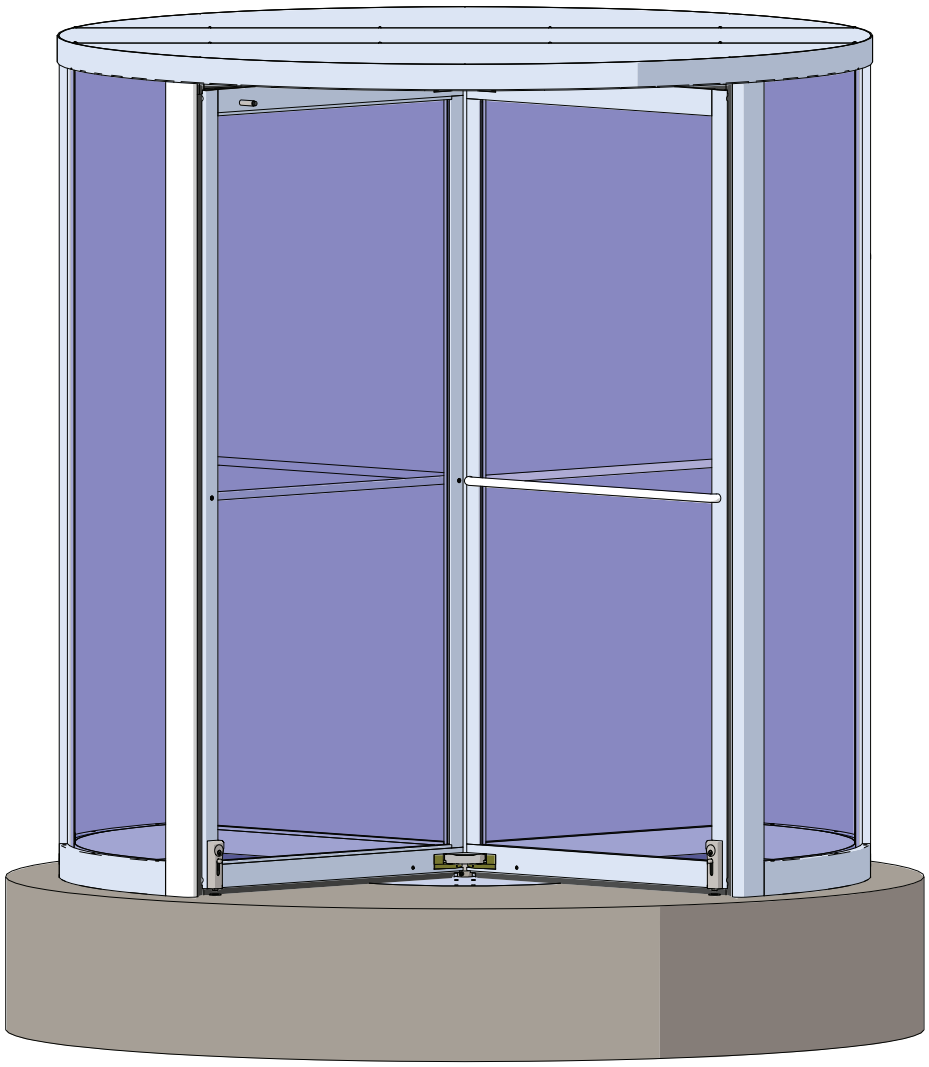


Crane 2000LE and 3000LE

In-ground Motion Assist 360 drive with remote control enclosure, In-ground speed control

Wiring, Setup and Troubleshooting Manual

RL6001-003 – 07-2022

| EN |

Crane
dormakaba Group

dormakaba

Table of contents

1 General information

1.1 Installation instructions.

This document contains important instructions for wiring, setup and troubleshooting of Crane 2000LE and 3000LE series manual revolving doors with:

- In-ground Motion Assist 360 drive.
- In-ground speed control
- Remote control enclosure.

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.us website.

Manuals are available for review, download, and printing on the dormakaba.us website.

1.4 Symbols 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

Warns of a potentially unsafe procedure or situation.

TIPS AND RECOMMENDATIONS

Clarifies instructions or other information presented in this document.

1.5 Dimensions

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

1.6 Environment

Crane revolving doors are designed to operate on an interior or exterior building surface.

2 Product description

2.1 Crane 2000LE series

2.1.1 Enclosure

- Welded construction.
- Aluminum; anodized finish, painted finish, or cladded.
- Bronze
- Stainless steel

2.1.2 Door wings

- Bolted construction
- Aluminum; anodized finish, painted finish,or cladded.

2.2 Crane 3000LE series.

2.2.1 Enclosure

- Custom
- Fully formed and welded construction.
- Aluminum, stainless steel, bronze, and wood.

2.2.2 Door wings

- Custom
- Fully formed and welded construction.
- Aluminum, stainless steel, bronze and wood.

2.3 In-ground Motion Assist 360 drive

2.4.1 Motion Assist 360 drive (Para. 2.6).

- Gearless electromagnetic direct drive..

2.4.2 Low energy application.

- Uses a "S" Power assist function module (green).

TIPS AND RECOMMENDATIONS

Reference Para. 2.7 for function module overview.

2.4 In-ground speed control

TIPS AND RECOMMENDATIONS

Reference Para 2.6.

2.5 Revolving door assembly components overview, 3 wing door

Table 2.5.1 3 wing door with In-ground Motion Assist 360 drive and with in-ground speed control

#	Description	Part #
1	Canopy assembly, 3 wing	RS6057-002
2	Center post, AL	RE6007-030
3	Quarter post	RE6009-010
4	Enclosure bent glass	
5	Enclosure, base outer, 3", AL	RE6015-010
	Enclosure, base inner, 3"	RE6016-010
6	Wing assembly with lock, 3 wing door	
7	Steel shaft assembly, in-ground drive, 3 wing door	RS6061-001
8	In-ground drive can assembly (LP)	RS6058-001

Fig. 2.5.1 3 wing revolving door, assembly

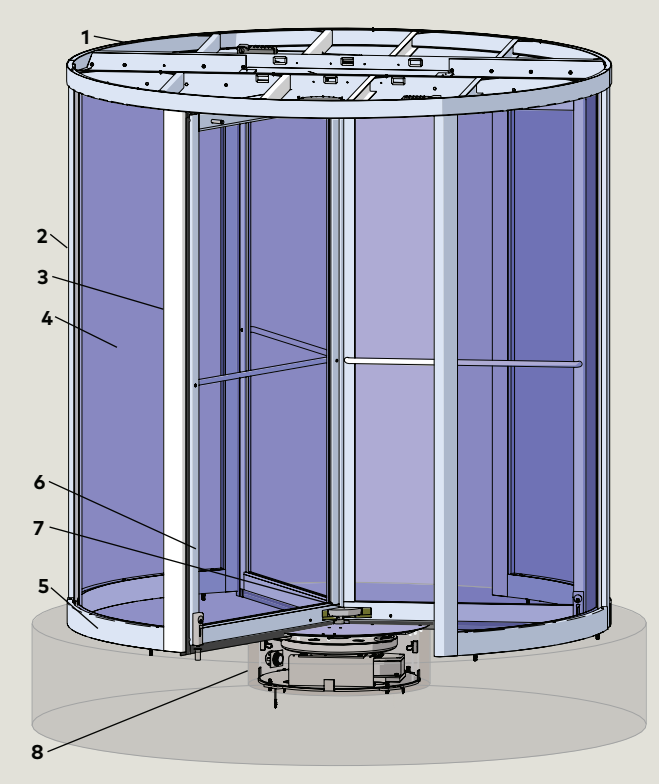


Fig. 2.5.2 Steel shaft assembly, 3 wing door

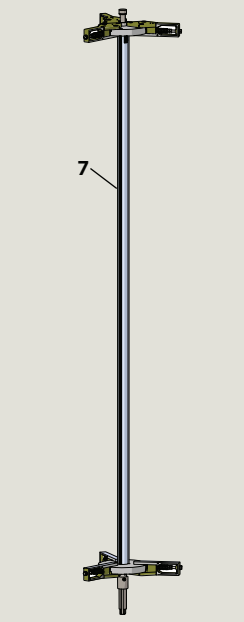


Fig. 2.5.3 Wing assembly, 3 wing door

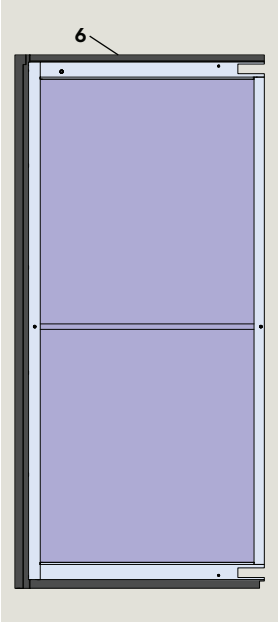


Fig. 2.5.4 Center post, quarter post

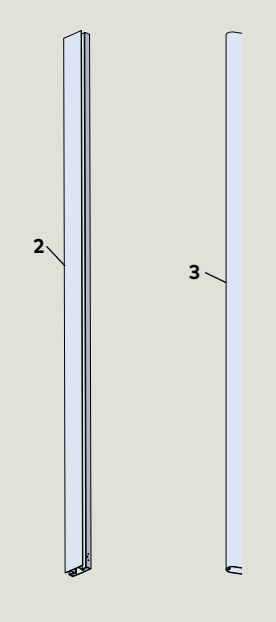


Fig. 2.5.5 In-ground can assembly with Motion Assist 360 drive and with speed control

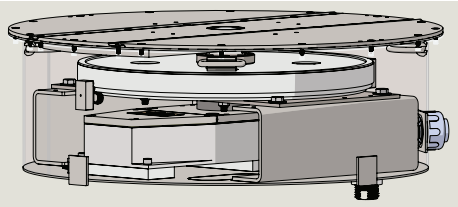


Fig. 2.5.6 Base and cover assembly

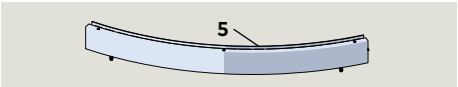
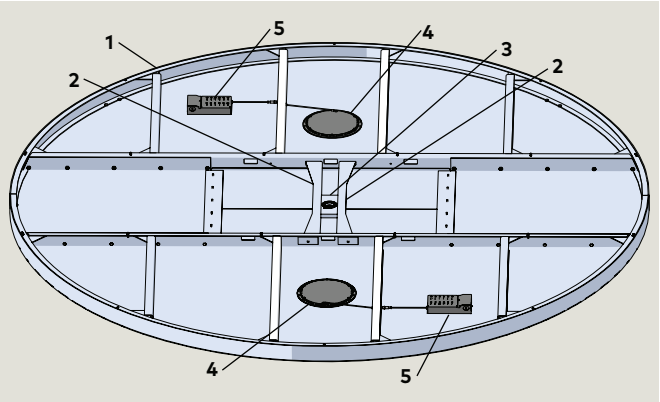


Table 2.5.2 3 1/8" inch canopy bearing and LED lights

Description	Part / Assembly	
Canopy assembly	**1**	RS6057
Bracket, ground speed control	**2**	RC6395
Bearing assembly	**3**	RS6064
LED light (option)	**4**	RC7030-001
Box, junction, with LED driver (option)	**5**	RC7032-001

Fig. 2.5.7 3 1/8" canopy with bearing assembly



2.6 Steel shaft assembly, Job ID tag

Fig. 2.6.1 Steel center shaft job ID tag location

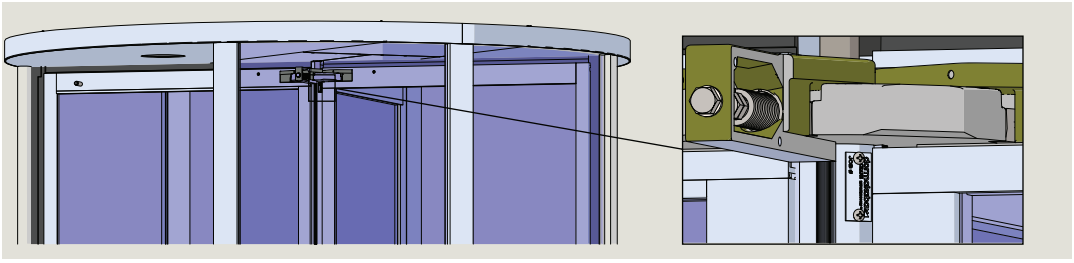


Fig. 2.6.2 Job tag

1 Job tag RD6001

2.7 Motion Assist 360 extension cables to remote enclosure

Table 2.7.1 Motion Assist 360 drive extension cables

1	RX6016-001	Motor extension cable, 25' (standard)
		Optional motor extension cables
	RX6016-002	Motor extension cable, 50'
	RX6016-003	Motor extension cable, 100'
2	RX6015-001	Hall sensor extension cable, 25' (standard)
		Optional Hall sensor extension cables
	RX6015-002	Hall sensor extension cable, 50'
	RX6015-003	Hall sensor extension cable, 100'

2.7.1 Motion Assist 360 extension cables.
Extension cables connect Motion Assist 360 drive cables to Motion Assist 360 control unit in remote enclosure (Para. 6.12).

Fig. 2.7.1 Motor extension cable

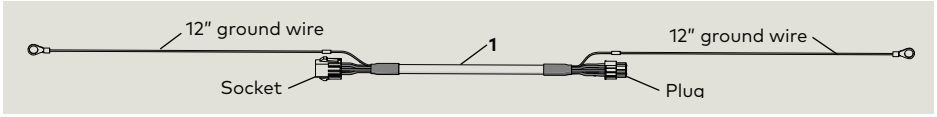
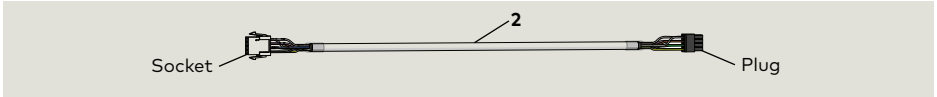


Fig. 2.7.2 Hall sensor extension cable



2.8 In-ground Motion Assist 360 assembly and Remote control enclosure

Fig. 2.8.1 In ground container assembly, low profile

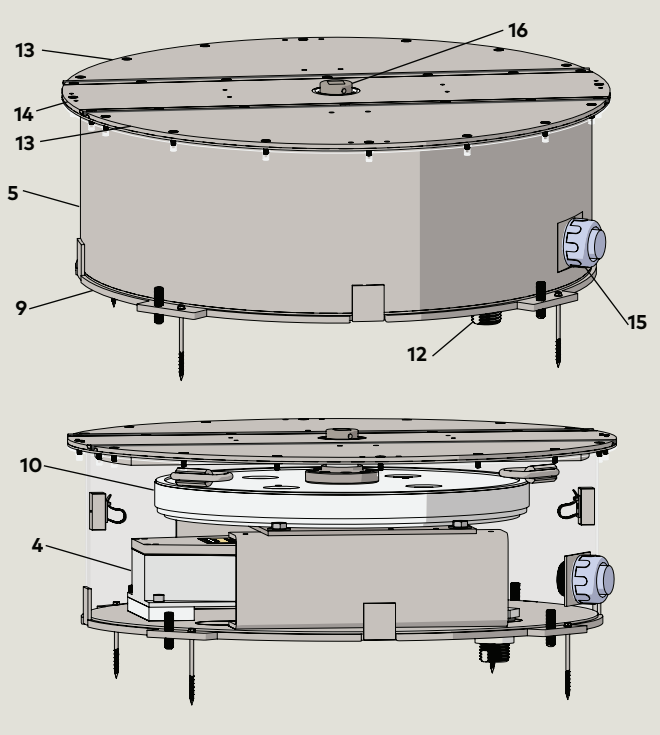


Table 2.8.1 In-ground container and Remote enclosure

#	Description	
1	Remote control enclosure	RS6032-001
2	Motion Assist 360 power supply	RX6001
3	Motion Assist 360 control unit	RX6002
4	In-ground speed control	H63-4001
5	Container assembly weldment	RS6038
9	Leveling plate assembly	RS6014
10	Motion Assist 360 drive	RX6010
11	Identification label	
12	Drain fitting	RC6043
13	Outer cover assembly	RS6033
14	Container lid, center section	RC6049
15	Conduit adapter, DC wiring	RC6045-001
16	Bottom plug adapter, in-ground drive/ speed control LP	RC6069

