

# ED50

Low Energy Automatic Swing Door Operator  
Installation in Surface Applied Header

## Service Manual

DL4614-060 – 08-2018

| EN |

dormakaba 

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# 1 General information

## 1.1 Service Manual

This manual provides service information for ED50 low energy automatic swing door operators.

## 1.2 Manual storage

This document must be kept in a secure place, and accessible for reference as required. If the door system should be transferred to another facility, insure that this document is transferred as well.

## 1.3 dormakaba.com website

Manuals are available for review, download, and printing on [dormakaba.com/us](http://dormakaba.com/us) website.

## 1.4 Dimensions

Unless otherwise specified, all dimensions are given in inches (").

## 1.5 Symbols and labels used in these instructions



**WARNING**

Electric shock hazard!



**WARNING**

Hand pinch point and crushing hazards!



**WARNING**

Crushing hazards!

## 1.5 Symbols and labels used in these instructions



**WARNING**

This symbol warns of hazards which could result in personal injury or threat to health.

## NOTICE

Draws attention to important information presented in this document.

## CAUTION

This symbol warns of a potentially unsafe procedure or situation.



## TIPS AND RECOMMENDATIONS

Clarifies instructions or other information presented in this document.

# 2 Product description

## 2.1 ED50 Intended use

- ED50 low energy automatic swing door operators are designed to be installed on an interior building surface.
- These operators are used for opening and closing interior or exterior swing doors.
- ED50 maximum door width of 48 inches at 220 pounds.

Fig.2.1 ED50 header

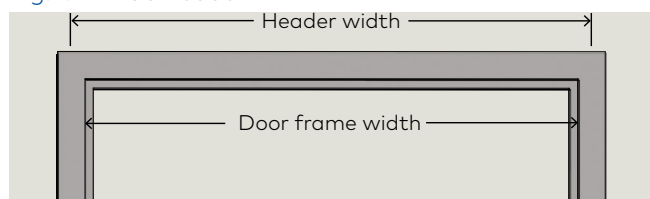
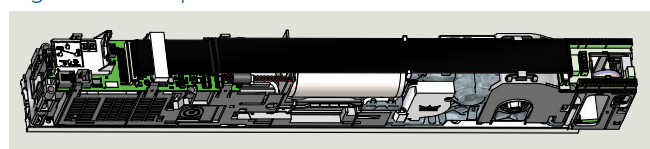


Fig.2.2 ED50 operator



# 3 Safety information

## 3.1 Safety instructions

This document contains important information for servicing ED50 low energy swing door operators. Review applicable information thoroughly prior to operator troubleshooting and maintenance.

## 3.2 Door signage requirements

Proper signs and labels shall be applied and maintained on the door controlled by the ED50 swing door operator per ANSI/BHMA A156.19, Standard for power assist and low energy power operated doors, paragraph 8, ED50 door signage.

## 3.3 Safety warnings



### WARNING

Hazard to mechanical processes by use of control settings, elements, or procedures not documented in this manual!



### WARNING

Electric shock hazard!  
 • By use of control elements, settings, or procedures not documented in this manual!



### WARNING

Work on electrical equipment and 115 Vac wiring must be performed only by qualified personnel!



### WARNING

Hand pinch point and crushing hazards at door closing edges!

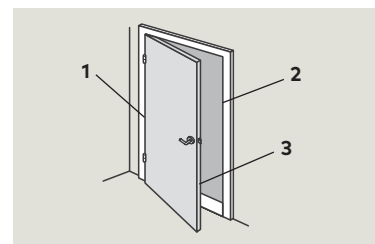


### WARNING

Crushing hazards at door closing edges!

- 1 Secondary closing edge
- 2 Opposing closing edge
- 3 Main closing edge

Fig. 3.1 Door closing edges



### WARNING

Hand pinch point and crushing hazards!  
 • Pull arm and track  
 • Push arm

Fig. 3.2 Pull arm and track

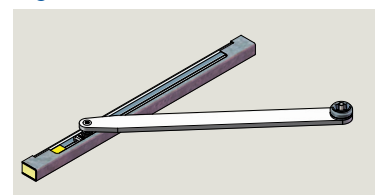
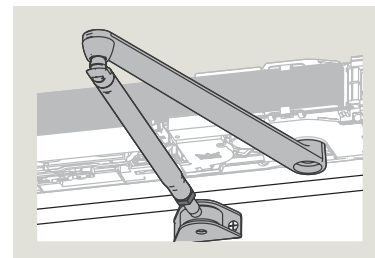


Fig. 3.3 Push arm





# 4 ED50

## 4.1 ED50 operator component views

- 1 Power switch
- 2 120 Vac cable
- 3 Housing unit
- 4 Drive axle connection
- 5 Operator (motor, gear, spring)
- 6 Spring tension adjustment, closing force
- 8 4 button user interface
- 9 Information display
- 11 Potentiometer, closing speed adjustment
- 12 Terminal jumper socket, push or pull mounting
- 15 RJ45 socket, double door operator synchronization
- 16 Com 1 service connector
- 17 Accessories terminal board
- 18 Mounting plate
- 19 Customer ground terminal
- 20 Guide pin
- 21 Ribbon cable
- 22 Ribbon cable socket
- 23 Upgrade card socket
- 24 Motor
- 25 Encoder socket and cable
- 26 Motor socket and cable
- 27 Control board
- 28 Motor brake

Fig. 4.1.1 ED50 component view one

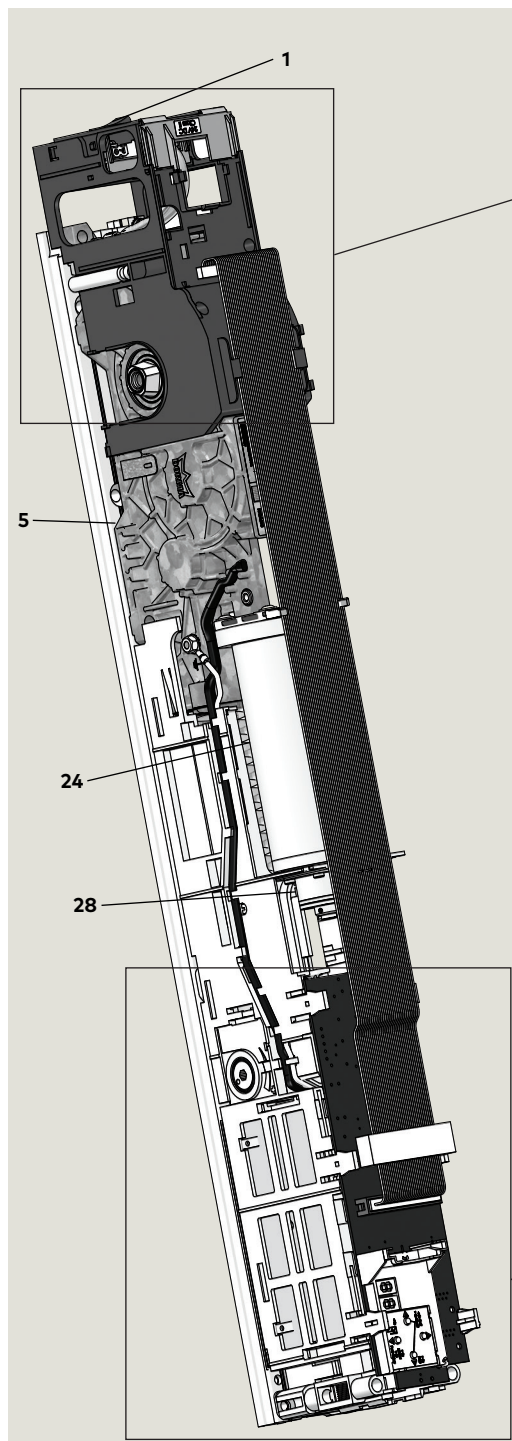


Fig. 4.1.2 ED50 terminal board detail

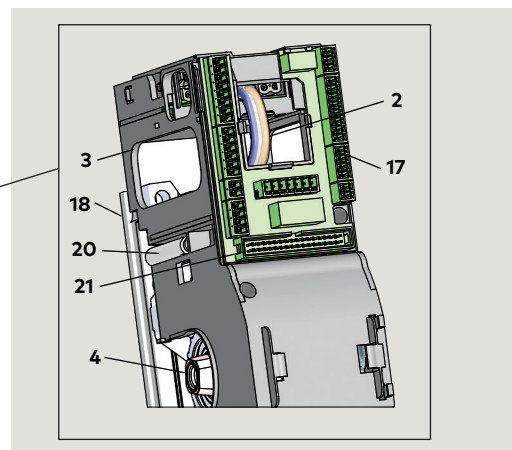
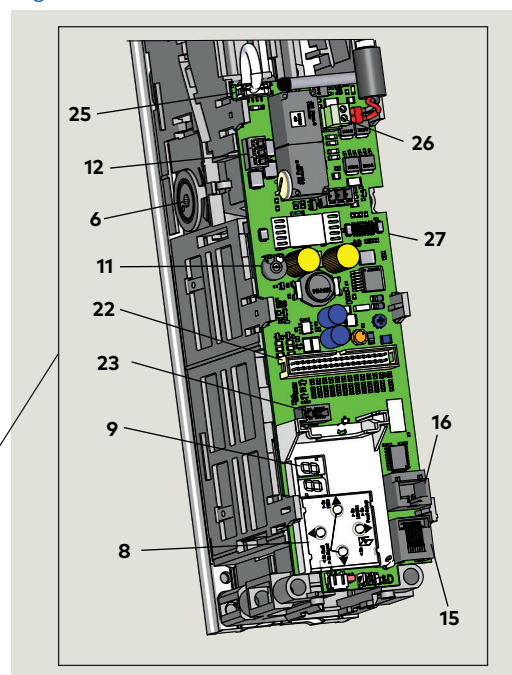


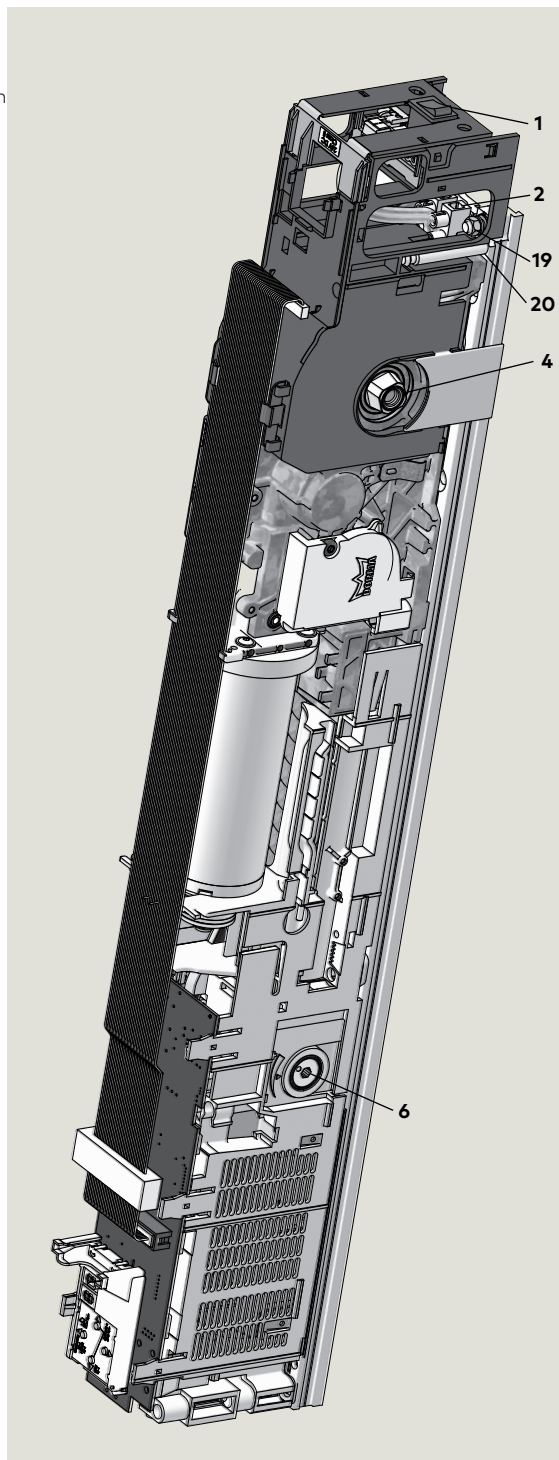
Fig. 4.1.3 ED50 control board detail



## 4.2 Arm configurations

Fig. 4.1.4 ED50 component view two

- 1 Power switch
- 2 120 Vac terminals
- 4 Drive axle connection
- 6 Spring tension adjustment, closing force
- 19 Customer ground terminal
- 20 Guide pin



- 1.1 Arm
- 1.2 Adjustment screw
- 1.3 Connecting rod
- 1.4 Shoe
- 1.5 Axle extension
- 1.6 Extended connecting rod

- 2.1 Arm
- 2.2 Track
- 2.3 Pivot pin
- 2.4 Slide shoe
- 2.5 Cover
- 2.6 CPD arm
- 2.7 CPD lever

Fig. 4.2.1 Push arm kit

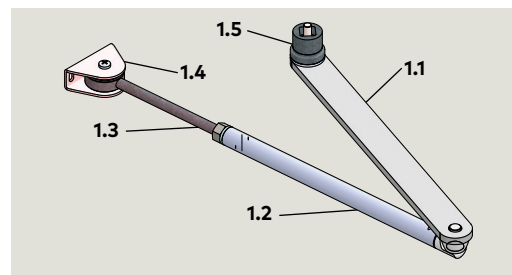


Fig. 4.2.2 Deep push arm kit

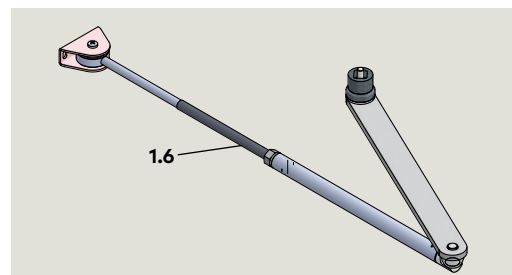


Fig. 4.2.3 Pull arm kit

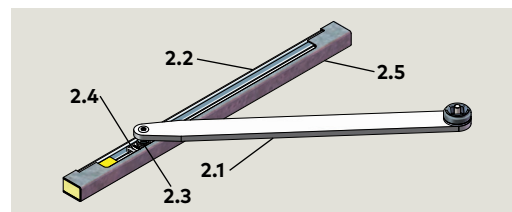
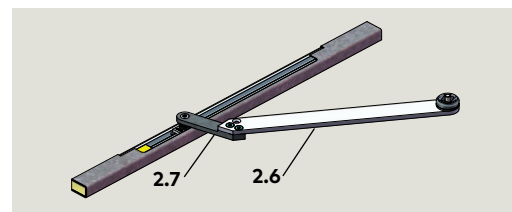


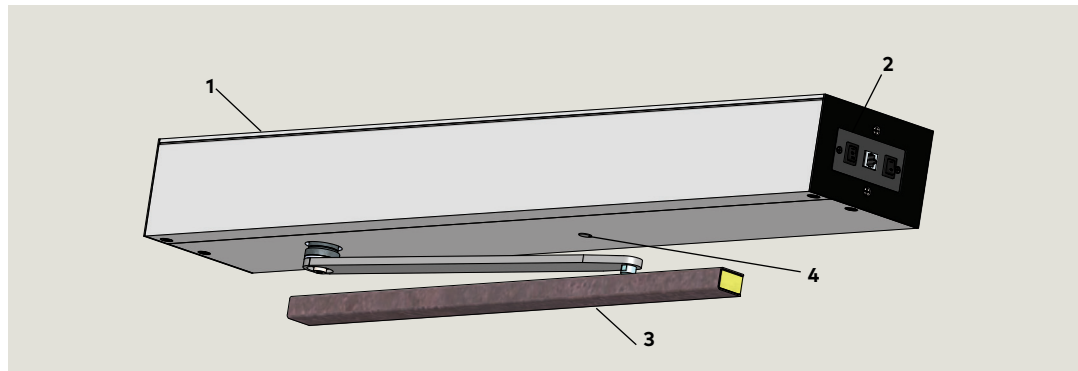
Fig. 4.2.4 CPD pull arm kit



### 4.3 Header assembly

Fig. 4.3.1 ED50 header assembly

- 1 Header
- 2 Program switch panel
- 3 Pull arm with track
- 4 Access hole for spring tension

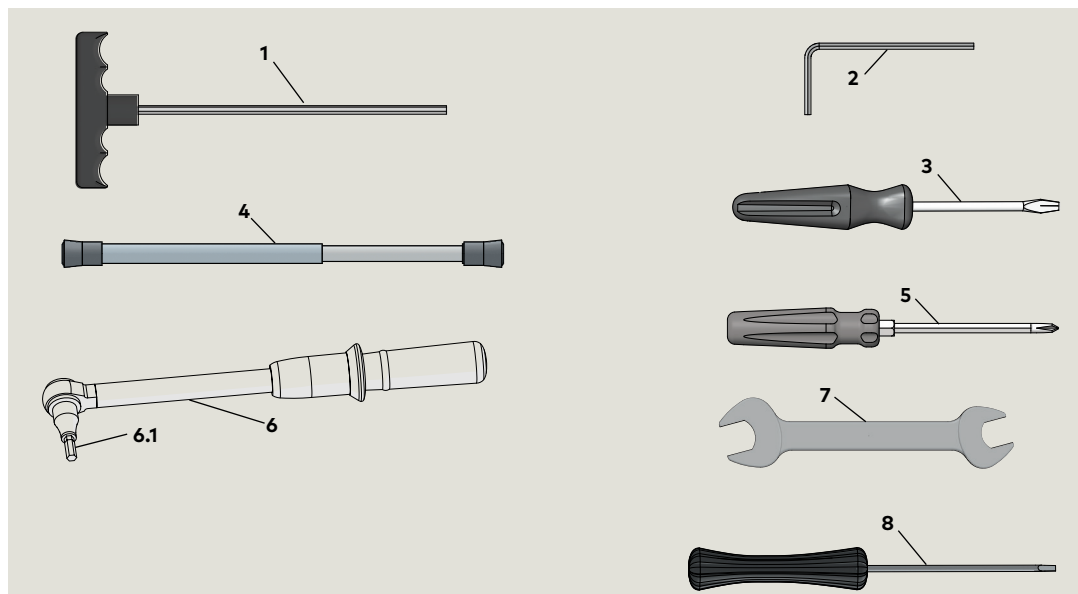


## 5 Recommended tools, tightening torque

### 5.1 Recommended tools

Fig. 7.1.1 Recommended tools

- 1 T-handle hex key, 5 mm
- 2 Hex keys, 2.5 mm, 3 mm, 6 mm
- 3 Screwdriver, flat blade
- 4 Door pressure gauge, 0 to 35 ft - lbf
- 5 Screwdriver, Phillips, #2 and #3
- 6 Torque wrench, 3 to 35 ft lb
- 6.1 5 mm hex key socket
- 7 Open end wrench, 13 mm
- 8 Screwdriver, flat blade., M2 (1/16 to 3/32")



