

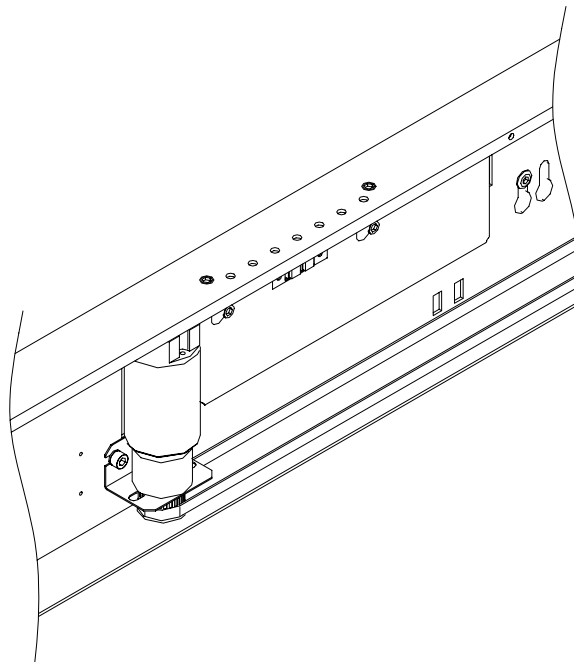


**Door Drive**  
**ECO**  
Operating instructions

Blatt/*sheet* D27GMGB.000  
Datum/*date* 19.08.2003  
Stand/*version* 11.02.2004  
Geprüft/*approved* WAT/FLE

## Door Drive ECO

D27GMGB 02.2004



## WITTUR GmbH

Sowitschstrasse 1 • A-3270 Scheibbs, Austria  
Tel. +43 (0) 7482/42542-0 • Fax +43 (0) 7482/42542-32  
<http://www.wittur.at> • E-Mail: [info@wittur.at](mailto:info@wittur.at)

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## 1 General information prior to installation

### 1.1 Description and function

ECO door drives are used for low and mid duty elevators. The Drive can move panel masses up to 130kg complete door package weight.

### 1.2 Liability and guarantee

This instruction handbook is written for people who are familiar with lift servicing and installation. Sufficient knowledge of lifts is essential. WITTUR accepts no responsibility for damage caused by improper handling, or for damage caused as a result of actions other than those stated in these operating instructions. The WITTUR guarantee may be voided if parts other than those described in these instructions are installed.

### 1.3 Safety precautions

WITTUR machine installation or repair engineers are chiefly responsible for the safe operation of machinery. It is essential to comply with and keep abreast of all safety rules and legal obligations in order to avoid personal / product damage during installation, maintenance and repair work.

Important safety advice and danger warnings are emphasized with the following symbols:



General danger warning



High danger risk warning (i.e. crushing edge, cutting edge etc.).



Risk of damage to machinery parts (i.e. due to incorrect installation, or such like).



Important information sign

These operating instructions belong with the whole installation and must be kept in a safe place at all times (i.e. drive room)

### 1.4 Related documents

- Catalog D27GCDEGB

### 1.5 Preparation for operation

Before installation work begins, it is in your own interests to clarify what structural and spatial conditions are available for installation work, so that you can see which installation procedures should / must be carried out. Therefore it is recommended that all circumstances be taken into consideration, and to mentally plan the installation sequence before any rash or badly planned work is carried out. Check the goods or parts for correct and full delivery upon receipt.

#### Installation tools

Following tools are needed:

- "T"-handled hexagon keys 4 mm, 5 mm and 6 mm
- Screw drivers (flat and crossheaded)

The drive unit is preadjusted at the factory. No other mechanical and electrical adjustments other mentioned in this instruction are required at site!

### 1.6 Delivery

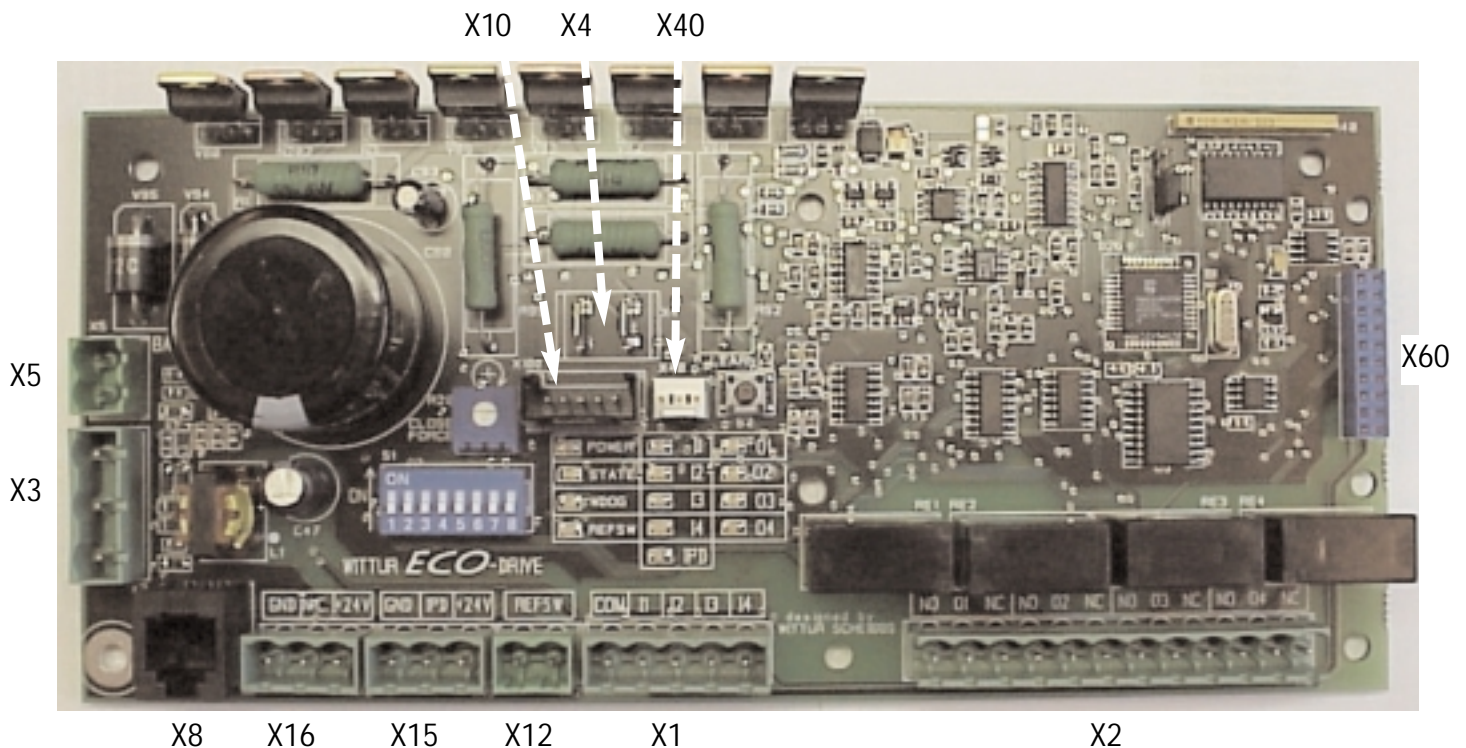
Complete preassembled drive unit. Only to be stored in the original package (plastic wrap). The components must not be unpacked until the installation begins.

