Manual for installation and operation
1. Meaning of symbols

Controls and motor unit symbols

- Safety devices
- Door position OPEN
- Intermediate position
- Door position CLOSED
- Maintenance indicator
- Messages specific to the operator system
- Impulse (remote control, external control elements)
- Operation

Caution!

Danger of personal injury!
The following safety advice must be observed at all times so as to avoid personal injury!

Attention!

Danger of material damage!
The following safety advice must be observed at all times so as to avoid material damage!

Advice / Tip

Type plate on Dynamic xs.plus motor unit

Type: ______________________________________________
Art. No.: ___________________________________________
Product No.: _________________________________________

Check

Reference

Type plate on Control x.plus control unit

Type: ______________________________________________
Art. No.: ___________________________________________
Product No.: _________________________________________

Type plate on Dynamic xs.plus motor unit

Type: ______________________________________________
Art. No.: ___________________________________________
Product No.: _________________________________________
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3. General safety advice

Target group
This operator system may only be installed, connected and put into operation by qualified and trained professionals!
Qualified and trained specialist personnel are persons
- who have knowledge of the general and special safety regulations,
- who have knowledge of the relevant electro-technical regulations,
- with training in the use and maintenance of suitable safety equipment,
- who are sufficiently trained and supervised by qualified electricians,
- who are able to recognise the particular hazards involved when working with electricity,
- with knowledge regarding applications of the EN 12635 standard (installation and usage requirements).

Warranty
For an operations and safety warranty, the advice in this instruction manual has to be observed. Disregarding these warnings may lead to personal injury or material damage. If this advice is disregarded, the manufacturer will not be liable for damages that might occur.

Batteries, fuses and bulbs are excluded from warranty.

To avoid installation errors and damage to the door and operator system, it is imperative that the installation instructions are followed. The system may only be used after thoroughly reading the respective mounting and installation instructions.

The installation and operating instructions are to be given to the door system user, who must keep them safe. They contain important advice for operation, checks and maintenance.

This item is produced according to the directives and standards mentioned in the Manufacturer’s Declaration and in the Declaration of Conformity. The product has left the factory in perfect condition with regard to safety.

Power-operated windows, doors and gates must be checked by an expert (and this must be documented) before they are put into operation and thereafter as required, but at least once a year.

Correct use
The operator system is intended exclusively for opening and closing industrial doors. The maximum torque must be observed.

Door requirements
The drive system is suitable for spring-loaded roller shutters.

Beside the advice in these instructions, please observe the general safety and accident prevention regulations! Our sales and supply terms and conditions are effective.
Information on installing the operator system
• Ensure that the door is in good mechanical condition.
• Ensure that the door is balanced.
• Ensure that the door opens and closes properly.
• Ensure that there is a suitable mains connection near the door.
• Remove all unnecessary components from the door (e.g. cables, chains, brackets).
• Render any installations inoperable that will no longer be needed after the operator system has been installed.
• Before commencing cabling works, you MUST disconnect the operator system from the mains supply.
  Adhere to the safety period of 10 seconds to guarantee that the operator system is voltage free.
• Adhere to the local protection regulations.
• Lay the electricity supply cables and control cables; these MUST be laid separately.
• Install the operator system with the door in the CLOSED position.
• Install all the impulse transmitters and control devices (e.g. remote control buttons) within sight of the door and at a safe distance from the moving parts of the door. A minimum installation height of 1.5 m must be observed.
• Permanently fix the warning signs, which advise of the danger of becoming trapped, at conspicuous locations.
• Ensure that no part of the door extends across public footways or roads when the installation is complete.

Information on commissioning the operator system
After initial operation, the persons responsible for operating the door system, or their representatives must be familiarised with the use of the system.
• Make sure that children cannot access the door control unit.
• Before moving the door, make sure that there are neither persons nor objects in the operating range of the door.
• Test all existing emergency command devices.
• Never insert your hands into a running door or moving parts.
• Pay attention to any parts of the door system that could cause crushing or shearing damage or accidents.
  The EN 13241-1 regulations must be observed.

Information on servicing the operator system
To ensure proper operation, the following items must be checked regularly and repaired if necessary. Before any works to the door system are undertaken, the operator system must be disconnected from the mains.
• Check all movable parts of the door and operator system.
• Check the door system for signs of wear or damage.
• Check whether the door can be easily moved by hand.

Information on cleaning the operator system
Never use water jets, high pressure cleaners, acids or bases for cleaning.
4. Product overview

4.1 Dynamic xs.plus supply package

Motor unit

1 Dynamic xs.plus motor unit
2 Chain connecting link (2x)
3 Wing-nut
4 Washer (2x)
5 Nut, width across flats: 13
6 Securing bolt
7 Mounting bracket
8 Fixing materials

Steckwelle

9 Sprocket
10 Feather key (3x)
11 Retaining ring (3x)
12 Drive shaft assembly

Emergency hand chain extension

13 Emergency hand chain 8 m
4. Product overview

Control x.plus control unit

14 Control x.plus control unit
15 Wood screw 4 x 35 (4x)
16 Wall plug (4x)
17 Plastic screw 4 x 10 (4x)
18 Key (2x)
19 Foot for control unit housing (4x)
20 Operating handle
21 Shorting plug
22 Plug for safety circuit 8.2 KΩ

Screw connection set

23 M16 screw fixing for 4-pole flat cable
24 M20 screw fixing for 6-pole flat cable
25 M16 screw fixing for 4 - 6 mm round cable
26 M20 screw fixing for 6 - 9 mm round cable

Cable loom, motor unit - control unit

27 Cable loom, motor unit - control unit
4.2 Dimensions

Dynamic xs.plus with emergency hand crank

Space required for Control x.plus control unit

* Opening side

Control x.plus control unit
5. Preparation for mounting

5.1 General notes

The pictures in these instructions are not true-to-scale. Dimensions are always given in millimetres (mm).

The illustrations in these instructions show the installation on the inner right hand side, for a door with normal fittings.

For correct mounting you will need the following tools:

<table>
<thead>
<tr>
<th>5.1 / 1</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="5.1/1_16.png" alt="Wrench" /></td>
<td><img src="5.1/1_2_2.5.png" alt="Screwdriver" /></td>
<td><img src="5.1/1_2.png" alt="Screwdriver" /></td>
</tr>
<tr>
<td><img src="5.1/1_4.png" alt="L-wrench" /></td>
<td><img src="5.1/1_2_5.png" alt="Pipe wrench" /></td>
<td><img src="5.1/1_2.5.png" alt="Nose pliers" /></td>
<td><img src="5.1/1_2.png" alt="Hammer" /></td>
</tr>
<tr>
<td><img src="5.1/1_4.png" alt="File" /></td>
<td><img src="5.1/1_4.png" alt="Drill bit" /></td>
<td><img src="5.1/1_2.png" alt="Drill bit" /></td>
<td><img src="5.1/1_2.png" alt="Drill bit" /></td>
</tr>
</tbody>
</table>

* Grease
5. Preparation for mounting

5.2 Checks

**Attention!**
In order to guarantee correct mounting, carry out the following checks before installing.

**Supply package**
- Check the package to ensure that all the parts are included.
- Check that you have all the additional components that are necessary for your particular installation requirements.

**Door system**

**Attention!**
The operator system cannot be disengaged from the outside. A separate entrance must be available in order to gain access to the garage in the event of a malfunction.

**Reference:**
The relevant instructions must be observed when mounting the operator at the door.

The door must be properly installed and must have been checked to ensure that it functions correctly.

- Ensure that a suitable mains connection and a mains disconnection facility are available for your door system.
- Determine on which side of the door system the operator system should be mounted.
- Check to ensure that there is sufficient space to mount the operator system.

**Reference:**
When using and installing accessories, always observe the specific instructions included with the equipment.
5. Preparation for mounting

5.3 Cabling layout

Advice:
This is just an example of a cabling layout; the layout can vary according to the type of door and the associated equipment.

Reference:
The relevant installation instructions must be observed when mounting and connecting door sensors, control elements and signalling devices.

A Dynamic xs.plus motor unit
B Control x.plus control unit
C Signalling device (e.g. signal light)
D Mains connection
Useable length:
- 1.8 m (400 V)
- 1.8 m (230 V)
E Mains isolator switch
F Optosensors
G Photocell barrier
H Housing, connection unit
I Cable loom, motor unit - control unit
6. Installation

6.1 Preparing the door

• Secure the door curtain.

6.2 Assembling the motor unit console

Caution!
- To prevent falls, the installation works must be carried out from a safe standing position. A lifting platform or scaffold can be used.
- To avoid injury, the door curtain must be secured for the duration of the installation works to prevent it from rolling off or turning over.

Different types of console (A) can be used depending on the type of gate.