### 5.2 Standard tightening torque

#### 5.2.1 Standard tightening torque

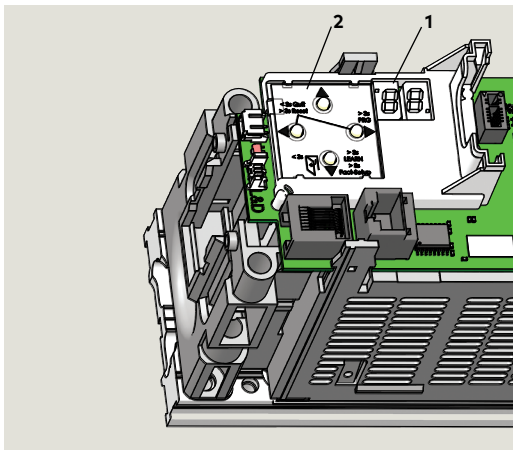
Fastener size	ft lb	N m
M5	3.7	5
M6	7	9.5
M8	17	23
M10	34	34
M12	58	58

# 6 User interface

## 6.1 Overview

- 1 2 digit display
- 2 4 button keypad

Fig. 6.1.1 4 button keypad and display



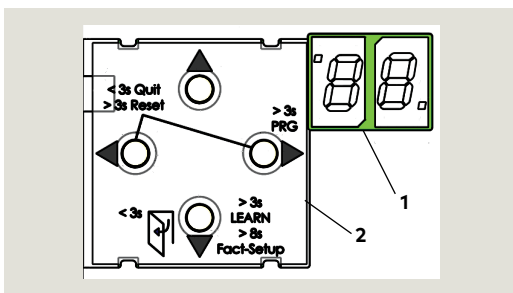
### 6.1.1 Operator user interfaces.

1. 4 button keypad and 2 digit display.
  - 4 button keypad; to input and adjust door parameter values.
  - 2 digit display; parameter values, error and information codes.

## 6.2 4 button keypad and display

- 1 2 digit display
- 2 4 button keypad

Fig. 6.2.1 4 button keypad and display



### TIPS AND RECOMMENDATIONS

- Symbols
- "<", Less than
  - ">", Greater than

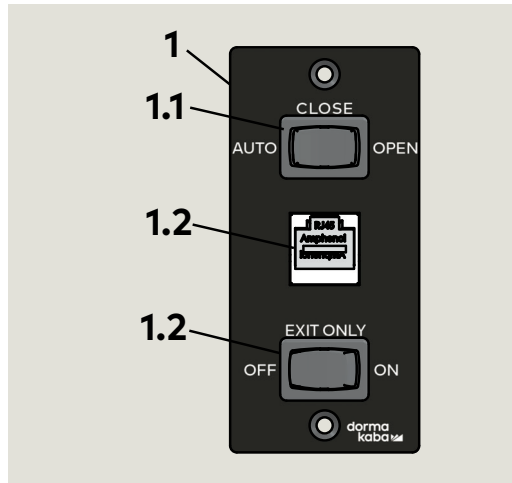
### 6.2.1 4 button keypad functions.

▶	Right button	<ol style="list-style-type: none"> <li>1. Access parameter menu, press button &gt; 3 seconds.</li> <li>2. Edit selected parameter.</li> <li>3. Save changed value.</li> </ol>
◀	Left button	<ol style="list-style-type: none"> <li>1. &lt; 3 s; Quit</li> <li>2. &lt; 3 s; Reset</li> </ol>
◀▶	Both buttons together	<ol style="list-style-type: none"> <li>1. Acknowledge errors, press both buttons &lt; 3 s.</li> <li>2. Reset, press both buttons &gt; 3 s.</li> </ol>
▲	Up button	<ol style="list-style-type: none"> <li>1. Scroll through parameters and error messages.</li> <li>2. Increase parameter value.</li> </ol>
▼	Down button	<ol style="list-style-type: none"> <li>1. Scroll through parameters and error messages.</li> <li>2. Reduce parameter value.</li> <li>3. Opening pulse, press button &lt; 3 s.</li> <li>4. Learning cycle, press button &gt; 3 s.</li> <li>5. Reset with factory setting, press button &gt; 8 s (program switch Close position).</li> <li>6. Identify operator orientation for display.</li> </ol>

### 6.3 Program switch panel

- 1 Program switch panel
- 2 Program switch, 3 position
- 3 Exit Only switch, 2 position
- 4 Comm port for dormakaba handheld

Fig. 6.3.1 Program switch panel



#### 6.3.1 Program switch door control modes.

- Auto, door opens following pulse generation by a knowing act device or by push/pull.
- Close, door closes automatically, or remains closed.
- Open, door opens automatically and remains open.

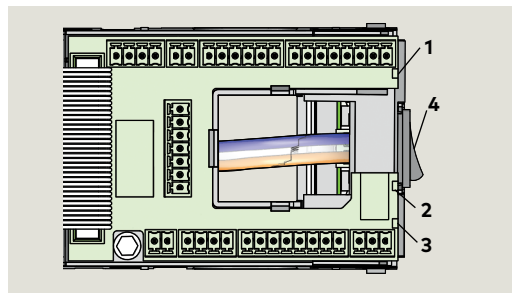
#### 6.3.2 Exit only switch modes.

- Used when activation sensors are installed.

### 6.4 Operator status LEDs

- 1 Red LED
- 2 Yellow LED
- 3 Green LED
- 4 Power switch

Fig. 6.4.1 Operator status LEDs



#### 6.4.1 Operator status LEDs.

Header cover must be opened to view LEDs.

1. Red LED  
Blinking codes are used to indicate "In\_" information (system status or operating conditions) or certain error codes "E\_".
2. Yellow LED  
Maintenance interval indicator. When illuminated, an indication the operator system has to be serviced.
3. Green LED
  - On, internal 24 Vdc power is On.
  - Off, internal 24 Vdc power is Off.

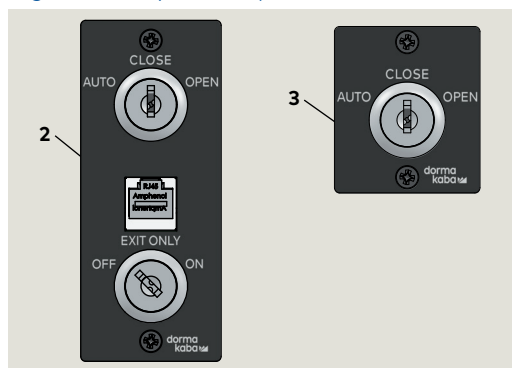
**i TIPS AND RECOMMENDATIONS**

Details on LED status codes and maintenance intervals can be found in Chapter 15, Troubleshooting.

### 6.5 Optional key switch panels

- 2 Key switch panel, RJ45, DX4604-21C
- 3 Key switch panel DX4604-11C

Fig. 6.5.1 Key switch panels



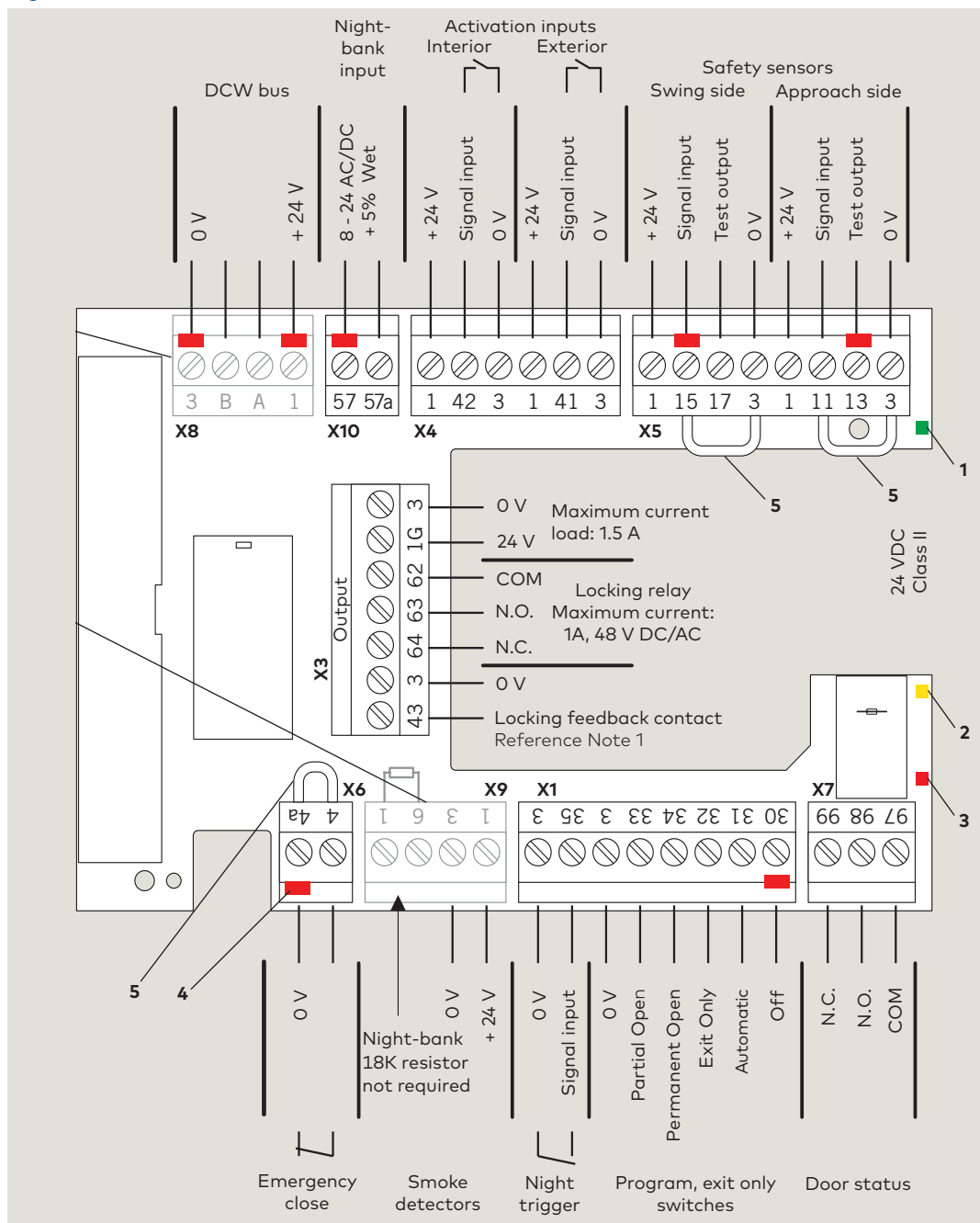
For wiring diagrams reference ED50 SA Installation Manual; Appendix A.

# 7 Terminal board accessory interfaces

## 7.1 ED50 terminal board accessory interfaces

Fig. 7.1.1 Terminal board electrical connections

- 1 Green LED (Para. 6.4)
- 2 Yellow LED (Para. 6.4)
- 3 Red LED (Para. 6.4)
- 4 Key (red insert) location in socket. Assigned plug has tab broken off in same location.
- 5 Jumpers, factory installed at following terminals:
  - 4 and 4a
  - 15 and 3\*
  - 11 and 3\*
 \* Remove jumpers if safety sensors installed.
- 6 DCW upgrade card plug. Not used.
- 7 Fire protection upgrade card plug. Not used.



Note 1: Terminals 3 and 43 also used for swing side overhead presence sensor input when parameter ST is set to 7 or 8. Reference Chapter 14.



# 8 ED50 door signage

## 8.1 Low energy operator

### 8.1.1 Overview

Signage and warnings are specified in ANSI /BHMA A156.19; American National Standard for power assist and low energy power operated doors.

### 8.1.2 All low energy doors.

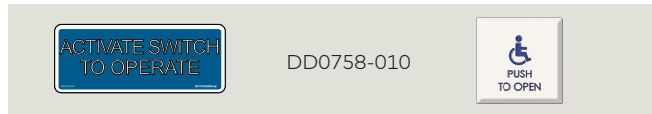
Fig. 8.1.1 AUTOMATIC CAUTION DOOR decal



1. AUTOMATIC CAUTION DOOR decal.
  - All low energy doors shall be marked with signage visible from both side of door with the words "AUTOMATIC CAUTION DOOR".
  - Signs shall be mounted  $50" \pm 12"$  from floor to centerline of sign.

### 8.1.3 Knowing act switch used to initiate door operation.

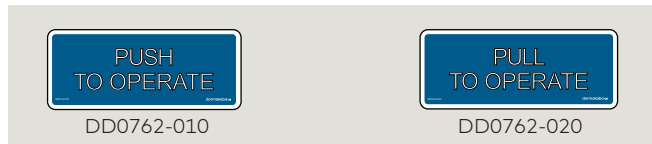
Fig. 8.1.2 ACTIVATE SWITCH TO OPERATE decal



1. ACTIVATE SWITCH TO OPERATE decal.
  - When a knowing act device is used to initiate operation of door operator, door shall be provided with sign on each side of door where switch is operated with message "ACTIVATE SWITCH TO OPERATE".

### 8.1.4 Push/Pull used to initiate door operation.

Fig. 8.1.3 PUSH TO OPERATE, PULL TO OPERATE decals



1. PUSH TO OPERATE, PULL TO OPERATE decals.
  - When push/pull is used to initiate operation of door operator, doors shall be provided with the message "PUSH TO OPERATE" on push side of door and "PULL TO OPERATE" on pull side of door.

## 8.2 Door signage, low energy single swing door

Fig. 8.2.1 Knowing act device initiation of door operation

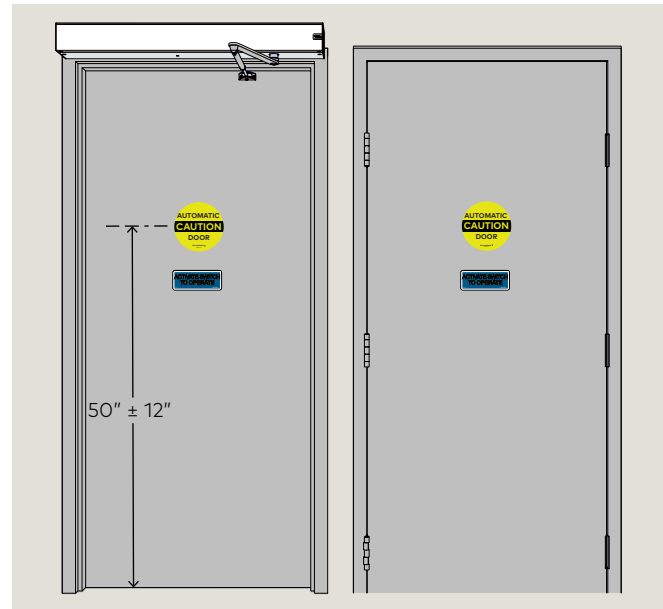
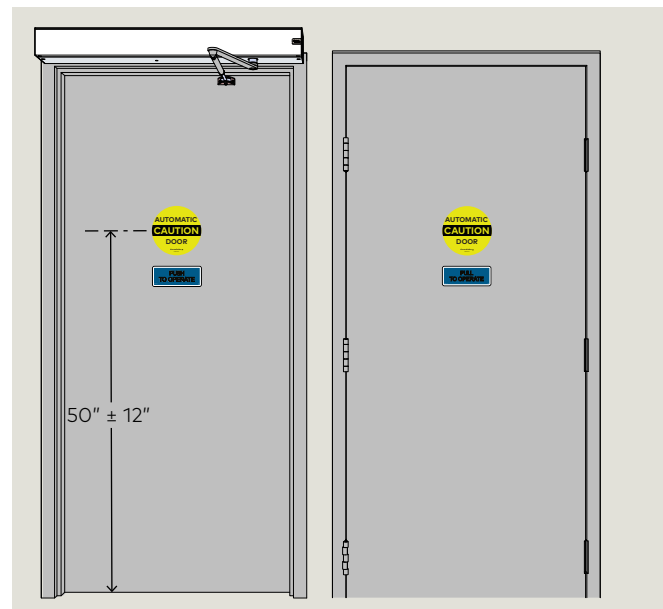


