dormakaba

ES 250 PRO Easy

Montaj talimatları

060521-45532/17606 – 02/2024

EN

Contents

1 Product description

1.1 Overview

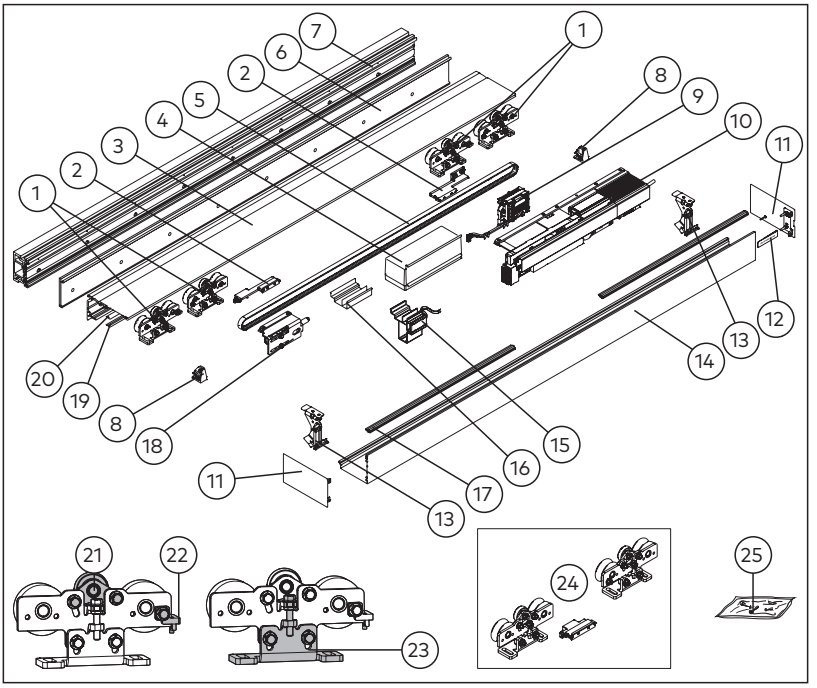


Fig. 1

(1) Carriers
(2) Engaging unit
(3) Operator profile
(4) Battery
(5) Toothed belt
(6) Mounting profile
(7) LM girder
(8) End stop
(9) Locking device
(10) DRIVE UNIT
(11) End plate
(12) Logo clip
(13) Cover holders
(14) Internal cover
(15) Door Pilot Interface
(16) Cable duct
(17) Hinge profile
(18) Deflection device
(19) Rubber strip
(20) Track profile
(21) Counter roller
(22) Anti-static brush
(23) Adjustable brackets
(24) Carriers with engaging unit for 1-leaf units
(25) Bag of screws:
17508901150 for 2-leaf units
17509001150 for 1-leaf units

1.2 Operating elements

The control unit has a user interface with 4 keys and a 2-digit display.

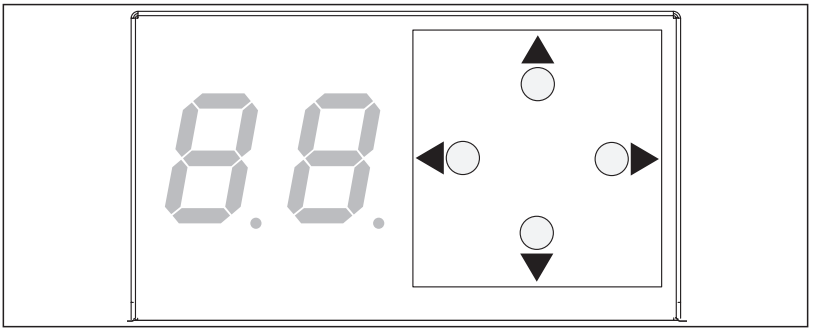


Fig. 2

The following functions can be executed by pressing the keys:

▶ **Right key**
- Open parameters menu
- Display parameter value
- Select parameter to be changed
- Save changed parameter value
- Open error menu

▼ **Bottom key**
- Scroll through parameters and error messages
- Decrease the parameter value
- Opening impulse
- Teach-in run (press for 3 secs)
- Factory reset (Fact-Setup) (press for 8 secs)

◀ **Left key**
- Close change parameters
- Close parameters menu
- Close error menu
- Stop service mode (press for 3 secs)

▲ **Top key**
- Scroll through parameters and error messages
- Increase the parameter value

◀ ▶ **Press left and right key at the same time**
- Error acknowledgement
- Reset (press for 3 secs)

1.3 Parts included

The parts included are stated on the delivery note. Fixing materials such as dowels and screws are not included.