• Screw the motor unit console (A) to the motor unit (B).
6. Installation

6.3 Installing the motor unit at the door

- Fit the sprocket (A) to the drive shaft assembly (B).
- Push the drive shaft assembly (B) into the motor unit (C).
- Secure the drive shaft assembly (A) with the securing ring (D).
- Mount the motor unit on the gate console (E).

Advice:
The connection of the motor unit console (F) to the gate console (E) is dependent on the types of console used (E + F).

6.4 Installing the drive chain

Attention!
To prevent the motor unit from falling, the screws (B) may only be slightly loosened.

- Loosen the screws (B) connecting the motor unit console (A) with the door console (C).
- Push up the console with the motor unit (A) as far as possible.
- Tighten the screws (B) again.
6. Installation

6.4 / 2

- Place the drive chain (D) around the two sprockets (E+F).
- Adjust the length of the drive chain (D).
- Close the drive chain (D).
- Align the motor unit sprocket (E) so that it stands vertically under the door sprocket (F).
- Tighten the two screws at the motor unit sprocket (E).

6.4 / 3

- Loosen the screws (B) connecting the motor unit console (A) with the door console (C).
- Lower the console with the motor unit (A) until the drive chain (D) has adequate tension.
- Tighten the screws (B) again.
6. Installation

6.5 Installing the emergency hand chain

• Pull the emergency hand chain (A) through the entry on the motor unit (B).

Attention!
To ensure that the emergency operation facility functions properly, the following conditions must be ensured:
- The ends of the emergency hand chain must be joined together.
- The edges of the connecting link must be exactly aligned with each other when closed.
- The emergency hand chain should not be twisted.

• Fix the bracket to the wall.
• Fix the securing assembly to the bracket.
• Secure the emergency hand chain.

• Join the ends of the emergency hand chain together with the chain connecting link.
6. Installation

### 6.6 Mounting the Control x.plus control unit

- Mount the Control x.plus control unit on the same side as the motor unit.

#### Creating further cable inlets

It is only necessary to create further cable inlets if additional systems are to be connected to the control unit.

- Using a step drill, open up the corresponding cable inlet.
- Close the inlet using the corresponding screw fitting.
7. Initial operation

7.1 Cabling for the drive system

Attention!
To ensure that the system functions properly, the plugs of the motor cable loom (A) must be inserted in the designated sockets in the motor unit (B) and in the control unit (C).

7.2 Motor unit cabling

7.2.1 Preparation

Caution!
Danger of electric shock:
Before cabling works commence, a check must be carried out to ensure that the cables are at zero voltage. Measures must be taken to ensure that the cables remain dead for the duration of the works (e.g. prevent the power supply from being switched back on).

Attention!
- To avoid damage, it is essential that the following points be observed:
  - The local protection regulations are to be complied with at all times.
  - The mains cables and control cables MUST be laid separately.
  - To maintain the specified protection category of the operating system, the cables must be fitted with the correct gaskets.

Reference:
The motor unit cabling is described in Section 7.2. The control unit cabling is described in Section 7.3.

<table>
<thead>
<tr>
<th>Motor unit</th>
<th>Connection</th>
<th>Control unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>XB40 (white plug)</td>
<td>&lt;---&gt;</td>
<td>XB40 (white plug)</td>
</tr>
<tr>
<td>XP10 (blue plug)</td>
<td>&lt;---&gt;</td>
<td>XP10A (blue plug)</td>
</tr>
</tbody>
</table>

- Loosen the screws on the housing cover.
- Remove the housing cover.
7. Initial operation

Control unit
Control x.base single-phase model

<table>
<thead>
<tr>
<th>Label</th>
<th>Type / function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Positioning box (EPM)</td>
</tr>
<tr>
<td>B</td>
<td>EPM stand-by mode indicator (LED off)</td>
</tr>
<tr>
<td>C</td>
<td>Operating indicator (EPM)</td>
</tr>
<tr>
<td>D</td>
<td>PE connection</td>
</tr>
</tbody>
</table>

| HQ10  | Operating voltage indicator for operator system      |
|       | 7.4 / 1                                              |
| XB40  | Connection of Control x.plus control unit            |
|       | 7.2.2                                                |
| XH19  | Connection of signalling device                      |
|       | Programmable relay output                           |
|       | 7.2.4                                                |
|       | 9.4                                                 |
| XM81  | Connection of motor                                  |
|       | 7.4                                                 |
| XN81  | Connection of mains cable                           |
|       | 7.4                                                 |
| XP10  | For connection of door sensors (safety circuit SC)   |
|       | 7.2.3                                                |

EPM: Electronic Positioning Module
7. Initial operation

7.2.1 / 3

Control unit
Control x.base 3-phase model

<table>
<thead>
<tr>
<th>Label</th>
<th>Type / function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Positioning box (EPM)</td>
</tr>
<tr>
<td>B</td>
<td>EPM stand-by mode indicator (LED off)</td>
</tr>
<tr>
<td>C</td>
<td>Operating indicator (EPM)</td>
</tr>
<tr>
<td>D</td>
<td>PE connection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HQ10</th>
<th>Operating voltage indicator for operator system</th>
</tr>
</thead>
<tbody>
<tr>
<td>XB40</td>
<td>Connection of Control x.plus control unit</td>
</tr>
<tr>
<td>XH19</td>
<td>Connection of signalling devices Programmable relay output</td>
</tr>
<tr>
<td>XM81A</td>
<td>Connection of motor</td>
</tr>
<tr>
<td>XM81B</td>
<td>Connection of motor, delta mode</td>
</tr>
<tr>
<td>XM89</td>
<td>Connection of brake</td>
</tr>
<tr>
<td>XN84</td>
<td>Connection of external transformer</td>
</tr>
<tr>
<td>XN81</td>
<td>Connection of mains cable</td>
</tr>
<tr>
<td>XP10</td>
<td>For connection of door sensors (safety circuit SC)</td>
</tr>
</tbody>
</table>

EPM: Electronic Positioning Module

XN84: Supplied from factory with shorting jumper. If this terminal is used, the shorting jumper must be removed.
7. Initial operation

7.2.2 Connection of Control x.plus control unit (XB40)

• Insert the plug of the cable loom into terminal XB40 (white plug).

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Configuration (12 leads)</th>
<th>Configuration (6 leads)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B4</td>
<td>Blue lead</td>
<td>White lead</td>
</tr>
<tr>
<td>b</td>
<td>Red lead</td>
<td>Brown lead</td>
</tr>
<tr>
<td>c</td>
<td>Black lead</td>
<td>Green lead</td>
</tr>
<tr>
<td>d</td>
<td>Violet lead</td>
<td>Yellow lead</td>
</tr>
<tr>
<td>e</td>
<td>Grey/pink lead</td>
<td>Grey lead</td>
</tr>
<tr>
<td>f</td>
<td>Red/blue lead</td>
<td>Pink lead</td>
</tr>
</tbody>
</table>

7.2.3 Connecting safety devices (XP10)

• Insert the plug of the cable loom into terminal XP10 (blue plug).

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>White lead</td>
</tr>
<tr>
<td>b</td>
<td>Brown lead</td>
</tr>
<tr>
<td>c</td>
<td>Green lead</td>
</tr>
<tr>
<td>d</td>
<td>Yellow lead</td>
</tr>
<tr>
<td>e</td>
<td>Grey lead</td>
</tr>
<tr>
<td>f</td>
<td>Pink lead</td>
</tr>
</tbody>
</table>

All connected and operational safety devices are recognised automatically.

Advice:
A defective or removed safety device must be deactivated.

Reference:
Safety devices are deactivated in the Reset menu (Section 9.4 / Level 1 / Menu 8).
7. Initial operation

7.2.4 Connection of signal device

Signal lights are not included in the operator system supply package.

Attention!
To avoid damage being caused to the circuit board, the contact loading (max. 230 V / 2 A) must be observed.

- Insert the plug of the devices to be connected into socket XH19.

Connection for signal light:

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type / function</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH94</td>
<td>Signal light supplied by customer</td>
</tr>
<tr>
<td>XH19</td>
<td>Connection of signalling device</td>
</tr>
</tbody>
</table>
7. Initial operation

7.3 Cabling for the Control x.plus control unit

7.3.1 Preparation

Attention!
- To avoid damage to the cabling, care must be taken not to trap the cables when closing the cover.
- To maintain the specified protection category of the operator system:
  - the inlet openings must be fitted with suitable cable gaskets,
  - the cables must lie correctly in the cable inlets.

Caution!
Danger of electric shock:
Before cabling works commence, a check must be carried out to ensure that the cables are at zero voltage. Measures must be taken to ensure that the cables remain dead for the duration of the works (e.g. prevent the power supply from being switched back on).