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## 2 Electronic assembly layout



### Plug description:

X1 - Inputs  
X2 - Outputs  
X3 - Transformer secondary winding  
X4 - Motor  
X5 - Battery supply  
X8 - RS485 interface for WPT (Wittur Programming Tool)

X10 - Motor encoder  
X12 - Reference switch  
X15 - Photo Cell (Curtain of light) Receiver  
X16 - Photo Cell (Curtain of light) Transmitter  
X40 - Test drive buttons  
X60 - Extension plug

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## 3 Commissioning

Door operators delivered directly from the factory are pre-adjusted.

### 3.1 Power Supply

- The ECO-drive provides transformers for both different voltage ranges and can supply with 120VAC or 230VAC.
- Select the recommended fuse for the nominal voltage range, see table

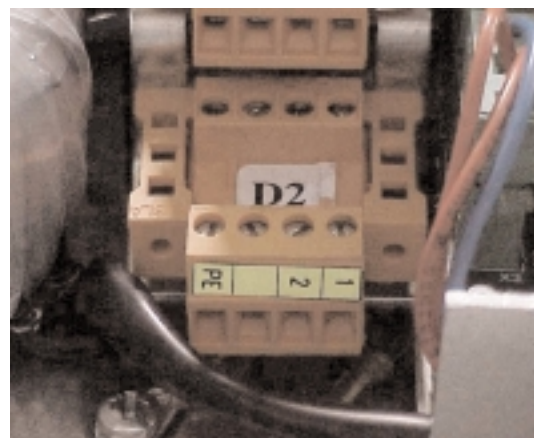
Nominal Supply Voltage Range:	120VAC	230VAC
Automatic fuse slow (in control panel)	2A	1A
Minimum cable required	1mm <sup>2</sup>	0,75mm <sup>2</sup>

- Line in supply is connected to a plug (D1).



### 3.2 Safety Circuit (optional)

- The door contacts are prewired to a terminal plug.
- Safety contact ratings: Min. 5VDC - Max. 250VAC 2A



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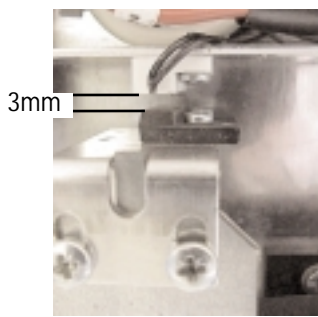
### Operating instructions

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### 3.3 Preparation and learning of door parameters

1 DIP switch setting has to be copied from the replaced board, see chapter 7: "DIP-Switches".

2 Mount the reference switch so, that switch and magnet are opposite when the door panels are closed (the clearance between switch and magnet should be 3mm)



3 The DIP Switch S1/1 (Test Button Operation) must be activated.

4 Put the door panels to fully closed position. Check that the coupler is not opened (landing lock unlocked).



Therefore open the door panels by hand and push them manually to closed position. The hanger plate (truck) must touch the close end buffer.

5 Switch power on.



Press the LEARN button IMMEDIATELY after power up.

6 Now the door must be driven in close direction by Test Drive Button

7 The door might now run in wrong direction in respect to command. Use that test drive button which drives the door in close direction and drive until door panels are fully closed (REF SWITCH LED must be on).

8 If the motor was running in wrong direction the electronic corrects the motor rotation direction when the reference switch edge is detected and learning procedure is re-initialized.



Is no reference switch available the direction of the motor rotation has to be changed by crossing the motor cables, if necessary (Press the LEARN button again).

9 During the next door movement cycles the learning of door width is done. When the STATE LED is off --> learning done.



Take care that the commands are available in end positions for more than one second, that the electronic has time enough to detect the mechanical end position.

10 The parameters are stored automatically after learning procedure.



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#### 3.4 Driving the doors with the elevator controller

- Connect the signals from the elevator controller to connector X1 and X2 of the door operator.
- Refer to the project delivery documents for the wiring diagram between the elevator controller and door operator (see also connection diagram in chapter 9).
- Check if Test Button operation switch is OFF S1/1.
- If the door is not at the reference switch (near by close end) in power up and CLOSE is active (connected with COMMON) it will move at low speed as long as the reference (close end) position is found.
- After finding the reference switch the door drive will start with the next OPEN command in direction open with normal speed drive until the mechanical end is found.
- Then the door will drive with normal speed in both directions.
- Check that the safety devices (open button, photo cells and close force limiter) reopen the door (see DIP-switch description).
- According to the DIP Switch adjustment (S1/2) the door is reopend by the elevator control or automatic by the door.

#### 3.5 Driving the doors by the service drive buttons

- The Test Buttons only work when the Test button operation switch (S1/1) is active.
- Check that the door is moving open and close when the test buttons are pressed.
- In this mode of operation the re-opening of the door by a safety device is not activated. (enables the adjustment of the closing force).



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## 4 Adjustments always to be done

### 4.1 Closing Force Adjustment



An adjustment of too high closing force may cause serious injury to passengers. The max. allowed force can be found in the code valid for your country (EN81: max. 150N).

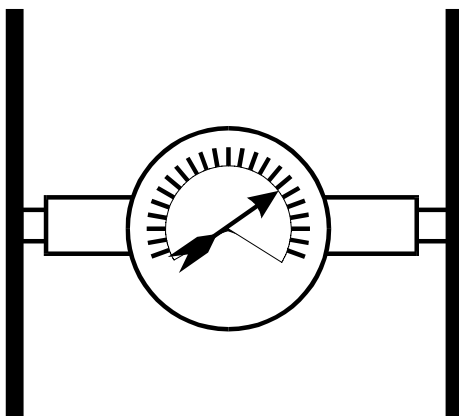


The adjustment must be done by use of a force measuring device.