Fig. 2.8.2 Remote control enclosure RK6007

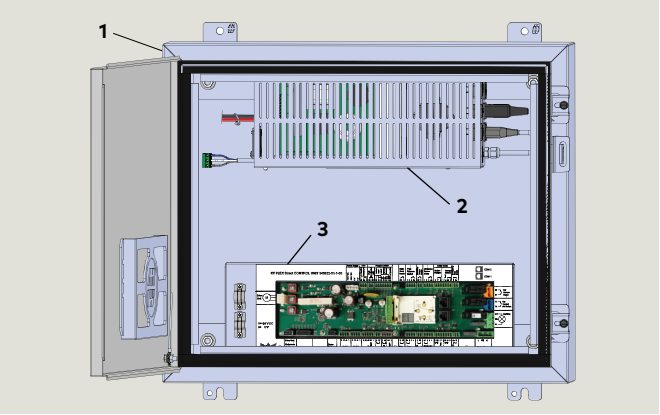


Fig. 2.8.3 Motion Assist 360 drive

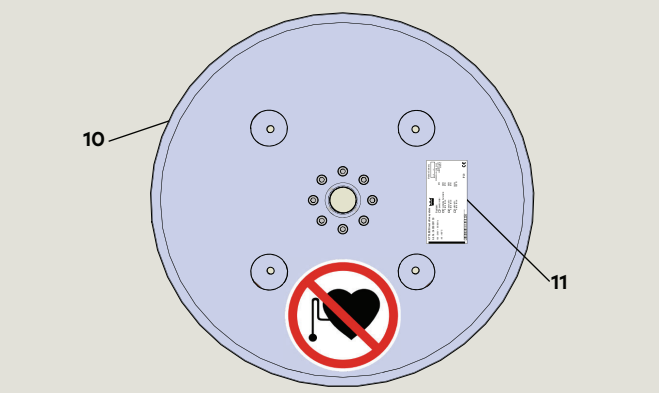
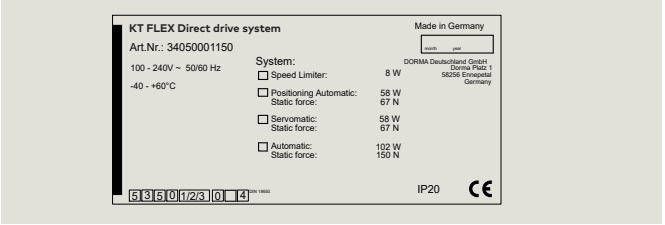


Fig. 2.8.4 Identification label Motion Assist 360 drive



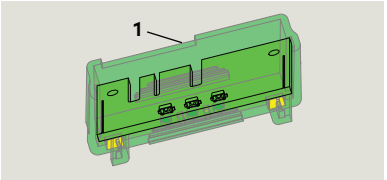
2.9 Motion Assist function module

2.9.1 Motion Assist function module used with 2000LE and 3000LE revolving doors.

The Motion Assist 360 control unit is supplied with a "S" Motion Assist function module.

- Mode switch functions for the function module are listed in Para. 4.1.
- S" function module enables specific Parameters, Special Functions and Diagnostics.

Fig. 2.9.1 "S" Motion Assist module



1 "S" module (GRN) Motion Assist RX6003-002

3 Safety information

3.1 Safety Warnings

3.1.1 Safety instructions.

Observe safety warnings as they are presented in this manual.

3.1.2 Safety warnings.

⚠ WARNING

Damage to equipment or incorrect equipment operation may result from an incorrect installation.

⚠ 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 installation must be performed only by qualified personnel!

⚠ WARNING

Danger of death from contact with voltage or electrical short circuits!
As a result of missing or defective electrical grounding of the drive system, contact with voltages or electrical short circuits is possible.

- Never put the revolving door into operation without an earth ground connected to the drive grounding terminal (Chapter 21).
- Prior to drive commissioning, drive components must be connected to the grounding terminal (Chapters 16,21):
  - Controller
  - Power supply unit
  - Drive unit support system

⚠ WARNING

Metallic doors must be grounded per national and local codes!

⚠ WARNING

Hand pinch point and crushing hazards!

⚠ WARNING

Crushing hazards!

3.1.3 Pacemakers and other medical implants warning.

⚠ WARNING

This sign is located on the Motion Assist 360 drive (Para. 2.6) and warns of the hazards for people with pacemakers and other active medical implants.
Strong electromagnetic or magnet fields may be present in the vicinity of this sign. These fields may disrupt pacemakers or other medical implants or cause them to malfunction.
People wearing pacemakers and other active medical implants should not approach components with this safety warning.

People with pacemakers and other active medical implants should not come within 20 inches [51 cm] of the operator!

4 Operator components

4.1 Emergency Stop pushbutton

4.1.1 Emergency Stop pushbutton locations.

- Building interior on the leading door quarter post.
- Second Emergency stop pushbutton located on the building exterior.

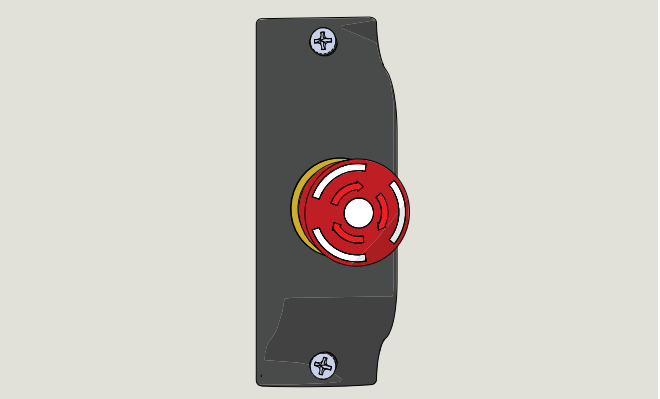
4.1.2 Actuation of Emergency Stop pushbutton.

1. A time delay disconnection of the Motion Assist 360 drive output stage is performed (approximately two seconds).
2. During this time delay the drive performs a fast braking of the door to a standstill.
3. After the time delay the drive output stage is switched off and door can then be turned manually.

4.1.3 Emergency Stop pushbutton reset.

- Emergency Stop pushbutton is reset by pulling or turning the button.

Fig. 4.1.1 Emergency Stop pushbutton



4.1.1 Triggering an Emergency Stop

⚠ WARNING

Risk of injury due to deactivated safety equipment!
After the emergency stop is activated, the drive is unlocked. Safety devices are no longer in operation. This can cause serious injuries if attempts are made to turn the door manually.

- Before turning door manually, check to make sure no one could be injured.
- If people have been locked into the revolving door, carefully turn the door until the people are able to exit the door.
- When turning the door manually, make sure there are no limbs between the closing edges.

4.1.2 Start up after an Emergency Stop

⚠ WARNING

Risk of injury due to automatic startup of revolving door!
The revolving door can set itself in motion automatically. If there are people in the door, they may be at risk of injury.

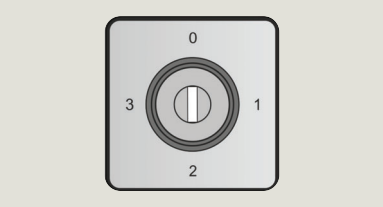
- Release the Emergency Stop button only when there are no longer any people in the revolving door.

4.1.2.1 Procedure after an Emergency stop.

1. Cause for the emergency stop has been removed.
2. Reset the Emergency stop pushbutton by turning or pulling the pushbutton.
3. Door will move to the home position.
4. The revolving door will continue with the current program settings.

4.2 Mode switch

Fig. 4.2.1 Mode switch with key lock



0 OFF
1 Automatic 1
2 Automatic 2
3 Summer

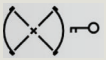
4.2.1 Mode switch location.

- Mode switch cannot be directly mounted to quarter post/end wall due to its depth.
- It is recommended to use an electrical junction box for Mode switch mounting. The box can then be wall-mounted in close proximity to the door or at another preferred location.

4.2.2 Mode switch setting security.

- A key or code secures the Mode switch against unauthorized access.

4.2.3 Mode switch functions (low energy).

Mode switch position		Function	**S** - (Green module) - Motion Assist
	**0**	Off	• Revolving door will stay in the home position. • After a set period of time, any internal lighting is switched off.
	**1**	AUTOMATIC 1	• A knowing act (Para. 4.2.5) switch starts rotary movement of the door wings at low energy speed (Para. 4.2.4). Acceleration to walking speed is done manually. • Manually pushing the door starts rotary movement of the door wings at low energy speed. Acceleration to walking speed is done manually. • Revolving door automatically stops in the next starting position as soon as it is no longer manually operated.
	**2**	AUTOMATIC 2	• Door rotates continuously at a low energy speed. Acceleration to walking speed is done manually. • After door passage, the door slows down to low energy speed and continues to rotate at low energy speed.
	**3**	Summer	• Revolving door stops at its starting position and the drive is unlocked. • Door wings can be rotated manually. • Bookfold: wings can be folded to the side.

4.2.4 Low energy speed definition - ANSI/BHMA A156.27.

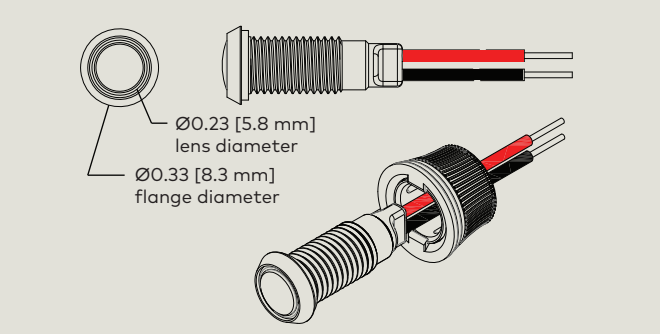
Door speed resulting in a maximum of 2.5 lbf-ft [3.4 Nm] of kinetic energy.

4.2.5 Knowing act.

Consciously activating a switch with the knowledge of what will happen such as starting, slowing or stopping a revolving door.
Switching devices may include wall or jamb-mounted contact switches such as push plates, fixed contact switches and controlled access devices such as keypads, card readers, and key switches.

4.3 Fault LED

Fig. 4.3.1 Fault LED



4.3.1 Fault LED.

- Fault LED provides error number indication.
- Frequency and rate of LED flashes indicates error number. Ref. Chapter 16, Error List.

4.3.2 Fault LED location.

Fault LED located above or below Mode switch at installation.

4.3.3 Error number and LED blinking codes.

- First digit of error number indicates how frequently the error LED slowly flashes (approximately 1 Hz).
- Second digit of error number indicates how frequently the error LED rapidly flashes (approximately 2 Hz).
- Error LED flash example:
  1 x slow and 4 x fast = error no. 14
  (braking distance at safety stop too long).

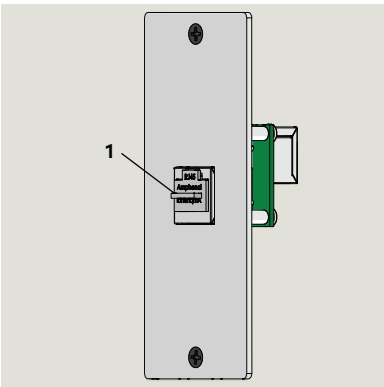
TIPS AND RECOMMENDATIONS

Error numbers range from 11 through 92.
Reference Chapter 16.

4.4 Service panel (option)

Fig. 4.4.1 Service panel DX4604-08C

1 RJ45 cover



4.4.1 Service panel for handheld.

- Typically located on side of leading quarter post.
- Handheld offers service personnel the option to connect to the Motion Assist 360 control unit from a location other than at the Remote Control Enclosure.

4.4.2 Communication cable for RJ45 connector.

- Reference Para. 9.6 for handheld communication cable.

4.5 Wave to Open plate (option)

Fig. 4.5.1 Wave to Open plate DX3331-001

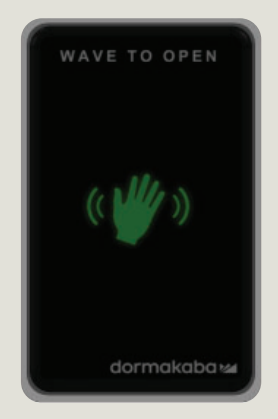
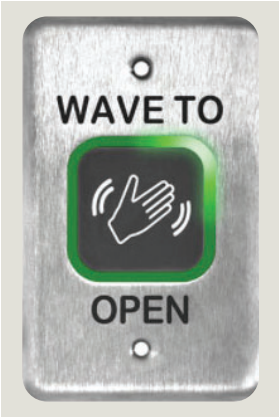


Fig. 4.5.2 Wave to Open plate DX3339-189



4.5.1 Wave to Open plate.

Locations:

- Inside the building on the leading quarter post/end wall or attached separately within sight of the revolving door.
- Building exterior.

Plate starts rotary movement of the door wings at low energy speed (Para. 4.2.4).

CAUTION

Plates must be located per ANSI BHMA A156.27, Power and manually Operated Revolving Pedestrian Doors.

TIPS AND RECOMMENDATIONS

Plates only used with "S" (green) function module, Para. 2.7.

4.6 Operator component locations

Fig. 4.6.1 Operator control hardware, interior

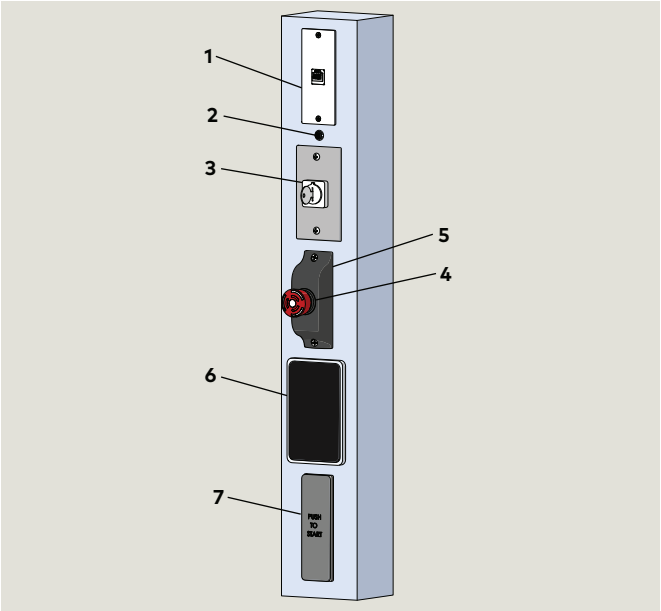


Table 4.6.1 Operator control hardware

Part / Assembly		Description
1	DX4604-08C	RH45 service panel (option)
2	RX6013	Fault LED
3	RX6008	Mode switch
4	RX3413-010	Emergency stop switch
5	RX3413-020	Emergency stop switch housing
6	DX3331-001	Wave to Open plate (option)
7	DX3339-040	Push to Start plate (option)

4.6.1 Operator control hardware.

1. Figures 4.6.1 details operator control hardware that may be installed on the quarter posts.

NOTICE

Locations of operator control hardware must be reviewed with site contractor or owner.

4.6.2 Remote control enclosure, wiring, setup, troubleshooting and maintenance instructions.

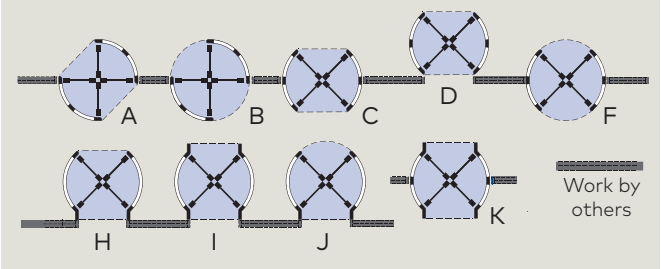
Refer to Chapter 7 for wiring interfaces to Remote control enclosure.