Attention!
- To avoid damage to the cabling, care must be taken not to trap the cables when closing the cover.
- To maintain the specified protection category of the operator system:
  - the inlet openings must be fitted with suitable cable gaskets,
  - the cables must lie correctly in the cable inlets.

- Place the housing cover on the motor unit.
- Screw the housing cover to the motor unit.
7. Initial operation

7.3.2 Terminal board, Control x.plus control unit

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type / function</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB59</td>
<td>Programming switch (ON/OFF)</td>
<td>7.8.1/9.1</td>
</tr>
<tr>
<td>XB11</td>
<td>For connection of command device</td>
<td>–</td>
</tr>
<tr>
<td>XB40</td>
<td>For connection of Control x.plus control unit</td>
<td>7.3.2/5</td>
</tr>
<tr>
<td>XB41</td>
<td>For connection of expansion modules</td>
<td>–</td>
</tr>
<tr>
<td>XB42</td>
<td>For connection of remote transceiver module</td>
<td>–</td>
</tr>
<tr>
<td>XB43</td>
<td>For connection of MDS module</td>
<td>–</td>
</tr>
<tr>
<td>XB50</td>
<td>For connection of external control elements</td>
<td>7.3.2/2</td>
</tr>
<tr>
<td>XB53</td>
<td>For connection for closing prevention device</td>
<td>7.3.2/3</td>
</tr>
<tr>
<td>XB90</td>
<td>For connection of programmable impulse input</td>
<td>7.3.2/4</td>
</tr>
</tbody>
</table>

Advice:
The screws need not be removed in order to open the housing cover.

- Loosen all 4 screws on the housing cover.
- Swivel all four screws away from the cover.
- Open the housing cover out to one side.
7. Initial operation

MDS  Marantec Diagnostic System

XB50  Supplied with shorting jumper in place.
      If the STOP terminal is used, the shorting jumper
      must be removed.

XB11  If terminal XB11 is used, the shorting plug must
      be removed.

Advice:
Programming can be disabled with
switch SB59.
ON     Programming enabled
OFF    Programming disabled

Connection of external control elements (XB50)

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type / function</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB3</td>
<td>Operating button for intermediate position OPEN</td>
</tr>
<tr>
<td>SB5</td>
<td>Operating button for STOP</td>
</tr>
<tr>
<td>SB6</td>
<td>Operating button for OPEN</td>
</tr>
<tr>
<td>SB7</td>
<td>Operating button for CLOSE</td>
</tr>
</tbody>
</table>

Advice:
- To enable the “automatic closing timer” function to be programmed,
  one of the following two elements must be connected:
  - a closing prevention device at terminal XB53, or
  - a photocell barrier at terminal XP62A/B.
  - If a closing prevention device is connected, it will be recognised when
    the mains supply is switched on.
  - A device that is faulty or has been removed must be deactivated.

Reference:
Safety devices and closing protection devices are deactivated in the Reset menu (Section 9.4 / Level 1 / Menu 8).

Connection for closing prevention device (XB53)

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type / function</th>
</tr>
</thead>
<tbody>
<tr>
<td>24V</td>
<td>+ 24 V DC</td>
</tr>
<tr>
<td>-</td>
<td>GND</td>
</tr>
<tr>
<td>SB34</td>
<td>Potential-free normally closed contact for closing prevention device</td>
</tr>
</tbody>
</table>

Advice:
- To enable the “automatic closing timer” function to be programmed,
  one of the following two elements must be connected:
  - a closing prevention device at terminal XB53, or
  - a photocell barrier at terminal XP62A/B.
  - If a closing prevention device is connected, it will be recognised when
    the mains supply is switched on.
  - A device that is faulty or has been removed must be deactivated.
7. Initial operation

For connection of programmable impulse input (XB90)

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type / function</th>
<th>9.4 / Level 5 / Menu 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB8</td>
<td>Impulse button (programmable)</td>
<td></td>
</tr>
</tbody>
</table>

For connection of Dynamic xs.plus motor unit (XB40)

- Insert the plug of the cable loom into the socket XB40 (white plug).
- Insert the 8.2 KΩ plug in the XP10B socket.
7. Initial operation

7.3.3 Terminal board for safety device

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type / function</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP10A</td>
<td>For connection of Control x.plus control unit</td>
<td>7.3.3 / 2</td>
</tr>
<tr>
<td>XP10B</td>
<td>For connection of door sensors / Plug (safety circuit SC)</td>
<td>–</td>
</tr>
<tr>
<td>XP27</td>
<td>For connection of photocell expander circuit board</td>
<td>–</td>
</tr>
<tr>
<td>XP41</td>
<td>For connection of safety circuit, SC</td>
<td>–</td>
</tr>
<tr>
<td>XP62A</td>
<td>For connection of first photocell (2-wire design)</td>
<td>7.3.3 / 3</td>
</tr>
<tr>
<td>XP62B</td>
<td>For connection of second photocell (2-wire design)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(only with photocell expander circuit board)</td>
<td></td>
</tr>
</tbody>
</table>

XP27 The unit is delivered with the jumper in the position shown.

XP41 Delivered with the shorting jumper in place. If this terminal is used, the shorting jumper must be removed.

Connecting the cable of the safety devices (XP10A)

- Insert the plug of the cable loom into socket XP10A (blue plug).

All connected and operational safety devices are recognised automatically.

Advice: A defective or removed safety device must be deactivated.

Reference: Safety devices are deactivated in the Reset menu (Section 9.4 / Level 1 / Menu 8).
7. Initial operation

For connection of photocell (XP62A)

For the connection of further systems it may be necessary to extend the number of cable inlets in the control unit.

Reference:
Increasing the number of the cable inlets is described in Section 6.8.

Attention!
- To avoid damage to the cabling, care must be taken not to trap the cables when closing the cover.
- To maintain the specified protection category of the operator system - the inlet openings must be fitted with suitable cable gaskets,
- the cables must lie correctly in the inlets.

- Close the housing cover.
- Swivel all four screws into place above the housing cover.
- Screw the housing cover tight.
7. Initial operation

7.4 Connecting the power supply

**Caution!**
Danger of electric shock: Before cabling works commence, a check must be carried out to ensure that the cables are at zero voltage. Measures must be taken to ensure that the cables remain dead for the duration of the works (e.g. prevent the power supply from being switched back on).

**Attention!**
To guarantee correct operation of the operator system,
- the system must be connected to a technically sound power supply network that is protected with a 16 A fuse;
- the voltage and frequency must correspond to those specified on the identification plate of the operator;
- for the 3-phase motor model, a clockwise rotating field must be provided right up to the connection of the controls;
- if fixed cabling is used, an all-pole main switch must be used.

• Connect the mains plug of the operator system to an available mains socket near the door.

**Advice:**
For an unprogrammed control unit (first time installation), the start display for express programming is shown.

**Reference:**
Express programming is described in Section 7.8.

**Check:**
When the controls are supplied by the mains voltage, the indicator HQ10 should light up green.

**Advice:**
A fixed connection must be made if a higher protection category is required on site than can be provided by a mains plug connection. The motor unit must conform to the requirements of the protection category.
7. Initial operation

7.4.1 1N~, 230 V connection

Terminal block XN81 is pre-cabled when delivered. The leads at terminal block XN81 need only be changed if the plug-in connection is replaced or if the controls are to be connected directly to the power supply network (fixed cabling).

- Open the operator control.

- Connect the leads to terminal block XN81.

- Close the control unit.

Attention!
- To avoid damage to the cabling, care must be taken not to trap the cables when closing the cover.
- To maintain the specified protection category of the operator system - the inlet openings must be fitted with suitable cable gaskets,
- the cables must lie correctly in the inlets.

Connect the PE (protective earth) lead (A) of the power supply network to the PE connection (B) of the motor unit.

Check to ensure that the leads are screwed tightly in place.
7. Initial operation

7.4.2 3N−, 400 V connection

Terminal block XN81 is pre-cabled when delivered. The leads at terminal block XN81 need only be changed if the plug-in connection is replaced or if the controls are to be connected directly to the power supply network (fixed cabling).

- Open the operator control.

- Connect the leads to terminal block XN81.

- Connect the PE (protective earth) lead (A) of the power supply network to the PE connection (B) of the motor unit.

- Check to ensure that the leads are screwed tightly in place.

Attention!
- To avoid damage to the cabling, care must be taken not to trap the cables when closing the cover.
- To maintain the specified protection category of the operator system:
  - the inlet openings must be fitted with suitable cable gaskets,
  - the cables must lie correctly in the inlets.

- Close the control unit.
7. Initial operation

7.4.3 3~, 230 V connection

Attention!
To avoid damage to the motor unit, the cabling may only be changed if a 3-phase AC power supply with a phase voltage of 230 V is available on site.

The star connection (400 V) of the motor unit can be changed to a delta connection (230 V) by rearranging the leads.

