bistable lock. See separate installation drawing 656007.
• Manual unlocking device
  For manual unlocking of the electrical lock LD. See separate installation drawing 656017.
• Micro switch kit
  For indication of door and lock position. See separate installation drawing 656006.
• Locked door indicator
  For indication of locked lock and closed door for connection to alarm system. See separate installation drawing 656084.
• Electrical emergency unit with batteries
  Used if a door is required to be closed or opened by means of a rechargeable battery unit and remain in this position in the event of power failure, see page 7. Authorities can demand that the emergency unit is monitored on a regular time basis. Half an hour before this time has elapsed the following opening impulse generates an emergency opening test. If there is no opening impulse within an additional time, specified by the authorities, the operator control unit generates the opening impulse itself.
  If the battery opens the door within the limited time the test is successful and the door resumes the function set by the programme selector.

Note! The test is never performed in programme selector setting OPEN. In setting OFF it can be selected. The test is always performed after a RESET and after changing program selection, from a position where a test is not done to a position where the test is a demand.
• Electrical emergency unit with batteries and two motors

Used if a door is required to be opened by means of a rechargeable battery unit and remain in this position in the event of power failure, see page . Authorities can demand that the emergency unit is monitored on a regular time basis. Half an hour before this time has elapsed the following opening impulse generates an emergency opening test. If there is no opening impulse within half an hour, the operator control unit generates the opening impulse itself.

If the battery opens the door within the limited time the test is successful and the door resumes the function set by the programme selector.

**Note!** The test is never performed in programme selector setting OPEN. In setting OFF it can be selected. The test is always performed after a RESET and after changing program selection, from a position where a test is not done to a position where the test is a demand. See separate installation drawing 1006706.

• Emergency closing with repeated closing

If the door is opened by hand after an electrical emergency closing, it will close again. See separate installation drawing 656006.

• Mechanical emergency unit with elastic cord

Used if a door is required to be opened and remain opened by means of an elastic cord in the event of power failure, see page 7. Authorities can demand that the emergency unit is monitored on a regular time basis. Half an hour before this time has elapsed the following opening impulse generates an emergency opening test. If there is no opening impulse within half an hour, the operator control unit generates the opening impulse itself.

If the elastic cord opens the door within the limited time the test is successful and the door resumes the function set by the programme selector.

**Note!** The test is never performed in programme selector setting OPEN. In setting OFF it can be selected. The test is always performed after a RESET and after changing program selection, from a position where a test is not done to a position where the test is a demand. See separate installation drawings 656008 and 1005454.

• Break-out unit PSB-T

Enables the door/side screens to be broken outwards in case of emergency by applying a defined pressure, see page 7. See separate installation drawing 1003658.

• Interlocking

Used between two operators when the first operator must close before the other one can open (typical to reduce energy losses and not for security reasons). EXU-4 required.

• Convenience battery UPS

Stand-by supply which gives continued operation during short power failure. EXU-3 or EXU-4 required. See separate installation drawing 656056.

• Emergency opening

Opens the door in any programme selector setting (fireman's opening). EXU-4 required.

• External error indication

Obtained if a lamp or a buzzer is connected. EXU-4 required.
• Key switches (flush and/or surface mounted)
  Used to give opening impulse to the door in any programme selector setting. With electrical emergency unit also during power failure.
• Push button
  Used to give opening impulse to the door. See separate installation drawing 656005.
• Synchronization
  Used between the operators of two single sliding doors, working together in very large openings.