5 Technical information

5.1 2000LE series

	AL2000	SS2000	BZ2000
Material	Aluminum	Aluminum / Stainless steel	Aluminum / Bronze
Wing configuration	• 3 wings • 4 wings		
Enclosure diameter	7' to 12' OD	ANSI/BHMA A156.27-2019, Para. 4.1: To limit door mass, the inside diameter added to the height shall not exceed 17 ft [5182 mm].	
Door opening height	7' up to 9'		
Maximum total wing assembly and center shaft assembly weight	750 pounds aluminum 850 pounds SS	Total weight may vary depending on application.	
Finish	• Clear anodized • Custom anodized • Dark bronze anodized • Painted	• #4 satin • Non-directional • #6 fine satin • Bead blast • #7 mirror • Custom • #8 mirror	• #4 satin • #8 mirror • Bead blast • Non-directional • #7 mirror • Custom
Operation	• Manual, mechanical speed adjuster to limit speed. To be adjusted to comply with ANSI/BHMA 156.27.		
Attachment Types	A, B, C, D, F,H,I,J,K as indicated on the drawings. Reference Fig. 5.1.1		
Enclosure material	• Glass • Aluminum panels	• Glass • Solid metal	• Glass • Solid metal
Enclosure glass	7/16" clear or tinted		
Canopy material	• Aluminum	• Stainless steel	• Bronze
Fascia height	1 5/8" [41.3 mm]		
Speed Control	Manual speed control: • Uses 100:1 gear ratio. • Sealed unit is mounted in the floor. • Centrifugal force brake slowly engages as the door reaches the maximum allowable RPM set by code.		

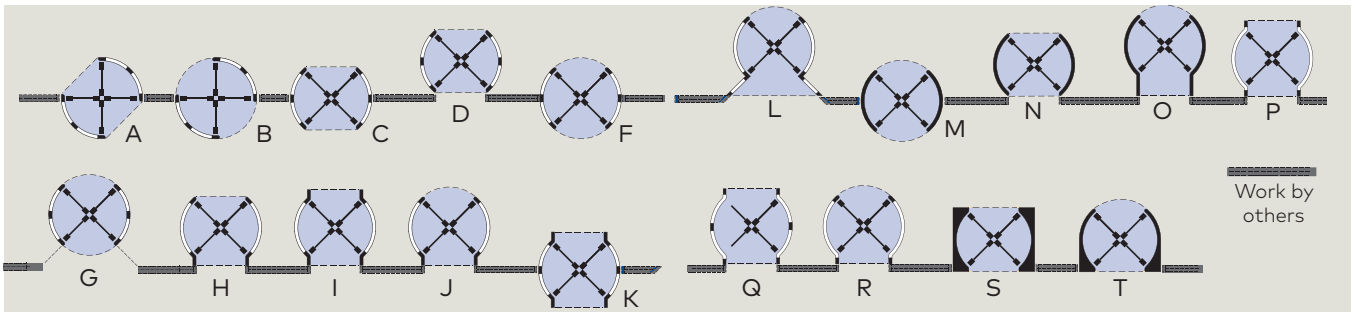
Fig. 5.1.1 Crane 2000LE attachment types



5.2 3000LE series

	AL3000	SS3000	BZ3000
Material	Aluminum	Aluminum / Stainless steel	Aluminum / Bronze
Wing configuration	• 3 wings • 4 wings		
Enclosure diameter	7' to 12' OD.	ANSI/BHMA A156.27-2019, Para. 4.1: To limit door mass, the inside diameter added to the height shall not exceed 17 ft [5182 mm].	
Door opening height	7' up to 10'; custom		
Maximum total wing assembly and center shaft assembly weight	750 pounds aluminum 850 pounds SS	Total weight may vary depending on application.	
Finish	• Clear anodized • Custom anodized • Dark bronze anodized • Painted	• #4 satin • Non-directional • #6 fine satin • Bead blast • #7 mirror • Custom • #8 mirror	• #4 satin • #8 mirror • Bead blast • Non-directional • #7 mirror • Custom
Operation	• Manual, mechanical speed adjuster to limit speed. To be adjusted to comply with ANSI/BHMA 156.27.		
Attachment Types	All, custom. Reference Fig. 5.2.1		
Enclosure material	• Glass • Solid metal	• Glass • Solid metal	• Glass • Solid metal
Enclosure glass	7/16" or 9/16"; clear or tinted		
Canopy material	• Aluminum	• Stainless steel	• Bronze
Fascia height	1 5/8" [41.3 mm]		
Speed Control	Manual speed control: • Uses 100:1 gear ratio. • Sealed unit is mounted in the floor. • Centrifugal force brake slowly engages as the door reaches the maximum allowable RPM set by code.		

Fig. 5.2.1 Crane 3000LE attachment types



5.3 Motion Assist 360 technical information

5.3.1 Environment

Measurement	Value	Unit
Temperature range	-40 — +60	°C
	-40 — +140	°F
Relative humidity (non-condensing)	<90	%

5.3.2 Power supply

Measurement	Value	Unit
Power supply	100 - 240 ± 10%	Vac
Power frequency	50 / 60	Hz
Customer branch circuit: **GFCI** Circuit breaker	**15**	A
Power supply control voltage	24 ± 10%	Vdc
Maximum supply current for external connections	3	Adc

5.3.3 Power consumption (without lighting)

Measurement	Value	Unit
Positioning speed	58	W
Automatic mode	102	W
Speed limiter	8	W
Servomatic	58	W

5.3.4 Drive

Measurement	Value	Unit
Type	Synchronous motor with continuous magnet rotor	
Nominal voltage	24	Vdc
Nominal output	0.58	KW
Nominal torque	40	Nm
	29.5	ft-lb
Nominal current	4	A
Starting current	Maximum 18	A
Torque	Maximum 185	Nm
	Maximum 136.5	ft-lb
Rotations per minute	Maximum 18	RPM
Protection class	IP20	
	NEMA 1	
Insulation class	B	
Gear ratio	1	
Operating noise LAeq	<50	dB(A)

6 Motion Assist 360 remote enclosure

6.1 Remote enclosure assembly RK6007 hardware

Fig. 6.1.1 Remote enclosure assembly

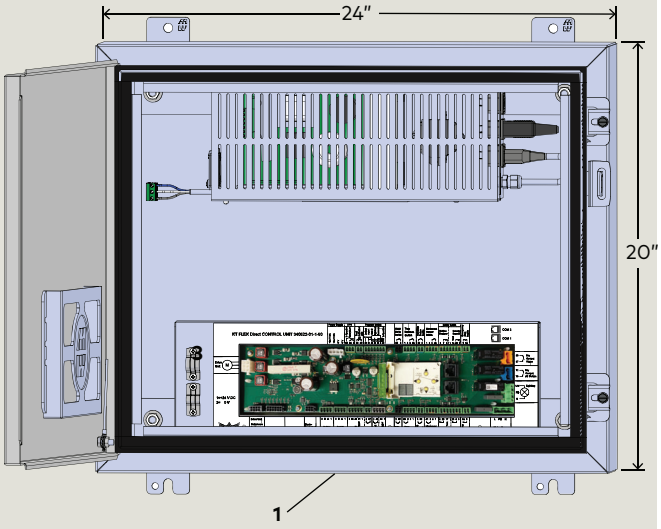


Fig. 6.1.2 Motion Assist 360 power supply RX6001

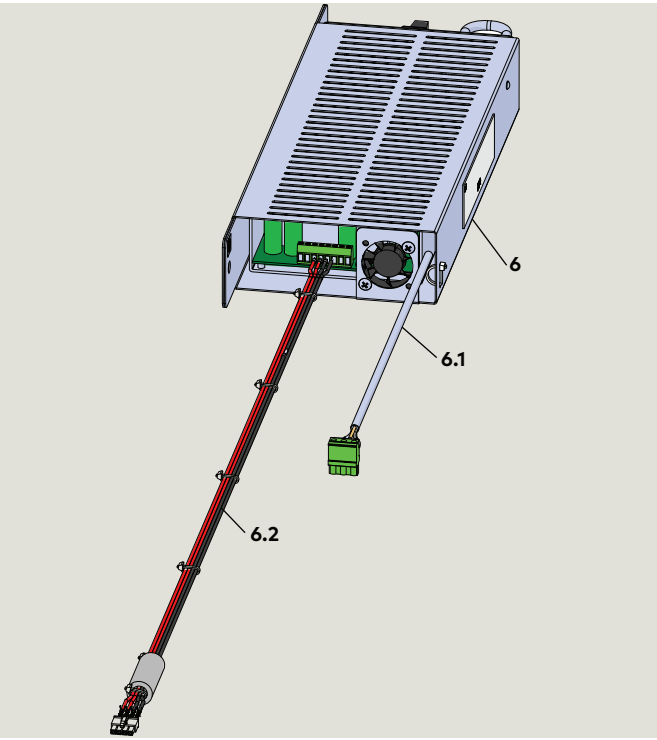


Fig. 6.1.3 Motion Assist 360 control unit RX6002

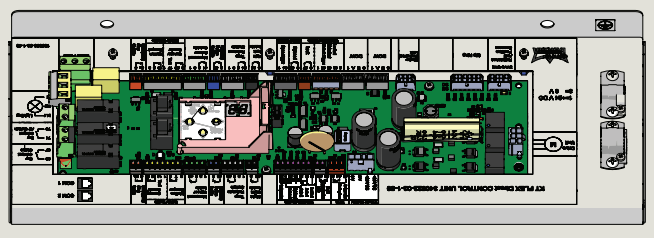


Table 6.1.1 Remote enclosure hardware

#		Description
1	RS6032	Remote control enclosure, 24 x 20 x 7 1/4"
3	RF6018-01G	5/16 x 1/2" SHCS, SS
4	RF6019-01G	5/16" flat washer
5	RF6016-01G	External tooth lock washer
6	RX6001	Motion Assist 360 power supply
6.1		115 Vac cable to control unit
6.2		24 Vdc cable to control unit
7	RC6057	Bracket
8	RX6003-002	"S" motion assist function module
9	RX6009	Earth ground cable
9.1		Earth ground label

Fig. 6.1.4 Control unit / power supply brackets

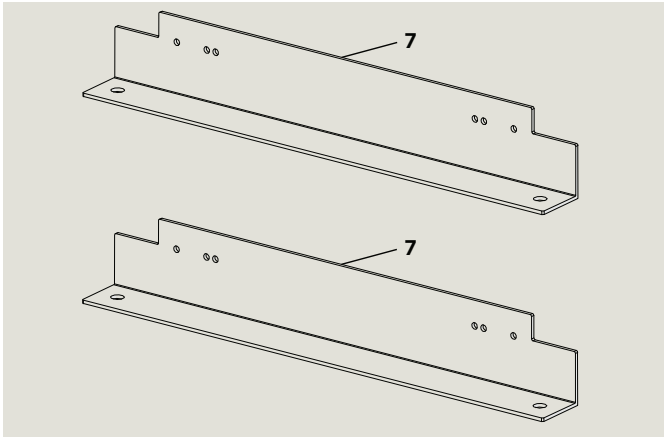


Fig. 6.1.5 Fastener hardware

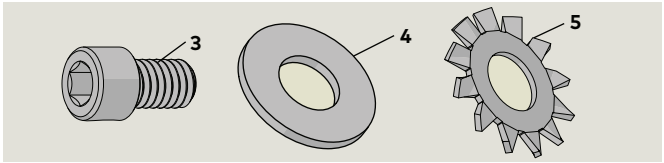


Fig. 6.1.6 Earth grounding cable

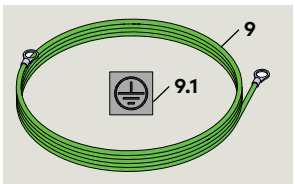
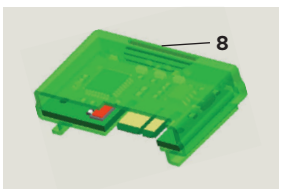


Fig. 6.1.7 "S" (GRN) Motion Assist



6.3 Install Motion Assist 360 power supply on mounting bracket

Table 6.3.1 Power supply and hardware

#		Description
3	RF6018-01G	5/16 x 1/2" SHCS, SS
4	RF6019-01G	5/16" flat washer
5	RF6016-01G	External tooth lock washer
6	RX6001	Motion Assist 360 power supply
6.1		115 Vac cable to control unit
6.2		24 Vdc cable to control unit
7	RC6057	Bracket
9	RX6009	Earth ground cable
9.1		Earth ground label

Fig. 6.3.1 Motion Assist 360 power supply cables

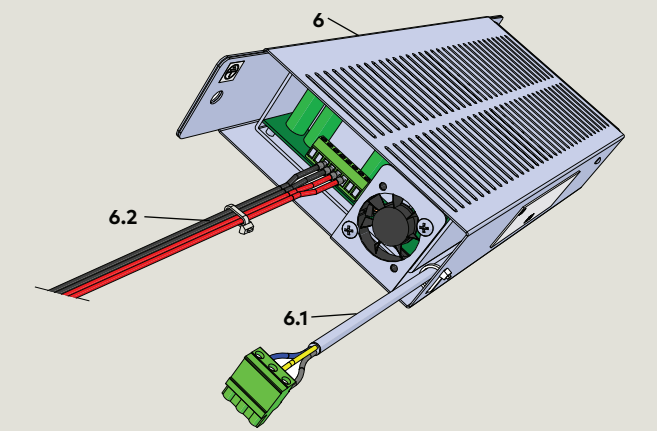


Fig. 6.3.2 Motion Assist 360 power supply mounting mounting bracket

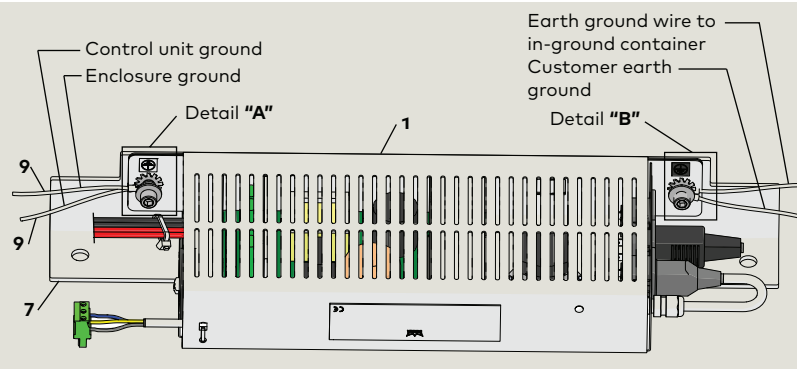


Fig. 6.3.3 Detail "A"

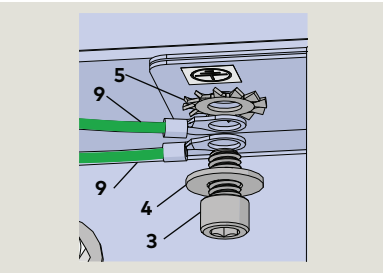
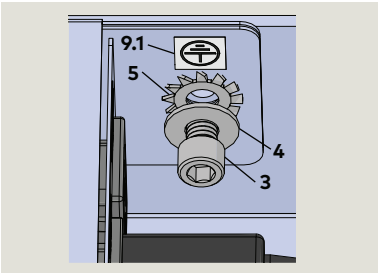


Fig. 6.3.4 Detail "B"



CAUTION

Holes for conduits into enclosure.
Drill required holes for conduits prior to installation of Motion Assist 360 hardware. Reference Para. 6.5

6.3.1 Install Motion Assist 360 power supply on mounting bracket.

1. Fasten power supply to bracket using fastener hardware referenced in Fig. 6.3.3 and 6.3.4).

- Install ring lugs of two earth ground cables onto SHCS (3) as shown in Fig. 6.3.3 Detail "A".

CAUTION

Observe order of fastener hardware and earth grounding cable installation as referenced in Fig. 6.3.3 and 6.3.4.

TIPS AND RECOMMENDATIONS

Reference Paragraph 6.6.

- Connection of control unit earth ground wire to control unit
- Connect of enclosure ground wire to enclosure ground stud.