1.4 Technical data

Connection voltage:	230 V 50 Hz +10%/-15%
Fuse supplied by the customer:	10 A
Protection class:	IP 20
Permissible humidity:	93% relative humidity, non-condensing
Operating temperature:	-20°C to +60°C
Power supply for external devices - for mains operation: - in the event of a mains failure in battery mode:	 27 V DC/max. 1 A short-circuit-proof 27 V DC/max. 1 A short-circuit-proof
Multiport inputs	27 V ±15 %

1.5 Closing edge protection

Warning
Only safety sensors with type approval according to EN 16005 may be used!

1.6 Secondary closing edge protection

If the distance of the opened door leaf to a stationary obstacle (e.g. a wall) is smaller than 200 mm, the secondary closing edge must be protected, for example with safety sensors or a protective panel.

2 Terminal layout

2.1 Terminal layout of the control board

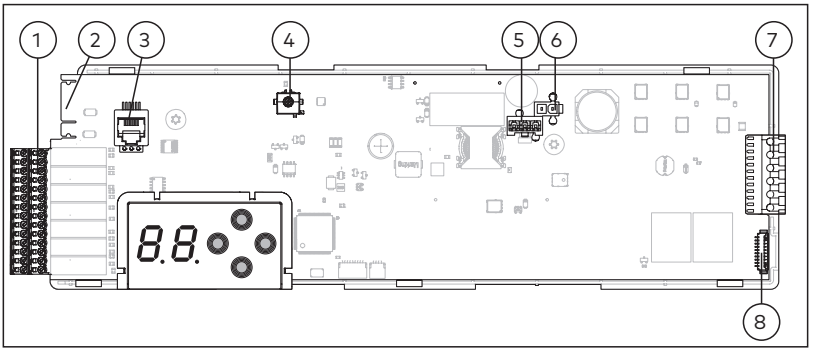


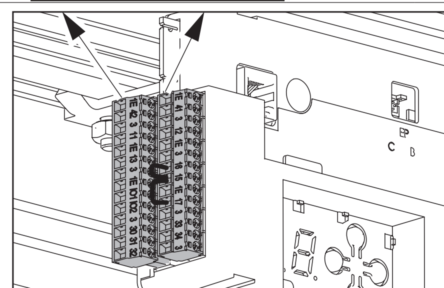
Fig. 78

(1) Terminal block
(2) Operator locking device connection
(3) COM port
(4) CAN BUS port
(5) Power supply connection
(6) Battery pack connection
(7) Drive connection
(8) Hall effect sensor connection

Description	Signal	Terminal	Terminal	Signal	Description
Power supply 27 V	27 V	1E	1E	27 V	Power supply 27 V
Inside activation (radar detector)	ACT IN	42	41	ACT OUT	Outside activation (radar detector)
GND	GND	3	3	GND	GND
Safety bumper input MCE 1	SAFE MCE 1	11	12	SAFE MCE 2	Safety bumper input MCE 2
Power supply 27 V	27 V	1E	1E	27 V	Power supply 27 V
MCE test output	TEST MCE	13	3	GND	GND
GND	GND	3	16	SAFE SCE 2	Safety bumper input SCE 2
Power supply 27 V	27 V	1E	15	SAFE SCE 1	Safety bumper input SCE 1
Multiport input/output 1	IO 1	IO1	1E	27 V	Power supply 27 V
Multiport input/output 2	IO 2	IO2	17	TEST SCE	SCE test output
GND	GND	3	3	GND	GND
Operating mode Off	OFF	30	33	PART OPEN	Partial open operating mode
Automatic operating mode	AUTO	31	34	OPEN	Permanent open operating mode
Operating mode output	EXIT	32	3	GND	GND

Fig. 79

The terminal block is located on the left side of the Drive Unit.