Fig. 8.2.2 Push/Pull initiation of door operation  
Push Pull



### 8.3 Door signage, low energy double swing doors

Fig. 8.3.1 Knowing act, non-hinge side

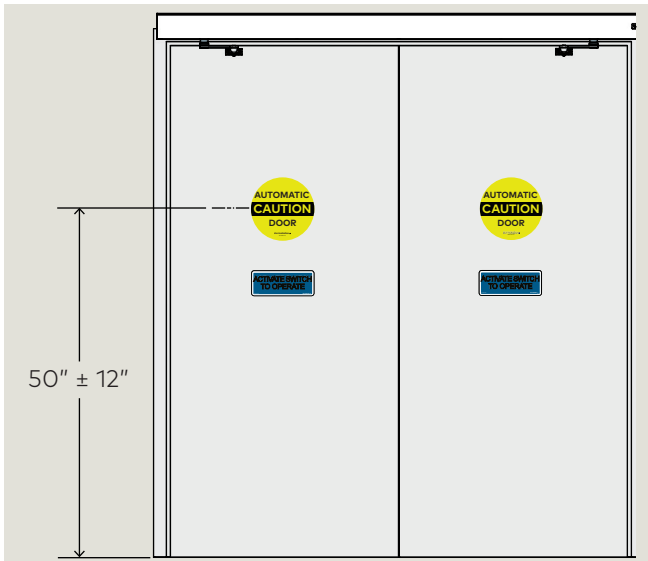


Fig. 8.3.2 Knowing act, hinge side

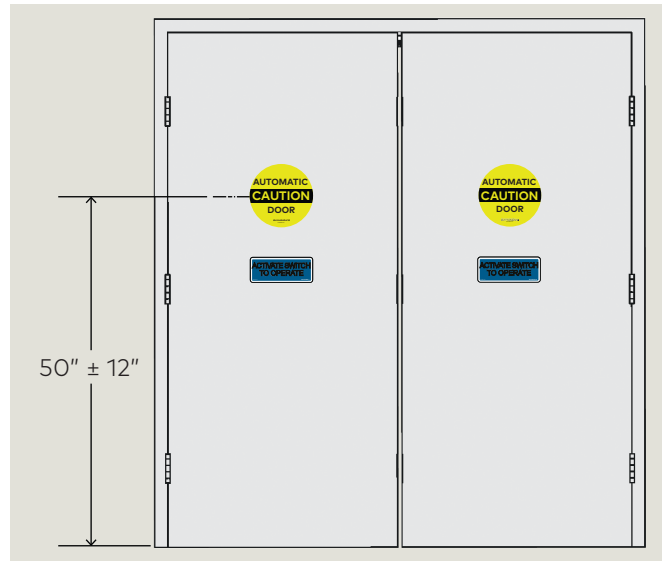


Fig. 8.3.3 Push/Pull, push to operate

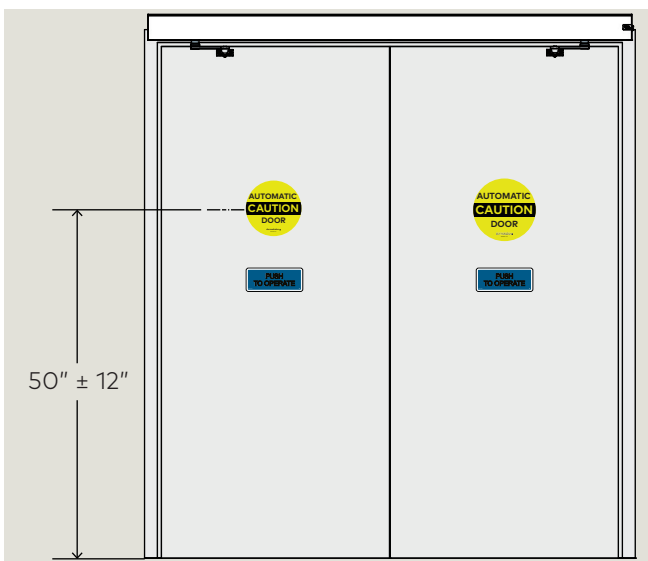


Fig. 8.3.4 Push/Pull, pull to operate

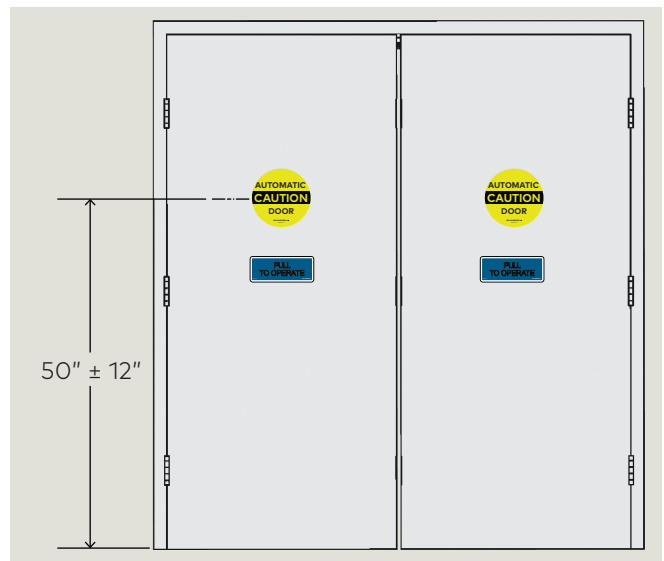


Fig. 8.3.5 Double egress, RH, knowing act

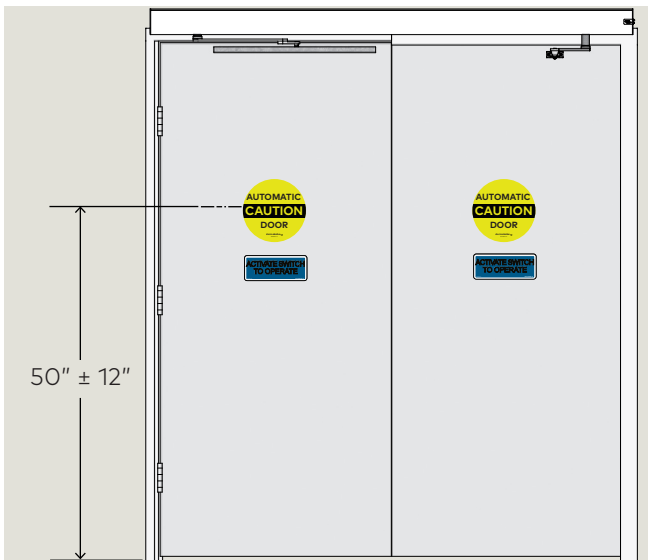
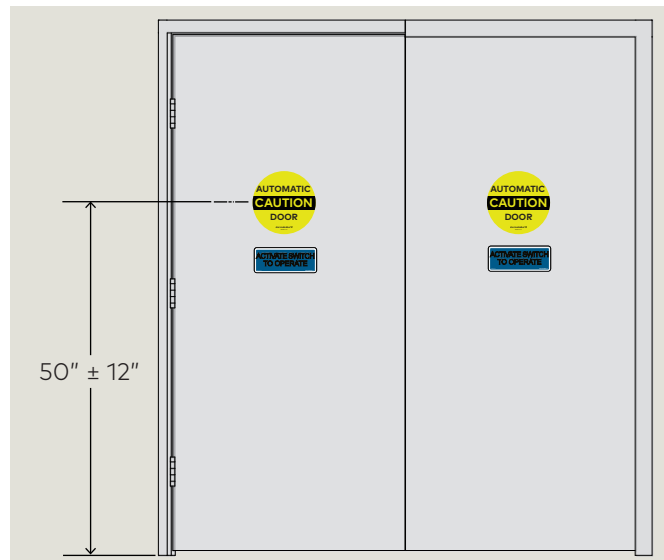


Fig. 8.3.6 Double egress, RH, knowing act





# 9 Maintenance

## 9.1 Safety information label, low energy swinging doors

### 9.1.1 Low energy swinging door safety information label.

This AAADM label outlines safety checks that should be performed daily on low energy swinging door controlled by an ED50 operator.

### 9.1.2 Safety information label location.

Place label in a protected, visible location on door frame, near operator power switch if possible.

### 9.1.3 Annual compliance section of label.

This section of label is only completed on low energy swing doors that comply with ANSI/BHMA A156.19 standard and pass inspection by a AAADM certified dormakaba USA, Inc. technician.

### 9.1.4 Additional annual compliance inspection labels.

Place additional labels over annual compliance inspection section of safety information label.

Fig. 9.1.1 Low energy annual compliance inspection label

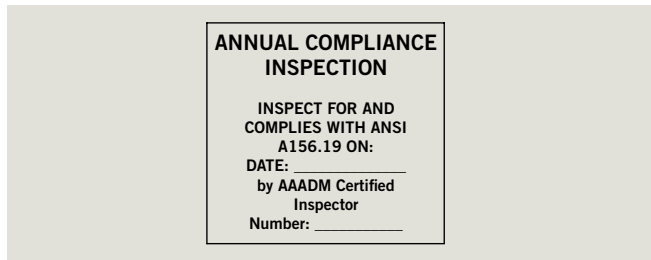
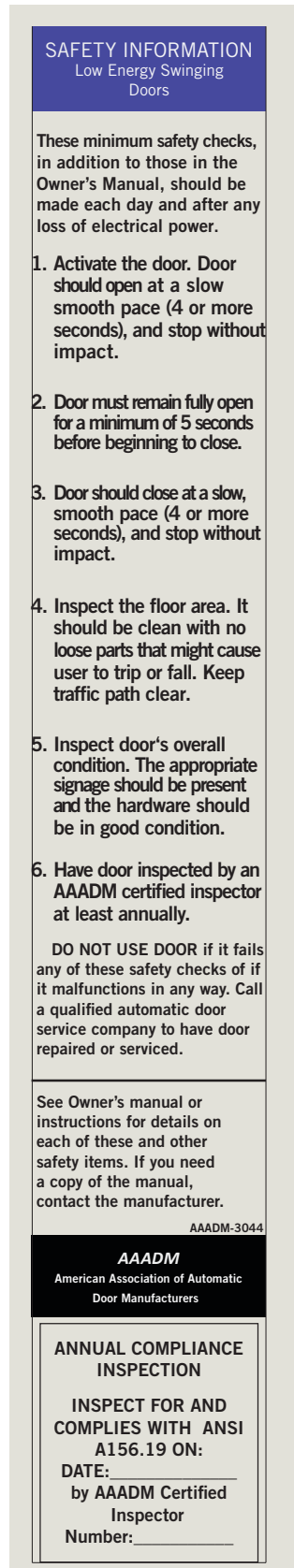


Fig. 9.1.2 Low energy safety information label

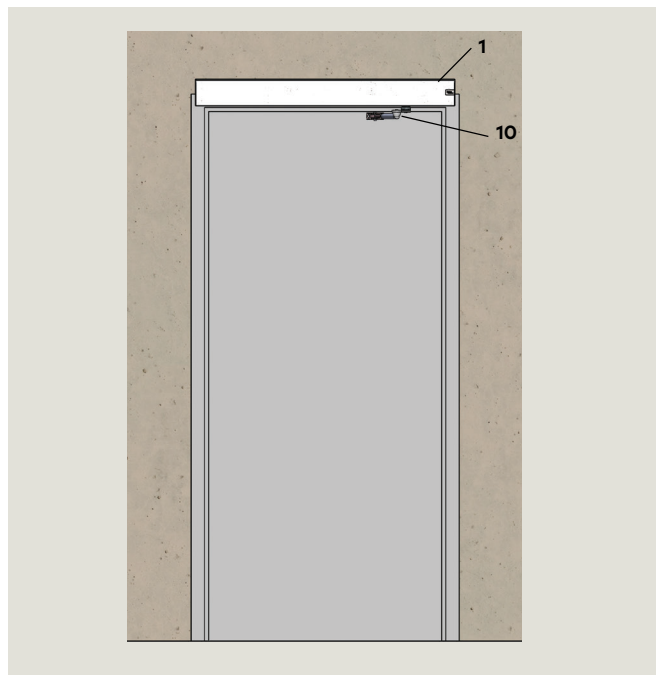


## 9.2 ED50 environment and cleaning

**Table 9.3.1 Operator environmental requirements.**

Ambient temperature	5 to 122 °F
Suitable for dry rooms only	Relative air humidity: 93% maximum, non-condensing

Fig. 9.2.1 ED50 header



### 9.2.1 ED50 environmental requirements.

ED50 header assembly is designed to operate on an interior building surface under the specifications shown in Table 9.3.1.

### 9.2.2 Areas around door(s) and door swing radius.

Areas around doors and door swing radius must be kept clear of all obstacles.

### 9.2.3 Cleaning



#### WARNING

Cleaning of header surfaces must be done with program switch in Close position!

External surfaces of the header can be cleaned with a damp cloth and commercial cleaning agents.



#### TIPS AND RECOMMENDATIONS

Abrasive (scouring) agents should not be used as they may damage external surfaces.

### 9.2.4 Water and other liquids.



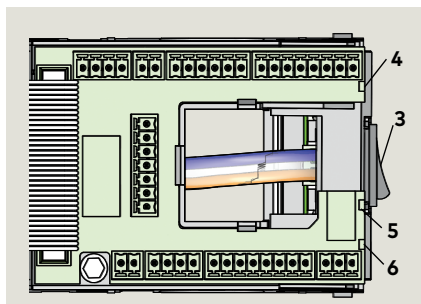
#### WARNING

No water or other liquids must be sprayed or spilled on ED50 header!

## 9.3 Yellow LED, service level

Fig. 9.3.1 Service level indicator

- 3 Power switch
- 4 Red LED
- 5 Yellow LED
- 6 Green LED



### 9.3.1 Service level indicator

Header cover must be opened to view operator LEDs.

Yellow LED on operator power switch side is service level indicator. Operator system should be scheduled for service when yellow LED is first illuminated, or annually, whichever comes first.



#### TIPS AND RECOMMENDATIONS

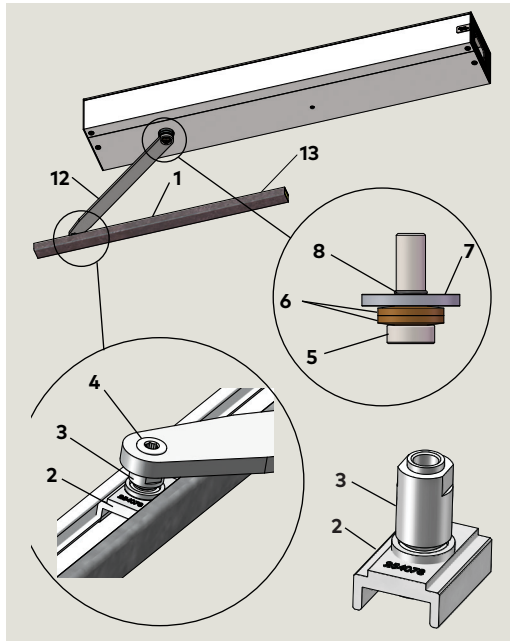
Reference Chapter 14, parameters, for information on:

- Parameter CS, reset service interval display.
- Parameter CC, cycle counter.

## 9.4 Pull arm maintenance

- 1 Track
- 2 Slide shoe
- 3 Pivot pin
- 4 Shoulder screw, 5 mm hex key
- 5 M8 SHCS\*  
\*custom SHCS
- 6 Conical spring
- 7 Flat washer
- 8 O ring
- 12 Pull arm
- 13 Cover

Fig. 9.4.1 Pull arm with track assembly



### WARNING

Set program switch to CLOSE before performing maintenance!

Fig. 9.4.2 Program switch

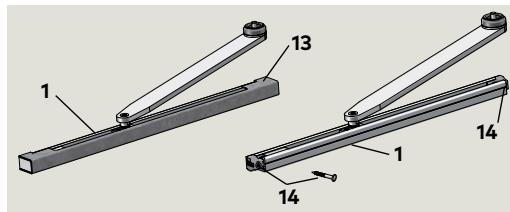


### 9.4.1 Pull arm and track maintenance.

1. Track
  - Check for wear or damage.
2. Slide shoe and pivot pin
  - Check for wear or damage.

Fig. 9.4.3 Track mounting screws

- 1 Track
- 13 Cover
- 14 Mounting screws.



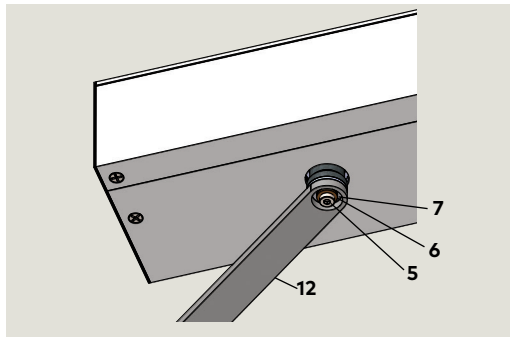
### 9.4.2 Track mounting screws.

1. Remove cover from track.
2. Check tightness of track mounting screws.

## 9.5 Pull arm torque requirements

Fig. 9.5.1 Pinion bolt torque

- 5 M8 SHCS\*  
\*custom SHCS
- 6 Conical spring
- 7 Flat washer
- 12 Pull arm



### 9.5.1 Check pinion bolt (5) torque.

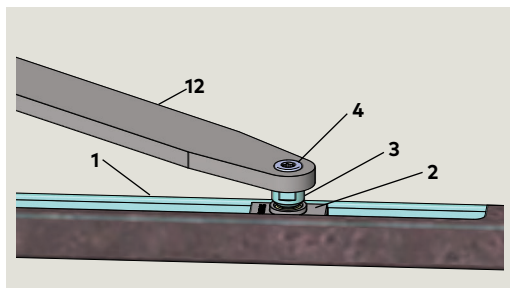
1. Insure M8 SHCS, conical spring and washer are properly seated in pull arm.

### CAUTION

Using torque wrench with 5 mm hex key socket, torque M8 SHCS to 26 ft-lb.

Fig. 9.5.2 Shoulder screw torque

- 1 Track
- 2 Slide shoe
- 3 Pivot pin
- 4 Shoulder screw, 5 mm hex key
- 12 Pull arm



### 9.5.2 Check shoulder screw (4) torque.

1. Hold pivot pin with 13 mm open end wrench and use torque wrench with 5 mm hex key to check for 26 ft lb [35 N·m]. Adjust if necessary.

### CAUTION

Using torque wrench with 5 mm hex key socket, torque M8 SHCS to 26 ft-lb.