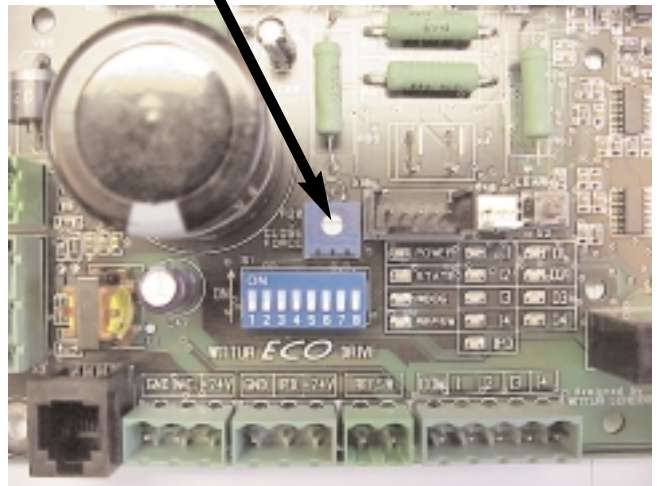
Do not attempt to measure the force of a moving door, stop it first to avoid damage of the force measuring device!

- Open and close the door manually and check that there is no mechanical obstruction.
- Put a force measuring device between the door panels (center opening) or between door panel and slam post (side opening).



For centre opening the measuring device will show half of the actual close force. For side opening the measuring device will show the actual close force.

- Drive the door with the close button (or close command) to the close direction. The Test Buttons only function when the Test button operation switch (S1/1) is ON.
- The close command should be applied for less than 10sec period's, than remove the close command for a short time, before continue the adjustment procedure.
- Adjust the closing force according codes using potentiometer CLOSE FORCE. The Closing Force will increase by turning the potentiometer clockwise!



### 4.2 Adjustment of the speed

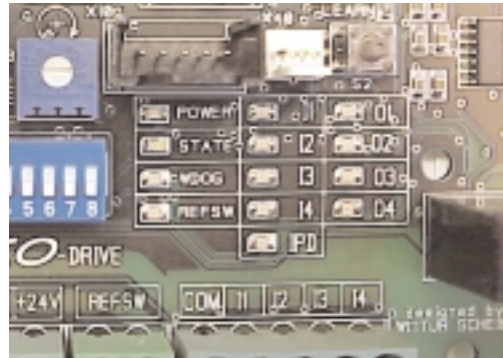
- The drive electronic offer to select one out of four different speed levels (for handicap elevators or other purpose).
- Look at DIP-SWITCH description (chapter 7).

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## 5 Description of LED's



### 5.1 LED's Inputs

Name	LED illuminated if
I1	Input 1 is connected to COM
I2	Input 2 is connected to COM
I3	Input 3 is connected to COM
I4	Input 4 is connected to COM
IPD	Input Passenger- Protection Device (Photo cell.....)

### 5.2 LED's Outputs

Name	LED illuminated if
O1	Output 1 relay is operated
O2	Output 2 relay is operated
O3	Output 3 relay is operated
O4	Output 4 relay is operated

### 5.3 Different LED's

Name	LED illuminated if
POWER	the power supply is switched on
WATCH DOG	the microprocessor does not work
STATUS	Light: during start up and learning Flashes: if a error is detected Off: normal operation
REFSW	the door is in Close end area

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## 6 Electrical Interfaces

### 6.1 Inputs

The Inputs are activated if they are switched at COM.

Terminal	Symbol	Name of the terminal	Explanation
COM	COM	COMMON	Common line for I 1..4
I1		OPEN	This command will drive the door in open direction until the open position is reached. Depending on the setting of DIP switch S1/8 the door is kept open by motor torque also without command.
I2		CLOSE	This command will drive the door in close direction until close position is reached and coupler is opened. Depending on the setting of DIP switch S1/8 the door is kept closed by motor torque also without command
I3		NUDGING	Nudging input, puts the door to slow speed drive in close direction. Smoke sensitive devices like photo cell or light barrier (Input IPD) will be ignored.
I4		HIGH SPEED	By setting this input a higher speed can be selected. This input is active only when DIP switch S1/6 is switched OFF.

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### 6.2 Passenger protection device input and supply

The Input is activated if put at GND.

Terminal	Symbol	Name of the terminal	Explanation
+24V	PH+	+24V	+24V DC supply for photo cell or curtain of light (max. 150mA)
IPD	REV	PHOTO CELL	Input for Photo Cell or curtain of light , light barrier or other passenger protection device
GND	PH-	GND	Ground for supply of photo cell or curtain of light (light barrier)
N.C.	L		Can be used as terminal for light barrier

### 6.3 Outputs

The outputs are relais where the 3 connections of the contacts are feed to the terminals. (O1 to O4: COMMON = COM , normally open contact = NO, normally close contact = NC)

Terminal	Symbol	Name of the terminal	Explanation
O1		OPEN END	The open end output indicates the fully open position of door panels.
O2		CLOSE END	The close end output indicates the fully closed position of door panels
O3		REOPEN	The Reopen output indicates if a reopen request, coming from photo cell or close force limiter is pending or an automatic re-open is done.
O4		Position	This output is set when the door is opened wider than a certain position (Position trigger point can be adjusted by WPT, normally deactivated)



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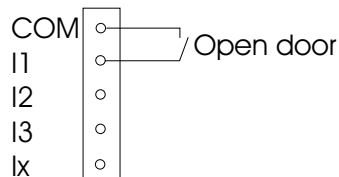
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## 7 DIP-Switches

	ON	OFF
S1/1	Test Button operation (buttons active)	Normal operation (command inputs on X1 active)
S1/2	Automatic reopen on obstruction or IPD (Reopen O3 is switched)	No automatic reopen (only Reopen O3 is switched)
S1/3	<i>Electric shoe operation (swing door mode)(*)</i>	Normal operation (command inputs on X1 active)
S1/4	Not used	
S1/5	Speed selection, binary coded, see figure	
S1/6		
S1/7	Open force limitation active	No open force limitation
S1/8	Automatic end keeping	Hold open/closed only on active open/close command

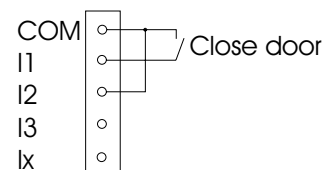
(\*) Mode 1:

I1 = ON -> door opens  
I1 = OFF -> door closes

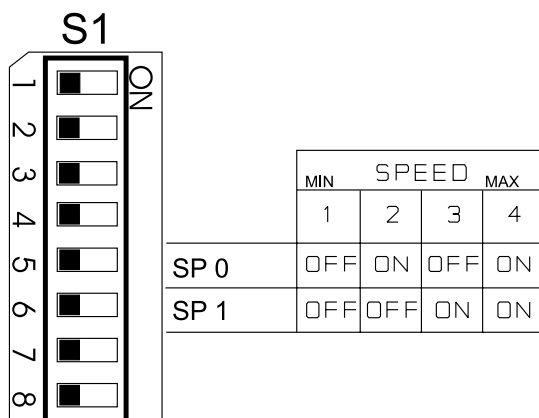


(\*) Mode 2:

I1 = ON -> door closes  
I1 = OFF -> door opens



Speed adjustment





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## 8 Troubleshooting

There is a fault if the State LED is blinking. The faults can be read by WPT.