2.2 Multiports

The multiports are used to connect components to the control unit.
The multiports can be configured individually as input (high/low active, normally open/normally closed) or as output (open collector) via the OSI.
The multiports can be parameterized via the parameters u1 and u2.
The level can be parameterized via the parameters n1 and n2.

I/O 2 = Multiport 2 and Wake-Up
In battery mode, the control unit switches to energy-saving mode. The control unit can only be activated via Multiport 2.

2.2.1 Possible functions

The following functions can be configured via the OSI.

Exit	• Status "Door closed" • Status "Door open" • Malfunction • Status "Door closed and locked" • Info and malfunction	• Doorbell contact • Lock alarm • Status "No faults in unit" • Service LED
Input	• Night/bank • Key switch 1 left • Key switch 1 right	• Soft reset • Fire protection closures

Factory setting
Multiport 1 (I/O1) = Door closed
Multiport 2 (I/O2) = Night/bank

2.2.2 Connection on the multiports

27 V DC doorbell connection

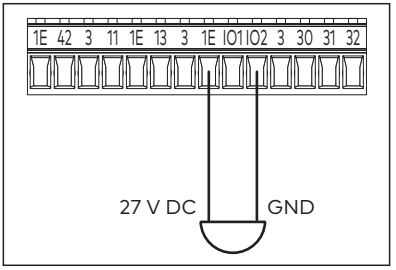


Fig. 80

Night/bank connection

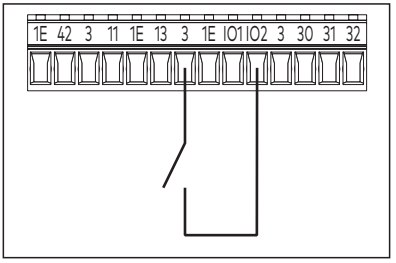


Fig. 81

Connection for "Door closed" message potential-free

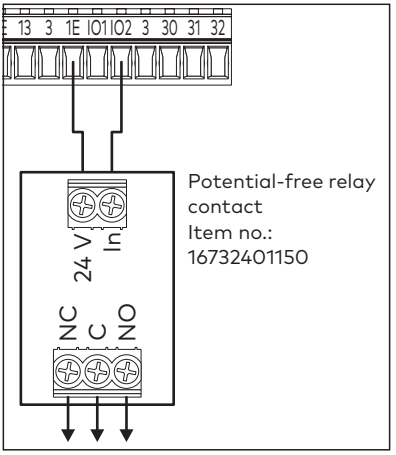


Fig. 82

Connection for "Door closed" message 27 V DC

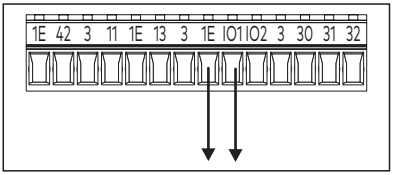


Fig. 83

Key switch connection

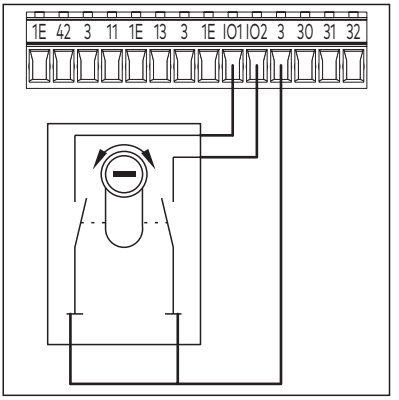


Fig. 84

Operating mode switch connection

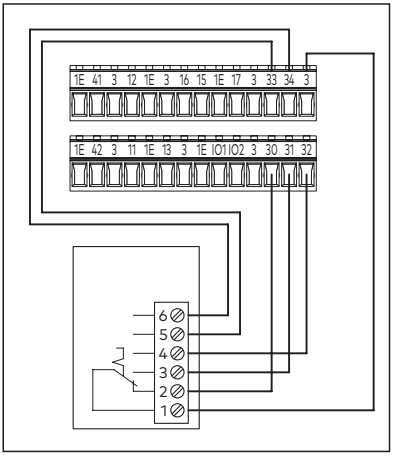


Fig. 85

3 Commissioning

3.1 Requirements

- The operator is mounted correctly, mechanically and electrically.
- The area of movement of the door leaf is free from obstacles.
- The door is in the half-open position.
- The safety sensor connections on the terminal block are bridged.
- The operating mode switch is in Off mode.

3.3.1 Service mode

In Service Mode 1, the sensors are not evaluated by the control unit.
In Service Mode 2, the CAN components are not evaluated by the control unit.
If a Service Mode is activated, all errors are acknowledged and the closing movements run at crawl speed.

Display

1. Connect the power supply unit to the power supply, and, if present, the battery.

- The control unit carries out a self-test.

- The device identification is shown on the 2-digit display as "ES" followed by "EASY" and the "Firmware version".

Control unit:
EASY = Easy control unit

- The CAN BUS is initialized.

- The small, spinning "o" and the "P" show that parametrization is required.
- The control unit switches to Service Mode 2.

2. Press ▶ for 3 seconds to open the parameters menu.