## 9.6 Push arm maintenance

- 1 Adjustment screw
- 2 Push arm
- 3 Connecting rod assembly
- 3.1 Nut
- 4 M8 SHCS\*  
\*custom SHCS
- 5 Shoe
- 5.1 Shoe mounting screws (2)
- 6 Arm socket
- 7 Adjustment screw ball head

Fig. 9.6.1 Push arm assembly

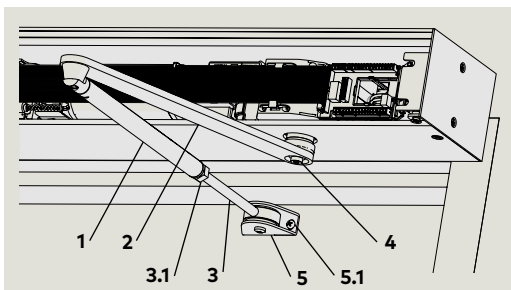
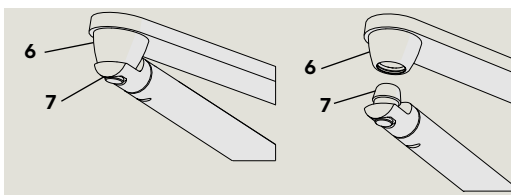


Fig. 9.6.3 Arm socket and ball head

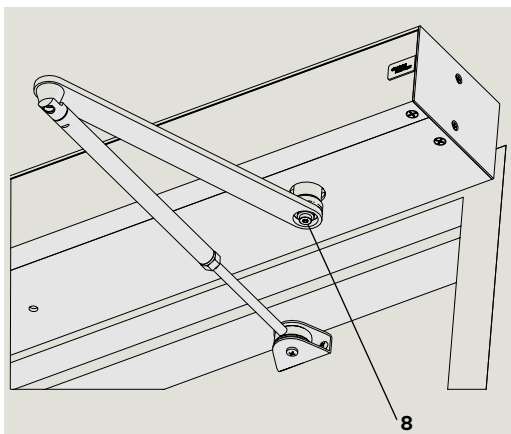


Note: Exploded view shown for reference.

## 9.7 Push arm torque requirements

- 8 M8 SHCS (custom)

Fig. 9.7.1 Push arm M8 SHCS



**WARNING**

Set program switch to CLOSE before performing maintenance!

Fig. 9.6.2 Program switch



### 9.6.1 Push arm maintenance.

1. Push arm socket and adjustment screw ball head:
  - Check for wear or damage.
2. Shoe and connecting rod assembly:
  - Check for wear or damage.
3. Connecting rod nut:
  - Check for tightness of nut against adjustment screw.

### 9.6.2 Shoe mounting screws to door.

1. Check for tightness of mounting screws.



### 9.7.1 M8 SHCS torque

**CAUTION**

Using torque wrench with 5 mm hex key socket, torque M8 SHCS to 26 ft-lb.

# 10 Measure reveal depth, parameter rd

## 10.1 Reveal depth parameter rd

Parameter	Description	Reference paragraph
2  	Reveal depth	

### 10.1.1 Reveal depth parameter.

1. Reveal depth is set in increments of 10 mm (approximately 3/8").
2. Measured reveal depth of 30 mm (approximately 1 3/16") equals **rd** parameter value of 3.

## 10.2 Measure and record reveal depth, rd value

### 10.2.1 Reveal depth parameter.

Parameter rd value	Reveal measurement



### TIPS AND RECOMMENDATIONS

Use of CPD pull arm and lever (Para. 4.2):  
 Value of parameter rd must be reduced by 3/16" [30].  
 Example: ED50 with CPD pull arm and lever in pull installation with reveal of 30 mm (1 1/8").  
 Parameter rd setting = 0  
 (Reveal of 30 mm - 30 mm).

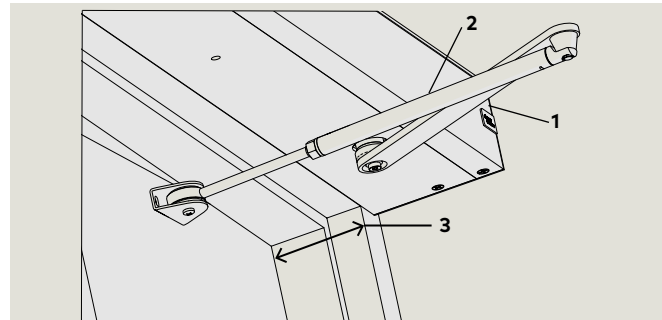
## 10.3 rd parameter values

### 10.3.1 ED50 reveal depths, rd parameter.

-1 3/16	-30	-3
-3/4	-20	-2
-3/8	-10	-1
0	0	0
3/8	10	1
3/4	20	2
1 1/8	30	3
1 9/16	40	4
1 15/16	50	5
2 3/8	60	6
2 3/4	70	7
3 1/8	80	8

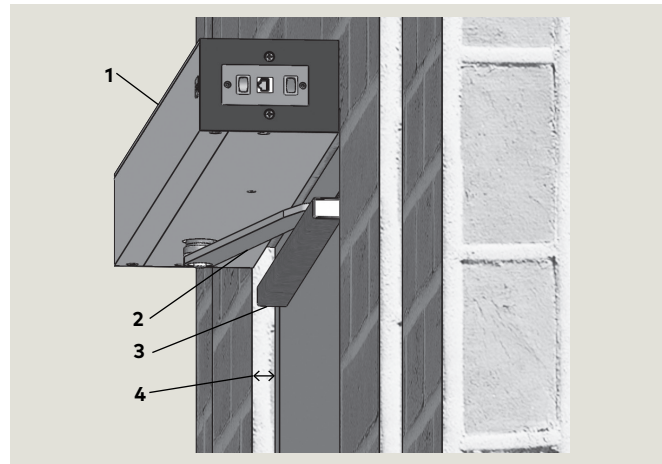
Reveal measurement		
ED50		
Inches	[mm]	rd
3 1/2	90	9
3 15/16	100	10
4 5/16	110	11
4 3/4	120	12
5 1/8	130	13
5 1/2	140	14
5 7/8	150	15
6 5/16	160	16

Fig. 10.1.1 Positive reveal



- 1 ED50 header
- 2 Push arm
- 3 Positive reveal

Fig. 10.1.2 Negative reveal



- 1 ED50 header
- 2 Pull arm
- 3 Track
- 4 Negative reveal

Reveal measurement		
ED50		
Inches	[mm]	rd
6 11/16	170	17
7	180	18
7 1/2	190	19
7 7/8	200	20
8 1/4	210	21
8 5/8	220	22
9	230	23
9 7/16	240	24

Reveal measurement		
ED50		
Inches	[mm]	rd
9 13/16	250	25
10 1/4	260	26
10 5/8	270	27
11	280	28
11 7/16	290	29

# 11 Operator spring tension

## 11.1 Set operator spring tension

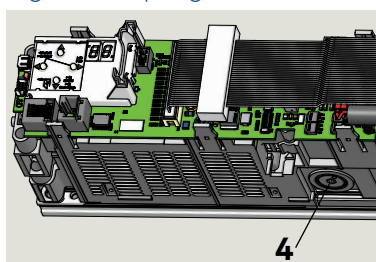
- 1 ED50 operator
- 2 Spring tension adjustment access hole in header
- 3 T handle hex key, 5 mm

Fig. 11.1.1 Spring tension adjustment



- 4 Spring tension adjustment

Fig. 11.1.2 Spring tension



### 11.1.2 Operator spring tension function.

- 1. Spring tension sets closing force on door.
- 2. Required spring tension is based on door width.

### 11.1.3 Spring tension adjustment factory setting.

- 1. Spring tension adjustment is factory set fully CCW, no spring tension.
- 2. Spring has to be pretensioned per Para. 11.1.1.

### 11.1.1 Spring tension setting revolutions.

Door width				
Inches	32	36	42	48
mm	813	914	1067	1219
Spring setting revolutions				
ED50	10	14	16	18

**CAUTION**

A minimum of ten spring tension revolutions are required to operate system.

**CAUTION**

Any change to spring tension setting requires a new learning cycle (Chapter 13)!



### TIPS AND RECOMMENDATIONS

System checks spring tension during learning cycle (Chapter 13).

Learning cycle will be canceled if spring is insufficiently tensioned; door will stop and display will show a rotating "0" and an "F".

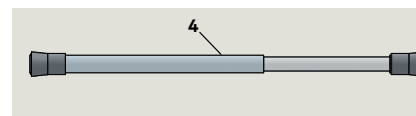


### 11.1.4 Check door closing force.

- 1. Para. 11.1.1 table lists approximate spring tension settings.
- 2. Use pressure gauge to check door closing force at 2° and adjust if necessary.

- 5 Door pressure gauge

Fig. 11.1.2 Door pressure gauge

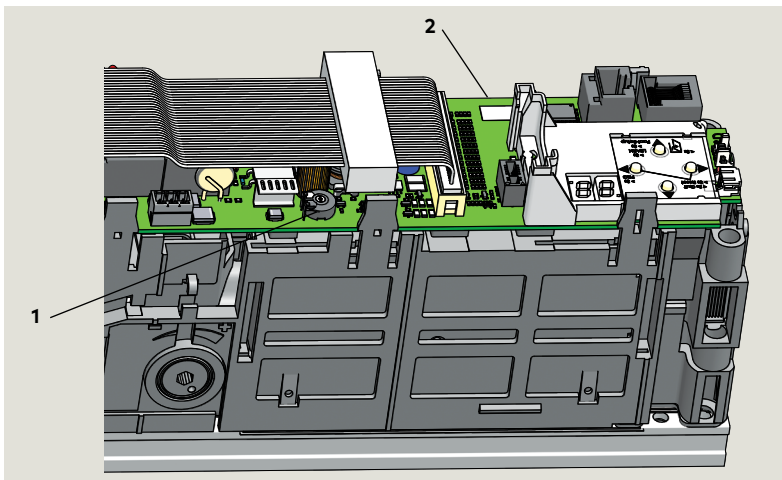


# 12 Power fail closing speed

## 12.1 Set power fail closing speed

- 1 Power fail closing speed potentiometer
- 2 Control board

Fig. 12.1.1 Power fail closing speed potentiometer



### TIPS AND RECOMMENDATIONS

Power fail closing speed potentiometer:

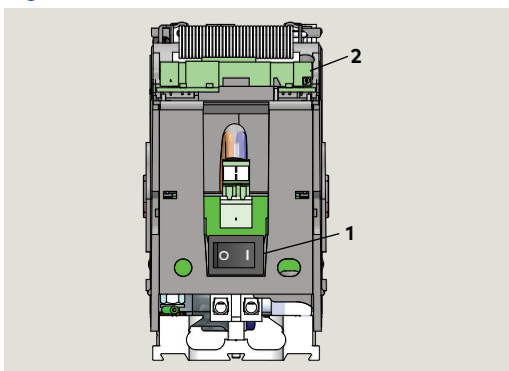
- Single turn
- Factory setting fully CCW.
- CCW increases closing speed.
- CW decreases closing speed.
- Terminal flat blade screwdriver required: 3/32" [2 - 3 mm].

### 12.1.1 Setting door closing speed upon power failure.

1. Turn ED50 power switch OFF.
2. Manually open door to 90° angle and let it close.
3. If door closes in less than 3 seconds, turn potentiometer 1/4 turn CW and retry test.
4. Adjust as necessary to obtain closing time greater than 3 seconds.

- 1 Power on switch
- 2 Terminal board

Fig. 12.1.2 Power on switch



### NOTICE

It is imperative that door closing speed be set. If door closes in less than 3 seconds, error message **E73** (System error 3, braking circuit) will be displayed. See Troubleshooting, Chapter 15.4.



# 13 Perform learning cycle

## 13.1 Perform learning cycle

**CAUTION**

Learning cycle must be performed while motor is cold!

**CAUTION**

Door must not be manually moved or held in position during the learning cycle!

**CAUTION**

Verify that the following parameters have been set (Para 14.1.9):

- **AS**, Installation type
- **rd**, Reveal depth
- **Tb**, Door width



**TIPS AND RECOMMENDATIONS**


During learning cycle:







- Operator functions are deactivated.



**WARNING**

No personnel or objects must be in range of door motion during learn cycle!

<b>Step 1</b>	Secure motion range of door.
<b>Step 2</b>	Set program switch to CLOSE position.
	Rotating "o" and a "0" indicates operator learning cycle is required.

<b>Step 3</b> Press ▼		Press and hold down button until display changes. <ul style="list-style-type: none"> <li>• Door performs several movements and display shows a sequence of symbols.</li> <li>• Movements of door must not be interrupted!</li> </ul>
		Display indicates door is at 70° position and is waiting for door opening angle to be set.
<b>Step 4</b>		<ul style="list-style-type: none"> <li>• Manually move door to desired opening angle.</li> <li>• Maximum door angle is 110°.</li> </ul>
<b>Step 5</b> Press ▼		Momentarily press down button to continue learning cycle. <ul style="list-style-type: none"> <li>• Door performs several movements and display shows a sequence of symbols.</li> <li>• Movements of door must not be interrupted!</li> </ul>
		<p><b>Operator spring tension too low.</b></p> <ul style="list-style-type: none"> <li>• Display with small rotating "o" and an "F" during learn cycle indicates spring tension is too low.</li> <li>• Door will close.</li> </ul> <ol style="list-style-type: none"> <li>1. Increase spring tension (Chapter 11).</li> <li>2. Restart learning cycle (Step 3).</li> </ol>
		Door completes learning cycle. <ul style="list-style-type: none"> <li>• Display with two horizontal bars indicate operator is ready for operation.</li> </ul>
<b>Step 6</b> Press ▼		Momentarily press down button to cycle door.
<b>Step 7</b>		Following automatic learning cycle, actual forces on door, and door opening and closing times must be measured and changed if necessary to insure compliance with ANSI/BHMA standards, reference Chapter 17.
<b>Step 9</b>		Set program switch to Auto.



# 14 Parameters

## 14.1 Parameters

### 14.1.1 Firmware version



#### TIPS AND RECOMMENDATIONS

- Parameters descriptions incorporate firmware version v1.4.

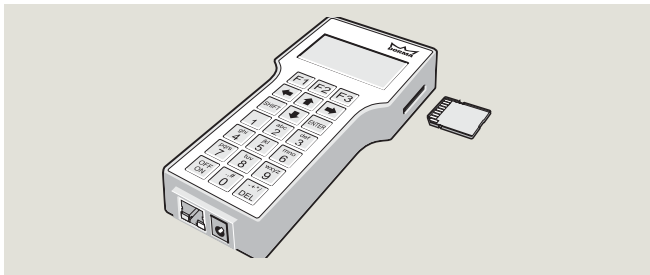
### 14.1.2 Firmware version

Firmware version is displayed on 2 digit display during initial commissioning.

### 14.1.3 dormakaba handheld

Firmware version can be displayed and updates accomplished using dormakaba handheld terminal. Reference Chapter 16 or dormakaba handheld manual.

Fig. 14.1.1 dormakaba handheld



### 14.1.3 Configuration parameters

Configuration parameters (Para. 14.1.7) are set during first commissioning.

### 14.1.5 Driving parameters

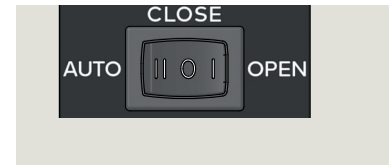
Driving parameters can be set once first commissioning has been completed.

- Reference Para. 14.2 for driving parameter detail.

### 14.1.6 Changing parameter values.

1. Set program switch to the CLOSE position

Fig. 14.1.2 Program switch

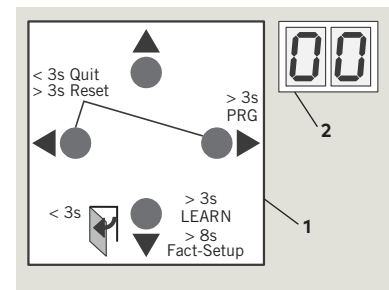


- Program switch  
3 position

2. Use 4 button keypad as outlined in Steps 1 through 8 to view or change parameter values.

Fig. 14.1.3 4 button keypad, 2 digit display

- 4 button keypad
- 2 digit display



<b>Step 1</b> ▶	Press and hold right button > 3 s to enter program mode.
<b>Step 2</b> ◄	Press up or down button to scroll through parameters until desired parameter is displayed.
<b>Step 3</b> ▶	Press right button to display current parameter value.
<b>Step 4</b> ▶	Press right button again to enable editing of value, display will start flashing.
<b>Step 4</b> ◄	Press up or down button to select desired parameter value.
<b>Step 5</b> ▶	Press right button to save selected value. Display stops flashing.
<b>Step 6</b> ◀	Press left button to return to selected parameter.
<b>Step 7</b> ◄	Press up or down button to scroll through parameters until next desired parameter is displayed.
<b>Step 8</b> ◀	Press left button for a minimum of 3 s to exit program mode.