### 8.1 The door does not move

#### 8.1.1 The door does not move at all

- Check that the power is ON. The POWER LED H80 must light up if D1 is connected and the circuit breaker in the elevator control panel is ON
- Check WATCHDOG LED H20, switch OFF/ON or replace board in case it lights up.
- Check that the motor and encoder wires are connected correctly (plug X4 and X10) and the motor is not overheated ( $\leq 60^\circ \text{C}$ ).
- Check that the control panel is sending an Open or Close command (I1-I2/X1, Led I1, I2).
- Check if there is too high friction if door is moved manually. If the state LED flashes read the faults by using WPT, switch ON/OFF or replace board in case it flashes.
- Check if the open force limitation is deactivated (S1/7 OFF).

#### 8.1.2 The door does not open

- Check that the OPEN command LED I1 lits up when an open command is present (I1/X1 low).
- Check that the CLOSE command LED I2 does not light up (I2/X1 not low). A close command overrides the open command.
- Check that the landing door lock is not jammed.
- Check if the open force limitation is active (S1/7 ON) and the friction is too high.

#### 8.1.3 The door does not close

- Check that the CLOSE command LED I2 lits up or the Input I2/X1 is switched on COM.
- The closing force may be too low (or friction too high). Turn CLOSE FORCE potentiometer slightly clockwise to increase the closing force, but watch the maximum allowed force!

#### 8.1.4 The door only partly opens or closes

- Check that the open and close signal times (LEDs I1, I2) from the elevator controller are long enough. The door moves only as long as command is set.

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#### 8.2 The door does not reopen

- If no automatically Re-open is selected (DIP Switch S1/2 is OFF):
  - For reopening the elevator controller must remove the close command and activate the open command
- To reopen the door the elevator controller must receive either a reopen request signal from the door electronics (REOPEN) or from an independently wired safety device (e.g. Photocell or Curtain of Light).
- If automatic Re-open is selected (DIP Switch S1/2 is ON):
  - An automatic Re-open process is caused by the Input IPD or by the closing force limiter.



Check the following reopen devices

- Photocell or light cell (defect or dirty).
- Closing force limiter (force too high).

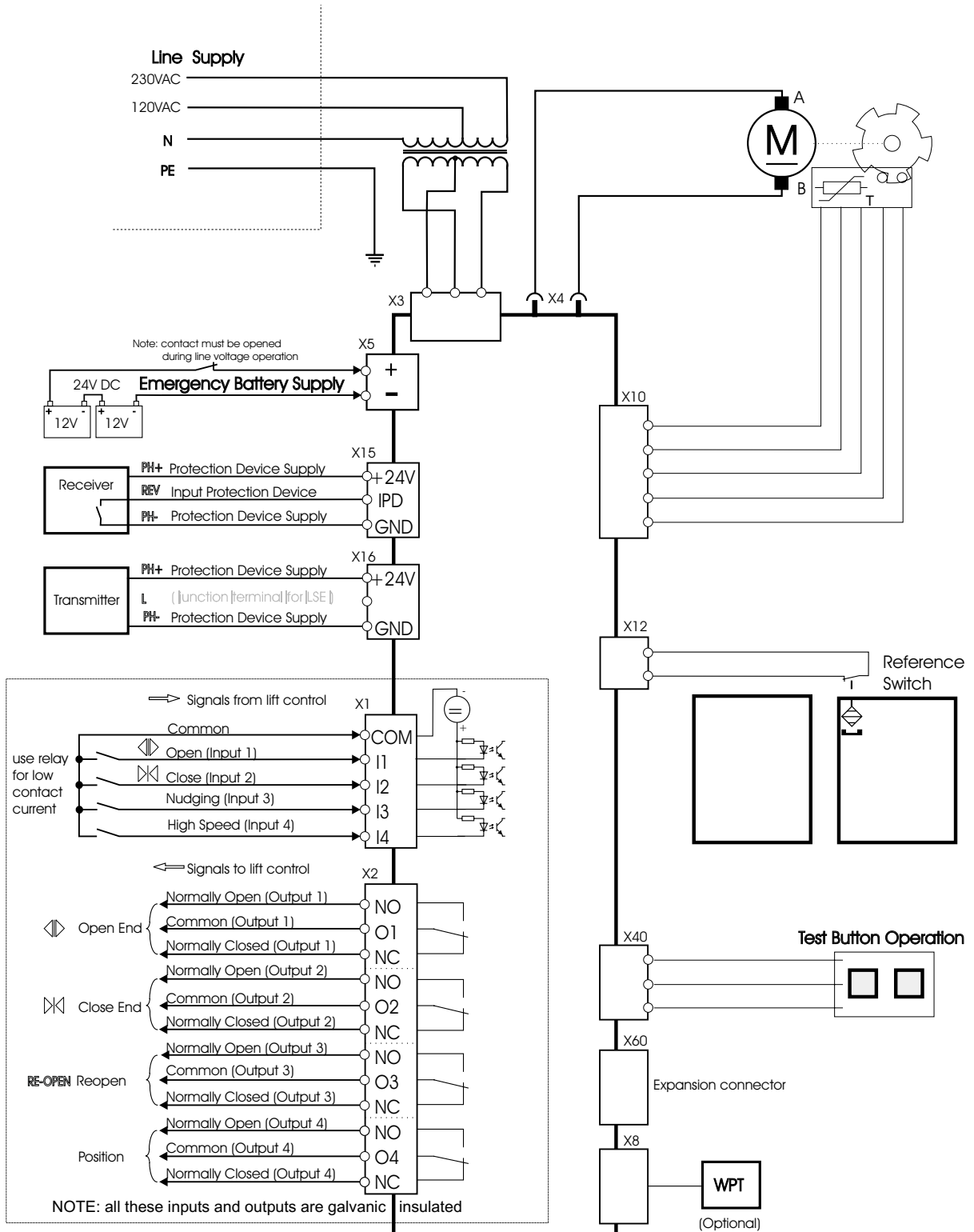
#### 8.3 Faults causing reset or switch off (STATE LED is blinking)

- Power stage short circuit
- motor or encoder short circuit, open wires and/or missing signals.
- Internal electronic fault
- Undervoltage (supply voltage is measured and the power stage switches off if the voltage is too low).
- mechanical end not found ( $\geq 5\text{m}$ ).
- door mechanically blocked.

#### 8.4 Faults decreasing performance of door

- Motor and/or power stage temperature too high. The software reduces the power of the motor (power stage). If temperature is nevertheless exceeding a higher limit, power stage is shut down for cooling down a certain time.
- Low voltage supply like battery drive or low line voltage supply.