3. Set the parameters "L1" and "dL", see "10 Parameterization".

4. If an EPS CAN is used, set the parameter "PS" to the value 4 .

Display

5. ◀ Press to exit the parameters menu.

- The small, spinning “o” and the “O” show that a teach-in run is required.

6. ▼ Press for 3 seconds.

- The door moves in closing direction to determine the closed position.

- The door carries out a teach-in run.
- The door closes.

- The door is pushed into closed position.
- An existing interlock is taught in.

- The door leaf weight is calculated.

- The door moves at crawl speed in opening direction.

- The opening width and the door leaf weight are saved.

- The operator moves into closed position.
- The teach-in run is finished, the control unit switches to Service Mode 1.

7. ◀ Press for 3 seconds to exit Service Mode 1.

→ **Commissioning is complete, the operator is ready for operation.**

8. If safety sensors are to be connected to the terminal block, connect the safety sensors and set the parameter  accordingly.

4 Fire protection function

The fire protection function enables the sliding door to close safely in case of fire. The function is controlled externally, e.g. via fire alarm systems or building management systems. A rechargeable battery is required for the function.

4.1 Activate the fire protection function

1. Connect the external control unit for the fire protection function to the multiport I/O.
2. Activate the fire protection function via the "P" parameter.
3. Configure the multiport for fire protection.

When the parameter "P" is set to the fire protection function, the following functions/parameters are changed:

Parameter	Is changed to	Can be changed subsequently
Obstacles in Open	5	yes
Obstacles in Closed	5	yes
Blocking function	Door stops	yes
Night/bank configuration	Edge	no
Power saving mode	is ignored	no
Waiting time at the obstacle in closing direction	5 seconds	no

When the fire protection function is triggered, the door closes and is locked.
The door moves at creep speed due to the deactivated sensor system.
The following functions are no longer possible:

- Opening the door via the sensor system
- Change of the operating mode

Opening the door is now only possible via the night/bank impulse.

5 Parameterization

After carrying out a teach-in run, the operator can be operated with the basic parameters.

The system offers the option to adapt the travel parameters to the actual conditions as well as to activate advanced functions. These parameters should be set during commissioning according to the customer's wishes.