### 14.1.7 Configuration parameters

Parameter	Description
1 AS AS	Installation type
2 rd rd	Reveal depth
3 Tb rb	Door width
4 dL dL	Door type

### 14.1.8 Driving parameters

Driving parameter	Description
5 So So	Opening speed, automatic mode
6 Sc Sc	Closing speed, automatic mode
7 dd dd	Hold open time, automatic mode
8 dn dn	Hold open time, night/bank
9 do do	Hold open time, manual opening of door
10 Sb Sb	Wall masking on door swing (hinge) side
11 ST Sr	Safety sensor test
12 SA SA	Activation by safety sensor on approach (opposite hinge) side
13 SP SP	Suppression of safety sensor on swing (hinge) side during initial movement
14 Ud Ud	Locking mechanism delayed opening time
15 Pu Pu	Door preload prior to unlocking
16 TS TS	<b>PR (Power reserve) module test</b>
17 Fo Fo	Static force on door closing edge in opening direction (wind load control)
18 Fc Fc	Static force on door closing edge in closing direction (wind load control)
19 EP EP	Motor driven latching action, automatic mode
20 EA EA	Door opening angle at which motor driven latching action is activated
21	Not used
22 PG PG	Push and Go
23 PS PS	Program switch type
24 S1 S1	DCW EPS, electronic program switch behavior following a power reset
25 S2 S2	Internal program switch; switch function on delay
26 du du	Door unlocking during business hours
27 Sr Sr	Status relay function, terminal block X7

Driving parameter	Description
28 bE bE	Input 4/4a and X3, 1G 24V locking device output configuration
29 CC CC	Cycle counter, number displayed * 10000
30 EC EC	Delete error log
31 CS CS	Reset service interval display (yellow LED)
32 SL SL	Factory setting level (Fact Setup button)
33 OA OA	Opening angle, set during learning cycle
34 hd hd	Door closer mode, automatic or manual
35 hA hA	Power assist function activation angle
36 hF hF	Power assist function force adjustment
37 hS hS	Power assist function support for manual mode in door closed position
38 F1 F1	Upgrade card, not used
39 F2 F2	This paragraph left intentionally blank.
40 F3 F3	Professional upgrade card, not used
41 F4 F4	Professional upgrade card, not used
42 F5 F5	Professional upgrade card, not used.
43 F7 F7	Upgrade card, not used
44 F8 F8	Upgrade card, not used
45 C1 C1	Configuration of COM 1 interface
46 bc bc	Back check angle when door opened manually
47 Td rd	Door thickness (mm)
48 d1 d1	Deactivation of drive, emergency pushbutton at X4, 4 and 4a, trigger type
49 d2 d2	Night/bank function, trigger type
50 FC FC	Hold open system release by manually closing door, trigger type
51 Ad Ad	Active door with astragal: caster angle, angle door must reach before passive door starts to open
52 HS HS	Hinge clearance

14.1.9 Configuration parameters, detail






Parameter and value range, factory setting = <b>bold</b> .	Parameter description
1  0 - 2 <b>0</b>	<b>Installation type</b> <ul style="list-style-type: none"> <li>• Pull arm, wall mounting on swing (hinge) side (Fig. 14.1.4).</li> <li>• CPD pull arm and CPD lever, wall mounting on swing (hinge) side (Fig. 14.1.5).</li> </ul>
	1 <ul style="list-style-type: none"> <li>• Standard push arm, wall mounting on approach (non-hinge) side (Fig. 14.1.6).</li> </ul>
	2 <ul style="list-style-type: none"> <li>• Push arm with track, wall mounting on approach (non-hinge) side.</li> <li>• [Application specific]</li> </ul>
2  ED50 -3 to 29 <b>0</b>	<b>Reveal depth</b> <p>Reveal is set in increments of 10 mm (3/8"), "3" = 30 mm (1 1/8")</p> <p>If using CPD pull arm and CPD lever (Fig 14.1.5) approximately 3/16" [30 mm] must be deducted from actual reveal.</p>
3  ED50 7 to 12  <b>12</b>	<b>Door width</b> <p>Door width is set in increments of 100 mm (4"), "9" = 900 mm (35.4").</p> <ul style="list-style-type: none"> <li>• ED50 [700-1219 mm] 28" - 48"</li> </ul>
4  0 to 4 <b>0</b>	<b>Door type</b>
	0 Single door
	Double door <ul style="list-style-type: none"> <li>• Overlapping door (with astragal)</li> <li>• Active door operator.</li> </ul>
	Double door <ul style="list-style-type: none"> <li>• Overlapping door (with astragal)</li> <li>• Passive door operator.</li> </ul>
	Double door <ul style="list-style-type: none"> <li>• Edgeless door (no astragal)</li> <li>• Active door operator.</li> </ul>
Double door <ul style="list-style-type: none"> <li>• Edgeless door (no astragal)</li> <li>• Passive door operator.</li> </ul>	

Fig. 14.1.4 Pull arm with track

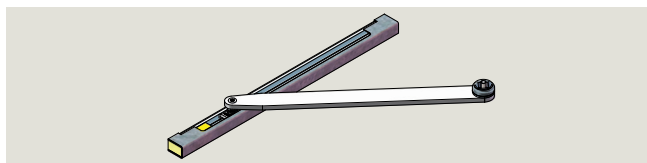


Fig. 14.1.5 Pull arm and CPD lever with track

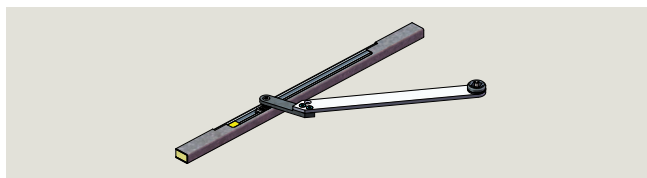
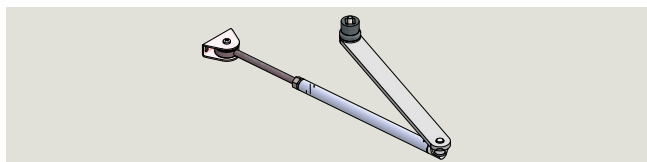









Fig. 14.1.6 Standard push arm








## 14.2 Driving parameters detail




### 14.2.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description	
<b>Opening speed, automatic mode</b>					
5		ED50 8 - 26 %/s	<b>25</b>	<ol style="list-style-type: none"> <li>Opening speed refers to automatic mode. Speed can be adjusted using this parameter.</li> <li>Internal monitoring system checks if parameter setting is admissible. If setting exceeds value, the setting is alternately displayed with the permissible value.</li> <li>After parameter set, verify setting meets ANSI/BHMA standard A156.19 (low energy) See Chapter 17.</li> </ol>	
<b>Closing speed, automatic mode</b>					
6		ED50 2 - 26* (v2.0) %/s	<b>25</b>	<ol style="list-style-type: none"> <li>Closing speed refers to automatic mode. Speed can be adjusted using this parameter.</li> <li>Internal monitoring system checks if parameter setting is admissible. If setting exceeds admissible value, the setting is alternately displayed with the permissible value.</li> <li>After parameter set, verify setting meets ANSI/BHMA standard A156.19 (low energy) See Chapter 17.</li> </ol>	
<b>Hold open time, automatic mode</b>					
7		0 - 30	s	<b>5</b>	<ol style="list-style-type: none"> <li>Hold open time starts once all internal, external, safety and push and go inputs have been opened or dropped, and door is in an open position.</li> <li>Hold open time values from 5 to 30 s are set in increments of 1 second.</li> <li>In low energy mode, a minimum hold open time of 5 seconds is required.</li> <li>Hold open time can be retriggered.</li> </ol>
<b>Night-bank hold open time</b>					
8		0 - 30	s	<b>10</b>	<ol style="list-style-type: none"> <li>Night-bank (key switch) hold open time is set using this parameter.</li> <li>Night-bank Hold open time starts once contact on night-bank activator input is opened and door is in an open position.</li> <li>Night-bank hold open time can be retriggered.</li> </ol>
<b>Hold open time, manual opening</b>					
9		0 - 30	s	<b>1</b>	<ol style="list-style-type: none"> <li>Default hold open time of 1 second that follows every manual opening of door can be adjusted using parameter <b>do</b>.</li> <li>Hold open time starts when door is released.</li> </ol>
<b>Wall masking on door hinge side</b>					
10	 	60 - 99	°	<b>80</b>	<ol style="list-style-type: none"> <li>Wall masking required if door opens against an obstacle.</li> <li>When door reaches set wall masking angle, system will ignore signal from safety sensor on door swing (hinge) side.</li> <li>The wider the detection range of safety sensor used, the greater the area must be in which system has to ignore sensor's emitted signal. To insure personnel safety, it is advised to keep this range as small as possible.</li> <li>If set wall masking angle is exceeded when door is being opened, a rapidly flashing dot appears in top left hand corner of 2 digit display.</li> <li>Rapidly flashing dot disappears when door angle drops below set wall masking angle.</li> </ol>






14.2.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description	
<b>Safety sensor test</b>					
11 	0 - 8		0	Safety sensor parameter <b>ST</b> must be set to sensors used and if they are active-high or active-low. See E 04 safety sensor test error, Para. 15.4.	
				0	Sensor test off.
				1	Sensor test on swing (hinge) side. Active-high
				2	Sensor test on swing and approach sides. Active-high
				3	Sensor test on swing and approach sides. Active-high
				4	Sensor test on swing side. Active-low
				5	Sensor test on approach side. Active-low
				6	Sensor test on swing and approach sides. Active-low
				7	Wall mounted sensor with data line. Lock monitoring not available.
8	Sensor test overhead sensor type Bodyguard III or Premier T with monitoring input.				
<b>Activation by safety sensor on approach (opposite hinge) side</b>					
12 	0 - 1		0	0 Safety sensor's input is disregarded as soon as door is closed.	
				1	Safety sensor can trigger an opening pulse while door is closed.
<b>Suppression of safety sensor on swing (hinge) side during initialization drive</b>					
13 	0 - 1		0	0 Safety sensor on swing side is active during an initialization drive after a power on reset.	
				1	1. With SP set to 1, operator will disregard swing side safety sensor during initialization drive. After a power on reset, operator starts an initialization drive at slow speed. The initialization drive cannot be completed if safety sensor on hinge side is, or has been triggered.
<b>Delayed opening time for locking mechanism</b>					
14 	0 - 40 * 100	ms	3 *100	1. Delayed opening time delay starts as soon as door opening pulse has been generated.	
				2. Door opens on expiration of time delay.	
				3. If parameter is set to "0" and input for locking feedback contact is closed, door will not perform a preload <b>Pu</b> before door unlocks.	
				4. Since various motor locks do not have feedback contacts, a delay of up to 4 seconds is possible	
<b>Door preload prior to unlocking</b>					
15 	0 - 9		0	1. Door preload prior to unlocking; force with which door is pushed in the "closed" direction before door is opened.	
				2. The door may need to be pushed in closing direction (preload) in order to release electric strike to insure door opens.	
				3. Preload time is set by parameter <b>Ud</b> , delayed opening time for locking mechanism.	
				4. To maintain long service life, set preload force only as high as necessary.	






14.2.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
<b>Power reserve module SVP-PR 12 test</b>				
16	0 - 1		<b>0</b>	0 Test off
				<div style="display: flex; align-items: center;">  <div> <p>5. SVP-PR 12 power reserve module test is performed once every 24 hours, or 10 minutes after AC power has been turned on. In event of an error:</p> <ul style="list-style-type: none"> <li>Unlocking is not performed and no automatic door movements are initiated.</li> <li>Error code <b>E 25</b> is displayed, See Chapter 15, Para. 15.4, troubleshooting error codes.</li> </ul> </div> </div>
				<div style="display: flex; align-items: center;">  <div> <p>1 6. SVP-PR 12 power reserve module can be used but must be tested on a regular basis if using:</p> <ul style="list-style-type: none"> <li>SVP-2000 DCW emergency escape motor lock with automatic latching action.</li> <li>M-SVP 2000 DCW emergency escape lock.</li> </ul> <p>7. Test is automatically activated if a fire protection module is recognized in conjunction with SVP-2000 DCW or M-SVP 2000 DCW locks.</p> </div> </div>
<b>Static force in opening direction</b>				
17	2- 15	N	<b>6</b>	<ol style="list-style-type: none"> <li>Static force in opening direction (basic parameter for wind load control). Static force on door closing edge can be changed using this parameter.</li> <li>Internal monitoring system checks if parameter setting is admissible. If setting exceeds admissible value, the setting is alternately displayed with the permissible value.</li> <li>After parameter set, verify setting meets ANSI/BHMA standard A156.19 (low energy). See Chapter 17.</li> <li>ED50 low energy operator: static force range is reduced.</li> </ol>
	*10			
	.45- 3.4	lbf	1.35	
	*10			
<b>Static force in closing direction</b>				
18	2- 15	N	<b>6</b>	<ol style="list-style-type: none"> <li>Static force in closing direction (basic parameter for wind load control). Static force on door closing edge can be changed using this parameter.</li> <li>Internal monitoring system checks if parameter setting is admissible. If setting exceeds admissible value, the setting is alternately displayed with the permissible value.</li> <li>After parameter set, verify setting meets ANSI/BHMA standard A156.19 (low energy). See Chapter 17.</li> <li>ED50 low energy operator: static force range is reduced.</li> </ol>
	*10			
	.45- 3.4	lbf	1.35	
	*10			
<b>Motor driven latching action, automatic mode</b>				
19	0 - 9		<b>0</b>	<ol style="list-style-type: none"> <li>System offers a motor driven latching action in automatic mode in addition to mechanical latching action.</li> <li>The <b>EP</b> parameter setting is designed to increase static force on door to insure proper closing despite resistance caused by door seals or locking devices.</li> <li>Setting should be increased step by step from a low setting so as to avoid damage to the system. Use the lowest possible setting.</li> <li>Ensure that both the door itself and the arm or track installation are suitable for the additional, permanent forces.</li> </ol>
<b>Motor driven latching action angle (v1.7)</b>				
20	2 -10	°	<b>3</b>	<p>Door opening angle at which motor driven latching action <b>EP</b> is activated.</p> <ul style="list-style-type: none"> <li>Starting angle of the latching angle adjustable from 10°.</li> </ul>
<b>Keep closed force</b>				
21	0 - 9		<b>0</b>	0 Off
				<div style="display: flex; align-items: center;">  <div> <p>1 to 9</p> <ol style="list-style-type: none"> <li>Keep closed force is:                             <ul style="list-style-type: none"> <li>Permanently applied following motor drive latching action.</li> <li>Designed to keep door in closed position even if wind acts on door.</li> </ul> </li> <li>Keep closed force can be set from 0 (off) to 9, maximum force.</li> </ol> </div> </div>

14.2.1 Driving parameters detail.



Parameter	Value range	Units	Factory setting	Description
<b>Push &amp; Go</b>				
22		0 - 1	0	0 Off
				1 <ol style="list-style-type: none"> <li>Parameter is activated.</li> <li>Automatic opening of door is started when door is manually moved 4° out of the closed position.</li> <li>Door close mode parameter <b>hd</b> must be set to "0" (manual) to enable this function.</li> </ol>
<b>Program switch type</b>				
23		0 - 4	0	0 Internal, operator mounted program switches are active.
				1 External mechanical program switch with contacts is connected to operator terminal board. Internal program switch connector must be removed.
				2 External DCW electronic program switch (EPS) is connected to operator terminal board. Internal program switch connector must be removed.
				3 Program switch control by TMS Soft control software.
4 <ol style="list-style-type: none"> <li>DCW electronic program switch (EPS) is installed, and operator is also connected by the building management system to TMS Soft control software.</li> <li>When PS is set to 4, the program switch functions can be changed from DCW (EPS) to TMS Soft..</li> </ol>				
<b>DCW Electronic program switch (EPS) behavior following power reset</b>				
24		0 - 1	0	0 <ol style="list-style-type: none"> <li>In event of power failure, or if operator is deliberately switched off, EPS will automatically switch to last known position when power returns.</li> <li><b>Important:</b> The time at which power returns might not be during business hours and may affect insurance-compliant door locking requirements.</li> </ol>
				1 <ol style="list-style-type: none"> <li>In event of power failure, or if operator is deliberately switched off, EPS will automatically switched to OFF position when power returns.</li> <li>This function should be used iif insurance compliant locking if required.</li> </ol>
<b>Internal program switches, switch on delay</b>				
25		0 - 1	0	0 Operator will perform function of new switch setting as soon as internal program switch is moved.
				1 <ol style="list-style-type: none"> <li>Operator will perform function of new switch setting after a delay of 10 seconds from when internal program switch is moved.</li> <li>This function is useful if user has to pass through door and its connected detectors and sensors after program switch is set to new function.</li> </ol>
<b>Unlocking during business hours</b>				
26		0 - 1	0	0 Door is always locked when it reaches closed position.
				1 <ol style="list-style-type: none"> <li>In automatic mode, door will not lock when it reaches closed position. This achieves faster door opening when system is equipped with motor driven locks.</li> <li>If an electric strike opener is used, it must be suitable for 100% continuous duty factor to avoid possibility of damage.</li> </ol>

14.2.1 Driving parameters detail.







Parameter	Value range	Units	Factory setting	Description
<b>Status relay function, X7 terminals</b>				
27		0 - 6	<b>1</b>	0 Status relay is deactivated.
				1 Status relay activated as soon as door reaches door "closed" position.
				2 Status relay activated as soon as door reaches door "open" position.
				3 Status relay activated when error codes are displayed on 2 digit operator display.
				4 "Door closed and locked" activates status relay.
				5 Status relay activated when information or error codes are displayed on 2 digit operator display.
				6 <ol style="list-style-type: none"> <li>Status relay activated when door is opened further than opening angle parameter <b>OA</b>, set during learning cycle.</li> <li>Parameter <b>OA</b> value can only be changed using dormakaba handheld or by performing another learning cycle.</li> </ol>
<b>Locking device output configuration; output X3, 1G (24V) and input X6, 4/4a</b>				Reference Chapter 7
28		0 - 1	<b>0</b>	0 Locking device output terminal X3, 1G (24V) is independent of Input X6, 4/4a.
				1 <ol style="list-style-type: none"> <li>Locking device output terminal X3, 1G (24V) is turned on as soon as contact at X6, 4/4a is opened..</li> <li>Terminal X3, 1G 24V output is on for as long as contact at X6, 4/4a is open, motor lock with a 100% duty factor is required.</li> <li>This function is not available for DCW motor locks.</li> </ol>
<b>Cycle counter</b>				<ol style="list-style-type: none"> <li>Total number of opening and closing cycles displayed is shown in increments of 10000.                             <ul style="list-style-type: none"> <li>Display value, "4", 40,000 cycles.</li> <li>Display value, "53", 530,000 cycles.</li> </ul> </li> <li>Total number of cycles can be displayed on dormakaba handheld.</li> <li>A display value of "99" means 990,000 cycles or greater.</li> </ol>
29		0 - 99 * 10000	cycles	
<b>Delete error log</b>				
30		0 - 1	<b>0</b>	0 No function.
				1 <ol style="list-style-type: none"> <li>When "1" entered, Error log is deleted.</li> <li>Parameter is then automatically reset to "0".</li> </ol>
<b>Reset service interval display, operator yellow LED</b>				
31		0 - 1	<b>0</b>	0 No function.
				1 <ol style="list-style-type: none"> <li>When "1" entered:                             <ul style="list-style-type: none"> <li>Service cycle counter is reset to 200,000.</li> <li>Service interval is reset to 12 months.</li> <li>Yellow LED not illuminated.</li> </ul> </li> <li>Parameter is then automatically reset to "0".</li> <li>Values other than default values must be set using dormakaba USA, Inc. handheld:                             <ul style="list-style-type: none"> <li>Maintenance interval</li> <li>Maintenance cycles</li> </ul> </li> </ol>