6.4 Install Motion Assist 360 control unit on mounting bracket

Fig. 6.4.1 Motion Assist 360 control unit installed on mounting bracket

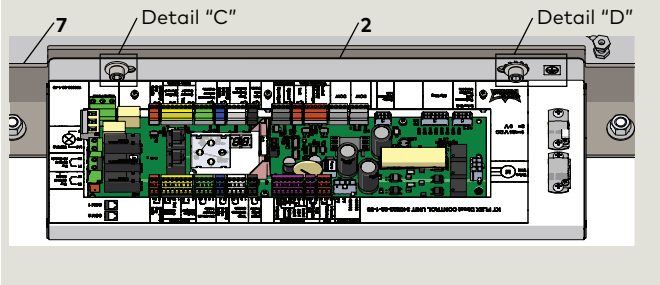


Fig. 6.4.2 Detail "C"

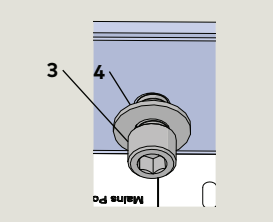


Fig. 6.4.3 Detail "D"

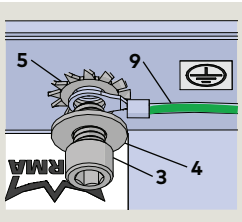


Table 6.1.1 Control unit and hardware

#		Description
2	RX6002	Motion Assist 360 control unit
3	RF6018-01G	5/16 x 1/2" SHCS, SS
4	RF6019-01G	5/16" flat washer
5	RF6016-01G	External tooth lock washer
7	RC6057	Bracket
8	RX6003-002	"S" Motion assist function module
9	RX6009	Earth ground cable

CAUTION

Holes for conduits into enclosure.
Drill required holes for conduits prior to installation of Motion Assist 360 hardware.

6.4.1 Install Motion Assist 360 control unit on mounting bracket.

1. Fasten control unit to bracket using fastener hardware referenced in Fig. 6.4.2 and 6.4.3.

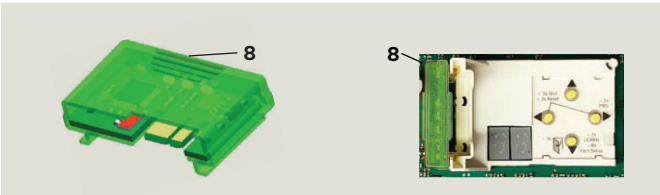
- Ring lug of earth ground cable (9) (Fig. 6.4.3 Detail "D") from power supply (Para. 6.3) will be installed once control unit bracket assembly installed in enclosure (Para. 6.6).

TIPS AND RECOMMENDATIONS

Reference Paragraph 6.6 for connection of control unit earth ground to control unit.

6.5 Install Motion Assist 360 "S" function module

Fig. 6.5.1 "S" (GRN) Motion Assist



6.5.1 Install Motion Assist "S" module into slot on control unit.

1. Insert function module into function module slot next to operator interface on control unit.

6.6 Install Motion Assist 360 power supply assembly into enclosure

Table 6.1.1 Power supply and hardware

#		Description
1	RX6001	Motion Assist 360 power supply
7	RC6057	Bracket
10		Enclosure internal panel stud
11		Enclosure panel stud nut

TIPS AND RECOMMENDATIONS

Power supply bracket will be installed using enclosure internal panel mounting studs.

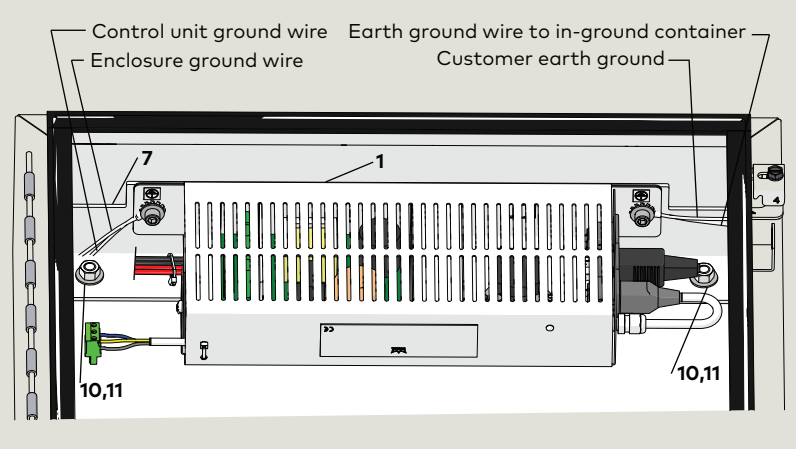
6.6.1 Install Motion Assist 360 power supply assembly into enclosure.

1. Remove nuts from enclosure internal panel studs.
2. Install power supply bracket onto two enclosure studs.
3. Reinstall the two enclosure nuts and tighten.

TIPS AND RECOMMENDATIONS

Refer to Para. 6.6 for connection of control unit and enclosure earth ground wires.

Fig. 6.6.1 Power supply installation in remote enclosure



6.7 Install Motion Assist control unit assembly into enclosure

Fig. 6.7.1 Control unit installation in remote enclosure

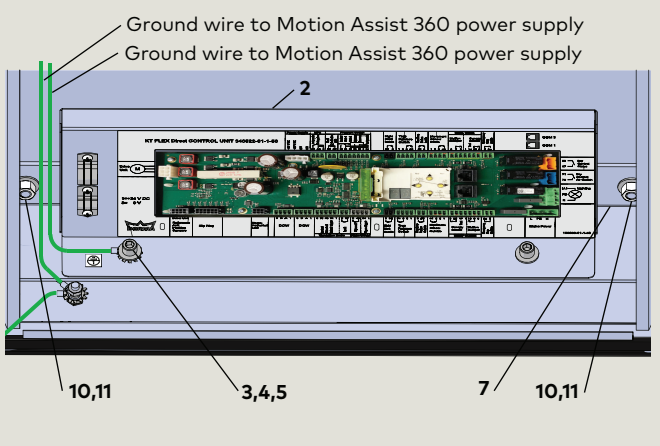


Fig. 6.7.2 Remote enclosure ground wire connections

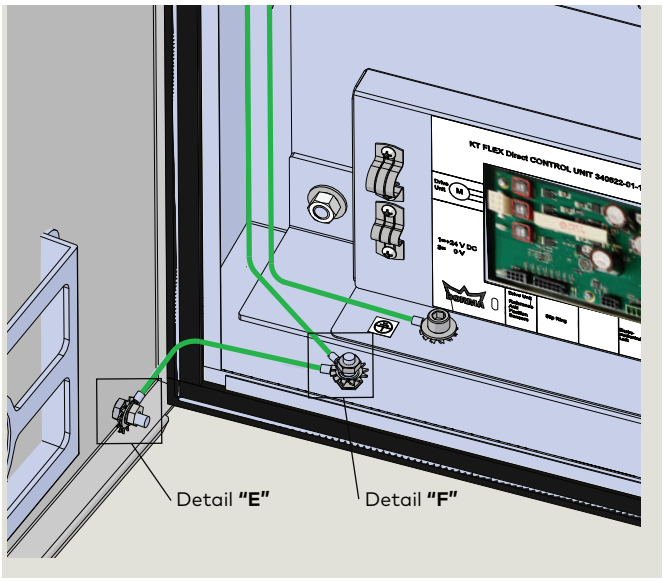


Fig. 6.7.3 Detail "E"

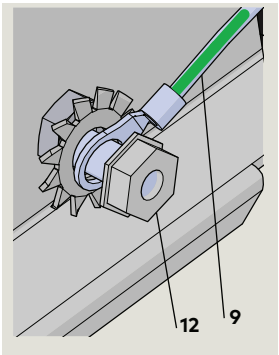


Fig. 6.7.4 Detail "F"

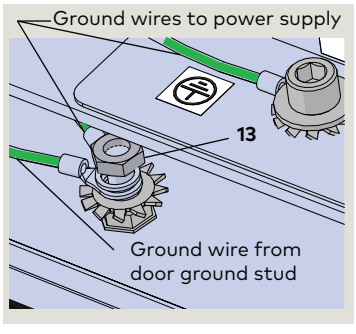


Table 6.7.1 Control unit and hardware

#		Description
2	RX6002	Motion Assist 360 control unit
3	RF6018-01G	5/16 x 1/2" SHCS, SS
4	RF6019-01G	5/16" flat washer
5	RF6016-01G	External tooth lock washer
7	RC6057	Bracket
9	RX6009	Earth ground cable
10		Enclosure internal panel stud
11		Enclosure internal panel stud nut

TIPS AND RECOMMENDATIONS

Control unit bracket will be installed using enclosure internal panel mounting studs.

6.7.1 Install Motion Assist 360 control unit assembly into enclosure.

1. Remove nuts from enclosure internal panel studs.
2. Install control unit bracket onto two enclosure studs.
3. Reinstall the two enclosure nuts and tighten.

6.7.2 Connect ground wire from power supply to control unit.

1. Connect ground wire from power supply to control unit SHCS.

- Reference Fig. 6.7.3, Detail "D"

6.7.3 Connect ground wire from power supply to enclosure ground stud.

1. Remove nut from enclosure ground stud and install ground wire from Motion Assist 360 power supply to enclosure ground stud (Fig. 6.7.4).

6.7.4 Connect ground wire from enclosure door to enclosure ground stud.

1. Remove nut (12) from door ground stud (Fig. 6.7.3).
2. Install ground wire ring lug on stud.
3. Reinstall enclosure ground stud nut (13), Fig. 6.7.4).

6.8 Install cables from Motion Assist 360 power supply to control unit

Fig. 6.8.1 Motion Assist 360 power supply cables

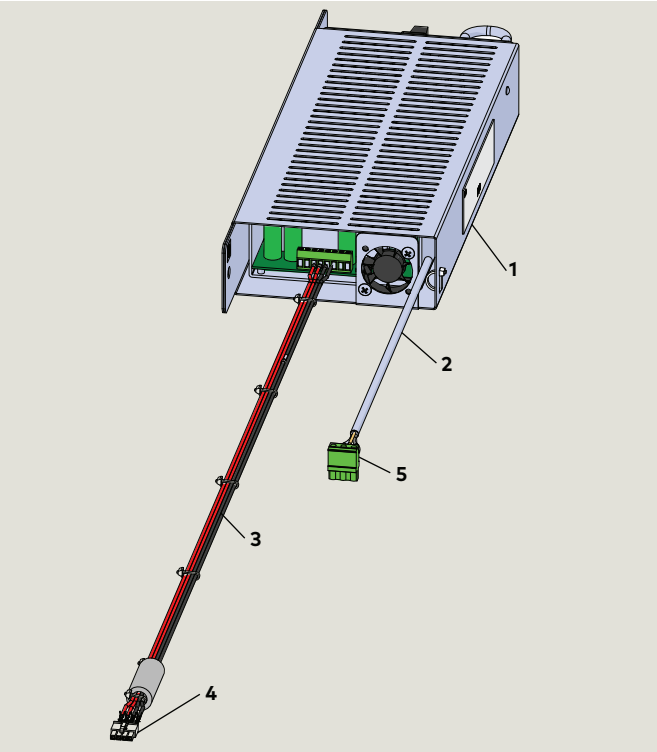


Fig. 6.8.2 Motion Assist 360 Control unit DC power supply cable connections

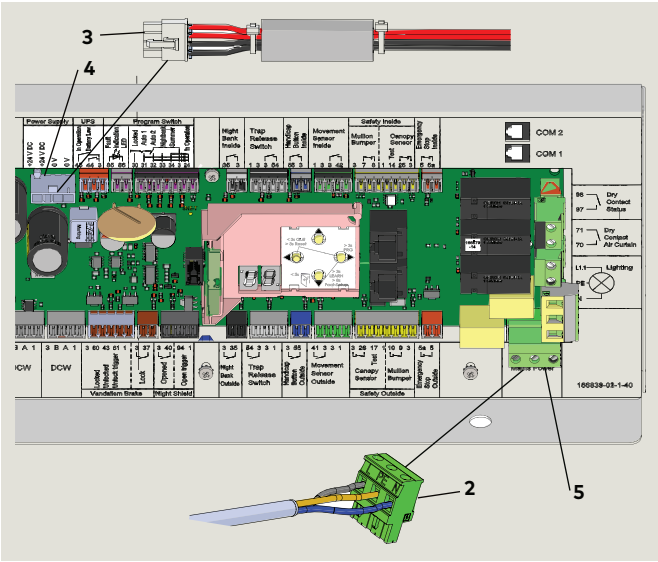


Table 6.8.1 Power supply cables to control unit

#		Description
1	RX6001	Motion Assist 360 power supply
2		115 Vac cable
3		DC cable
4	RX6002	DC cable receptacle
5		115 Vac cable receptacle
6		Motion Assist 360 control unit

6.8.1 Connect 115 Vac cable.

1. Insert 115 Vac cable (2) plug into mains power receptacle (5) on control unit.

NOTICE

- Insure plug is fully inserted and locked in receptacle.

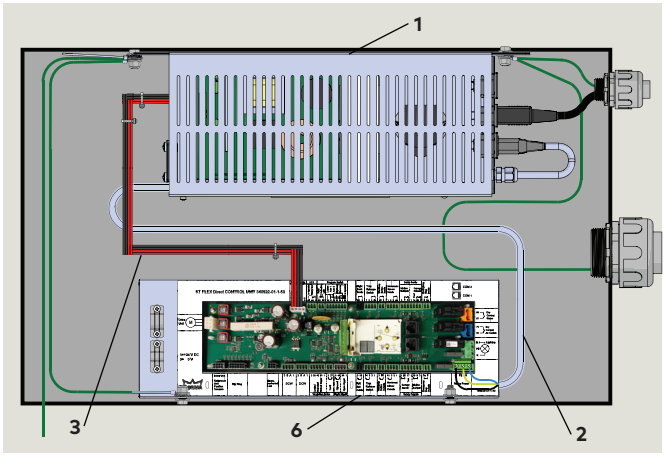
6.8.2 Connect DC power cable.

1. Insert DC power cable (3) plug into power supply receptacle (4) on control unit.

NOTICE

- Insure plug is fully inserted and locked in receptacle.