1. Open the operator control.
2. Connect the three phases to terminal block XN81.
3. Place a wire jumper between terminal L3 and terminal N.
4. Cut off the crimp sleeve (C).
5. Connect the PE (protective earth) lead (A) of the power supply network to the PE connection (B) of the motor unit.
6. Check to ensure that the leads are screwed tightly in place.
7. Initial operation

- Strip the casing from the ends of the leads.
- Insert the leads in terminal block XM81B.

**Attention!**
To guarantee correct operation, the order of the coloured leads at terminal block XM81B must be the same as the order of the coloured leads connected to terminal block XM81A.

- Close the control unit.

**Attention!**
- To avoid damage to the cabling, care must be taken not to trap the cables when closing the cover.
- To maintain the specified protection category of the operator system, the inlet openings must be fitted with suitable cable gaskets.
- The cables must lie correctly in the inlets.
7. Initial operation

7.5 Check the rotational direction

**Attention!**
Before the OPEN and CLOSED door positions have been set, the door can be moved electrically beyond these door positions, which could lead to the door being damaged. In order to check that the operation is correct for the 3-phase version, a clockwise rotating field must be provided right up to the connection of the controls.

**Reference:**
The connection of the mains supply is described in Section 7.4. The emergency operation is described in Section 8.2.

- Using the emergency operation facility, move the door approx. 50 cm from its mechanical end position.

**The door moves in the OPEN direction.**
The rotational direction is correct.

- Press the OPEN button on the control unit.

**The door moves in the CLOSE direction.**
The lead arrangement at the motor connection must be altered.

**Caution!**
Danger of electric shock: Before cabling works commence, a check must be carried out to ensure that the cables are at zero voltage. Measures must be taken to ensure that the cables remain dead for the duration of the works (e.g. prevent the power supply from being switched back on).

- Open the operator control.

**1N~, 230 V connection**

- At the motor connection (XM81), swap lead (U1) with lead (Z1).
### 7. Initial operation

#### 7.5 Manual for installation and operation, Dynamic xs.plus GB (#83938)

#### 7.6 Overview of the Control x.plus control unit

### 3N~, 400 V connection

- At the motor connection (XM81A), swap lead (U1) with lead (W1).

### 3~, 230 V connection

- At the motor connection (XM81A) swap lead (U1) with lead (W1).
- At the motor connection (XM81B) swap lead (U2) with lead (W2).

#### Operating elements

<table>
<thead>
<tr>
<th>Label</th>
<th>Type / function</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Carousel display</td>
<td>7.7</td>
</tr>
<tr>
<td>B</td>
<td>OPEN button (+) (e.g. to drive the door to the OPEN position or to increase parameters in the programming mode)</td>
<td>-</td>
</tr>
<tr>
<td>C</td>
<td>CLOSE button (-) (e.g. to drive the door to the CLOSED position or to decrease parameters in the programming mode)</td>
<td>-</td>
</tr>
<tr>
<td>D</td>
<td>STOP button (P) (e.g. to switch to programming mode or to save parameters)</td>
<td>-</td>
</tr>
<tr>
<td>E</td>
<td>Intermediate OPEN button (e.g. to drive the door to the intermediate OPEN position, or to close the door from the intermediate OPEN position)</td>
<td>-</td>
</tr>
</tbody>
</table>
| F     | Key switch  
  0 = Locked  
  I = Control x.plus control unit ready for operation  
  II = Keypad on cover disabled | - |
7. Initial operation

7.7 Overview of the display functions

### LED displays in operating mode

<table>
<thead>
<tr>
<th>Status of safety devices</th>
<th>Safety circuit, motor unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door in position: OPEN</td>
<td>Command unit activated</td>
</tr>
<tr>
<td>The door moves in the OPEN direction. or Start-up warning is active</td>
<td>Remote control activated</td>
</tr>
<tr>
<td>Intermediate OPEN position</td>
<td>Ready for operation</td>
</tr>
<tr>
<td>Intermediate CLOSE position</td>
<td></td>
</tr>
<tr>
<td>Door in intermediate position</td>
<td></td>
</tr>
<tr>
<td>Door in door CLOSED position</td>
<td></td>
</tr>
<tr>
<td>The door moves in the CLOSE direction or Start-up warning or warning period is active</td>
<td></td>
</tr>
<tr>
<td>Reference point (flashes as the reference point is passed)</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**

<table>
<thead>
<tr>
<th>LED off</th>
<th>LED on</th>
<th>LED flashes slowly</th>
<th>LED pulses</th>
<th>LED flashes quickly</th>
<th>Factory default setting</th>
<th>Not possible</th>
</tr>
</thead>
</table>

**Example:**
The door is at the OPEN position. It starts to move towards the CLOSED position as soon as the warning period / start-up warning expires.
7. Initial operation

7.8 Express programming

7.8.1 General notes on express programming

Advice:
For proper initial operation of the operator system, the express programming procedure must be carried out. This applies for initial operation and after a reset.

The basic functions of the operator system are set during the express programming procedure.
- Door OPEN position
- Door CLOSED position
- Remote control

The programming procedure is a consecutive process. It is essential that this procedure be carried out.

Preconditions
The following conditions must be assured before express programming can commence:
- The door must be in the CLOSED end position.
- The rotational direction is set correctly.
- The programming switch SB59 is set to ON.

Advice:
- For proper initial operation of the operator system, the express programming procedure must be carried out. This applies for initial operation and after a reset.
- Changing the rotational direction is described in Section 7.5.

Fine adjustment
Fine adjustments are made by pressing the OPEN or CLOSE button for a short time (< 0.5 seconds). The door position adjusts itself by 2 to 7 mm (depending on the type of door fitting) each time a button is pressed in this way. The operator system does not actually move the door during this setting operation.

Advice:
If the OPEN button is pressed, LED 1 lights up. If the CLOSE button is pressed, LED 4 lights up. A maximum of 15 impulses in the OPEN direction and 15 impulses in the CLOSE direction can be given without the door being moved.

7.8.2 Programming buttons

The controls are programmed using the OPEN (+), CLOSE (-) and STOP (P) buttons.
If no buttons are pressed within 120 seconds while in programming mode, the controls revert to operating mode.
A corresponding message is displayed.

Reference:
The messages are explained in Section 10.

Advice:
The operator system is already in express programming mode when set in operation for the first time.

Starting the express programming

Advice:
The operator system is already in express programming mode when set in operation for the first time.

- Turn the key to the “0” position.
- Press the STOP button and keep it pressed.
- Switch the key from position “0” to position “1” within 4 seconds and then release the STOP button.
- Carry out the express programming according to the following procedure.

Legend:

<table>
<thead>
<tr>
<th>LED off</th>
<th>○</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED on</td>
<td>●</td>
</tr>
<tr>
<td>LED flashes slowly</td>
<td>☀</td>
</tr>
<tr>
<td>LED pulses</td>
<td>⋄</td>
</tr>
<tr>
<td>LED flashes quickly</td>
<td>⋄</td>
</tr>
<tr>
<td>Factory default setting</td>
<td>☐</td>
</tr>
<tr>
<td>Not possible</td>
<td>–</td>
</tr>
</tbody>
</table>
7. Initial operation

7.8.3 Express programming sequence

1. **<4s**
   - Start express programming / Programme the door OPEN end position

2. **Drive the door to the OPEN position**

3. **Correct the OPEN door position using (+) and (–)**

4. **1x <1s**
   - Save the OPEN door position / Programme the CLOSED door position

5. **Drive the door to the CLOSED position**

6. **Correct the CLOSED door position using (+) and (–)**

7. **1x <1s**
   - Save the CLOSED door position / Programme the remote control

8. **Press the hand transmitter button**

9. **Release the hand transmitter button**

10. **1x <1s**
    - Save the remote control settings / End the express programming procedure
7. Initial operation

7.9 Check the system

Learning run
- Use the operator system (with the door coupled) to drive the door once from the CLOSED position to the OPEN position and back to the CLOSED position without interruption.

During this learning run, the drive system determines the maximum push and pull forces and the power required to move the door.

Before completing the installation, the following must be checked to ensure that they function properly and that the settings are correct:

Door position

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>![Image] After pressing the (+) button: The door must open and travel to the saved OPEN end position.</td>
</tr>
<tr>
<td>2.</td>
<td>![Image] After pressing the (-) button: The door must close and travel to the saved CLOSED end position.</td>
</tr>
<tr>
<td>3.</td>
<td>![Image] After pressing the button on the hand transmitter: The operator system should move the door towards the OPEN position. If the door is in the OPEN position, it closes.</td>
</tr>
</tbody>
</table>

Door sensors
- Cause each door sensor in turn to respond.

Signal device
- Check that the signal device functions correctly.

Emergency operation

Reference: The emergency operation facility is described in Section 8.2.
- Check that the emergency operation facility functions properly.