## 9 Wiring diagram





## 10 Wittur Programming Tool Interface Software description


Valid for software revision starting from „WHD ECO Vx.x, dd.mm.jjjj“

### 10.1 Introduction

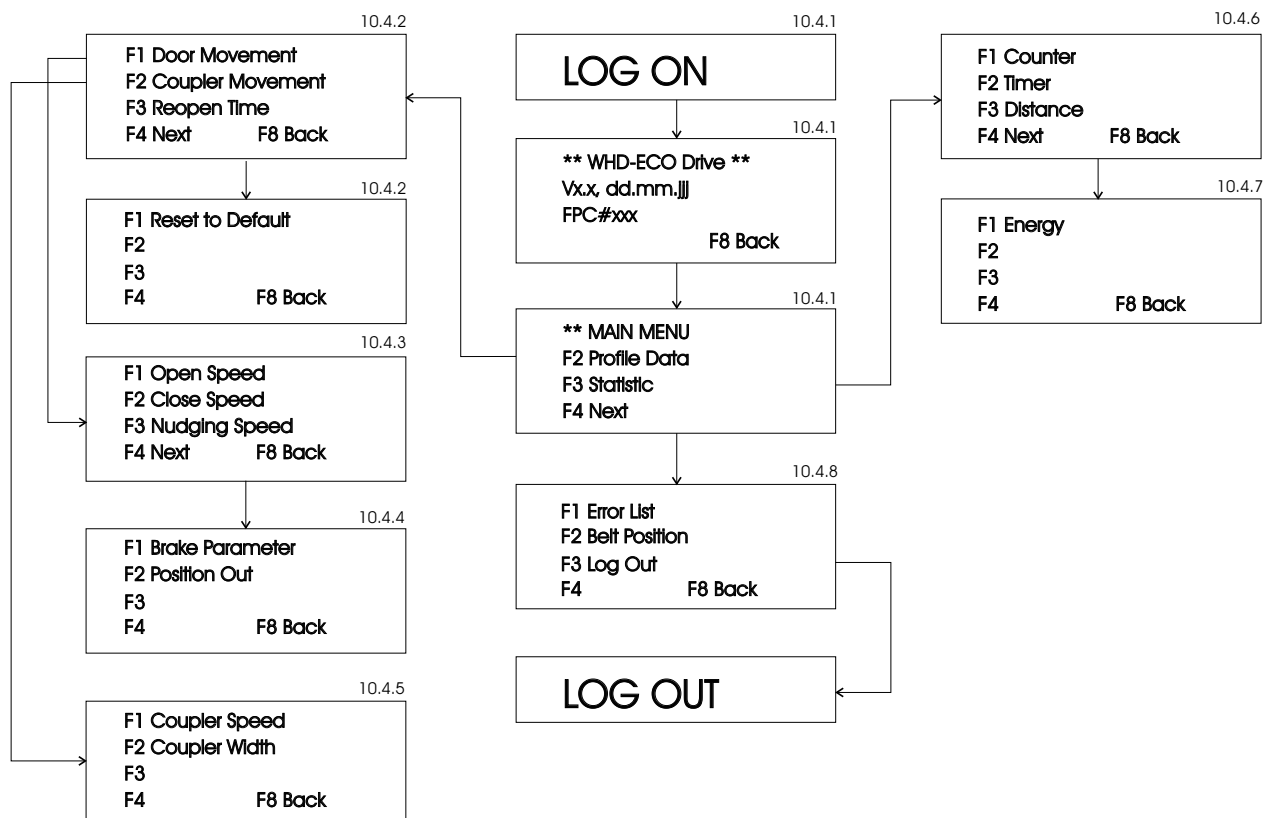
The ECO-electronic is equipped with a serial communication interface RS 485 to watch/modify data stored in the electronic. Some data (for example the speed values) are stored in a memory which is independent from power supply, this memory is called EEPROM. For use of the Wittur programming Tool see Operating instructions D276Mxx.

### 10.2 Connecting the Wittur Programming Tool to the ECO-electronic

The Programming Tool can be connected directly to the ECO platine at the plug X8, there are no further adjustments are necessary. Switch off the WPT before connecting to door drive.

 Wrong adjustments may damage the door mechanic.

### 10.3 Menu structure of Programming Tool





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## 10.4 Door adjustment with the Programming Tool

### 10.4.1 Login of the Programming Tool

- Press the 'ON'-button longer than 2 seconds until you can see the Log-in Display.

```
WPT software V1.3  
19.09.2001, 11:15  
  
Logging on .
```

- The screen after power on login shows the door drive software revision and date.

```
** WHD-ECO DRIVE **  
  
Vx.x, dd.mm.jjjj  
FPC#xxx      F8 Back
```

- After pressing 'F8' the initial menu screen appears.

```
** MAIN MENU  
F2 Profile Data  
F3 Statistic  
F4 Next
```

- Press 'F1' to 'F3' to select one of the menu items or use 'F4' to view additional screens

```
F1 Error List  
F2 Belt Position  
F3 Log Out  
F4          F8 Back
```

- 'F8' jumps back to last screen.

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#### 10.4.2 'F2': Profile Data

```
F1 Door Movement
F2 Coupler Movement
F3 Reopen Time
F4 Next      F8 Back
```

This menu allows you to call up 2 further cascading menus: 'F1' Door Movement (10.4.3) und 'F2' Coupler Movement (10.4.5).

##### 10.4.2.1 'F3': Reopen Time

Reopen Time is the waiting period after the re-open in open end, before the door close again.

By pressing 'F3' the parameter Reopen Time can be watched and changed.

```
Reopen Time:
0000.0 s

ENTER Ch.  F8 Back
```

To enter a new value press the number keys, after that press 'ENTER'. This value is taken over in a buffer and carried out.

```
Reopen Time:
0001.5 s

ENTER Ch.  F8 Back
```

By leaving this menu with 'F8' you will be asked if the entered value shall be stored permanently to the memory.

```
Use changed Value?
```

```
YES/NO      F8 Back
```

By pressing the keys 'YES' / 'NO' the value can be used / rejected.

#### 10.4.2 'F4': Next (Profile Data)

```
F1 Reset to Default
F2
F3
F4              F8 Back
```

The door parameter are resetted to its initial value by pressing the button 'F1'.

##### 10.4.2.2 'F1': Reset to default (starting with software version 1.6)

```
Reset to Default?
```

```
YES/NO      F8 Back
```



By pressing the 'YES' button all the adjusted parameters are cleared and overwritten by default values.

Before resetting the door electronic to default values the two items 3.3, clause 3 and 4 must be followed (manual closing of door panels without opening of coupler!).