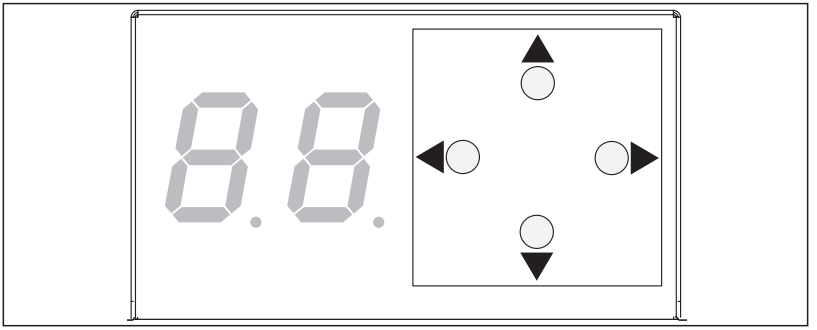


Fig. 86

5.1 Change parameters

1. ▶ Press for 3 seconds to open the parameters menu.

2. Use ▲ or ▼ to select the parameter to be changed.

3. ▶ Press to display the parameter value.

4. Press ▶ to select the parameter value to be changed.
- The value flashes.

5. ▲ Or press ▼ to change the parameter value.

6. **Press** ▶ to save the changed parameter value.

7. Press ◀ to return to the parameters menu.

8. Repeat steps **2-7** to change more parameters.

9. If all parameters have been set, press ◀ to exit the parameters menu.

5.2 Parameter overview

The parameters described here can be set via the keypad on the control unit. Further settings can be made via the OSI.

Parameter	Display	Value range/ unit	Values (default = **bold**)	Explanation
Number of door leaves	dL	1-2	1	1-leaf
			2	2-leaf
Operator locking device	L1	0-4	0	None
			1	Standard locking device
			2	Magnetic lock
			3	Fail-safe locking
			4	Fail-secure locking
Door lock	L2	0-1	**0**	None
			1	Combined locking
Program mode	P	0-1	**0**	Standard
			1	Fire protection function
Operating mode switch type	PS	0/1/3/4	**0**	Conventional PGS
			1	EPS-CAN
			3	DPI/OSI only
			4	EPS-CAN/DPI/OSI
Battery mode	A	0-2	**0**	No battery
			1	Emergency close
			2	Emergency open
Emergency closing in exit	EF	0-1	**0**	No
			1	Yes
Locking mode	PL	0-3	**0**	Locking only in the Off operating mode
			1	Locking in the Off and Exit operating modes
			2	Locking in the Automatic and Partial Open and Off operating modes
			3	Locking in the Off, Automatic, Exit and Partial open operating modes

Parameter	Display	Value range/ unit	Values (default = **bold**)	Explanation
Power saving mode	cS	0-1	0	Off
			1	On
Acceleration in OPEN direction	Ao	0–9	**7**	
Opening speed	So	10–70 cm/second	**50**	Setting the opening speed
Acceleration in closing direction	Ac	0–9	**7**	
Closing speed	Sc	10–70 cm/second	**25**	Setting the closing speed
Braking ramp in OPEN direction	bo	0–9	**5**	
Force limitation in open	Fo	5-31 10 N	**15**	Setting the force limitation in opening direction
Stopping force open position	Po	0–6	**2**	
Brake ramp in closing direction	bc	0–9	**5**	
Start-up delay	rS	0–10 seconds	**0**	
Hold-open time	dd	0-180 seconds	**1**	Setting the hold-open time
Night/bank hold-open time	dn	0-180 seconds	**0**	Setting the hold-open time for night/bank
Force limitation in closed position	Fc	5-31 10 N	**15**	Setting the force limitation in the closing direction
End stop in the closing direction	Lc	0–9	**6**	Setting the end stop in the closing direction

Parameter	Display	Value range/ unit	Values (default = **bold**)	Explanation
Locking force	PC	0–9	**6**	Setting the locking force
Sensitivity of the collision detection when the threshold value is undershot	cd	0-2	0	Low sensitivity
			1	Medium sensitivity
			2	High sensitivity
Sensitivity of the collision detection when the threshold value is exceeded	Cd	0-2	0	Low sensitivity
			1	Medium sensitivity
			2	High sensitivity
Number of obstacles in the open direction	oo	5–30	**30**	
Function Multiport 1 Default = 1	u1	1–14	0	No function
			1	Output - status door closed
			2	Output - status door closed and locked
			3	Output - status door open
			4	Output - malfunction
			5	Output - info and malfunction
			6	Output - lock alarm
			7	Output - doorbell contact
Function Multiport 2 Default = 10	u2		8	Output - Status No faults in unit
			9	Output - Service LED
			10	Input - Night/bank
			11	Input - key switch 1 left
			12	Input - key switch 1 right
			13	Input - fire protection closing
			14	Input - soft reset