Check:
Check the door sensors with reference to the corresponding operating instructions. LED 1 lights up when a safety device is activated.
8. Operation

8.1 Standard operation

Drive the door in the OPEN direction

- Press the OPEN button on the Control x.plus control unit.

The door stops automatically when it reaches the door OPEN position.

Advice:
The door can only be moved electrically if the emergency hand chain (A) is lying on top of the switch (B), pressing it down.

Drive the door in the CLOSE direction

- Press the CLOSE button on the Control x.plus control unit.

The door stops automatically when it reaches the door CLOSED position.

- Turn the key on the Control x.plus control unit to Position 1.
8. Operation

8.2 Emergency operation

**Caution!**
To avoid injury:
- Emergency operation may only be carried out from a safe standing position.
- The motor unit must be at zero voltage, i.e. disconnected from the power supply.

In the case of an electrical fault, the door can be moved in the OPEN or CLOSE directions using the emergency operation facility.

- Release the emergency hand chain from the securing assembly.
- Place the emergency hand chain (A) on the guide wheel (B).
- Remove the emergency hand chain (A) from the guide wheel (B).
- Place the emergency hand chain (A) on the switch (C).
- Secure the emergency hand chain with the securing assembly after use.

**Advice:**
The door can only be moved electrically if the emergency hand chain (A) is lying on the switch (C), pressing it down.
9. Extended operator functions

9.1 General notes on extended operator functions

Additional functions can be programmed for the operator system using the extended functions.

**Caution!**
Important factory default settings can be changed using the extended functions.
All the parameters must be set correctly to avoid damage to persons or property.

**Advice:**
To enable the programming procedure to be carried out, the programming switch SB59 must be set to ON.

**Start programming**
Before programming the extended operator functions, the key switch must be set to position “2”.

- Press the STOP button and keep it pressed.
- Switch the key switch from position “2” to position “1” within 4 seconds and then release the STOP button.

The programming facility is divided into three areas:

**Area 1: Levels**
The adjustable functions have been grouped in 8 levels according to the type of function.
Each level can have up to 8 menus.
The (+) and (-) buttons are used to scroll through the selections within the levels.
Levels that are not used are displayed but cannot be opened.
Levels-Exit switches from programming to operating mode.

**Area 2: Menu**
Each menu sets one parameter.
The (+) and (-) buttons are used to scroll through the settings within the menus.
Menus that are not in use are skipped over and are not displayed.
You can return to the first level via Menu-Exit.

**Area 3: Parameters**
Each function has a maximum of 16 settings.
The (+) and (-) buttons are used to scroll through the settings for the adjustable parameters.
Parameters that cannot be adjusted are skipped over and not displayed.
It is not possible to overshoot by pressing the (+) and (-) buttons.
Pressing the (P) button saves the parameters you have set.

**End Programming**
The programming session can be ended in two ways:
1. Via Levels-Exit, by pressing the STOP button (P). The controls then switch to operating mode.
2. By pressing the STOP button for longer than 5 seconds at any time and from any area.
The controls then switch to operating mode.
If a parameter had been changed, it will be saved in the process.

When the programming session ends, all the LEDs light up and then go out one after the other, in sequence from 8 to 1.

If no buttons are pressed within 120 seconds while in programming mode, the controls revert to operating mode.
A corresponding message is displayed.

**Reference:**
- All the available levels and menus are described in the overview of the programmable functions (Section 9.3).
- The messages are explained in Section 10.
9. Extended operator functions

9.2 Programming structure for extended operator functions
(Example for Level 2, Menu 2)
9. Extended operator functions

9.3 General overview of the programmable functions

<table>
<thead>
<tr>
<th>Level</th>
<th>Menu</th>
<th>Factory default setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1 – Basic functions</strong></td>
<td>Menu 3: Intermediate position OPEN</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Menu 4: Intermediate position CLOSE</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Menu 7: Relay output</td>
<td>Signal light</td>
</tr>
<tr>
<td></td>
<td>Menu 8: RESET</td>
<td>No reset</td>
</tr>
<tr>
<td><strong>Level 2 – Operator settings</strong></td>
<td>Menu 1: Required driving power OPEN</td>
<td>Setting 14</td>
</tr>
<tr>
<td></td>
<td>Menu 2: Required driving power CLOSE</td>
<td>Setting 14</td>
</tr>
<tr>
<td></td>
<td>Menu 3: Automatic cut-out OPEN</td>
<td>Setting 9</td>
</tr>
<tr>
<td></td>
<td>Menu 4: Automatic cut-out CLOSE</td>
<td>Setting 9</td>
</tr>
<tr>
<td><strong>Level 3 – Automatic closing timer</strong></td>
<td>Menu 1: Automatic closing timer</td>
<td>Deactivated</td>
</tr>
<tr>
<td></td>
<td>Menu 5: Start-up warning</td>
<td>Off</td>
</tr>
<tr>
<td></td>
<td>Menu 7: Signal light</td>
<td>Door movement / Warning: flashes Door stoppage: lights up</td>
</tr>
<tr>
<td><strong>Level 4 – Remote programming</strong></td>
<td>Menu 2: Intermediate position OPEN</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Menu 3: Intermediate position CLOSE</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Menu 4: OPEN</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Menu 5: CLOSE</td>
<td>–</td>
</tr>
<tr>
<td><strong>Level 5 – Special function</strong></td>
<td>Menu 1: Programmable impulse input</td>
<td>Impulse</td>
</tr>
<tr>
<td><strong>Level 7 - Servicing and maintenance</strong></td>
<td>Menu 1: Door cycle counter</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Menu 2: Maintenance counter</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Menu 3: Set the maintenance interval</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>Menu 8: Reset servicing and maintenance</td>
<td>No reset</td>
</tr>
</tbody>
</table>
## 9. Extended operator functions

<table>
<thead>
<tr>
<th>Level</th>
<th>Menu</th>
<th>Factory default setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 8 – System settings</td>
<td>Menu 1: Photocell</td>
<td>Door reverses completely (OPEN/CLOSE)</td>
</tr>
<tr>
<td></td>
<td>Menu 2: Closing edge safety device</td>
<td>Door reverses a little (OPEN/CLOSE)</td>
</tr>
<tr>
<td></td>
<td>Menu 3: Automatic cut-out</td>
<td>Door stops (OPEN)  Door reverses a little (CLOSE)</td>
</tr>
<tr>
<td></td>
<td>Menu 4: Operating modes</td>
<td>Press-and-release (OPEN/CLOSE)</td>
</tr>
<tr>
<td></td>
<td>Menu 5: Function of the direction command transmitters</td>
<td>STOP only</td>
</tr>
<tr>
<td></td>
<td>Menu 6: Function of the impulse command transmitters</td>
<td>STOP only, followed by standard sequence</td>
</tr>
</tbody>
</table>

**Legend:**

<table>
<thead>
<tr>
<th>LED Off</th>
<th>LED on</th>
<th>LED flashes slowly</th>
<th>LED pulses</th>
<th>LED flashes quickly</th>
<th>Factory default setting</th>
<th>Not possible</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="LED Off" /></td>
<td><img src="image" alt="LED on" /></td>
<td><img src="image" alt="LED flashes slowly" /></td>
<td><img src="image" alt="LED pulses" /></td>
<td><img src="image" alt="LED flashes quickly" /></td>
<td><img src="image" alt="Factory default setting" /></td>
<td><img src="image" alt="Not possible" /></td>
</tr>
</tbody>
</table>
9. Extended operator functions

9.4 Functions overview for the levels

**Attention!** After a reset, all the parameters revert to the factory settings.
In order to ensure that the controls operate properly:
- all the required functions must be re-programmed,
- the drive system must be driven once to the OPEN and CLOSED door positions.

### Level 1 – Basic functions

<table>
<thead>
<tr>
<th>Menu 3: Intermediate position OPEN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Set using the (+ / OPEN) and (- / CLOSE) buttons</td>
<td></td>
</tr>
<tr>
<td>“Intermediate position OPEN” – closing function is possible with automatic closing timer</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu 4: Intermediate position CLOSE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Set using the (+ / OPEN) and (- / CLOSE) buttons</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu 7: Relay output</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A7 Signal light</td>
<td></td>
</tr>
<tr>
<td>B7 Door position OPEN</td>
<td></td>
</tr>
<tr>
<td>C7 Door CLOSED position</td>
<td></td>
</tr>
<tr>
<td>D7 Intermediate position OPEN</td>
<td></td>
</tr>
<tr>
<td>E7 Intermediate position CLOSED</td>
<td></td>
</tr>
<tr>
<td>F7 Motor starts (wiping impulse – 1 second)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu 8: RESET</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A8 No reset</td>
<td></td>
</tr>
<tr>
<td>B8 Reset control unit *</td>
<td></td>
</tr>
<tr>
<td>C8 Reset remote control</td>
<td></td>
</tr>
<tr>
<td>D8 Reset extension module, automatic closing timer / two-way traffic control</td>
<td></td>
</tr>
<tr>
<td>E8 Reset extended operator functions only (except door OPEN/CLOSED positions and remote control impulse) *</td>
<td></td>
</tr>
<tr>
<td>F8 Reset safety devices *</td>
<td></td>
</tr>
</tbody>
</table>

* All connected and operational safety devices are recognised automatically after resetting.