After the "Reset to Default" is done, continue the start-up procedure like described in item 3.3 clause 6 to 10



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### 10.4.3 'F1': Door Movement

F1 Open Speed
F2 Close Speed
F3 Nudging Speed
F4 Next      F8 Back

This menu allows you to watch/modify values described in the following chapters by pressing the corresponding function key.

See chapter 10.4.2.1 how to enter values.

All these variables are stored in the EEPROM. Speed values for speed setting 1-3 are calculated from values of speed setting 4 by multiplying with fix constants (see chapter 11).

#### 10.4.3.1 'F1 Open speed' - Open speed.

Top speed for open movement; speed setting 4.

#### 10.4.3.2 'F2 Close speed' - Close speed

Top speed for close movement; speed setting 4.

#### 10.4.3.3 'F3 Nudging speed' - Close speed for nudging

Top speed for close movement with nudging command; speed setting 4.

### 10.4.4 'F4': Next (Door Movement)

F1 Brake Parameter
F2 Position Out
F3
F4                      F8 Back

This menu allows you to watch/modify values described in the following chapters by pressing the corresponding function key.

See chapter 10.4.2.1 how to enter values.

This value is stored in the EEPROM.

#### 10.4.4.1 'Brake Parameter'

Because of the adjustment of this parameter the delay and creep to the open / close end is influenced. (pre-adjusted at '5'). The possible adjustment is '0'-'9', but the earliest brake is reached with parameter '0' and the latest delay is reached with parameter '9'.

#### 10.4.4.2 'Position Out' Relay output

By entering this parameter the Position relay can be adjusted to switch at any door position. Standard adjustment is 0 (deactivated).



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### 10.4.5 'F2': Coupler Movement

```
F1 Coupler Speed
F2 Coupler Width
F3
F4          F8 Back
```

This menu allows you to watch/modify values described in the following chapters by pressing the corresponding function key.

How to enter values see in chapter 10.4.2.1

This value is stored in the EEPROM.

#### 10.4.5.1 'F1 Coupler Speed'

Adjustment of the maximum speed in the coupler area. It is the same for open and close.

#### 10.4.5.2 'F2 Coupler Width'

The parameter coupler width shows the distance which the belt is moving in close end without moving the door panels.

### 10.4.6 'F3': Statistic

```
F1 Counter
F2 Timer
F3 Distance
F4 Next    F8 Back
```

This menu allows you to watch values described in the following chapters by pressing the corresponding function key.

#### 10.4.6.1 'F1 Counter'

This counter shows the number of the driven door cycles.

#### 10.4.6.2 'F2 Timer'

This counter show the poer-on time of the door electronic.

#### 10.4.6.3 'F3 Distance'

This counter measures the absolute movement of the drive belt in meter, but not the coupler movement.

### 10.4.7 'F4': Next (Statistic)

F1 Energy	
F2	
F3	
F4	F8 Back

This menu allows you to watch values described in the following chapters by pressing the corresponding function key.

### 10.4.8 'F4': Next (Main Menu)

F1 Error List	
F2 Belt Position	
F3 Log Out	
F4	F8 Back

This menu allows you to watch values described in the following chapters by pressing the corresponding function key.

#### 10.4.7.1 'F1 Energy'

This counter counts the electric energy feed to the drive in KWh.

#### 10.4.8.1 'F1 Error List'

Errors are coded with numbers or letters. The Error List can be deleted with the key 'F5'.

Possible faults are:

'EC': Fault by Encoder

'EE': EEPROM writing or reading fault

'OC': Over current

'RS': Faulty reference switch

'IE': Internal software fault

'AP': Fault by position counter, door width > 5m

'TS': Faulty temperature sensor

'NE': Encoder not connected

'CF': Closing force potentiometer defect

'ME': Fault by motor or encoder

'SS': Standstill fault, door is blocked



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# Door Drive

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'TH': temperature of the electronic or motor too high

'FE': is set during manual change of coupler movement parameter.

#### 10.4.8.2 'F2 Belt Position'

actual position of the belt, positive- door panels open (then it is the door panel position), negative - coupler area

#### 10.4.4.3 'F3 Log Out'

By pressing F3 the communication between door drive and WPT is stopped and the WITTUR Programming Tool switches off.

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## 11 Default adjustment of ECO software

The max. close (nudging) speed must always be set according codes. EN81 requires the energy limit of  $E = 10J$  for closing ( $E = 4J$  for nudging), this must be calculated by the formula

$$E = \frac{m_{\text{equ}} * v_{\text{belt}}^2}{2}$$

Because of the different speeds of door panels (e.g. for telescopic doors) the mass  $m_{\text{equ}}$  has to be calculated as virtual mass seen from belt.

$$m_{\text{equ}} = m_{\text{antr}} + \text{sum of } (m_{\text{panel}} * (v_{\text{panel}} / v_{\text{belt}})^2)$$

$m_{\text{antr}}$  virtual mass of operator  
 $m_{\text{panel}}$  mass of the panel  
 $v_{\text{panel}}$  speed of the panel  
 $v_{\text{belt}}$  speed of the belt

The operator mass  $m_{\text{operator}}$  is about 10kg including motor, hanger plate and coupler.

The table below shows the default parameters for different speed settings. Close and nudging speeds are calculated according EN81 energy limitation (Max. mass =  $m_{\text{equ}}$ ).



If door panel mass  $m_{\text{equ}}$  is higher than Max. mass the next lower speed setting has to be selected, otherwise the door panels exceed the energy limit in closing direction.

The max. door speed setting is calculated with mass  $m_{\text{equ}}$  of 130kg. The close and nudging speed is then limited to the panel energy of 10J and 4J respectively.

This door times will also vary depending on:

- Door masses.
- Friction.
- Mechanical adjustments.
- Alignment of landing doors.
- User Interface SW parameters.

The time for coupler and lock movement is about 0.7 sec. in open and close direction.