Parameter	Display	Value range/ unit	Values (default = **bold**)	Explanation
Function Multiport 1 - active input level	n1	0-3	**0**	Low active normally open
			1	High active normally open
Function Multiport 2 - active input level	n2		2	Low active normally closed
			3	High active normally closed
Key switch function right short	rS	0–16	**1**	0 No function 1 Night/Bank 9 Off operating mode 10 Automatic operating mode 11 Operating mode output 12 Partial open operating mode 13 Permanent open operating mode 14 Switch to the previous operating mode 15 Unlock EPS-CAN 16 Lock EPS-CAN
Key switch function right long	rL	0–16	**10**	
Key switch function left short	LS	0–16	**0**	
Key switch function left long	LL	0–16	**9**	
Doorbell contact functionality	bF	0-3	0	No doorbell function
			1	Rings on entry
			2	Rings on exit
			3	Rings in both directions
Sensor test	SF	0-8	**0**	Off
			1	SCE (high active)
			2	MCE (high active)
			3	SCE + MCE (high active)
			4	SCE (low active)
			5	MCE (low active)
			6	SCE + MCE (low active)
			7	SCE (high active) + MCE (low active)
			8	SCE (low active) + MCE (low active)

Parameter	Display	Value range/ unit	Values (default = **bold**)	Explanation
COM 1	C 1	0-3	0	Off
			1	DPI/OSI
Factory settings setup	SL	1-3	1	Reset configuration and travel parameters
			2	Level 1 and special functions
			3	Level 2 and passwords, operating data, CAN and historical data
CAN reset	cr	0-1	0	Activation
			1	Set value for execution to 1
Door pilot reset	dr	0-1	0	Activation
			1	Set value for execution to 1
Door weight	Po			Shows the taught-in door weight in kg
Service cycles counter via control panel	CS	0-1	0	Activation
			1	Service cycles counter is reset
Delete error memories	EC	0-1	0	
			1	Set value for deletion to 1
Service mode	SE	0-2	0	Not active
			1	Service Mode 1
			2	Service Mode 2

6 Information and error display

The information (In) and errors (E) are displayed on the 7-segment display on the DRIVE CUBE.
The Operator Service Interface can be used to read out the information and errors.
Data are transmitted with RS232 via the RJ12 bushing on the control unit.

Display	Meaning/cause	Troubleshooting/possible causes
In 01	Obstacle in opening direction	• Remove obstacle • Check floor guide • Check toothed belt • Adjust obstacle detection and force limitation settings • Check mechanics and electronics of locking device/drive
In 02	Obstacle in closing direction	
In 09	Door weight too high	• Check door weight • Check structure of the door system for stiffness • Repeat teach-in run
In 18	Output stage IC has overheated and switched itself off	• Check control unit for overheating
In 23	Lock alarm floor locks locked	• Check lock
In 30	No power supply	• Check power supply
In 53	The toothed belt has jumped	• Check toothed belt tension • Replace toothed belt if necessary • Carry out a teach-in run afterwards
In 64	Fire protection closures	• Check fire alarm systems
In 68	Firmware download error	• Re-download firmware
In 99	Unknown CAN device detected	• Check the settings of all CAN devices (DIP switches) • Check whether third-party hardware is connected • Carry out a CAN reset if necessary