Reference:
The function of the signal light (A7) can be adjusted in level 3, menu 7.
9. Extended operator functions

Level 2 – Operator settings

Menu 1: Required driving power OPEN (sensitivity in increments*)

Menu 2: Required driving power CLOSE (sensitivity in increments*)

Menu 3: Automatic cut-out OPEN (sensitivity in increments**)

Menu 4: Automatic cut-out CLOSE (sensitivity in increments**)

* The higher the setting, the higher the driving power.

** The lower the setting, the more sensitive the automatic cut-out.

Caution!
To exclude any risk of injury, the automatic cut-out (Menus 3 and 4) may only be switched to OFF if a photocell barrier or closing edge safety device is installed.
9. Extended operator functions

### Level 3 - Automatic closing timer

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Menu 1: Automatic closing timer

- A1
- B1
- C1
- D1
- E1
- F1
- G1
- H1
-  – 
-  – 
-  – 
-  – 
-  – 
-  – 
-  – 
-  – 

#### Menu 5: Start-up warning (in seconds)

- OFF
- 1
- 2
- 3
- 4
- 5
- 6
- 7
-  – 
-  – 
-  – 
-  – 
-  – 
-  – 
-  – 
-  – 

#### Menu 7: Signal light

- A7
- B7
- C7
- D7
- E7
- F7
-  – 
-  – 
-  – 
-  – 
-  – 
-  – 
-  – 
-  – 

### Advice:
- The automatic closing timer can only be programmed if a photocell barrier is connected.
- The functions in Menu 1 can be altered as desired via the time settings in Menu 5.

### Legend:
- LED off
- LED on
- LED flashes slowly
- LED pulses
- LED flashes quickly
- Factory default setting
- Not possible
9. Extended operator functions

Menu 1: Automatic closing timer

<table>
<thead>
<tr>
<th>Setting</th>
<th>Door open duration</th>
<th>Warning time</th>
<th>Automatic closing timer</th>
<th>other functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>-</td>
<td>-</td>
<td>deactivated</td>
<td>-</td>
</tr>
<tr>
<td>B1</td>
<td>15</td>
<td>5</td>
<td>activated</td>
<td>Renewal (restart) of the door open duration after the photocell barrier has been driven past</td>
</tr>
<tr>
<td>C1</td>
<td>30</td>
<td>5</td>
<td>activated</td>
<td></td>
</tr>
<tr>
<td>D1</td>
<td>60</td>
<td>8</td>
<td>activated</td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>15</td>
<td>5</td>
<td>activated</td>
<td></td>
</tr>
<tr>
<td>F1</td>
<td>30</td>
<td>5</td>
<td>activated</td>
<td>Interruption of the door open duration after the photocell barrier has been driven past</td>
</tr>
<tr>
<td>G1</td>
<td>60</td>
<td>8</td>
<td>activated</td>
<td></td>
</tr>
<tr>
<td>H1</td>
<td>unlimited</td>
<td>3</td>
<td>activated</td>
<td>Closes after the photocell barrier has been driven past / closing prevention</td>
</tr>
</tbody>
</table>

Advice:
Without a connected photocell or closing prevention device, only parameter A1 can be adjusted.

Menu 7: Signal light

<table>
<thead>
<tr>
<th>Setting</th>
<th>Door movement / Warning</th>
<th>Door stoppage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A7</td>
<td>flashing</td>
<td>OFF (Electricity saving)</td>
</tr>
<tr>
<td>B7</td>
<td>lighting</td>
<td>OFF (Electricity saving)</td>
</tr>
<tr>
<td>C7</td>
<td>flashing</td>
<td>flashing</td>
</tr>
<tr>
<td>D7</td>
<td>lighting</td>
<td>lighting</td>
</tr>
<tr>
<td>E7</td>
<td>flashing</td>
<td>lighting</td>
</tr>
<tr>
<td>F7</td>
<td>lighting</td>
<td>flashing</td>
</tr>
</tbody>
</table>

Reference:
The signal light connection can be adjusted in level 1, menu 7.
9. Extended operator functions

**Level 4 – Remote programming**

- **Menu 2: Intermediate OPEN position**
  - LED 7 flashes slowly -> press the hand transmitter button -> LED 7 flashes quickly

- **Menu 3: Intermediate CLOSE position**
  - LED 7 flashes slowly -> press the hand transmitter button -> LED 7 flashes quickly

- **Menu 4: OPEN**
  - LED 7 flashes slowly -> press the hand transmitter button -> LED 7 flashes quickly

- **Menu 5: CLOSE**
  - LED 7 flashes slowly -> press the hand transmitter button -> LED 7 flashes quickly

**Level 5 – Special function**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Menu 1: Programmable impulse input**

- **A1** Impulse (normally open contact only)
- **B1** Automatic on/off (normally open contact only)
- **C1** Intermediate CLOSE position (normally open contact only)

**Legend:**

- LED off
- LED on
- LED flashes slowly
- LED pulses
- LED flashes quickly
- Factory default setting
- Not possible

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### Level 7 - Servicing and maintenance

<table>
<thead>
<tr>
<th>Menu 1: Door cycle counter</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Menu 1:** Door cycle counter

- **A1**: Number of operations – number of hundreds of thousands
- **B1**: Number of operations – number of tens of thousands
- **C1**: Number of operations – number of thousands
- **D1**: Number of operations – number of hundreds
- **E1**: Number of operations – number of tens
- **F1**: Number of operations – number of units

**Menu 2:** Maintenance counter

- **A2**: Number of operations
- **B2**: Number of operations
- **C2**: Number of operations
- **D2**: Number of operations
- **E2**: Number of operations

**Menu 3:** Set the maintenance interval

- **A3**: Number of operations
- **B3**: Number of operations
- **C3**: Number of operations
- **D3**: Number of operations
- **E3**: Number of operations
- **F3**: Number of operations
- **G3**: Number of operations
- **H3**: Number of operations
- **I3**: Number of operations
- **J3**: Number of operations
- **K3**: Number of operations
- **L3**: Number of operations
- **M3**: Number of operations
- **N3**: Number of operations
- **O3**: Number of operations
- **P3**: Number of operations

**Menu 8:** Reset servicing and maintenance

- **A8**: Number of operations
- **B8**: Number of operations

---

**Portrayal of the number of operations**:

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image_url" alt="Portrayal of the number of operations" /></td>
<td><img src="image_url" alt="Portrayal of the number of operations" /></td>
<td><img src="image_url" alt="Portrayal of the number of operations" /></td>
<td><img src="image_url" alt="Portrayal of the number of operations" /></td>
<td><img src="image_url" alt="Portrayal of the number of operations" /></td>
<td><img src="image_url" alt="Portrayal of the number of operations" /></td>
<td><img src="image_url" alt="Portrayal of the number of operations" /></td>
<td><img src="image_url" alt="Portrayal of the number of operations" /></td>
<td><img src="image_url" alt="Portrayal of the number of operations" /></td>
<td><img src="image_url" alt="Portrayal of the number of operations" /></td>
</tr>
</tbody>
</table>

---

**Menu 1:** Door cycle counter

The door cycle counter of the controls displays the number of cycles here as a six-digit number (up to 999,999). The display function is illustrated in the flow chart below. The number of operations is shown as 1s, 10s, 100s, etc. Pressing the (+) or (-) button displays the next or the previous digit of the number of operations.

- **A1**: Number of operations – number of hundreds of thousands
- **B1**: Number of operations – number of tens of thousands
- **C1**: Number of operations – number of thousands
- **D1**: Number of operations – number of hundreds
- **E1**: Number of operations – number of tens
- **F1**: Number of operations – number of units
9. Extended operator functions

Menu 2: Maintenance counter
The maintenance counter of the controls displays the number of operations here as a five-digit number (up to 99,999).
The display function is illustrated in the flow chart below.
The number of operations still required is shown as 1s, 10s, 100s, etc.
The digits are displayed as described for Menu 1.

A2 Number of operations – number of tens of thousands
B2 Number of operations – number of thousands
C2 Number of operations – number of hundreds
D2 Number of operations – number of tens
E2 Number of operations – number of units

Menu 3: Set the maintenance interval
The number of door operations after which the controls indicate that maintenance is required can be programmed here.