14.2.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
<b>Factory setting level</b>				
32	 1 - 2		<b>1</b>	<p>Parameter <b>SL</b> is used to determine what data will be reset during factory setting process.</p> <p>Standard factory settings</p> <ul style="list-style-type: none"> <li>• Program switches OFF.</li> <li>• Door closed.</li> </ul> <p>1</p> <ul style="list-style-type: none"> <li>• Press 4 button keypad down button ▼ for &gt; 8 s.</li> </ul> <ol style="list-style-type: none"> <li>1. All parameters reset to factory settings.</li> <li>2. Procedure completed when "8" on 2 digit displays blinks twice.</li> <li>3. Installed upgrade cards remain valid and do not require reinstallation.</li> <li>4. Learning cycle required.</li> </ol>
				<p>Extended factory settings</p> <ul style="list-style-type: none"> <li>• Program switches OFF.</li> <li>• Door closed.</li> <li>• Press 4 button keypad down button ▼ for &gt; 8 s.</li> </ul> <p>2</p> <ol style="list-style-type: none"> <li>1. All parameters reset to factory settings.</li> <li>2. Procedure completed when "8" on 2 digit displays blinks twice.</li> <li>3. Installed upgrade cards deleted from operator memory.</li> <li>4. Parameter <b>SL</b> automatically reset to 1.</li> <li>5. Control unit and upgrade cards can be used independently (delivery status).</li> <li>6. Learning cycle required..</li> </ol>
<b>Opening angle</b>				
33	 0 - 110	°		<ol style="list-style-type: none"> <li>1. Door opening angle set during learning cycle is displayed.</li> <li>2. Opening angle can only be changed during learning cycle.</li> <li>3. Due to installation and parameter tolerances, display value may not match actual door position.</li> </ol>
<b>Door closer mode</b>				






14.2.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description								
34 	0 - 1		1	0 <ol style="list-style-type: none"> <li>Automatic mode. This mode is applicable whenever door is mainly opened automatically and where motion detectors are installed.</li> <li>Mode is optimized for high frequency use.</li> <li>Full energy upgrade card provides for higher door opening and closing speeds.</li> <li>In case door is blocked during a closing cycle, operator reverses automatically.</li> <li>Driving phase is optimized to provide reliable closing cycles.</li> <li>Keep closed force (wind load control) parameter <b>FH</b> and Push &amp; Go function parameter <b>PG</b> are only available in automatic mode.</li> </ol>								
				1 <ol style="list-style-type: none"> <li>Manual mode. This mode is applicable whenever door is mainly used manually and only rarely automatically.</li> <li>In case door is blocked during a closing cycle, door will stop at its current position.</li> <li>Driving phase optimized for manual opening cycles.</li> <li>Power assist function parameter <b>hf</b> is only available in manual mode.</li> </ol>								
<b>Power assist activation angle</b>				<ol style="list-style-type: none"> <li>Setting of door activation angle for Power assist function (<b>hA</b>).</li> <li>Higher settings of <b>hA</b> result in better spring force compensation for easier manual opening.</li> <li>Power assist function is more sensitive the smaller the activation angle.</li> </ol>								
35 	1 - 5	°	3									
<b>Power assist function</b>				<ol style="list-style-type: none"> <li>Force setting for Power assist function.</li> <li>Power assist function only available with <b>hd</b> parameter = 1, manual mode.</li> <li>"0"; power assist function OFF; power assist function enabled for available values greater than 0.</li> <li>Power assist function enabled when power assist activation angle <b>hA</b> reached.</li> <li>The greater the value of <b>hF</b>, the easier the door can be manually opened from power assist activation angle <b>hA</b>.</li> <li>If power assist set too high, door can open automatically.</li> <li>Power assist function is not available                             <ul style="list-style-type: none"> <li>If operator is switched off</li> <li>A smoke detector or emergency button has been triggered.</li> </ul> </li> </ol>								
36 	0 - 10		0									
<b>Power assist function support for manual mode in door closed position</b>				<ol style="list-style-type: none"> <li>Setting for power assist function support with door in <b>closed</b> position.</li> <li>Power assist function only available with <b>hd</b> parameter = 1, manual mode.</li> <li>The greater the value of <b>hS</b>, the easier the door can be manually opened from the <b>closed</b> position.</li> </ol>								
37  	0 - 10		0									
<b>Upgrade card parameter values</b>				<table border="1"> <tr> <td>0</td> <td>Upgrade card not installed, function not available.</td> </tr> <tr> <td>1</td> <td>Upgrade card installed, function not activated.</td> </tr> <tr> <td>2</td> <td>Upgrade card installed, function activated.</td> </tr> <tr> <td>3</td> <td>Upgrade card has been removed, function no longer available.</td> </tr> </table>	0	Upgrade card not installed, function not available.	1	Upgrade card installed, function not activated.	2	Upgrade card installed, function activated.	3	Upgrade card has been removed, function no longer available.
0	Upgrade card not installed, function not available.											
1	Upgrade card installed, function not activated.											
2	Upgrade card installed, function activated.											
3	Upgrade card has been removed, function no longer available.											
<b>Upgrade card, fire protection</b>												
38 	0, 2, 3		0	Not used.								

14.2.1 Driving parameters detail.

Parameter	Value range	Units	Factory setting	Description
39 				Not used.
<b>Upgrade card professional, impulse relay</b>				
40 	0, 1, 2, 3		0	Not used.
<b>Upgrade card professional, extended hold-open time</b>				
41 	0, 2, 3		0	Not used.
<b>Upgrade card professional, nurse - bed function (double doors only)</b>				
42 	0, 1, 2, 3		0	Not used.
<b>Upgrade card barrier free toilet</b>				
43 	0, 1, 2, 3		0	Not used.
<b>Upgrade card DCW®</b>				
44 	0, 2, 3		0	Not used.
<b>COM 1 configuration interface</b>				
45 	0 - 1		0	0 Interface programmed for communication with dormakaba handheld.
				1 Interface programmed for use with Dorma USA, Inc. TMS Soft control software.
<b>Backcheck when door opened manually</b>				
46 	5 - 40 (v1.9)	°	10	<ol style="list-style-type: none"> <li>Angle after which door is braked when manually opened.</li> <li>Back check level is automatically optimized during manual door opening cycles. This function improves door braking behavior in end position so door does not move beyond set opening angle <b>OA</b> Entered value is subtracted from set opening angle <b>OA</b>.</li> <li>Example <ul style="list-style-type: none"> <li>Opening angle, 90°</li> <li>Parameter <b>bc</b>, 12°</li> <li>Door back check starts at 78°</li> </ul> </li> </ol>
<b>Door thickness</b>				
47		0 - 99	mm	<ol style="list-style-type: none"> <li>Parameter is entered in mm.</li> <li>Door thickness affects measured door opening angle.</li> <li>Parameter <b>Td</b> enables a more accurate door width to be entered, if required.</li> </ol>
		0 - 3 7/8"	1 3/8"	

**14.2.1 Driving parameters detail.**

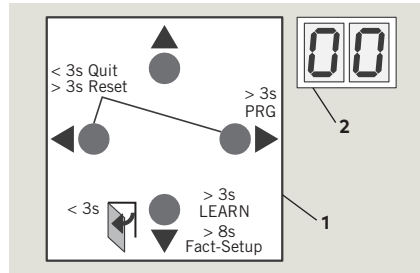
Parameter	Value range	Units	Factory setting	Description
<b>Deactivation of drive; X6, 4 and 4a, trigger type</b>				
48 	0 - 1		<b>0</b>	0 NC contact, drive function is deactivated when NC contact is open.
				1 NO contact, drive function is deactivated when NO contact is closed.
<b>Night-bank contact X1; 3 and 35, trigger type</b>				
49 	0 - 1		<b>0</b>	0 <ol style="list-style-type: none"> <li>1. NO contact, night-bank function is triggered when NO contact is closed.</li> <li>2. Typically used when using a key switch or an access control system.</li> </ol>
				1 <ol style="list-style-type: none"> <li>1. NC contact, night-bank function is triggered when NC contact is opened.</li> <li>2. Typically used when connected to building management system to trigger doors (signal normally present).</li> </ol>
<b>Release of hold-open system</b>				
50 	0 - 1		<b>1</b>	1 <ol style="list-style-type: none"> <li>1. Upgrade care Fire Protection installed, users may release hold-open by manually moving door in closed direction.</li> <li>2. A manual release button is not required.</li> </ol>
				0 <ol style="list-style-type: none"> <li>1. Hold-open release by manually moving door in closed direction is deactivated.</li> <li>2. A manual release button is required.</li> </ol>
<b>Castor angle for double doors</b>				
51 	0 - 30	°	<b>30</b>	Active door with astragal, angle active door must open before passive door opens.
<b>Hinge clearance</b>				
52 	± 5 *10	mm	<b>3 *10</b>	<ol style="list-style-type: none"> <li>1. Clearance between hinges is critical for the calculated door angle.</li> <li>2. It may only have a small effect but the clearance can be adjusted in extreme cases to improve accuracy.</li> <li>3. Factory setting is 3 * 10, 30 mm, 1 3/16".</li> <li>4. With CPD doors, setting must be changed to a negative value. A learning cycle is then required as system creates an angle table as a function of the set parameters.</li> </ol>
	±3/16 *10	inches		

# 15 Troubleshooting

## 15.1 Information and error codes

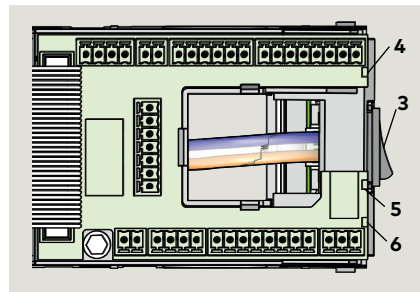
- 1 4 button keypad
- 2 2 digit display

Fig. 15.1.1 User interface



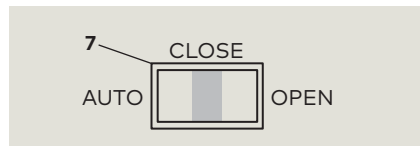
- 3 Power switch
- 4 Red LED
- 5 Yellow LED
- 6 Green LED

Fig. 15.1.2 Operator LEDs



- 7 Program switch, Close position

Fig. 15.1.3 Program switch



### TIPS AND RECOMMENDATIONS

Para. 15.3, Information codes  
 Para. 15.4, Error codes

### 15.1.1 Overview

Operator monitors internal circuits and external safety circuits managed by the operator.

### 15.1.2 Error and information messages.

1. With operator in use, certain conditions may develop resulting in error or information messages.
2. Operator attempts to identify the cause and respond accordingly.
3. Response depends on the severity of the error:
  - Information message (**In**)
  - Error message (**E**)
  - Deactivating the operator's automatic function; operator will switch to emergency mode. Users can then access door manually.

### 15.1.3 User information display.

User interface display, or dormakaba handheld displays:

- Information **In** codes
- Error message **E** codes

### 15.1.4 Viewing error messages.

To access and view error messages, briefly press the right button on the 4 button keypad.

### 15.1.5 Red LED on operator .

Red LED adjacent to operator power switch displays blinking codes for:

- Certain **In** information
- **E** error codes (Para. 15.2)

### 15.1.6 Resetting error codes.

Options for resetting error codes:

1. Set program switch in Close (off) position.
2. User interface Reset buttons:
  - Press both left and right buttons >3s to reset system (v1.8).
  - Header cover must be opened to access user interface.
3. Power reset:
  - Turn power switch OFF.
  - Turn power switch back on after 10 seconds.

### CAUTION

Always analyze and remove cause for error before resetting error message!  
 Troubleshooting charts (Para. 15.3,.4) are intended as a guide for diagnosing errors.

### 15.1.6 Error message memory.

1. There are ten error message memory locations; E 0 through E 9.
2. The latest error message is always stored in error memory location E 0:
  - As soon as another error occurs, the existing error stored in E 0 will be moved to E 1 and the latest error will be stored in E 0.
3. A maximum of 9 errors can be stored in memory locations E1 through E9.
4. Identical error messages occurring one after another are not stored again.

## 15.2 Red LED status codes

### 15.2.1 Red LED status codes

Red LED status	Display	Description
Steady flashing		Control unit has detected error, emergency mode activated.
On steady	In 11	Hold-open device triggered.
Flashing 2 times	E 02	Locking device error.
Flashing 4 times	E 04	Safety sensor test error.
Flashing 5 times	E 25	SVP PR DCW module test negative.
Flashing 5 times	E 51 E 52 E 53	Incremental encoder error.
Flashing 6 times	E 62	Double door operation, 2nd system has incompatible firmware version.
Flashing 6 times	E 63	Double door operation, 2nd system has incompatible fire protection setting.
Flashing 7 times	E 71	System error 1 (test), second shutdown option.
Flashing 7 times	E 72	System error 2 (test), current measuring circuit.
Flashing 7 times	E 73	System error 3 (test), braking circuit
Flashing 12 times	E 12	EEPROM error
Flashing 13 times	E 13	Motor overcurrent
Flashing 15 times	E 15	Faulty learning cycle

## 15.3 Troubleshooting chart, "In" codes

### 15.3.1 Troubleshooting chart, information messages.

No.	Display	Red LED	Description	Troubleshooting information messages
	In 01	Off	<p><b>Obstruction</b> Door obstructed by an obstacle or person; door movement stopped by operator.</p>	<p>Sustained operation on a door with an obstruction can result in damage to drive.</p> <ol style="list-style-type: none"> <li>Object or person obstructing door movement.                             <ul style="list-style-type: none"> <li>Check door movement while system is deenergized.</li> <li>Remove cause of anything obstructing door movement.</li> </ul> </li> <li>Sensor detection range too small.                             <ul style="list-style-type: none"> <li>Obstructions are often caused by people using door due to sensor's detection range not matching operator's opening speed. Door is unavoidably contacted by person using door.</li> <li>Sensors detection range should be increased and/or operator's opening speed should be increased.</li> </ul> </li> <li>Test system operation after cause of obstruction found.</li> </ol>
2	In 08	Off	<p><b>Deactivation of drive function</b></p> <ul style="list-style-type: none"> <li>Contact at X6, 4 and 4a is opened.</li> <li>Operator switched to emergency mode, door can only be used manually.</li> </ul>	<p>An emergency close switch, lock switch, or other system safety device may be connected to the X6 input.</p> <ol style="list-style-type: none"> <li>One of the activators connected to X6 may have opened, or a defect is present.</li> <li>Reset the applicable activator. Operator should start operation automatically.</li> <li>If In 08 still present, check activators or system wiring.</li> </ol>
3	In 09	Off	<p><b>Upgrade card error</b></p> <ul style="list-style-type: none"> <li>Installed upgrade card has been removed.</li> <li>If two upgrade cards were installed, the upgrade card installed first (container module) has not been reinstalled or is defective.</li> </ul>	<ol style="list-style-type: none"> <li>Not used.</li> </ol>
4	In 11	On	<p><b>Hold-open system triggered.</b></p>	<ol style="list-style-type: none"> <li>Hold-open system can be triggered:                             <ul style="list-style-type: none"> <li>Automatically by smoke detector or building interface system.</li> <li>Manually by a manual release button.</li> <li>Manually moving door.</li> </ul> </li> <li>The system must be reactivated by a deliberate action.</li> <li>Depending on system's configuration, reactivation can be done by:                             <ul style="list-style-type: none"> <li>Manually moving door to taught opening angle.</li> <li>Switching program switch to Close (off).</li> <li>Pressing both 4 button keypad left ◀ and right ▶ buttons &gt;3s.</li> </ul> </li> <li>It must be ensured that a smoke detector or building interface has not been triggered.</li> <li>If reactivation is unsuccessful, there may be a defect in the smoke detector or building interface system or its connections.</li> </ol>
5	In 23	Off	<p><b>Locking alarm</b></p> <ul style="list-style-type: none"> <li>Door is blocked while in the closed position.</li> </ul>	<ol style="list-style-type: none"> <li>Most common cause of this error is the drive unit attempting to open a locked door.</li> <li>To eliminate the occurrence of this error, install a lock status switch.                             <ul style="list-style-type: none"> <li>Lock switch detects the lock pin's switching status and switches the drive unit off if necessary.</li> </ul> </li> <li>It is recommended to use a lock status switch, as repeated attempts to open a locked door may damage the drive unit or the door.</li> </ol>

### 15.3.1 Troubleshooting chart, information messages.

No.	Display	Red LED	Description	Troubleshooting information messages
6	In 61	Off	<b>Communication error, double door system</b> <ul style="list-style-type: none"> <li>No communication between the two operators.</li> </ul>	<ol style="list-style-type: none"> <li>Check communication cable connection at the two operators. <ul style="list-style-type: none"> <li>Cable connects to the horizontal RJ 45 connector next to the user interface. Reference ED50 Installation manual, Para. 14.7.</li> </ul> </li> <li>Check communication cable.</li> </ol>
7	In 72	Off	<b>Current measuring circuit</b> <ul style="list-style-type: none"> <li>System could not successfully perform internal current measuring test, performed once every 24 hours.</li> </ul>	<ol style="list-style-type: none"> <li>The initial current measuring test may not always be successfully completed due to system tolerances and environmental conditions.</li> <li>The test may also fail, as an example, if someone uses the door while the test is in progress.</li> </ol>
8	In 73	Off	<b>Braking circuit test</b> <ul style="list-style-type: none"> <li>System could not successfully perform internal braking circuit test, performed once every 24 hours.</li> </ul>	<ol style="list-style-type: none"> <li>The initial braking circuit test may not always be successfully completed due to system tolerances and environmental conditions.</li> <li>The test also may fail, as an example, if someone uses the door manually while the test is in progress.</li> <li>If the cyclical test fails ten times in a row, error message <b>In 73</b> will be displayed.</li> </ol>
9	In 91	Off	<b>DCW® communication</b> <ul style="list-style-type: none"> <li>At least one registered DCW device is missing.</li> </ul>	<ol style="list-style-type: none"> <li>Reconnect the corresponding DCW® device.</li> <li>If this is not possible, reactivate the drive. Reactivation can be done by: <ul style="list-style-type: none"> <li>Switching program switch to Close (off).</li> <li>Pressing both 4 button keypad left ◀ and right ▶ buttons &gt;3s.</li> </ul> </li> </ol>