Display	Meaning/cause	Troubleshooting/possible causes
E0 00	Control unit is error-free	
E0 01	Door jammed in opening direction	• Incorrect zeroing • Remove obstacle • Check floor guide • Check toothed belt • Adjust obstacle detection and force limitation settings • Check mechanics and electronics of locking device/drive
E0 02	Door jammed in closing direction	• End stopper moved • Remove obstacle • Check floor guide • Check toothed belt • Adjust obstacle detection and force limitation settings • Check mechanics and electronics of locking device/drive
E0 05	Device identifier incorrect	• Perform network reset* • If the error occurs again, replace the control unit
E0 07	27 V controller overvoltage/undervoltage	• Perform network reset* • If the error occurs again, replace the control unit
E0 08	Ballast circuit	• Perform network reset* • If the error occurs again, replace the control unit
E0 09	Teach-in run not completed	• Repeat teach-in run
E0 10	Drive	• Check drive wiring • Replace drive or control unit
E0 13	Overcurrent	• Check drive wiring • Replace drive or control unit if necessary
E0 14	Drive pulse pattern	• Perform network reset* • If the error occurs again, replace the control unit
E0 17	No drive undervoltage power supply	• Check power supply or power supply unit

Display	Meaning/cause	Troubleshooting/possible causes
E0 18	IC drive output stage	• Replace control unit
E0 19	Drive overvoltage	• Check power supply or power supply unit
E0 21	Unlock operator locking device	• Locking device type adjusted correctly? • Locking device correctly adjusted mechanically? • Check wiring
E0 22	Lock operator locking device	
E0 23	Lock alarm	• Check lock • Door locked?
E0 24	Unlock door lock	• Locking device type adjusted correctly? • Locking device correctly adjusted mechanically? • Check wiring
E0 25	Lock the door lock	
E0 31	Operating mode switch	• Check wiring and function of the operating mode switch • Replace operating mode switch if necessary
E0 34	EPS-CAN	
E0 41	Sensor SCE 1	• Check sensor wiring • Check sensor parameters • Replace sensor ifnecessary
E0 42	Sensor SCE 2	
E0 43	Sensor MCE 1	
E0 44	Sensor MCE 2	
E0 51	Hall effect sensor	• Check drive wiring • Replace drive if necessary
E0 53	Toothed belt	• Incorrect zeroing • End stopper moved • Check toothed belt tension • Replace toothed belt if necessary • Carry out a teach-in run afterwards
E0 54	Zero point detection failed	• Check toothed belt • Perform network reset*

Display	Meaning/cause	Troubleshooting/possible causes
E0 69	Firmware update	• Install firmware via Operator Service Interface • Replace control unit if necessary
E0 71	EEProm memory check failed	• Select factory setting • Replace control unit if necessary
E0 72	Second shutdown path	• Replace control unit
E0 74	Watchdog	
E0 81	Battery undervoltage	• Check wiring • Charge battery • Replace battery if necessary
E0 82	Battery overvoltage	• Check battery charging voltage • Replace control unit if necessary
E0 84	Battery charging circuit	• Replace control unit if necessary
E0 85	Battery missing	• Check battery • Check wiring • Replace battery if necessary
E0 86	Battery test failed	• Check battery • Replace battery if necessary
E0 91	CAN BUS communication is disrupted	• Check connectors and wiring of the CAN participants • Perform network reset* • If the error occurs again, perform a CAN reset • Check firmware version for latest version • Replace control unit or CAN participant
E0 99	A device was detected on the CAN BUS that cannot be assigned to the stored device table. The table of devices that cannot be assigned is full and no more devices can be stored	• Perform control unit reset • Perform CAN reset if this occurs repeatedly

Perform network reset

1. Switch off the power supply
2. Remove the battery (if present)
3. Connect the battery (if present)
4. Switch on the power supply

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Warehouse address:

Beylikdüzü OSB, 8. Cd.
Mermerciler Sanayi Sitesi No:1
34524 Beylikdüzü/İstanbul,
Türkiye

Headquarters address:

dormakaba Kapı ve Güvenlik Sistemleri San. ve Tic. A.Ş.

Kağıthane Ofispark, B2 Blok, K:5/30
Merkez Mah. Bağlar Cad. No:14
34406 Kağıthane/İstanbul

T +90 212 332 00 00

info.tr@dormakaba.com