A3 Maintenance interval: OFF
B3 Maintenance interval: every 1,000 door operations
C3 Maintenance interval: every 2,000 door operations
D3 Maintenance interval: every 3,000 door operations
E3 Maintenance interval: every 4,000 door operations
F3 Maintenance interval: every 5,000 door operations
G3 Maintenance interval: every 6,000 door operations
H3 Maintenance interval: every 7,000 door operations
I3 Maintenance interval: every 8,000 door operations
J3 Maintenance interval: every 9,000 door operations
K3 Maintenance interval: every 10,000 door operations
L3 Maintenance interval: every 15,000 door operations
M3 Maintenance interval: every 20,000 door operations
N3 Maintenance interval: every 30,000 door operations
O3 Maintenance interval: every 40,000 door operations
P3 Maintenance interval: every 50,000 door operations

Menu 8: Reset servicing and maintenance
The fault memory for servicing, diagnosis and maintenance works can be reset here.

A8 No reset
B8 Reset fault memory
9. Extended operator functions

Flow chart: door cycle and maintenance counter (Example: 015,906 door cycles)
9. Extended operator functions

<table>
<thead>
<tr>
<th>Level 8 – System settings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Menu 1: Photocell</strong></td>
</tr>
<tr>
<td>A1  B1</td>
</tr>
<tr>
<td><strong>Menu 2: Closing edge safety device</strong></td>
</tr>
<tr>
<td>A2  B2  C2  D2</td>
</tr>
<tr>
<td><strong>Menu 3: Automatic cut-out</strong></td>
</tr>
<tr>
<td>A3  B3  C3  D3  E3</td>
</tr>
<tr>
<td><strong>Menu 4: Operating modes</strong></td>
</tr>
<tr>
<td>A4  B4  C4  D4</td>
</tr>
<tr>
<td><strong>Menu 5: Function of the direction command transmitters</strong></td>
</tr>
<tr>
<td>A5  B5  C5</td>
</tr>
<tr>
<td><strong>Menu 6: Function of the impulse command transmitters</strong></td>
</tr>
<tr>
<td>A6  B6  C6  D6</td>
</tr>
</tbody>
</table>

**Legend:**
- LED off
- LED on
- LED flashes slowly
- LED pulses
- LED flashes quickly
- Factory default setting
- Not possible

---

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Menu 1: **Photocell**

<table>
<thead>
<tr>
<th></th>
<th>Door movement, OPEN</th>
<th>Door movement, CLOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A1</strong></td>
<td>Door reverses a little</td>
<td>Door reverses a little</td>
</tr>
<tr>
<td><strong>B1</strong></td>
<td>Door reverses completely</td>
<td>Door reverses completely</td>
</tr>
</tbody>
</table>

Menu 2: **Closing safety edge device**

<table>
<thead>
<tr>
<th></th>
<th>Door movement, OPEN</th>
<th>Door movement, CLOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A2</strong></td>
<td>Door reverses a little</td>
<td>Door reverses a little</td>
</tr>
<tr>
<td><strong>B2</strong></td>
<td>Door reverses completely</td>
<td>Door reverses completely</td>
</tr>
<tr>
<td><strong>C2</strong></td>
<td>Door stops</td>
<td>Door reverses a little</td>
</tr>
<tr>
<td><strong>D2</strong></td>
<td>Door stops</td>
<td>Door reverses completely</td>
</tr>
</tbody>
</table>

Menu 3: **Automatic cut-out**

<table>
<thead>
<tr>
<th></th>
<th>Door movement, OPEN</th>
<th>Door movement, CLOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A3</strong></td>
<td>Door reverses a little</td>
<td>Door reverses a little</td>
</tr>
<tr>
<td><strong>B3</strong></td>
<td>Door reverses completely</td>
<td>Door reverses completely</td>
</tr>
<tr>
<td><strong>C3</strong></td>
<td>Door stops</td>
<td>Door reverses a little</td>
</tr>
<tr>
<td><strong>D3</strong></td>
<td>Door stops</td>
<td>Door reverses completely</td>
</tr>
<tr>
<td><strong>E3</strong></td>
<td>Door stops</td>
<td>Door stops</td>
</tr>
</tbody>
</table>

Menu 4: **Operating modes**

<table>
<thead>
<tr>
<th></th>
<th>OPEN</th>
<th>CLOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A4</strong></td>
<td>press and hold</td>
<td>press and hold</td>
</tr>
<tr>
<td><strong>B4</strong></td>
<td>automatic closing</td>
<td>press and hold</td>
</tr>
<tr>
<td><strong>C4</strong></td>
<td>press and hold</td>
<td>automatic closing</td>
</tr>
<tr>
<td><strong>D4</strong></td>
<td>automatic closing</td>
<td>automatic closing</td>
</tr>
</tbody>
</table>
Menu 5: Function of the direction command transmitter (OPEN/CLOSE)

<table>
<thead>
<tr>
<th></th>
<th>Direction command transmitters</th>
<th>Explanations</th>
</tr>
</thead>
<tbody>
<tr>
<td>A5</td>
<td>not active</td>
<td>The direction command transmitters only give a command when the door is stationary.</td>
</tr>
<tr>
<td>B5</td>
<td>STOP only</td>
<td>A moving door is stopped by every direction command transmitter.</td>
</tr>
<tr>
<td>C5</td>
<td>active without STOP</td>
<td>The door travels towards the OPEN position after the OPEN button has been pressed. The door travels towards the CLOSE position after the CLOSE button has been pressed.</td>
</tr>
</tbody>
</table>

Menu 6: Function of the impulse command transmitter (Impulse, intermediate OPEN position, intermediate CLOSE position)

<table>
<thead>
<tr>
<th></th>
<th>Impulse command transmitters</th>
<th>Explanations</th>
</tr>
</thead>
<tbody>
<tr>
<td>A6</td>
<td>not active</td>
<td>The impulse command transmitters only give a command when the door is stationary.</td>
</tr>
<tr>
<td>B6</td>
<td>STOP only, then standard sequence</td>
<td>A moving door is stopped by every impulse command transmitter. The next command starts the drive system running in the opposite direction (OPEN - STOP - CLOSE - STOP - OPEN).</td>
</tr>
<tr>
<td>C6</td>
<td>STOP only, then standard sequence</td>
<td>A moving door is stopped by every impulse command transmitter. A subsequent command starts the operating system again in the preferred direction: OPEN (CLOSE - STOP - OPEN - STOP - OPEN).</td>
</tr>
<tr>
<td>D6</td>
<td>active without STOP</td>
<td>The impulse command transmitters trigger the corresponding command, without a STOP, in the preferred direction: OPEN.</td>
</tr>
</tbody>
</table>
10. Messages

10.1 Status messages

In addition to messages regarding the door position, status messages give information regarding the status of the operator system during operation.

Safety elements:

During operation LED 1 serves as a status indicator for the safety elements connected (closing edge safety device, photocell). If the safety element in question is triggered, LED 1 lights up whilst it is activated.

Control elements / remote controls:

During operation and when carrying out component tests, LED 7 serves as a status indicator for the control elements connected (OPEN, CLOSE, STOP, half OPEN, etc.). If the control element in question is triggered, LED 7 lights up whilst it is activated.

If a remote signal is received, LED 7 flashes quickly.

Maintenance:

LED 5 serves as a maintenance indicator. If the specified maintenance interval is exceeded, LED 5 lights up continuously.

Safety circuit (SC), motor unit:

LED 6 serves as a status indicator for the safety devices connected to the controls, (thermal switch, CH, QR, MR). If a safety element is activated, LED 6 lights up for the duration of its operation.

Legend:

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED off</td>
<td>○</td>
</tr>
<tr>
<td>LED on</td>
<td>●</td>
</tr>
<tr>
<td>LED flashes slowly</td>
<td>☀</td>
</tr>
<tr>
<td>LED pulses</td>
<td>★</td>
</tr>
<tr>
<td>LED flashes quickly</td>
<td>★★★</td>
</tr>
<tr>
<td>Factory default setting</td>
<td>★★★★</td>
</tr>
<tr>
<td>Not possible</td>
<td>–</td>
</tr>
</tbody>
</table>
10. Messages

10.2 Fault messages

Malfunctions in the system are indicated by a corresponding message number. The controls switch to message mode.

<table>
<thead>
<tr>
<th></th>
<th>Message number is displayed for approx. 3 seconds (example: Message 15).</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Pause between messages for approx. 1 second.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Operating mode is displayed for approx. 3 seconds (example: operating voltage).</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Pause between messages for approx. 1 second.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Messages 1 to 4 are repeated.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Advice:
- The controls show the message numbers via one or more rhythmically flashing LEDs. The message number is found by adding together the numbers next to the flashing LEDs.
- During programming, all status messages and other messages are suppressed. The messages in programming mode are always unambiguous.