Fig. 6.8.3 Remote enclosure Motion Assist 360 cable connections



6.9 Install enclosure at selected location and connect conduits

Table 6.9.1 Motion Assist 360 remote enclosure wiring

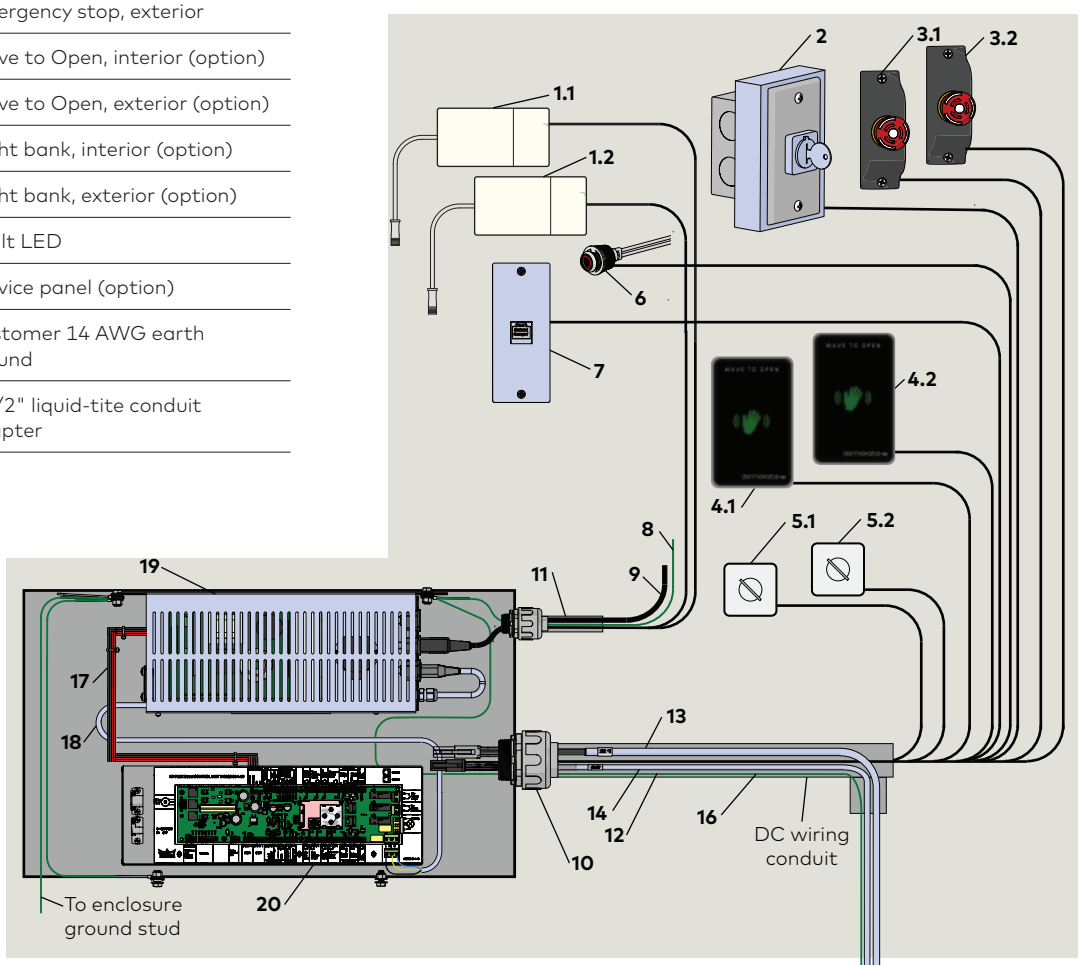
1.1	RC7032-001	LED light junction box/driver
1.2		
2	RX6008-001	Mode switch
3.1	RX3413-010	Emergency stop, interior
3.2		Emergency stop, exterior
4.1	DX3331-001	Wave to Open, interior (option)
4.2	DX3331-001	Wave to Open, exterior (option)
5.1		Night bank, interior (option)
5.2		Night bank, exterior (option)
6	RX6013-001	Fault LED
7	DX4604-08C	Service panel (option)
8		Customer 14 AWG earth ground
10	RC6045	1 1/2" liquid-tite conduit adapter

6.9.1 Motion Assist 360 power supply and control unit mounted in remote enclosure.

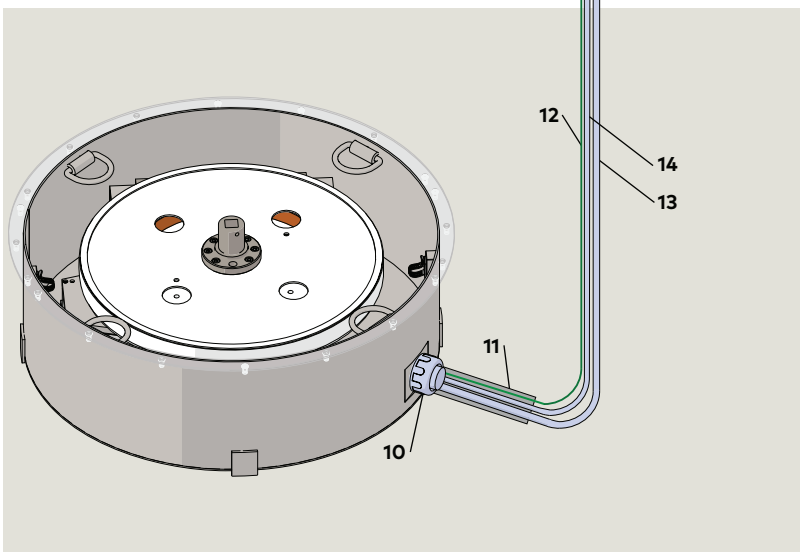
Fig. 6.9.1 details:

1. Wiring interfaces into remote enclosure.
2. Wiring interfaces from remote enclosure to in-ground container at revolving door.

Fig. 6.9.1 Wiring interfaces to remote enclosure and to in-ground container



11		1 1/2" customer liquid-tite conduit
12		14 AWG earth ground wire
13	RX6016-001	Extension motor cable, 25'
14	RX6015-001	Hall sensor extension cable, 25'
16	RX6009	Ground cable
17	RX6001	DC power cable
18		115 Vac power cable
19		Motion Assist 360 power supply
20	RX6002	Motion Assist 360 control unit



6.10 Connect 115 Vac and earth ground cable from remote enclosure to customer 115 Vac distribution panel

Fig. 6.10.1 Remote enclosure DC cables and 115 Vac wiring

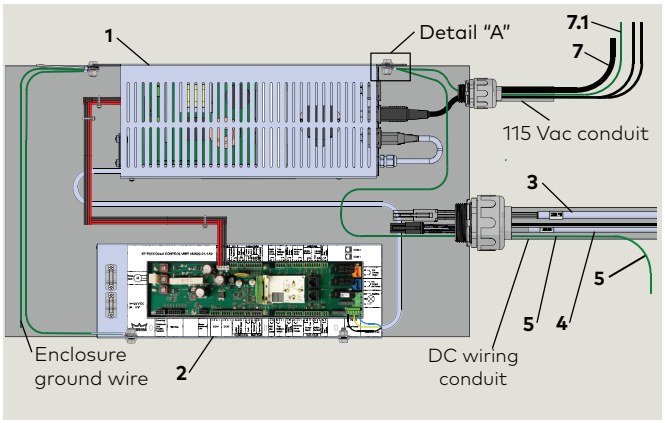


Fig. 6.10.2 Detail "A":

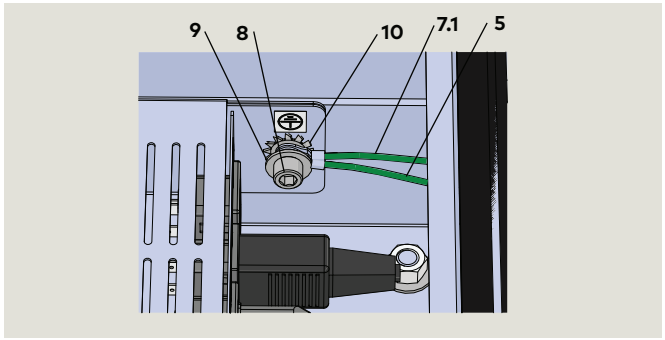


Fig. 6.10.3 Motion Assist 360 power supply

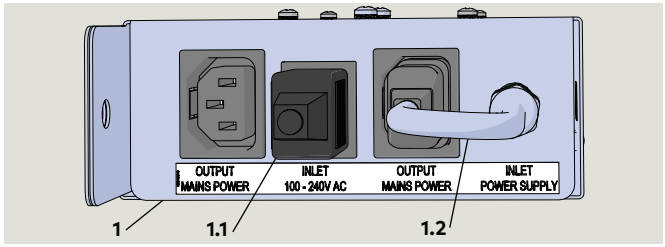


Fig. 6.10.4 Inlet socket AC plug, customer 115 Vac

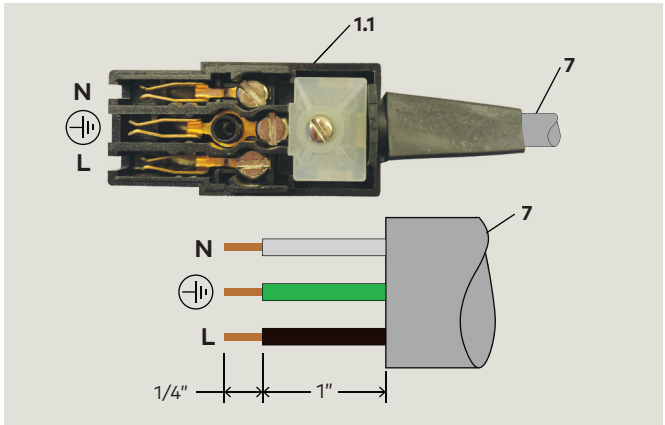


Table 6.10.1 Remote enclosure hardware and wiring

#		Description
1	RX6001	Motion Assist 360 power supply
1.1		Plug for customer 115 Vac wiring
1.2		115 Vac cable to control unit
2	RX6002	Motion Assist 360 control unit
3	RX6016-001	Motor extension cable, 25' (standard)
4	RX6015-001	Hall sensor extension cable, 25' (standard)
5		Earth ground wire to in-ground container
7		Customer 115 Vac
7.1		Customer earth ground wire
8	RF6018-01G	5/16 x 1/2" SHCS, SS
9	RF6019-01G	5/16" flat washer
10	RF6016-01G	External tooth lock washer

6.10.1 Connect 14 AWG earth ground cable from remote enclosure to customer distribution panel ground.

1. Connect one end of earth ground cable to Motion Assist 360 power supply fastener as shown in Fig. 6.10.2.
2. Route earth ground wire from remote enclosure to customer distribution panel.
3. Connect earth ground wire to ground.

6.10.2 Connect 115 Vac from customer distribution panel to Motion Assist 360 power supply 115 Vac plug.

CAUTION

Customer 115 Vac circuit breaker must be OFF!

1. Connect 115 Vac wiring to Motion Assist 360 power supply 115 Vac plug as shown in Fig. 6.10.4

WARNING

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

6.11 Connect earth ground cable from remote enclosure to in-ground container

Fig. 6.11.1 Remote enclosure DC cables and 115 Vac wiring

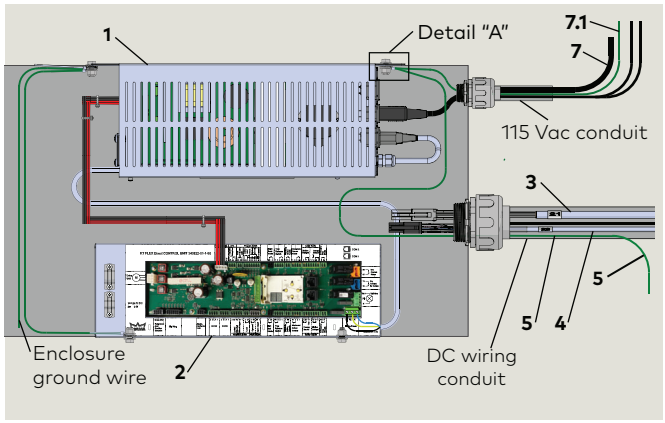


Fig. 6.11.2 Detail "A":

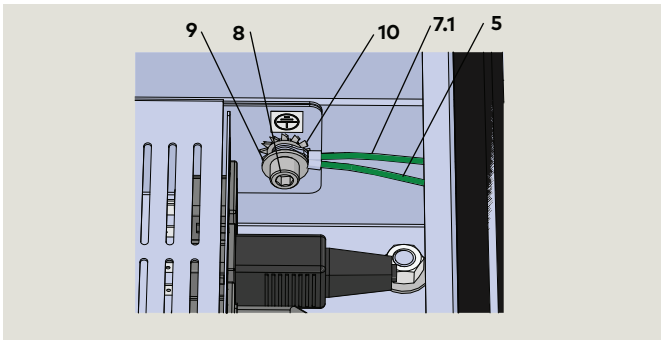


Fig. 6.11.3 In-ground container earth ground

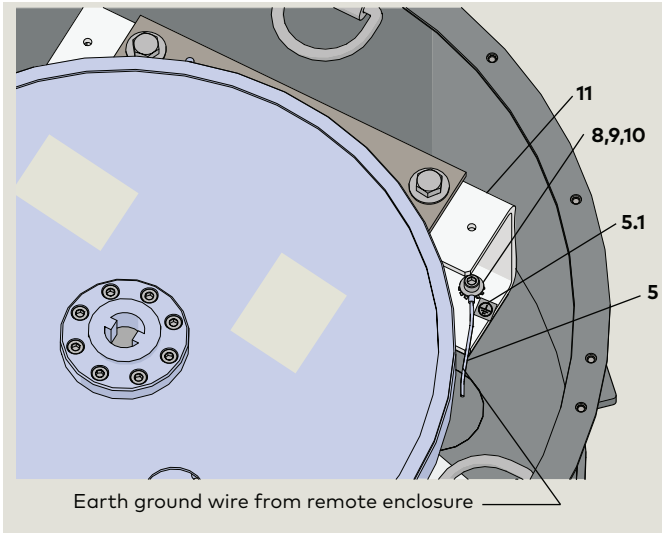


Fig. 6.11.4 Fastener hardware

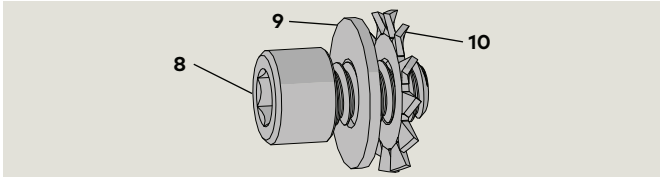


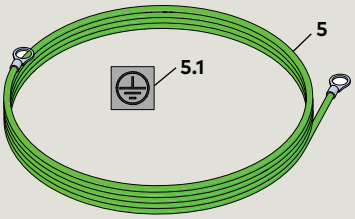
Table 6.10.1 Remote enclosure hardware and wiring

#		Description
1	RX6001	Motion Assist 360 power supply
2	RX6002	Motion Assist 360 control unit
3	RX6016-001	Motor extension cable, 25' (standard)
4	RX6015-001	Hall sensor extension cable, 25' (standard)
5	RX6009	Earth ground wire to in-ground container
5.1		Earth ground label
7		Customer 115 Vac
7.1		Customer earth ground wire
8	RF6018-01G	5/16 x 1/2" SHCS, SS
9	RF6019-01G	5/16" flat washer
10	RF6016-01G	External tooth lock washer
11		U-channel brace

6.11.1 Connect 14 AWG earth ground cable from remote enclosure to in-ground container.

1. Connect one end of earth ground cable to Motion Assist 360 power supply fastener as shown in Fig. 6.11.2.
2. Route earth ground wire from remote enclosure to in-ground container.
3. Connect opposite end of earth ground cable to in-ground container earth ground fastener hardware (Fig. 6.11.3).

Fig. 6.11.5 Earth grounding cable



6.12 Connect Motion Assist 360 extension cables to Motion Assist 360 drive cables

Fig. 6.12.1 Motion Assist 360 drive cables

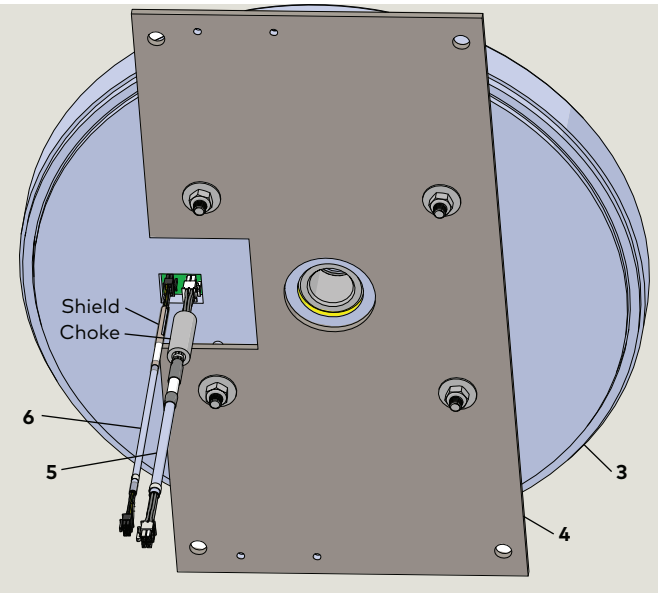


Table 6.12.1 Motion Assist 360 drive and extension cables

1	RX6016-001	Motor extension cable, 25' (standard)
		Optional motor extension cables
	RX6016-002	Motor extension cable, 50'
	RX6016-003	Motor extension cable, 100'
2	RX6015-001	Hall sensor extension cable, 25' (standard)
		Optional Hall sensor extension cables
	RX6015-002	Hall sensor extension cable, 50'
	RX6015-003	Hall sensor extension cable, 100'
3	RX6010	Motion Assist 360 drive
4	RC6060	Mounting plate
5	RX6005	Motor cable (21)
6	RX6006	Hall sensor cable (22)

6.12.1 Extension cable connections to Motion Assist 360 drive cables.

Extension cables connect Motion Assist 360 drive cables in in-ground container o Motion Assist 360 control unit in remote enclosure.