Speed settings (acc. EN81)	Max. Mass [kg]	Open speed [m/s]	Close speed [m/s]	Nudging speed [m/s]
1	130	0,25	0,2	0,12
2	130	0,33	0,26	0,17
3	130	0,42	0,33	0,21
4	130	0,5	0,39	0,25



# Door Drive ECO

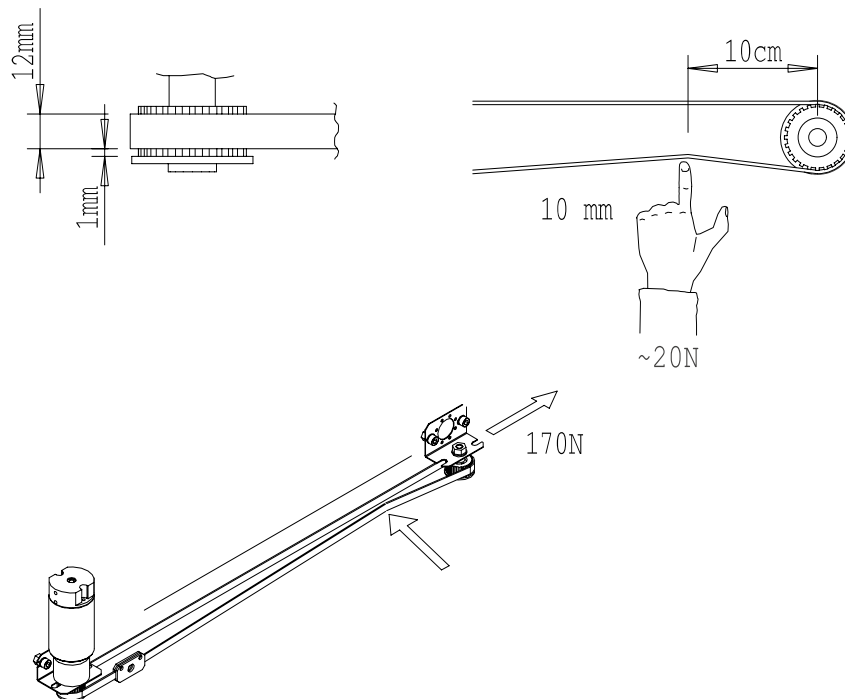
Operating instructions

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## 12 Drive belt

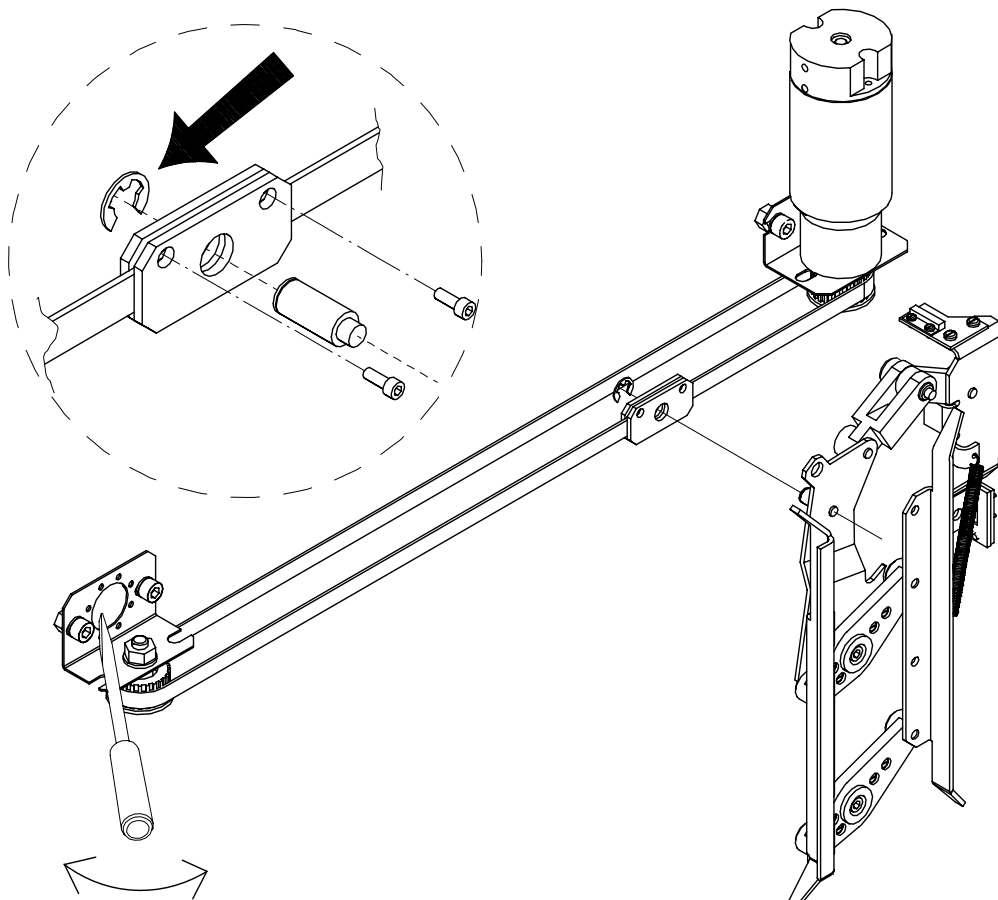
### 12.1 Belt tension

	Standard	Measure
1	Should be free from dust	
2	Should be in good condition	
3	Push belt by the finger as in picture, belt must bend about	10 mm
4	Belt must be above the toothed wheel edge to prevent noise	nom. 1 mm



## 12.2 Belt exchange

Step	Action
1.	Remove belt fixing: E-circlip railing1
2.	Release old belt from belt fixing plastic
3.	Shorten the new belt according to old belt
4.	Assemble the new belt. Loosen the fixing screws of the diverting pulley and tighten the belt with a screw driver.