The message numbers serve two purposes:
1. They indicate why the controls were unable to carry out the drive command given.
2. They indicate which components are faulty. This facilitates better and faster service on site, and only the control components identified as being faulty need be replaced.

The controls remain in message mode until they switch to operating mode or diagnostic mode.

Switching to operating mode
The controls switch to operating mode as soon as they receive a movement impulse.

Switching to diagnostic mode
The controls can be switched to diagnostic mode from either message mode or operating mode.
Before switching to diagnostic mode, the key switch must be set to position “1”.

- Press the STOP button and keep it pressed.
- Switch the key switch from position “1” to position “2” within 4 seconds and then release the STOP button.

The controls switch to diagnostic mode.

Button functions in diagnostic mode

| (+ / OPEN) button | The current fault is always shown when the (+) button is pressed. |
| (− / CLOSE) button | When the (−) button is pressed, up to 5 faults from the fault memory are shown in succession. |
| (P / STOP) button | Pressing the (P) button ends the diagnostic mode. The carousel display runs backwards. The controls return to operating mode. |
10. Messages

10.3 Flow chart showing fault messages for control units with keypad on cover and key switch

Operating mode

Message mode

Diagnostic mode

Status display

Pause >1 sec.

Message display 15

Pause >1 sec.

< 4s

< 1 sec.
10. Messages

10.4 Rectifying faults

10.4.1 Malfunctions without error messages

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
</table>
| Operator system is not working. | - No voltage. | - Check the power supply to the system.  
- Check the external power supply against the specification on the identification plate.  
- Check the mains supply cable.  
| 3-phase model | - Check that the wire jumper is in place between terminals 3 and 4 (standard configuration). |
| Special model | - Check whether voltage is present at terminal XN 84 from additional 230 Volt transformer.  
- Check whether there are 230 Volts between XN84 (terminal 4) and XN81 (terminal N). |
| - Problem with connection between motor unit and control unit. | - Check cabling between motor unit and control unit (XB40) (Section 7.2.2 and 7.3.2/5). |
| - The emergency hand chain is not lying on the switch. | - Place the emergency hand chain on the switch (Section 8.1 / 1). |
| Operator system is not working. Controls are in express programming mode. | - Safety circuit (door / operator controls) interrupted. | - Press stop button 3 times.  
(The controls are now in operating mode. The status of the elements connected to the controls is displayed.) |

Legend:

- LED off
- LED on
- LED flashes slowly
- LED pulses
- LED flashes quickly
- Factory default setting
- Not possible
## 10. Messages

### 10.4.2 Malfunctions with error messages

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Message 6</td>
<td>- Closing prevention device (supplied by customer) activated.</td>
<td>- Check the door and remove any obstacles.</td>
</tr>
<tr>
<td>Message 7</td>
<td>- If no buttons are pressed within 120 seconds, the programming mode terminates automatically.</td>
<td></td>
</tr>
<tr>
<td>Message 8</td>
<td>- OPEN and CLOSED door positions programmed without passing the reference point.</td>
<td>- Set the OPEN and CLOSED door positions again (Section 7.8.3).</td>
</tr>
<tr>
<td></td>
<td>- Positioning box is defective.</td>
<td>- Have the operator system checked.</td>
</tr>
<tr>
<td>Message 10</td>
<td>- Door movement too stiff.</td>
<td>- Ensure that the door moves easily.</td>
</tr>
<tr>
<td></td>
<td>- Door blocked.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Maximum driving power setting is too low.</td>
<td>- Have the max. driving power (Section 9.4 / Level 2 / Menu 1+2) checked by an expert.</td>
</tr>
<tr>
<td>Message 13</td>
<td>- CESD test in CLOSED direction not OK.</td>
<td>- Check closing edge safety device.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Programme out the closing edge safety device if there is no CESD present (Section 9.4 / Level 1 / Menu 8).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Reinsert an 8.2 kOhm resistance.</td>
</tr>
<tr>
<td>Message 14</td>
<td>- End position is not OK.</td>
<td>- Set the OPEN and CLOSED door positions again (Section 7.8.3).</td>
</tr>
</tbody>
</table>
## 10. Messages

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Message 15</td>
<td>- Photocell testing not OK.</td>
<td>- Check the photocell barrier.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Programme out the photocell barrier if no photocell barrier is connected (Section 9.4 / Level 1 / Menu 8).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Check the jumper at terminal XP27 (Section 7.3.3/1).</td>
</tr>
<tr>
<td>Message 28</td>
<td>- Door movement too stiff or irregular.</td>
<td>- Check the path of the door and ensure that the door moves easily.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Automatic cut-out is set to be too sensitive.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Have the automatic cut-out facility checked by an expert</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Section 9.4 / Level 2 / Menu 3+4).</td>
</tr>
<tr>
<td>Message 33</td>
<td>- Motor is not turning.</td>
<td>- Check the mains voltage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Check the condenser.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Make sure the door can move smoothly.</td>
</tr>
<tr>
<td>Message 36</td>
<td>- Wire jumper removed, but stop button not connected.</td>
<td>- Connect stop button or wire jumper B5/5 (XB50 / Section 7.3.2).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Operator system released.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Safety circuit interrupted.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Close safety circuit.</td>
</tr>
</tbody>
</table>

### Legend:

- **LED off**
- **LED on**
- **LED flashes slowly**
- **LED pulses**
- **LED flashes quickly**
- **Factory default setting**
- **Not possible**
11. Attachment

11.1 Technical data for Dynamic xs.plus

### Mechanical data

<table>
<thead>
<tr>
<th></th>
<th>60/24</th>
<th>75/24</th>
<th>120/24</th>
<th>220/24</th>
<th>160/24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving torque</td>
<td>Nm</td>
<td>60</td>
<td>75</td>
<td>120</td>
<td>220</td>
</tr>
<tr>
<td>Nominal RPM</td>
<td>min</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Max. revolutions, driven shaft</td>
<td></td>
<td></td>
<td></td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Emergency operation</td>
<td></td>
<td>Emergency hand chain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleeve shaft diameter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Electrical data

<table>
<thead>
<tr>
<th></th>
<th>60/24</th>
<th>75/24</th>
<th>120/24</th>
<th>220/24</th>
<th>160/24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains voltage</td>
<td>V</td>
<td>1N~ 230</td>
<td>Y 3N~ 400/230 / Δ 3~ 230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated frequency</td>
<td>Hz</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input current</td>
<td>A</td>
<td>4.6</td>
<td>Y 1.7 / Δ 2.9</td>
<td>Y 3.0 / Δ 5.1</td>
<td>Y 2.7 / Δ 4.7</td>
</tr>
<tr>
<td>Motor power</td>
<td>kW</td>
<td>0.37</td>
<td>0.55</td>
<td>1.1</td>
<td>0.75</td>
</tr>
<tr>
<td>Motor connection period</td>
<td>ED %</td>
<td>S3 – 25</td>
<td>S3 – 60</td>
<td>S3 – 80</td>
<td></td>
</tr>
<tr>
<td>Power supply for external elements</td>
<td>V</td>
<td>24 / 200 mA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection category</td>
<td></td>
<td>IP 65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection class</td>
<td></td>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Physical and ambient data

<table>
<thead>
<tr>
<th></th>
<th>60/24</th>
<th>75/24</th>
<th>120/24</th>
<th>220/24</th>
<th>160/24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>mm</td>
<td>112x377x293 (+34)</td>
<td>112x411x293 (+34)</td>
<td>112x415x293 (+34)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>14.7</td>
<td>14.39</td>
<td>15.29</td>
<td>17.19</td>
</tr>
<tr>
<td>Temperature range</td>
<td>C</td>
<td>-20 to +60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

[CE logo]
11. Attachment

11.2 Manufacturer’s Declaration

We hereby declare that the product sold by us and mentioned below corresponds in its design, construction and version to the relevant and basic health and safety requirements of the following EC regulations: EMC Directive, Machinery Directive and Low Voltage Directive. Product changes made without our consent will render this Declaration void.

Product: Dynamic xs.plus

Relevant EC Regulations:
- EC EMC Directive (89/336/EWG),
- Machinery Directive (98/37/EWG) and

Applied harmonised standards, in particular:
EN 292-1
EN 61000-6-2
EN 61000-6-3
EN 55014
EN 61000-3-2
EN 61000-3-3
EN 60335-2-103
EN 12445
EN 12453

02.01.2008 ppa. K. Goldstein

11.3 EC Declaration of Conformity

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EN 60335-2-103
EN 12445
EN 12453

Date / Signature

Marantec Antriebs- und Steuerungstechnik GmbH & Co. KG
Remser Brook 11 · 33428 Marienfeld · Germany
Fon +49 (52 47) 7 05-0

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Subject to changes which are in the interest of technical improvements.