6.12.2 Connect Motion Assist 360 Hall sensor cable to Hall sensor extension cable.

1. Insert Hall sensor cable (6) plug into Hall sensor extension cable receptacle.

NOTICE

Insure plug is fully inserted and locked in receptacle.

- Use container cable tie to secure cable; loop and tie wrap excess cable as required.
- **Cable must not be in contact with Motion Assist 360 drive!**

6.12.3 Connect Motion Assist 360 power cable to drive extension cable.

1. Insert power cable (5) plug into Drive Unit motor receptacle (9) on control unit.

NOTICE

Insure plug is fully inserted and locked in receptacle.

- Use container cable tie to secure cable; loop and tie wrap excess cable as required.
- **Cable must not be in contact with Motion Assist 360 drive!**

Fig. 6.12.2 Motor extension cable

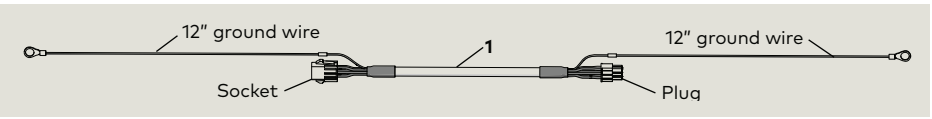
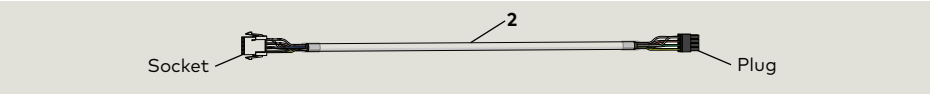


Fig. 6.12.3 Hall sensor extension cable



6.13 Connect Motion Assist 360 drive extension cables to Motion Assist 360 control unit in remote enclosure

Fig. 6.13.1 Motion Assist 360 control unit and drive extension cables

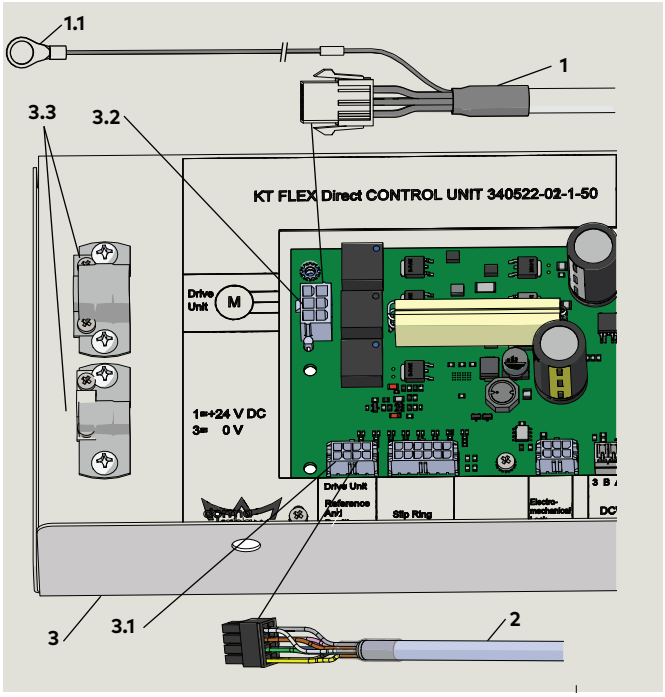


Fig. 6.7.2 Remote enclosure ground wire connections

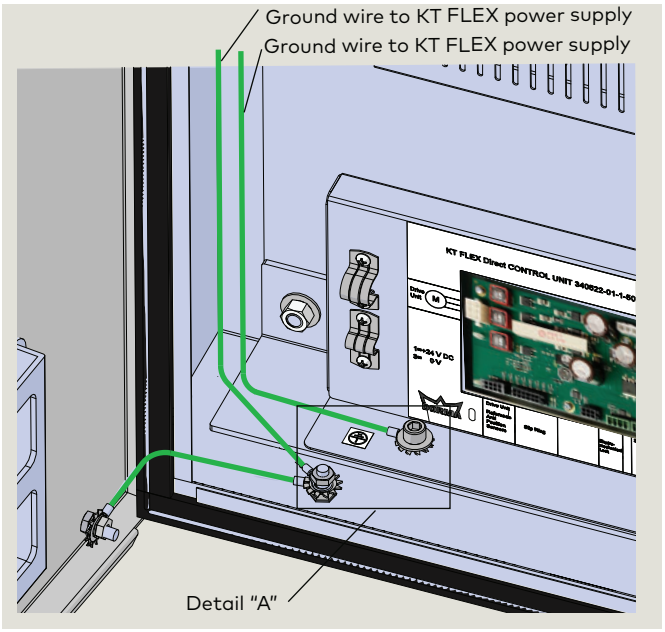


Fig. 6.7.4 Detail "A"

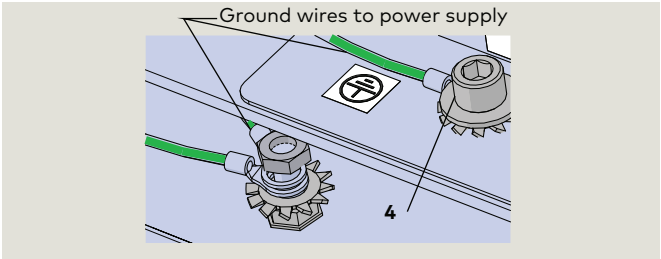


Table 6.12.1 Motion Assist 360 drive and extension cables

1	RX6016-001	Motor extension cable, 25' (standard)
		Optional motor extension cables
	RX6016-002	Motor extension cable, 50'
	RX6016-003	Motor extension cable, 100'
1.1		Ground wire ring lug
2	RX6015-001	Hall sensor extension cable, 25' (standard)
		Optional Hall sensor extension cables
	RX6015-002	Hall sensor extension cable, 50'
	RX6015-003	Hall sensor extension cable, 100'
3	RX6002	Motion Assist 360 control unit
3.1		Hall sensor cable receptacle
3.2		Motor cable receptacle
3.3		Cable clamp
4	RF6018	5/16-18 x 1/2" SHCS SS

6.13.1 Route Motion Assist 360 drive extension cables to remote enclosure.

1. Using a dedicated conduit for DC wiring, route motor extension cable (1) and Hall sensor extension cable (2) from in-ground container to remote enclosure.

NOTICE

Reference Para. 6.9, Fig. 6.9.1 for overview of conduit and cable routing to remote enclosure.

6.13.2 Connect operator Hall sensor extension cable.

1. Insert Hall sensor extension cable (2) plug into Drive Unit Reference and Position Sensors receptacle (3.1) on control unit.

NOTICE

Insure plug is fully inserted and locked in receptacle.

6.13.3 Connect motor power extension cable.

1. Insert power extension cable (1) plug into Drive Unit motor receptacle (9) on control unit.

NOTICE

Insure plug is fully inserted and locked in receptacle.

2. Install motor power extension cable ground wire ring lug (1.1) under control unit 5/16 x 1/2" SHCS (4) external tooth lock washer

7 Wiring interfaces to Motion Assist 360 remote enclosure

7.1 Operator interface wiring

Fig. 7.1.1 Door interior

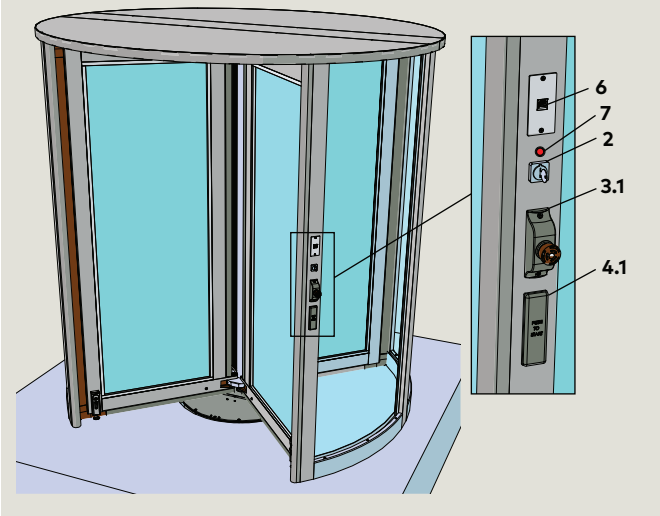
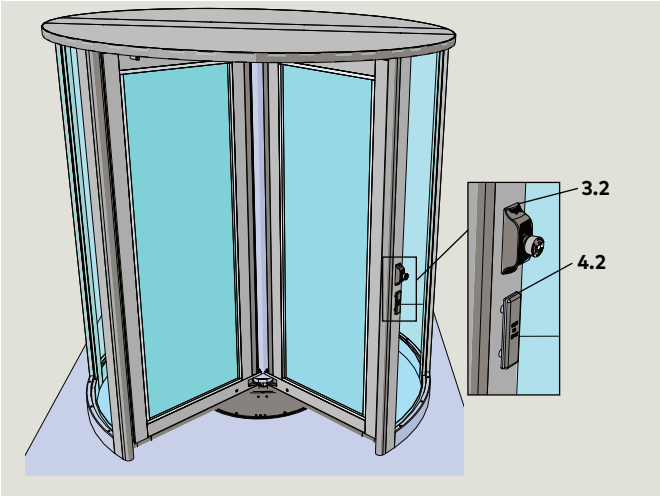


Fig. 7.1.2 Door exterior



TIPS AND RECOMMENDATIONS

Operator component locations shown in Fig. 7.1.1 and Fig. 7.1.2 are examples only. Locations established with customer / architect input.

TIPS AND RECOMMENDATIONS

Reference Para. 7.2.1 for wiring interface diagrams:

- Motion Assist 360 power supply and control unit located in remote enclosure.

7.1.1 Operator interface wiring.

Ref. #	Cable	Wires	Ref. Para.
	1 1/2" DC liquid tight flexible conduit		
2	Mode switch**	6 conductor 18 AWG cable	22.4
3.1	Emergency Stop (interior)	2 Conductor 18 AWG cable	22.3
3.2	Emergency Stop (exterior)	2 Conductor 18 AWG cable	22.3
4.1	Wave to Open** (interior) (option)	4 Conductor 18 AWG cable	22.5
4.2	Wave to Open** (exterior) (option)	4 Conductor 18 AWG cable	22.5
5.1	Night bank (interior) (option)	2 conductor 18 AWG cable	22.6
5.2	Night bank (exterior) (option)	2 conductor 18 AWG cable	22.6
6.1	Service panel**	3 conductor 18 AWG cable	22.7

**Panel location may be adjacent to door.

7.1.2 115 Vac wiring.

Ref. #	Cable	Wires	Ref. Para.
	1/2" 115 Vac liquid tight flexible conduit		
1	Canopy lighting (option)	(3) 18 AWG	17.5
7	Customer 115 Vac	(3) 14 AWG	21.2
7.1	Customer earth ground	(1) 12 AWG	21.3

7.2 Motion Assist 360 remote enclosure wiring

Table 7.2.1 Motion Assist 360 remote enclosure wiring

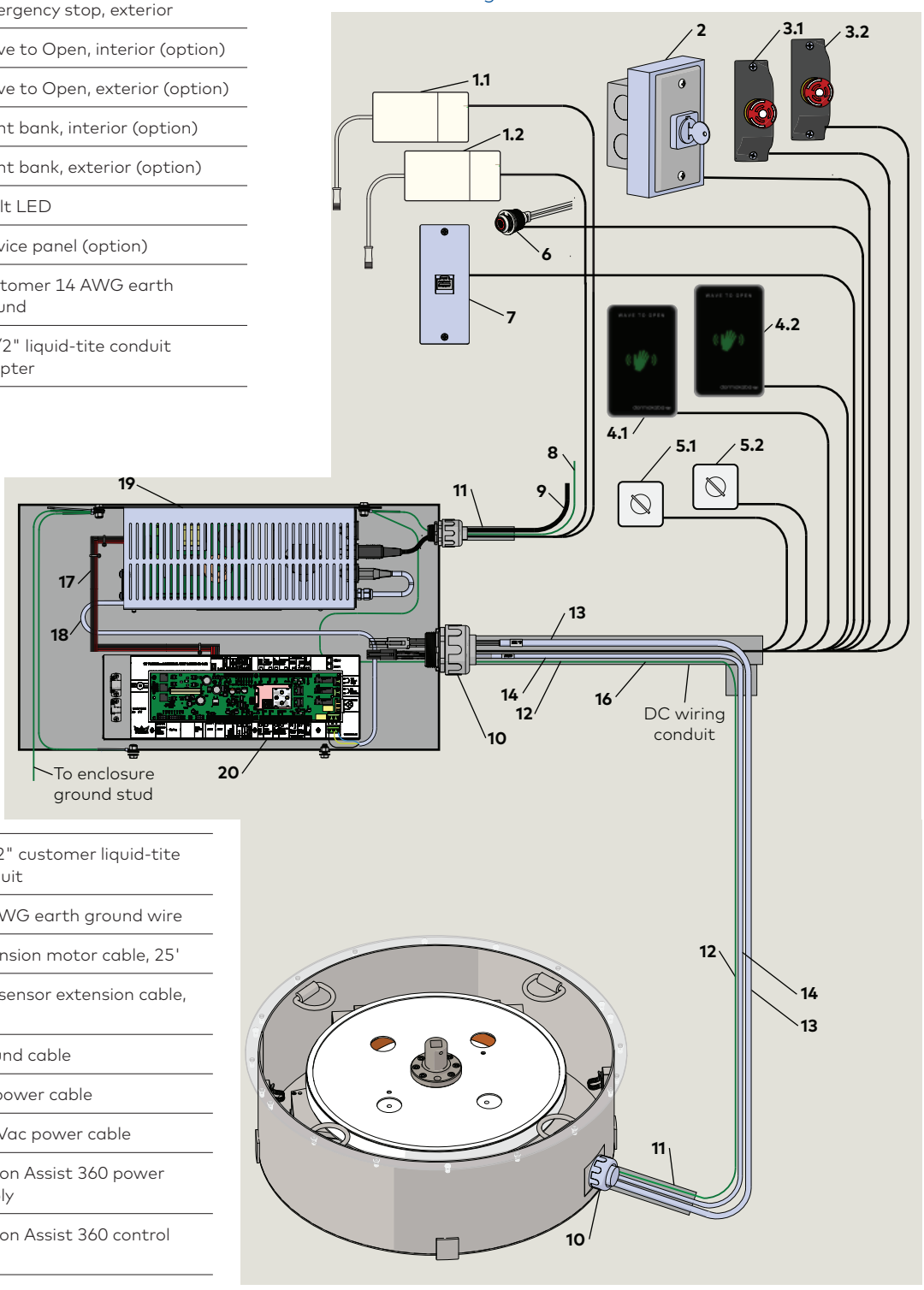
1.1 **1.2**	RC7032-001	LED light junction box/driver
2	RX6008-001	Mode switch
3.1	RX3413-010	Emergency stop, interior
3.2		Emergency stop, exterior
4.1	DX3331-001	Wave to Open, interior (option)
4.2	DX3331-001	Wave to Open, exterior (option)
5.1		Night bank, interior (option)
5.2		Night bank, exterior (option)
6	RX6013-001	Fault LED
7	DX4604-08C	Service panel (option)
8		Customer 14 AWG earth ground
10	RC6045	1 1/2" liquid-tite conduit adapter

7.2.1 Motion Assist 360 power supply and control unit mounted in remote enclosure.

Fig. 7.2.1 details:

1. Wiring interfaces into remote enclosure.
2. Wiring interfaces from remote enclosure to in-ground container at revolving door.