## 15.4 Troubleshooting chart, "E" codes

### 15.4.1 Troubleshooting chart, "E" codes.

No.	Display	Red LED	Description	Troubleshooting error codes
1	E 02	Flashing 2 x	<b>Locking device error</b> <ul style="list-style-type: none"> <li>Operator is attempting to open or close a locking device with feedback, or a DCW® locking device. An error has occurred during this process.</li> </ul>	<ol style="list-style-type: none"> <li>Probable causes are a defective locking device or wiring defect. <ul style="list-style-type: none"> <li>Check the locking device and feedback system.</li> </ul> </li> </ol>
2	E 03	Flashing 3 x	<b>DCW® program switch is missing.</b>	<ol style="list-style-type: none"> <li>Check the DCW® program switch and its connections.</li> </ol>
3	E 04	Flashing 4 x	<b>Safety sensor test error</b> <ul style="list-style-type: none"> <li>Test of moving safety sensors was unsuccessful.</li> </ul>	<ol style="list-style-type: none"> <li>Factory setting level of "safety sensor test" parameter <b>ST</b> is 0, test off (Chapter 14, Parameters).</li> <li>When ST is configured to installed safety sensors, a test signal is sent to the sensors before each door opening or closing cycle. Operator waits for a response within a certain time window.</li> <li>Check whether parameter <b>ST</b> has been configured to the installed safety sensors and their active-high or active-low signal level.</li> <li>Check for activation of the test at the safety sensors.</li> </ol>
4	E 12	Flashing 12 x	<b>EEPROM error</b> <ul style="list-style-type: none"> <li>Internal memory check could not be completed.</li> <li>Drive unit works in door closer mode.</li> </ul>	<ol style="list-style-type: none"> <li>Using dormakaba handheld, reload current firmware to reinitialize system.</li> <li>If the error is still present, the control unit must be replaced.</li> </ol>



**15.4.1 Troubleshooting chart, "E" codes.**

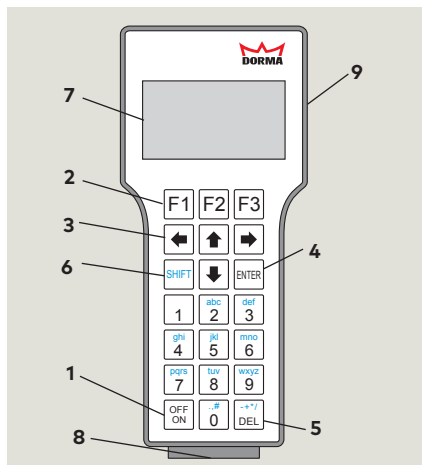
No.	Display	Red LED	Description	Troubleshooting error codes
5	E 13	Flashing 13 x	<p><b>Overcurrent detection</b></p> <ul style="list-style-type: none"> <li>Motor is consuming more current than drive unit can provide.</li> </ul>	<ol style="list-style-type: none"> <li>Motor is consuming too much power, check for any external causes.</li> <li>Drive unit or control unit is defective.</li> <li>If error repeats, operator must be replaced.</li> </ol>
6	E 15	Flashing 15 x	<p><b>Faulty learning cycle.</b></p> <ul style="list-style-type: none"> <li>Learning cycle could not be completed (Chapter 12).</li> </ul>	<ol style="list-style-type: none"> <li>Error may occur if learning cycle has been interrupted, for example if door movement has been interrupted during the learning cycle.</li> <li>Learning cycle must be repeated.</li> </ol>
7	E 25	Flashing 5 x	<p><b>SVP-PR 12 power reserve module test negative</b></p>	<ol style="list-style-type: none"> <li>See Chapter 14, parameter <b>TS</b>, Power reserve module test.</li> <li>Check power reserve module and its wiring.</li> </ol>
8	E 51 E 52 E 53	Flashing 5 x	<p><b>Incremental encoder error</b></p> <ul style="list-style-type: none"> <li>Motor gear unit encoder monitoring detected a faulty state.</li> </ul>	<ol style="list-style-type: none"> <li>Check encoder plug connection at operator: Ref. Chapter 4.                             <ul style="list-style-type: none"> <li>Secure connection.</li> <li>Wiring terminations</li> <li>Short circuits.</li> </ul> </li> <li>Check locking device for short circuits.</li> <li>Error can be caused by defective motor or short circuit in locking device.</li> <li>Motor gear unit must be replaced in event of defective motor.</li> </ol>
9	E 62	Flashing 6 x	<p><b>Incompatible firmware version, double door system, second system.</b></p>	<ol style="list-style-type: none"> <li>Equip both operators with same firmware version.</li> </ol>
10	E 63	Flashing 6 x	<p><b>Incompatible fire protection setting, double door system.</b></p>	<ol style="list-style-type: none"> <li>For double door systems, the Upgrade card fire protection must be installed in both control units.</li> </ol>
11	E 71	Flashing 7 x	<p><b>System error 1, 2nd shutdown option</b></p>	<ol style="list-style-type: none"> <li>In order to reliably switch off the drive unit, several switching elements are used and their functions are tested periodically.</li> <li>If the function test always results in the error code, the control unit must be replaced.</li> </ol>
12	E 72	Flashing 7 x	<p><b>System error 2, current measurement circuit</b></p>	<ol style="list-style-type: none"> <li>The current measurement circuit is part of the safety mechanisms and its function is tested periodically.</li> <li>If the function test always results in the error code, the control unit must be replaced.</li> </ol>
13	E 73	Flashing 7 x	<p><b>System error 2, current measurement circuit</b></p>	<ol style="list-style-type: none"> <li>The braking circuit is a safety element in the closer mode and will be tested every 24 hours.                             <ul style="list-style-type: none"> <li>During the test the motor is shut down during door closing and the door closes at a set angle in emergency mode.</li> <li>Test can be noticed as a short jerk on the door and is normal.</li> </ul> </li> <li>Error can be due to door closing in the deenergized state too fast (under 3 seconds). See Chapter 12.</li> <li>Check the closing speed and reduce if necessary.</li> </ol>
14			<p><b>Energy management</b></p> <ul style="list-style-type: none"> <li>Motor is too hot (for example, too high an ambient temperature)</li> <li>System responds automatically.</li> </ul>	<ol style="list-style-type: none"> <li>Movement dynamics in the closed direction will be reduced.</li> <li>Movement dynamics in both the open and closed directions will be reduced.</li> <li>System shuts down for 3 minutes (door closer mode).</li> <li>Hold-open time will be extended.</li> </ol>

# 16 dormakaba handheld

## 16.1 dormakaba handheld terminal

Fig. 16.1.1 dormakaba handheld

- 1 Off/On key
- 2 Function keys
- 3 Arrow keys
- 4 ENTER key
- 5 DEL key
- 6 SHIFT key
- 7 Alpha numeric keyboard
- 8 LED, recharging battery status (Off when batteries fully charged)
- 9 SD card slot



### 16.1.1 Interface cable

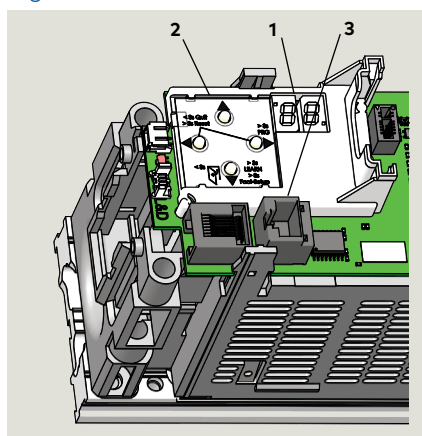
Use dormakaba interface cable (Article No. 16596101170) to connect dormakaba handheld to operator Com 1 interface.

**CAUTION**

Never use conventional network cable with RJ45 plug! Using conventional cable may result in permanent damage to operator!

Fig. 16.1.2 Com 1 interface

- 1 2 digit display
- 2 4 button keypad
- 3 Com 1 interface



### 16.1.2 Handheld key functions.

1. OFF ON, switches Handheld on or off.
2. Function keys F1 - F3, trigger functions shown in bottom line of display (e.g., "RPT" for repeat, "UP" and "DOWN" to switch lines, "UpDoLd" for file up and download, "CHANGE" to change values, "OPEN" to trigger opening pulses).
3. Arrow keys, allow navigation within the display. Use left arrow to get back to previous screen.
4. ENTER, selects individual menu items and confirms changes of values and settings.
5. DEL, deletes figures or letters.
6. SHIFT, switch between figures and letters or small and capital letters. Current function is indicated on display (n: numeral, A: capital letters, a: small letters).
7. Alpha numeric keyboard, allows entering values and file names in small and capital letters. There are several special characters (dot, comma, hash key, plus, minus, asterisk and diagonal slash).

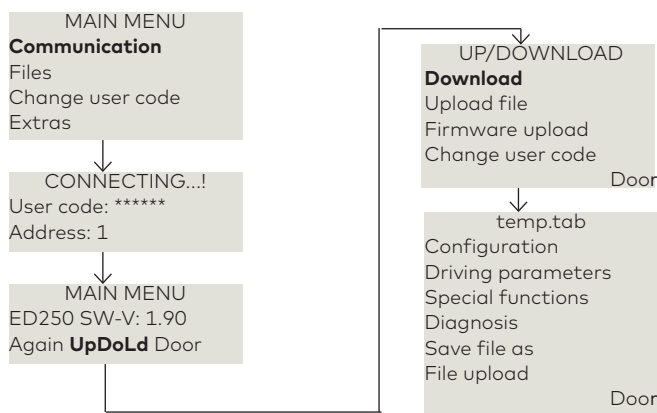
### 16.1.3 Handheld startup.

1. Press OFF ON to turn on Handheld terminal.
2. Screen displays Current version, creation date and name of data base. Handheld is ready for operation.
3. Select "COMMUNICATION" and enter user code (dormakaba original setting: 123456).
4. Handheld displays current software version of the connected operator (e.g., ED250 SW- V1.90).

### 16.1.4 Downloading current parameters.

1. Press function key F2 "UpDoLd" to access menu "UP/DOWNLOAD".
2. Select "Download" to download current adjustments and parameters. System stores this data as temporary file under file name "temp.tab".
3. Every change in configuration, parameter setting or special functions confirmed with the "ENTER" key automatically uploads to the operator.
4. The Handheld does **not** automatically save the changes. The Handheld will prompt you to save the changes when quitting the menu.

### 16.1.5 Menu structure



**NOTICE**

Parameters and detail may change depending on firmware version.

## 16.2 dormakaba handheld; configuration parameters

"#" refers to reference numbers in Parameter list, Chapter 14.

### 16.2.1 Configuration parameters

#	Parameter and default	Description / Selections
1	Installation *	Pull arm
		Push arm
		Gleit BGS (Track w push arm)
		cm      Inches
2	Reveal depth <b>0</b>	ED50 (-3)- 30      -1 3/16 ... 11 13/16
3	Door width (steps of 4") <b>100</b>	ED50 71 - 91      28 -36
4	Door type *	single*
		1. leaf
		2. leaf
		Master
		Slave
11	Sensor test <b>0</b>	0      off
		1      Pull side high active
		2      Push side high active
		3      Both sides high active
		4      Pull side low active
		5      Push side low active
		6      Both sides low active
		7      Bodyguard
8      Bodyguard III or Premier T with monitoring		

#	Parameter and default	Description / Selections
12	Start safety push side *	Off*      Signal ignored once door closed
		On      Sensor can trigger pulse with door closed
14	Lock delay <b>3</b>	Delayed opening time for locking mechanism      (0 ... 3) *100 msec
15	Unlock force <b>0</b>	Preload prior to unlocking      0 ... 9
12	Test PR module *	0*      Test off
		1*      Test once every 24 hrs.
23	Program switch *	Internal*
		External
		DCW
24	PGS power up (DCW) *	Last*
		Off
25	PGS delay *	Off*
		On
26	Daytime unlock *	Off*
		On      Locking device remains permanently unlocked while door is in closed position.
27	Door status (Status relay function, X7 terminals) *	1 Off      Relay off
		2 Open*      door reaches closed position
		3 Close      door reaches open position
		4 Error      any error message
		door closed and locked
		5      Information or error codes displayed
6      Door opened further than opening angle		

### 16.2.1 Configuration parameters

#	Parameter and default	Description / Selections
34	Manual mode <b>On</b>	On* Manual mode on.
		Off Manual mode disabled.
35	Power assist winkel (angle) <b>3</b>	Activation angle for power assist function (0 ... 5)
36	Power assist kraft (force) <b>0</b>	Force adjustment for power assist. 0 ... 10
21	Keep closed force <b>0</b>	Force activated after latching action 0 ... 9
50	Manual release <b>On</b>	Off; function deactivated. Manual release button required to deactivate hold open function.
		On; function activated. Moving door manually in closing direction from hold open position deactivates hold open function.
48	Input enable operator <b>*</b>	Normal* NC contact, operator deactivated when contact is open
		Inverse NO contact, operator deactivated when contact is closed

#	Parameter and default	Description / Selections
49	Input Night-bank	Normal* NO contact; night-bank function triggered while contact closed.
		Inverse NC contact; Night-bank function triggered while contact open.
47	Door depth <b>35</b>	0 ... 99 mm 0 ... 7/8"
52	Hinge clearance <b>3</b>	-5 ... +5 mm -3/16 ... +3/16"
	I04 Out 1	
	I04 Out 1	
	I04 Out 1	
	I04 Out 1	

## 16.3 dormakaba handheld; driving parameters

### 16.3.1 Driving parameters

#	Parameter and default	Description / Selections
		%/s          %/s
5	Speed open <b>25</b>	ED50 8 ... 27 27 max. L.E.mode
6	Speed close <b>25</b>	ED50 8 ... 50 27 max. L.E.mode
17	Limit force open <b>60</b>	Static force in opening direction (wind load control) (20 ...67)N L.E. mode
18	Limit force close <b>60</b>	Static force in closing direction (wind load control) (20 ...67)N L.E. mode
7	Hold-open time <b>5</b>	Hold-open time automatic mode (0 ... 30) s
8	Nurse bed function <b>10</b>	Hold-open time nurse bed function (0 ... 30) s

#	Parameter and default	Description / Selections
5	Offenhaltezeit man. <b>1</b>	Hold-open time manual mode (0 ... 30 s)
10	Wall blanking <b>80</b>	Angle when system ignores safety sensor on hinge side (60 ... 99)°
19	Latching action <b>0</b>	Motor-driven latching action, automatic mode (0 ... 9)
20	Latching angle <b>3</b>	Opening angle, motor-driven latching angle activated. (2 ... 10)°
46	Backcheck angle <b>10</b>	Backcheck angle for manual opening cycles. (5 ... 40)°
51	Coord. offset angle <b>30</b>	Starting angle for second door of two door system. (0 ... 30)°

## 16.4 dormakaba handheld; special functions (Upgrade cards) ED50, Not used

### 16.4.1 Special functions (upgrade cards)

#	Parameter and default	Description / Selection								
	<b>Upgrade card status codes</b>	<ul style="list-style-type: none"> <li>locked: not available</li> <li>unlocked: available, not active</li> <li>activ or active: activated</li> <li>fehlt: upgrade card missing</li> </ul>								
40	Flip-flop func.	<table border="0"> <tr><td>locked</td><td></td></tr> <tr><td>unlocked</td><td>Upgrade card professional</td></tr> <tr><td>active</td><td>Not used</td></tr> <tr><td>fehlt</td><td></td></tr> </table>	locked		unlocked	Upgrade card professional	active	Not used	fehlt	
locked										
unlocked	Upgrade card professional									
active	Not used									
fehlt										
41	extend HOT (extended hold-open time) r/o	<table border="0"> <tr><td>locked</td><td></td></tr> <tr><td>unlocked</td><td>Upgrade card professional</td></tr> <tr><td>active</td><td>Not used</td></tr> <tr><td>fehlt</td><td></td></tr> </table>	locked		unlocked	Upgrade card professional	active	Not used	fehlt	
locked										
unlocked	Upgrade card professional									
active	Not used									
fehlt										
42	Nurse-Bed func.	<table border="0"> <tr><td>locked</td><td></td></tr> <tr><td>unlocked</td><td>Upgrade card professional</td></tr> <tr><td>active</td><td>Not used</td></tr> <tr><td>fehlt</td><td></td></tr> </table>	locked		unlocked	Upgrade card professional	active	Not used	fehlt	
locked										
unlocked	Upgrade card professional									
active	Not used									
fehlt										
38	Fire protection r/o	<table border="0"> <tr><td>locked</td><td></td></tr> <tr><td>unlocked</td><td>Upgrade card fire protection</td></tr> <tr><td>active</td><td>Not used</td></tr> <tr><td>fehlt</td><td></td></tr> </table>	locked		unlocked	Upgrade card fire protection	active	Not used	fehlt	
locked										
unlocked	Upgrade card fire protection									
active	Not used									
fehlt										

#	Parameter and default	Description / Selection								
39	Full energy r/o	<table border="0"> <tr><td>locked</td><td></td></tr> <tr><td>unlocked</td><td>Upgrade card full energy</td></tr> <tr><td>active</td><td>Not used</td></tr> <tr><td>fehlt</td><td></td></tr> </table>	locked		unlocked	Upgrade card full energy	active	Not used	fehlt	
locked										
unlocked	Upgrade card full energy									
active	Not used									
fehlt										
44	DCW r/o	<table border="0"> <tr><td>locked</td><td></td></tr> <tr><td>unlocked</td><td>Upgrade card DCW</td></tr> <tr><td>active</td><td>Not used</td></tr> <tr><td>fehlt</td><td></td></tr> </table>	locked		unlocked	Upgrade card DCW	active	Not used	fehlt	
locked										
unlocked	Upgrade card DCW									
active	Not used									
fehlt										
43	Disabled restr r/o	<table border="0"> <tr><td></td><td>Upgrade card Barrier-free toilet</td></tr> <tr><td></td><td>Not used</td></tr> </table>		Upgrade card Barrier-free toilet		Not used				
	Upgrade card Barrier-free toilet									
	Not used									
22	Push & Go *	<table border="0"> <tr><td>Off*</td><td></td></tr> <tr><td>On</td><td>Door opens automatically when moved manually by 4° from closed position. Only available when "manual operation" is turned "off".</td></tr> </table>	Off*		On	Door opens automatically when moved manually by 4° from closed position. Only available when "manual operation" is turned "off".				
Off*										
On	Door opens automatically when moved manually by 4° from closed position. Only available when "manual operation" is turned "off".									