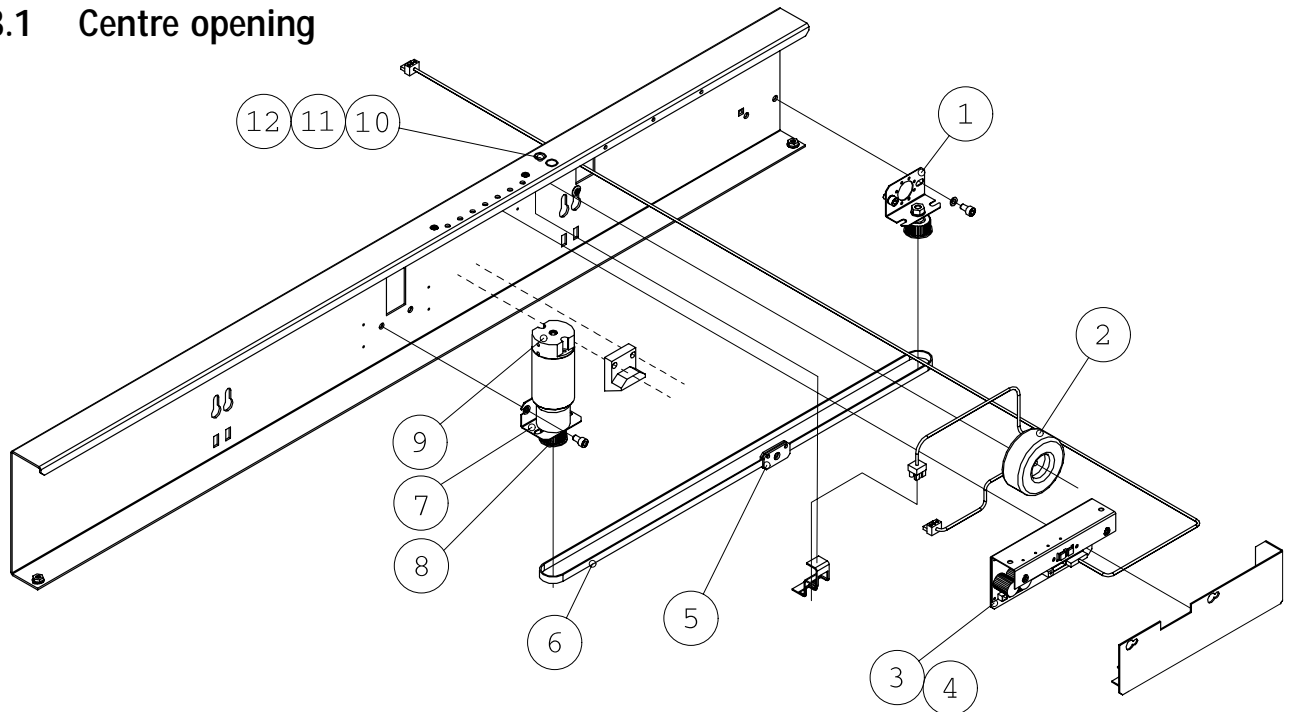
# Door Drive ECO

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## 13 Spare Parts

### 13.1 Centre opening



Pos.	Part number	Description	Remarks
1	601397 G01 900397 G01	Diverting pulley set Diverting pulley set	Diverting belt pulley for AMD Diverting belt pulley for Augusta/Hydra
2	901139 G01 901139 G02 901139 G04	Transformer Transformer Transformer (universal)	127V 50Hz/ 60Hz 230V 50Hz/ 60Hz 127V/ 230V/ 50Hz/ 60Hz
3	901140 G01	Electronic unit	including plugs
	901909 G01	Spare plug set	X1, X2, X5, X12, X15, X16, D1, D2
4	601812 G01	Magnet switch	Hamlin, magnet 256825. Available separately
5	89744 G02	Belt fixing	For belt 89740H.. (incl. e-circlip)
6	89740 H02 89740 H03	Belt Belt	Toothed belt, L=2050 Toothed belt, L=3510
7	901177 G03 901177 G04 900394 G03	Motor unit, coupler left Motor unit coupler right Motor unit, coupler left	For AMD, including Pos 8, 9 For AMD, including Pos 8, 9 For Augusta/Hydra, including Pos 8, 9
8	89631 H02	Toothed belt pulley	Available separately
9	602800 G03	Encoder	Available separately
10	601800 G02	Test drive buttons	
11	601473 H01	Button cover "close"	
12	601473 H02	Button cover "open"	

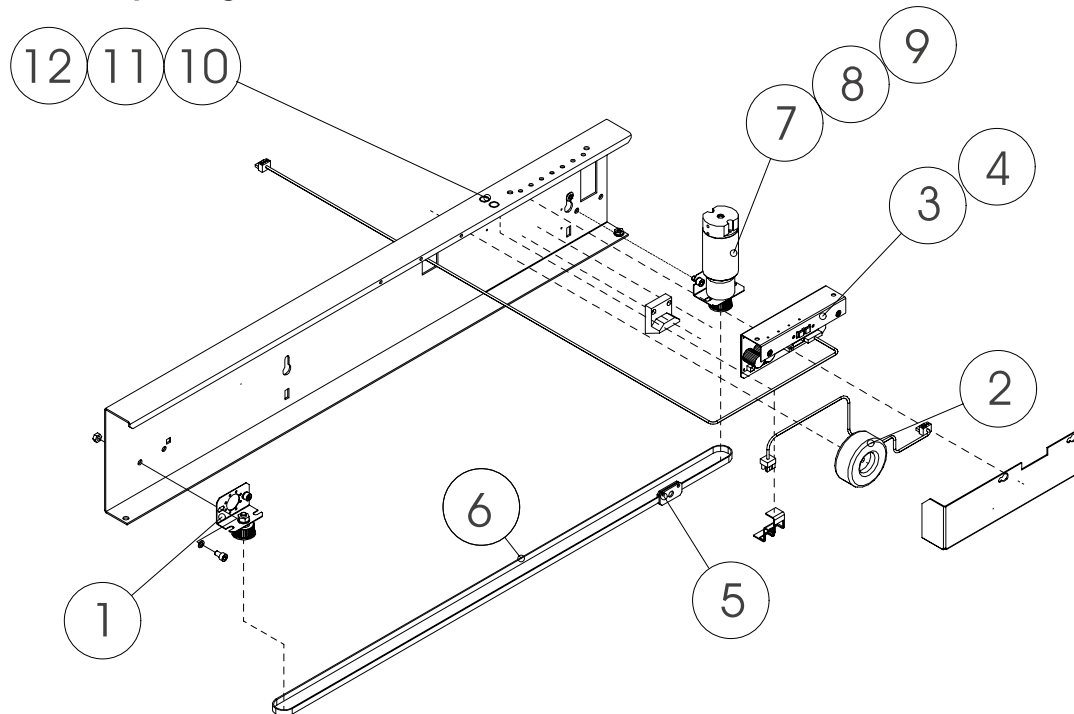
# Door Drive

## ECO

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### 13.2 Side opening



Pos.	Part number	Description	Remarks
1	601397 G01 900397 G01	Diverting pulley set Diverting pulley set	Diverting belt pulley for AMD Diverting belt pulley for Augusta/Hydra
2	901139 G01 901139 G02 901139 G04	Transformer Transformer Transformer (universal)	127V 50Hz/ 60Hz 230V 50Hz/ 60Hz 127V/ 230V/ 50Hz/ 60Hz
3	901140 G01 901909 G01	Electronic unit Spare plug set	including plugs X1, X2, X5, X12, X15, X16, D1, D2
4	601812 G01	Magnet switch	Hamlin, magnet 256825. Available separately
5	89744 G02	Belt fixing	For belt 89740H.. (incl. e-circlip)
6	89740 H03 89740 H04	Belt Belt	Toothed belt, L=3510 Toothed belt, L=4400
7	901177 G03 901177 G04 900394 G03 900394 G04	Motor unit, coupler left Motor unit coupler right Motor unit, coupler left Motor unit coupler right	For AMD, including Pos 8, 9 For AMD, including Pos 8, 9 For Augusta/Hydra, including Pos 8, 9 For Augusta/Hydra, including Pos 8, 9
8	89631 H02	Toothed belt pulley	Available separately
9	602800 G03	Encoder	Available separately
10	601800 G02	Test drive buttons	
11	601473 H01	Button cover "close"	
12	601473 H02	Button cover "open"	