Fig. 7.2.1 Wiring interfaces to remote enclosure and to in-ground container

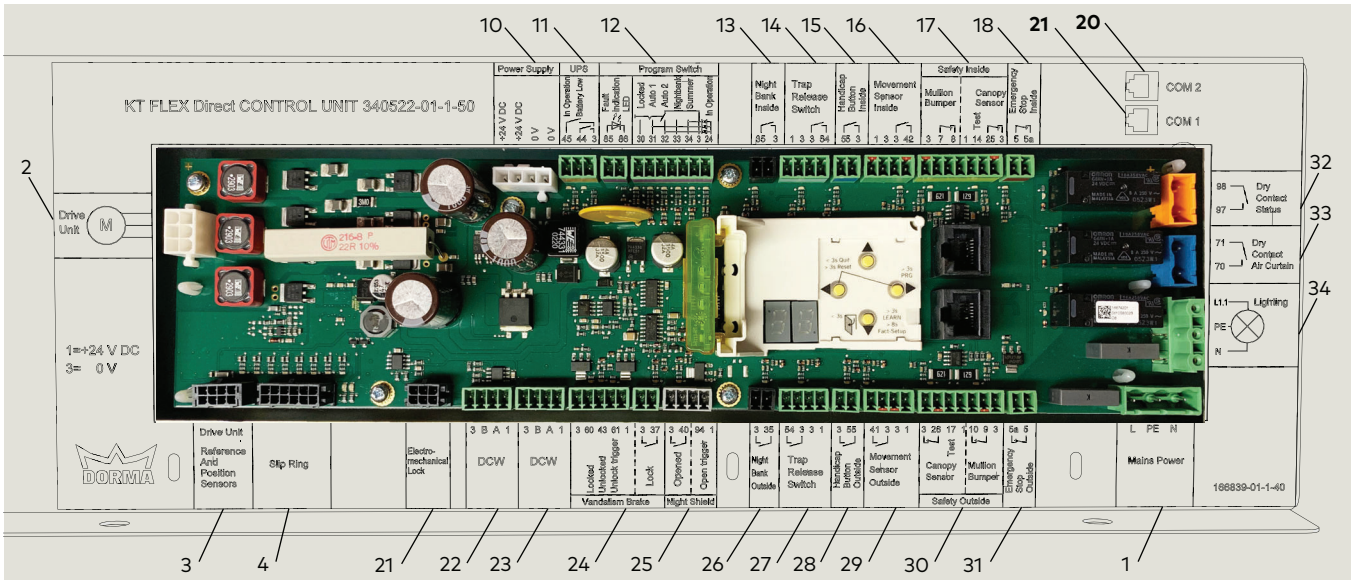


11		1 1/2" customer liquid-tite conduit
12		14 AWG earth ground wire
13	RX6016-001	Extension motor cable, 25'
14	RX6015-001	Hall sensor extension cable, 25'
16	RX6009	Ground cable
17	RX6001	DC power cable
18		115 Vac power cable
19		Motion Assist 360 power supply
20	RX6002	Motion Assist 360 control unit

8 Motion Assist 360 control unit terminal interface

8.1 Motion Assist 360 control unit terminals

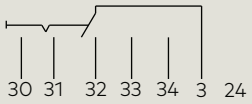
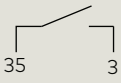
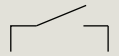
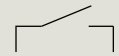
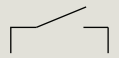
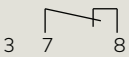
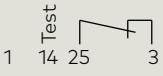
Fig. 8.1.1 Control unit RX6002



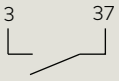
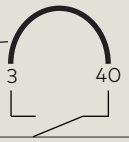
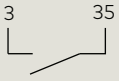
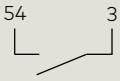
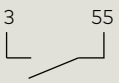
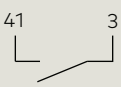
8.1.1 Motion Assist 360 control unit terminal interface

#	Description	Control unit connector	Pin #	Function	Reference Chapters	"S" modules
1	Mains Power	Plug Connection from Motion Assist 360 Power Supply	L	120 Vac	Wiring: Chapter 9 Para. 9.1	X
			PE	Earth ground		
			N	Neutral		
2	Motion Assist 360 drive	M		Plug Connection; drive power	Wiring: Chapter 6 Para. 6.13	X
3		Reference And Position Sensors		Plug connection; drive sensor	Wiring: Chapter 6 Para. 6.8	X
4	Center shaft slip Ring	Plug Connection; Slip ring cable				
10	Power Supply	Plug Connection from Motion Assist 360 Power Supply	24 V DC		Wiring: Chapter 6 Para. 6.8	X
			24 V DC			
			0 V			
			0 V			
11	UPS	3 — 45, 44	45	In Operation		X
			44	Battery Low		
			3	0 V		

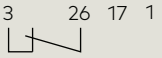
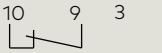
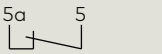
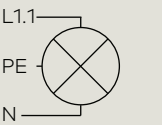
8.1.1 Motion Assist 360 control unit terminal interface

#	Description	Control unit connector	Pin #	Function	Reference Chapters	"S" modules
	Fault Indication LED		85			
			86			
12	Mode switch		30	Locked	Wiring: Chapter 9 Para. 9.4	X
			31	Auto 1		
			32	Auto 2		
			33	Night bank		
			34	Summer		
			3	0 V		
			24	In Operation		
13	Night bank Inside		35	Night Bank Inside	Wiring: Chapter 9 Para.9.6	X
			3	0 V		
14	Trip Release Switch		1	+24 V DC		
			3	0 V		
			3	0 V		
			54	Trip Release Switch		
15	Handicap Button Inside		55	Handicap Button Inside		
			3	0 V		
16	Movement Sensor Inside (Wave to Open plate)		1	+24 V DC	Wiring: Chapter 9 Para. 9.5	X
			3	0 V		
			3	0 V		
			42	Movement Sensor Inside		
17	Safety Inside - Mullion Bumper		3	0 V		
			7	Safety Inside - Mullion Bumper		
			8			
	Safety Inside - Canopy Bumper		1	+24 V DC		
			14	Test		
			25	Safety Inside - Canopy Bumper		
			3	0 V		
18	Emergency Stop Inside		5	Emergency Stop Inside	Wiring: Chapter 9 Para. 9.3	X
			5A			
19	COM 1					
20	COM 2			Handheld RJ45 cable connection	Wiring: Chapter 9 Para. 9.8	X

8.1.1 Motion Assist control unit terminal interface

#	Description	Control unit connector	Pin #	Function	Reference Chapters	"S" modules
21	Electro-mechanical Lock	Plug Connection; Electro-mechanical Lock				
22	DCW		3			
			B			
			A			
			1			
23	DCW		3			
			B			
			A			
			1			
24	Vandalism Brake		3	0 V		
			60	Locked		
			43	Unlocked		
			61	Unlock Trigger		
			1	+24 V DC		
			3	0 V		
			37	Lock		
25	Jumper Night Shield		3	0 V	Jumper must be installed between connector terminals	
			40	Opened		
			94	Open trigger		
			1	+24 V DC		
26	Night bank Outside		3	0 V	Wiring: Chapter 9 Para. 9.6	X
			35	Night bank Outside		
27	Trip Release Switch		54	Trip Release Switch		
			3	0 V		
			3	0 V		
			1	+24 V DC		
28	Handicap Button Outside		3	0 V		
			55	Handicap Button Outside		
29	Movement Sensor Outside (Wave to Open plate)		41	Movement Sensor Outside	Wiring: Chapter 9 Para. 9.5	X
			3	0 V		
			3	0 V		
			1	+24 V DC		

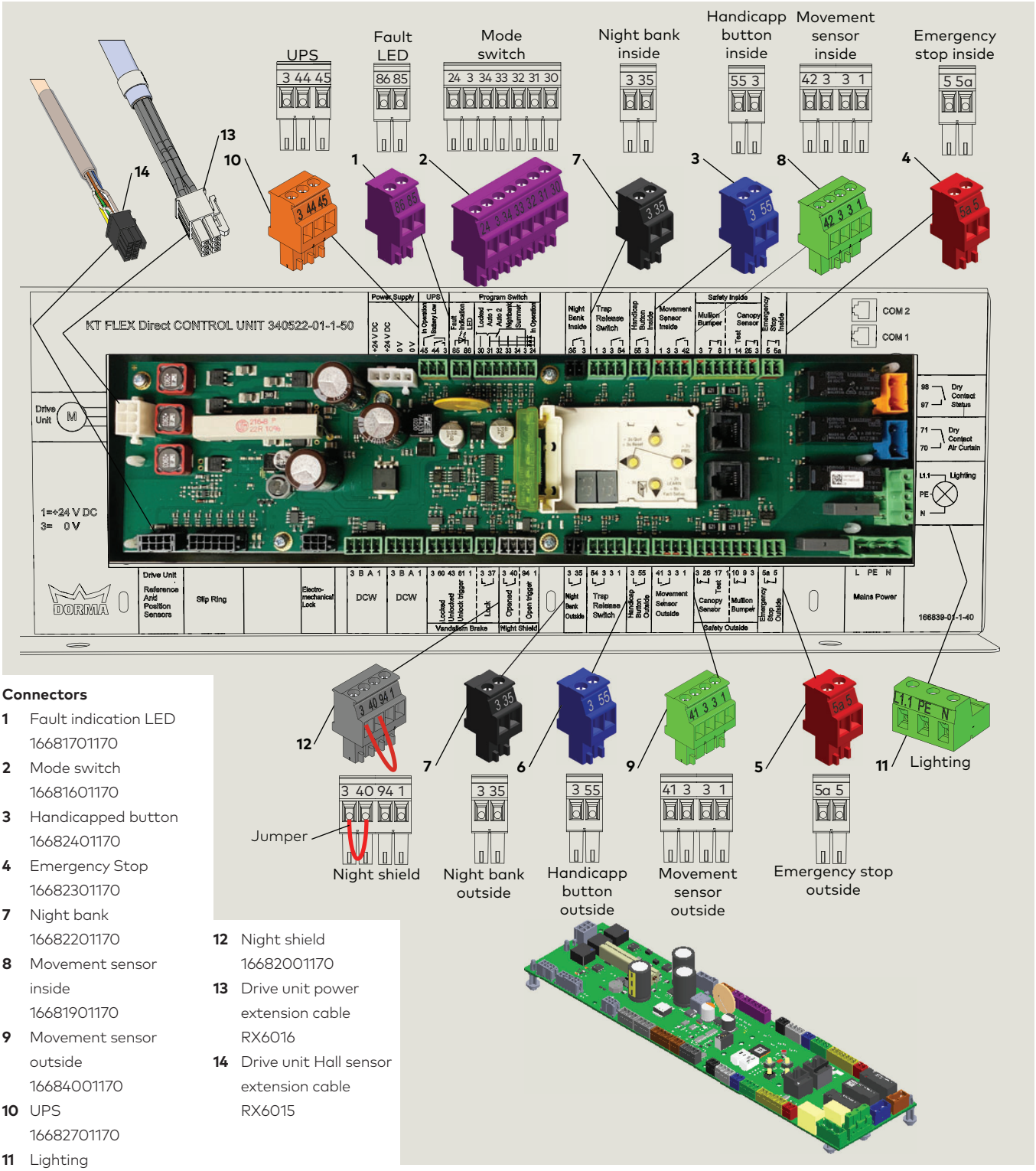
8.1.1 Motion Assist 360 terminal interface

#	Description	Control unit connector	Pin #	Function	Reference Chapters	"S" modules
30	Safety Outside-Canopy Sensor		3	0 V		
			26	Canopy Sensor		
			17			
			1	+24 V DC		
	Safety Outside-Mullion Bumper		10	Mullion Bumper		
			9			
			3	0 V		
31	Emergency Stop Outside		5a	Emergency Stop Outside	Wiring: Chapter 9 Para. 9.3	X
			5			
32	Dry Contact Status		71			
			70			
33	Dry Contact Air Curtain		98			
			97			
34	Lighting		L1.1	120 Vac	Wiring: Chapter 9 Para. 9.1	X
			PE	Protective Earth		
			N	Neutral		

9 Motion Assist 360 control unit – installation and wiring

9.1 Motion Assist 360 control unit connectors for component wiring

Fig. 9.1.1 Control unit with connectors for component wiring



Connectors

1 Fault indication LED
16681701170

2 Mode switch
16681601170

3 Handicapped button
16682401170

4 Emergency Stop
16682301170

7 Night bank
16682201170

8 Movement sensor inside
16681901170

9 Movement sensor outside
16684001170

10 UPS
16682701170

11 Lighting
16683101170

12 Night shield
16682001170

13 Drive unit power extension cable
RX6016

14 Drive unit Hall sensor extension cable
RX6015

9.2 Motion Assist 360 control unit connectors

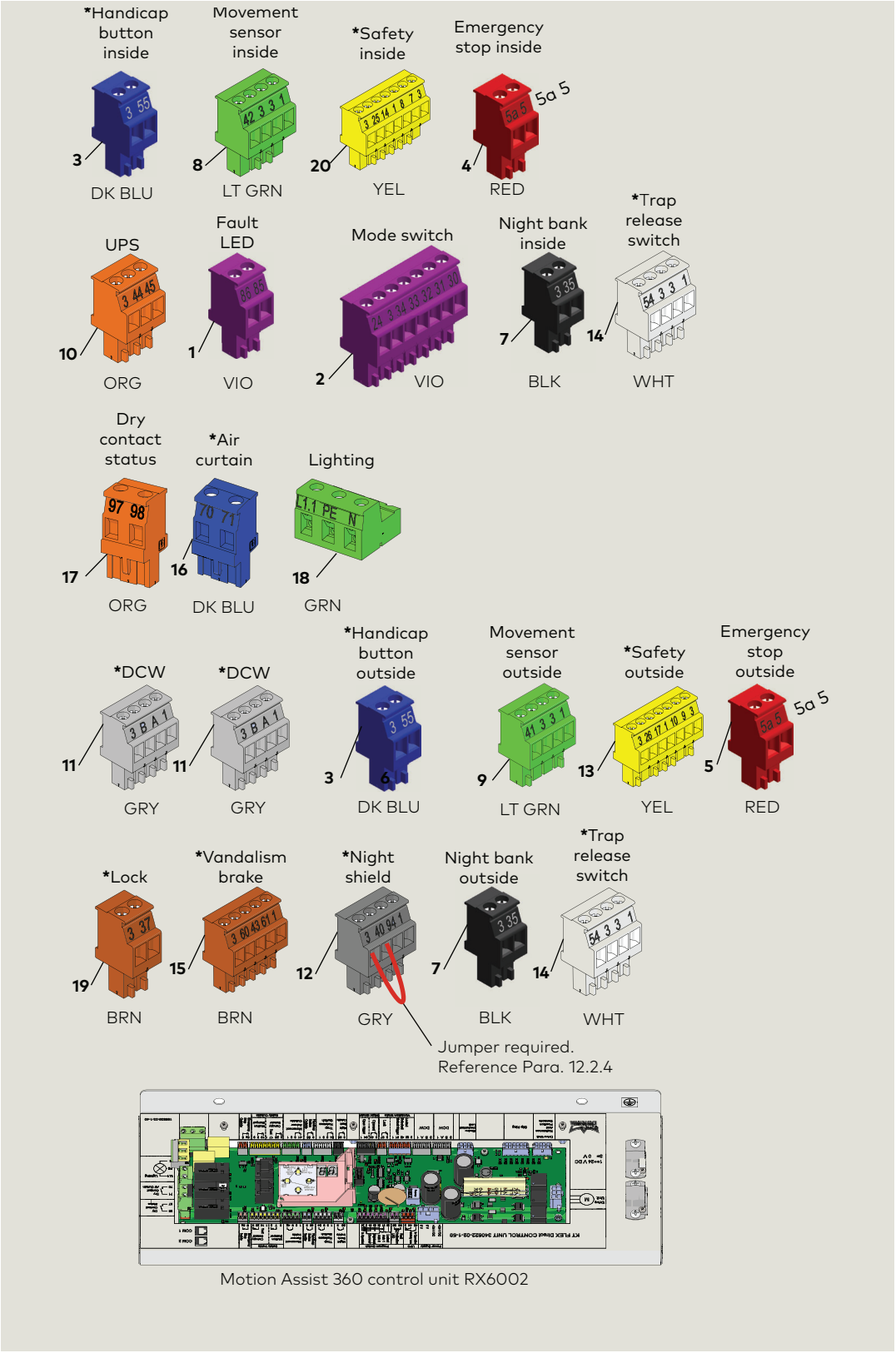
TIPS AND RECOMMENDATIONS

All connectors are packaged in a single bag.