## 16.5 dormakaba handheld; diagnostics

### 16.5.1 Diagnostics

Parameter name	Description	Setting
FW vers BM r/o	Displays firmware (FW) version of basic module	x.x y y (e.g., 0190 v 1.9.0)
Rev FW version r/o		0 ... zzz
FW version SK r/o	Displays firmware version of Service Key	x x.y y (e.g., 01.00 = v 1.0.0)
FW bootloader		x x y y
Current error r/o	Displays current error	(...)
Error log 1		(...)
Error log 2		(...)
Error log 3		(...)
Error log 4		(...)
Error log 5		(...)
Error log 6		(...)
Error log 7		(...)
Error log 8		(...)
Error log 9		(...)
Current information	Displays current error	(...)
Delete errors	Press "ENTER" to delete error log.	Cmd ->
Installation dat r/o	Displays date of installation (month / yr)	mmyy (e.g., 1110 November 2010)
Hours counter r/o	Displays number of operating hours	(..) h
Service time interval	Enter maintenance interval	(6 .. 24) months <b>12</b>
Service cycle interval	Enter number of opening and closing cycles until next maintenance	(200 .. 1000)* 1000 <b>200</b>

Parameter name	Description	Setting
Wartungs datum	Maintenance data	x x y y (month, year)
Cycles total r/o	Displays total opening and closing cycles	(..)
Zyklen max h r/o	Displays maximum number of cycles in one hour	(..) h
Zyklen / h r/o	Displays number of cycles in previous hour	(..) h
Zyklen / h akt.	Displays number of cycles in current hour	(..) h
Learning cycle	Press "ENTER" to start learning cycle.	Cmd->
Learn cycle stat. r/o	Indicates status of learning cycle	(..)
Factory reset	Press "ENTER" to reset system to original settings	Cmd ->
Latching action p/u		(...) kg
Setup level (Ref. parameter SL, no. 28)	- Level 1, standard original settings. - Level 2, extended original settings	- Level 1 - Level 2
DCW list r/o	Displays DCW list	List ->
DCW reset		Cmd ->
Function mode r/o	Displays program switch setting	(..)

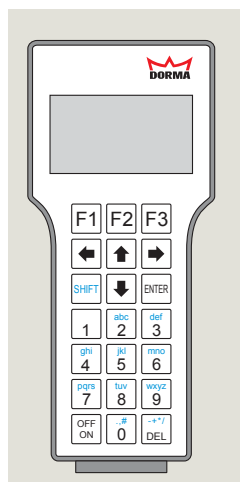
16.5.1 Diagnostics

Parameter name	Description	Setting
<b>Setting code</b>		0, low active (function on) 1, function off
Inp. Night - bank r/o	Status of Night -bank input X9, 6 and 1	0 1
Inp. OPEN r/o	Status of program switch permanent OPEN input X1, 34	0 1
Inp. PART OPEN r/o	Status of program switch PARTIAL OPEN input X1, 33	0 1
Inp. EXIT ONLY r/o	Status of program switch EXIT ONLY input X1, 32	0 1
Inp. AUTO r/o	Status of program switch AUTO input X1, 31	0 1
Inp. OFF r/o	Status of program switch OFF input X1, 30	0 1
Inp. Sfty pull side r/o	Status of safety sensor, hinge side input X5, 15	0 1
Inp. Sfty push side r/o	Status of safety sensor, opposite hinge side X5, 11	0 1
Inp. Activ extern r/o	Status of external activation sensor X6, 41	0 1
Inp. Activ intern r/o	Status of internal activation sensor X6, 42	0 1
Inp enable operator r/o	Status of Emergency close input X6, 4 and 4a	0 1
Inp. smoke detector r/o	Status of smoke detector input X9, 3 and 1	0 1
Inp. lock status r/o	Status of locking device input X3, 43 and 3	0 1
Locking status		locked

Parameter name	Description	Setting
Klemme 1G	Clamp X3, 1G and 3, 24 V out	
Opening width r/o	Displays opening angle	( .. ) °
Cur. door position r/o	Displays current door angle	( .. ) °
Amb. temp. r/o	Displays ambient temperature	( .. ) °C
Amb. max r/o	Displays maximum ambient temperature	( .. ) °C
Motor temp. r/o	Displays motor temperature	( .. ) °C
Motor temp max. r/o	Displays maximum motor temperature	( .. ) °C
Com 1 r/o	Com 1 connection	( .. )

## 16.6 New dormakaba handheld; language change to English

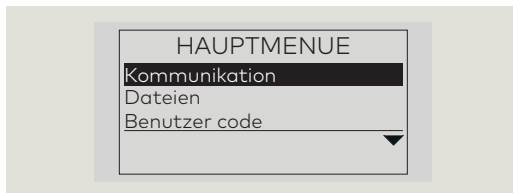
Fig. 16.6.1 dormakaba handheld



### 16.6.1 New dormakaba handheld; language change.

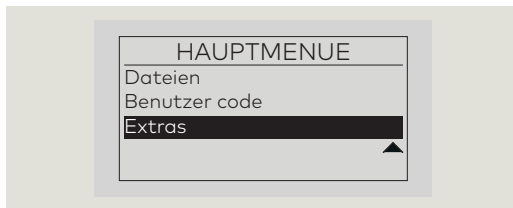
If German language is displayed on screen when handheld is first turned on (Fig. 16.7.1, handheld power on sequence), use following steps to change to English.

Fig. 16.6.2 HAUPTMENUE (main menu)



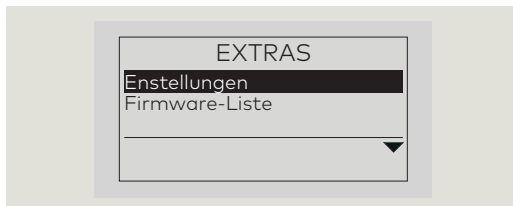
1. Scroll down Main Menu to EXTRAS:
  - Press 3 times to highlight EXTRA.

Fig. 16.6.3 Main Menu; EXTRAS highlighted.



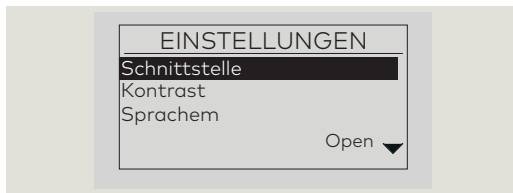
2. Press to select EXTRAS menu.

Fig. 16.6.4 EXTRAS menu



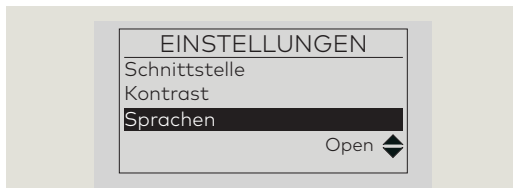
3. Press to select EINSTELLUNGEN (Settings) menu.

Fig. 16.6.5 EINSTELLUNGEN menu



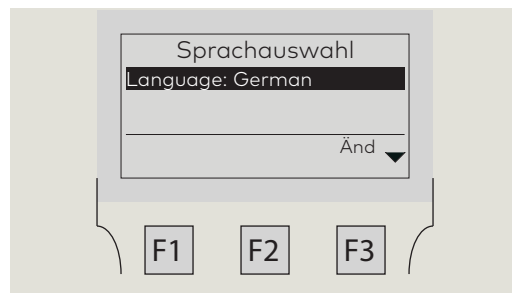
4. Scroll down EINSTELLUNGEN Menu to Sprachen (Languages):
  - Press twice to highlight Sprachen.

Fig. 16.6.6 Sprachen highlighted



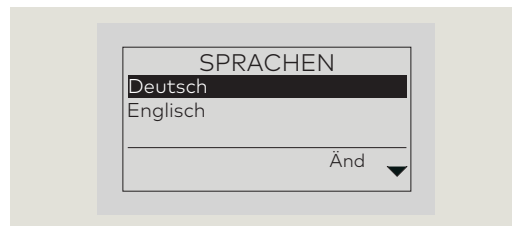
5. Press to select Sprachen (Fig. 20.6.6).

Fig. 16.6.7 Sprachauswahl (Language Selection) menu



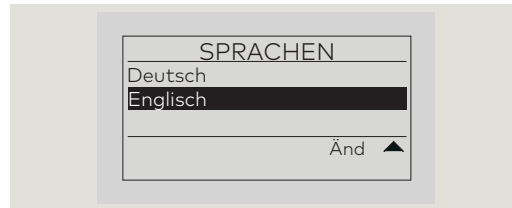
6. Press to select Änd (Amendments).

Fig. 16.6.8 SPRACHEN menu



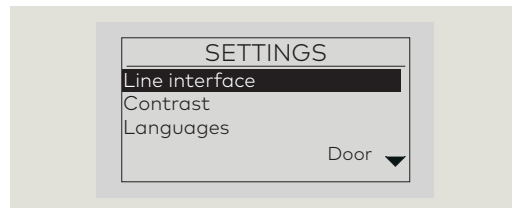
7. Scroll down SPRACHEN menu to English: Press once to highlight "English"

Fig. 16.6.9 Englisch highlighted



8. Press to select English.

Fig. 16.6.10 SETTINGS menu



#### TIPS AND RECOMMENDATIONS

Handheld programmer will retain English setting when unit is turned off. Change to English only required the first time the programmer is turned on "out of the box".



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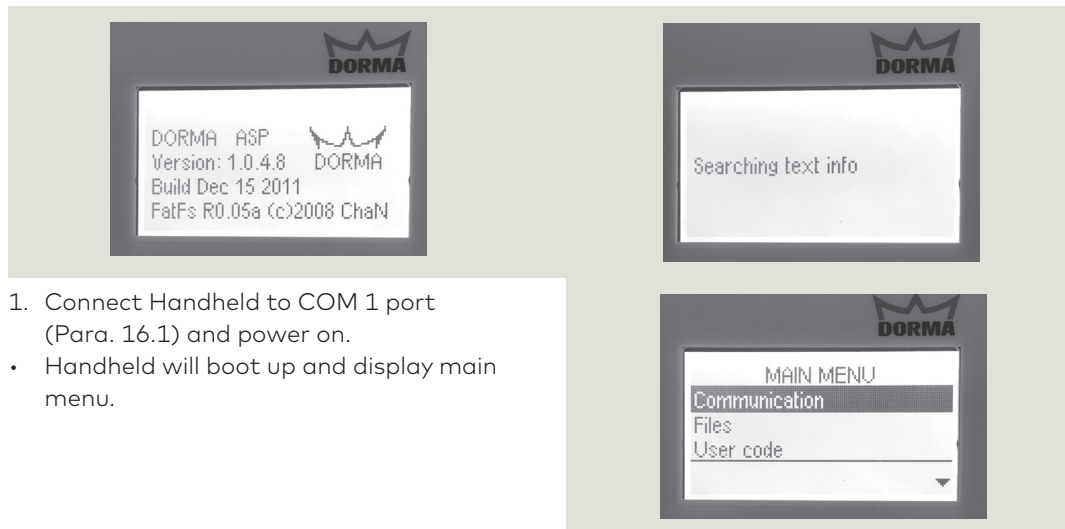
## 16.7 dormakaba handheld; firmware update

### 16.7.1 Firmware update procedure

**CAUTION**

For all firmware changes, set program switch to CLOSE and allow door to close completely before any updates are made!

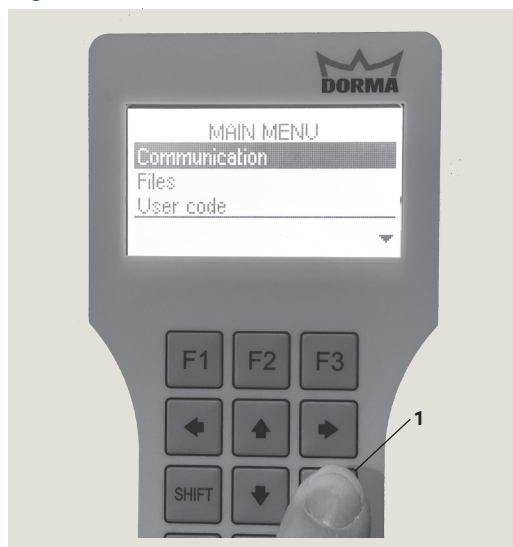
Fig. 16.7.1 Handheld power on sequence



1. Connect Handheld to COM 1 port (Para. 16.1) and power on.
- Handheld will boot up and display main menu.

Fig. 16.7.2 Select communication menu

1 ENTER button



2. With Communication highlighted, press ENTER.

Fig. 16.7.3 Enter Handheld user code



3. Enter handheld user code and press ENTER.

- 1 ENTER button
- 2 F2 button
- 3 Up/down arrows

Fig. 16.7.4 Select UpDoLd



4. Press F2 to select UpDoLd.

Fig. 16.7.5 Select Firmware upload



5. Use Up and Down arrows to select Firmware upload and press ENTER.

Fig. 16.7.6 Select Firmware version



6. Use Up and Down arrows to select firmware version and press ENTER.

Fig. 16.7.7 Start transmission



7. Press any key to start firmware transmission.

Fig. 16.7.8 Firmware uploading



8. Firmware uploading to controller. Wait time of 3 to 5 minutes to upload.

Fig. 16.7.9 Complete firmware update



9. Press any key to complete firmware update.

# 17 ANSI/BHMA standards

## 17.1 A156.19 Low energy power operated doors

The following table references portions of content from ANSI/BHMA A156.19. Refer to the standard, available through ANSI or BHMA for additional information. Standard material reprinted with BHMA permission.

### 17.1.1 Door measurements, low energy power operated door

ED50 Parameter		A156.19 standard				
Parameter	Function	Factory setting	Adjustment range	Para.	Requirement	
<b>So</b>	Opening speed	Swing door opening speed.	17%/s Note 1	8%/s - 27%/s  27%/s max. L.E. mode	4.2	Opening Doors shall open from closed to back check or 80°, whichever occurs first, in 3 seconds or longer as required in Table I.  Total opening time to 90° shall be as in Table II. If door opens at more than 90°, it shall continue at the same rate as back check speed.
<b>bc</b>	Back check	Checking or slowing down of door speed before door being fully opened.	10°	5° - 40°	4.2	Back check shall not occur before 60° opening.
<b>Sc</b>	Closing speed	Swing door closing speed, automatic mode.	17%/s Note 1	8%/s - 27%/s  27%/s max. L.E. mode	4.4	Closing: Doors shall close from 90° to 10° in 3 seconds or longer as required in Table I.  Doors shall close from 10° to fully closed in not less than 1.5 seconds.
<b>dd</b>	Hold open time	Hold open time.	5 s	5 s - 30 s	4.3	Time delay: When powered open, the door shall remain open at the fully opened position for not less than 5 seconds. Exception: when push-pull activation is used, the door shall remain at the fully opened position for not less than 3 seconds.
<b>hS</b>	Reference Chapter 14 for parameter detail.	Support for manual mode in door closed position.			4.5	Doors shall open with a manual force: <ul style="list-style-type: none"> <li>Not to exceed 15 lbf [67 N] to release a latch if equipped with a latch.</li> <li>To set a door in motion 30 lbf [133 N].</li> <li>To fully open the door 15 lbf [67 N].</li> </ul> Forces shall be measured 1" [25.5] from latch edge of door.
<b>hA</b>		Adjustment, door activation angle.				
<b>hF</b>		Power assist function.				
<b>Fo</b>	Static force in opening direction	Static force on door closing edge in opening direction.	13.5 lb f [60 N]	4.5 lb f [20 N] - 15 lb f [67 N]	4.5	Force required to prevent a stopped door from opening or closing shall not exceed 15 lb f [67 N] measured 1" [25.4] from latch edge of door at any point during opening or closing.
<b>Fc</b>	Static force in closing direction	Static force on door closing edge in closing direction.	13.5 lb f [60 N]	4.5 lb f [20 N] - 15 lb f [67 N]	4.5	

Note 1: Speed may be slower after learning cycle completed.

**17.1.2 A156.19, Table I: Minimum opening and closing times.**

"D" door width, inches [mm]	"W" door weight, pounds [kg]				
	100 [45.4]	125 [56.7]	150 [68]	175 [79.4]	200 [90.7]
30 [762]	3.0	3.0	3.0	3.0	3.5
36 [914]	3.0 s	3.5 s	3.5 s	3.0 s	3.0 s

Minimum opening time to back check or 80 degrees (whichever occurs first).  
 Minimum closing time from 90 degrees to latch check or 10 degrees (whichever occurs first).

**17.1.3 A156.19, Table II: Total opening time to 90 degrees.**

Back check at 60°	Back check at 70°	Back check at 80°
Table I plus 2 s	Table I plus 1.5 s	Table I plus 1 s
If door opens more than 90°; it shall continue at the same rate as back check speed.		
Back check occurring at a point between positions shall use lowest setting.		

**17.1.4 Other door weights and widths**

Closing time  $T = (D \sqrt{W}) / 188$   
 D = Width of door in inches.  
 W = Weight of door in pounds.  
 T = Closing time to latch check in seconds.

SI (metric) units  
 Closing time  $T = (D \sqrt{W}) / 2260$   
 D = Width of door in mm.  
 W = Weight of door in kg.  
 T = Closing time to latch check in seconds.