TIPS AND RECOMMENDATIONS

Connectors with an asterisk* before description are not used with low energy "S" module.

Fig. 9.2.1 Motion Assist 360 control unit connectors



Motion Assist 360 control unit RX6002

1 Fault indication LED 16681701170
2 Mode switch 16681601170
3 Handicapped button 16682401170
4 Emergency Stop 16682301170
7 Night bank 16682201170
8 Movement sensor inside 16681901170
9 Movement sensor outside 16684001170
10 UPS 16682701170
11 DCW 16681501179
12 NIght shield 16682001170
13 Safety outside 166882001170
14 Trap release switch 16682501170
15 Vandalism brake 16682601170
16 Air curtain 16682801170
17 Dry contact status 16683001170
18 Lighting 16683101170
19 Lock 16683201170
20 Safety inside 16681801170

9.3 Emergency stop pushbutton installation and wiring

9.3.1 Emergency stop pushbutton installation.

1. Locate and install two Emergency stop pushbuttons, one on interior side of door and one on exterior side of door.

- Coordinate pushbutton installation locations with customer's representative.
- Mechanical installation per manufacturer's instructions.

⚠ WARNING

ANSI/BHMA 156.27, Para. 20:
Switch button shall be installed within 48" [1220 mm] of the door and 24" [610 mm] to 48" [1220 mm] above the floor.

9.3.2 Emergency Stop pushbutton wiring.

1. Use 2 conductor, 18 AWG cable with color code:
- Black
- Red

2. Route cable from each Emergency stop pushbutton to Motion Assist 360 control unit (Ref. Para. 7.2 in remote enclosure.

3. Inside Emergency stop cable:
Terminate wires in Inside Emergency stop terminal block as shown in Fig. 9.3.1.

4. Outside Emergency stop cable::
Terminate wires in Outside Emergency stop terminal block as shown if Fig. 9.3.1.

5. Secure cables and wiring in canopy.

Fig. 9.3.1 Emergency stop pushbutton wiring

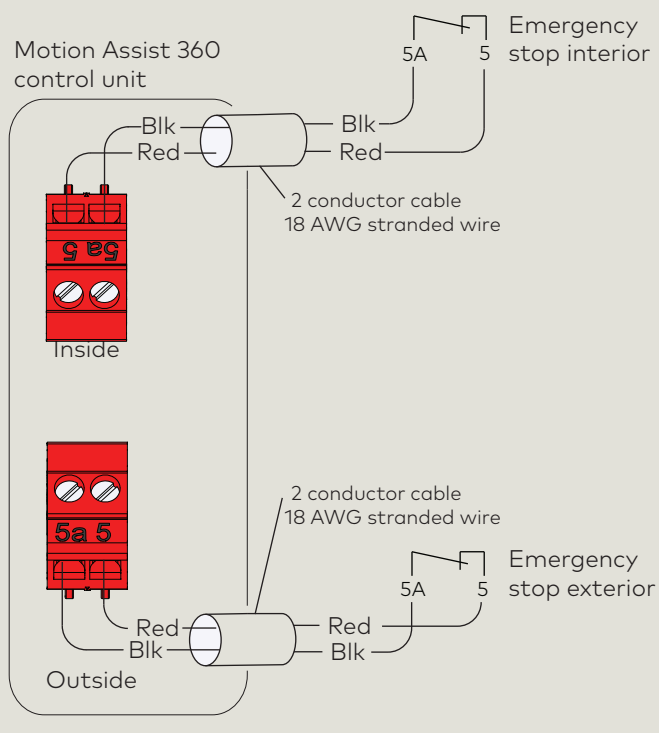


Fig. 9.3.2 Emergency Stop pushbuttons

Interior Exterior

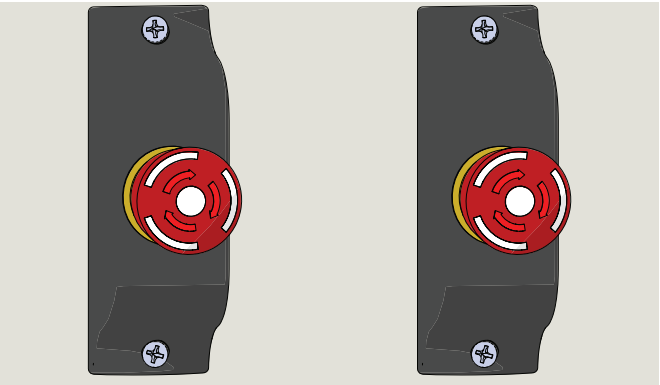
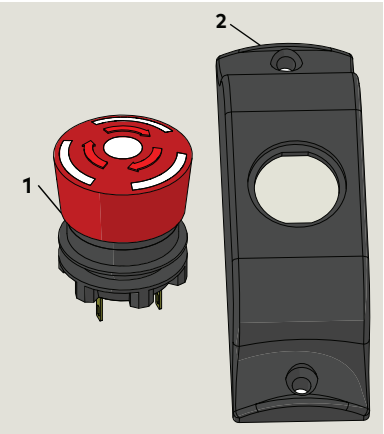


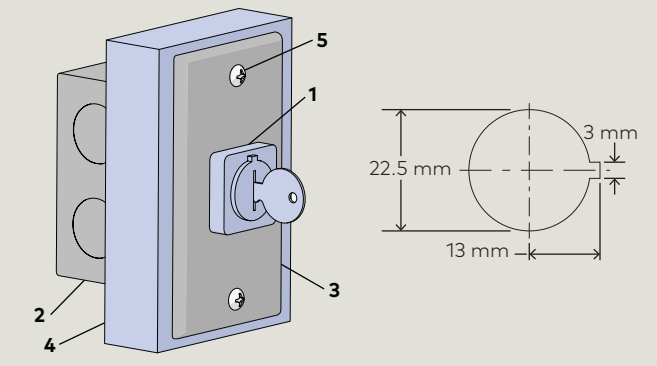
Fig. 9.3.3 Emergency Stop pushbutton and holder

1 Emergency Stop pushbutton RX3413-010
2 E-Stop mounting housing RX3413-020



9.4 Mode switch installation and wiring

Fig. 9.4.1 Mode switch assembly example



1	Mode switch RX6008	4	Spacer
2	Steel outlet box	5	Phillips pan head screw, SS
3	Steel outlet box cover		

9.4.1 Install Mode switch.

1. Install Mode switch.
- Coordinate Mode switch location with customer's representative.

1. Route cable from Mode switch to Motion Assist 360 remote enclosure control unit (Ref. Para. 7.2).

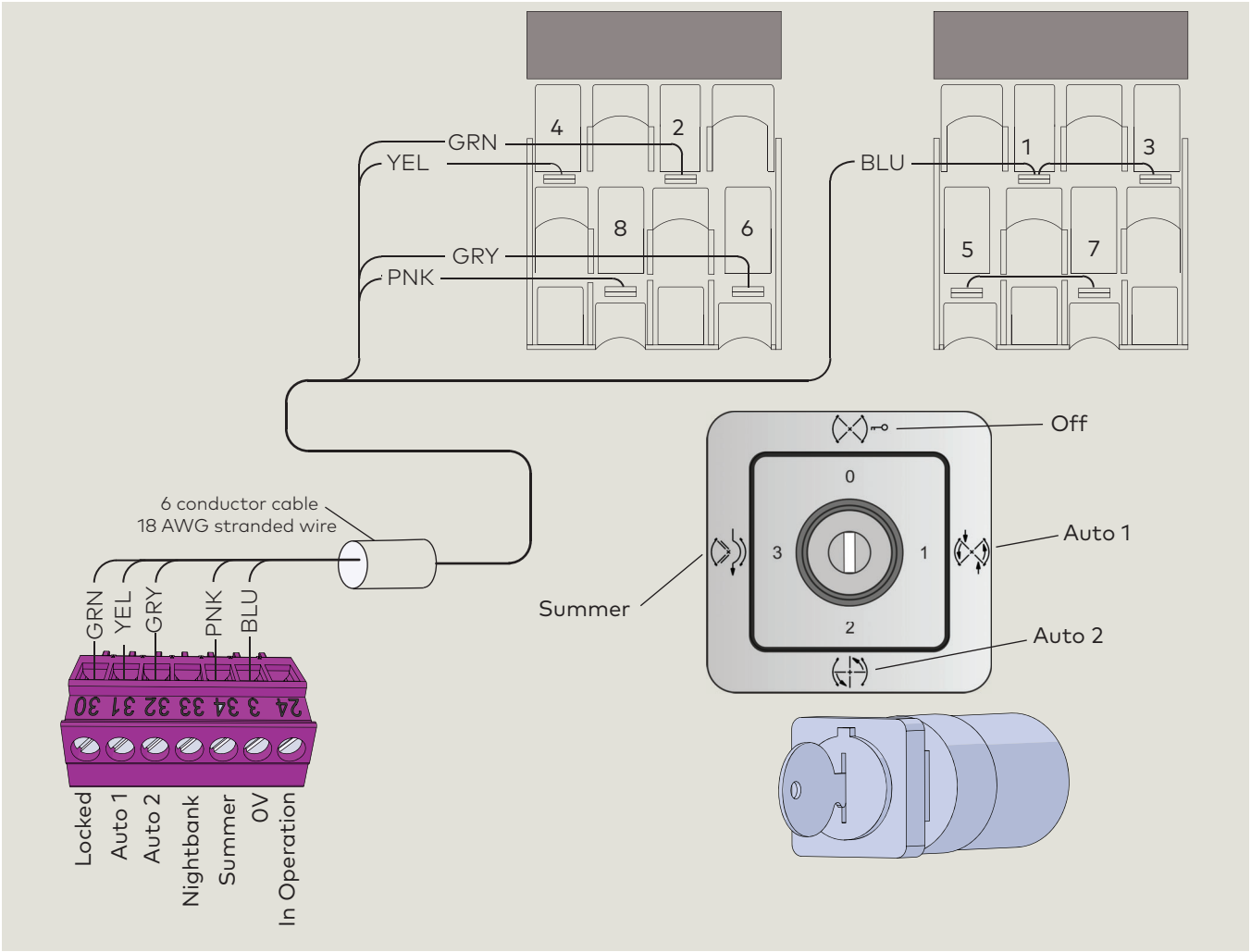
2. Terminate wires in Mode switch terminal block at Motion Assist 360 control unit in Remote enclosure.

9.4.2 Mode switch wiring.

1. Use 6 conductor cable (18 AWG stranded wire) with color code:
- Black
- White
- Red
- Green
- Brown
- Blue

2. Terminate wires in program switch as shown in Fig. 9.4.2

Fig. 9.4.2 Mode switch wiring



9.5 Wave to Open plate (option) installation and wiring

9.5.1 Wave to Open plate installation.

TIPS AND RECOMMENDATIONS

Wave to Open plate only used with "S" Motion Assist module (Para. 2.7).

1. Locate and install plates, one on the interior side of door and one on the exterior side.

- Coordinate plate installation locations with customer's representative.
- Mechanical installation per manufacturer's instructions.

9.6.2 Wave to Open plate wiring.

1. Use 4 conductor, 18 AWG cable with color code:
- Black
- Red
- Green
- White

2. Route cable from each pushplate to Motion Assist 360 control unit (Para. 7.2) in Remote enclosure.

3. Terminate cable wiring in Movement sensor terminal blocks as shown in Fig. 9.5.1.

Fig. 9.651 Pushplate wiring

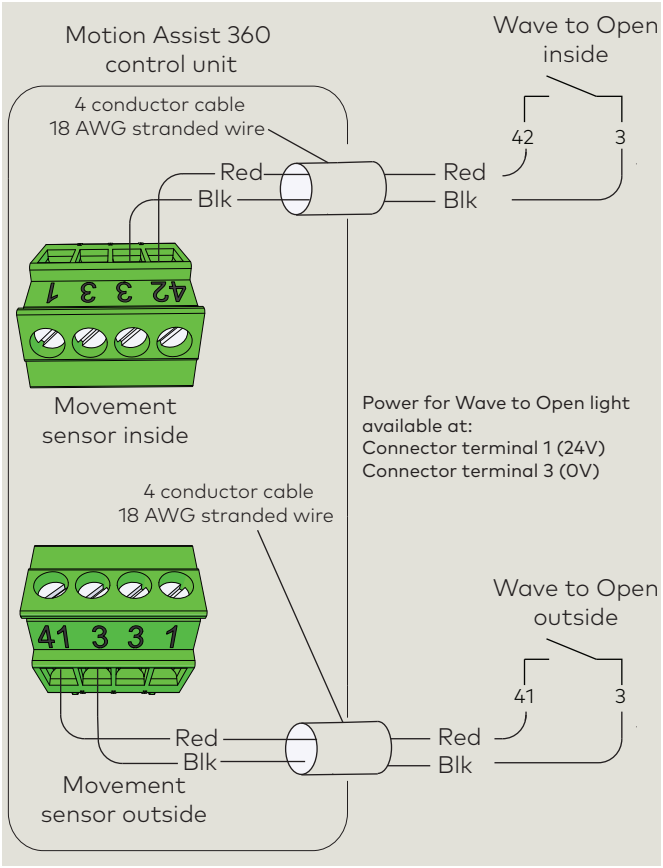


Fig. 9.5.2 Wave to Open plate DX3331-001

Fig. 9.5.3 Wave to Open plate DX3339-189

9.6 Night bank (option) installation and wiring

9.6.1 Night bank switch installation.

1. Locate and install Night bank switches per customer direction, one on building interior side of door and one on the exterior side.

- Mechanical installation per manufacturer's instructions.

TIPS AND RECOMMENDATIONS

Night bank switch installation:
"S" Motion Assist module must be installed.

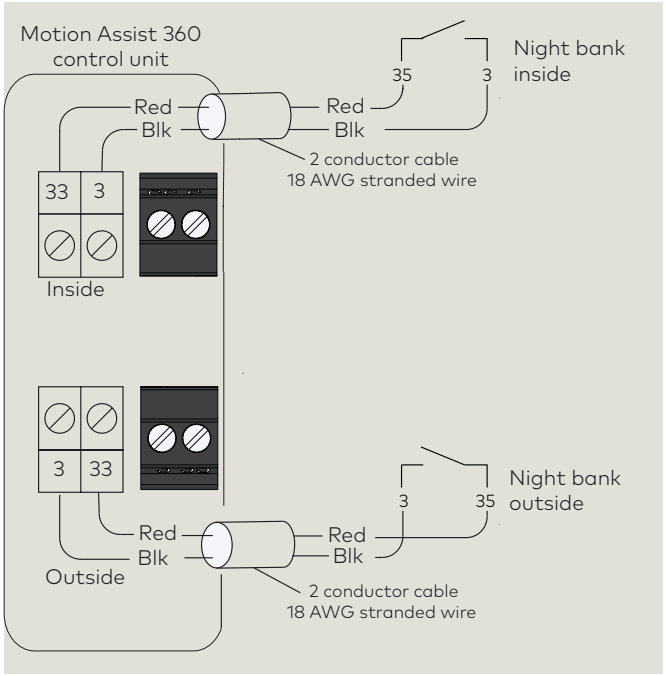
9.6.2 Night bank contact wiring.

1. Use 2 conductor, 18 AWG cable with color code:
- Black
- Red

2. Route cable from each Night bank dry contact to Motion Assist 360 control unit (Para. 7.2) in Remote enclosure.

3. Terminate cable wiring in Night bank terminal blocks as shown in fig. 9.6.1.

Fig. 9.6.1 Night bank switch wiring



9.7 Fault LED installation and wiring

Fig.9.7.1 Fault LED RX6013-001

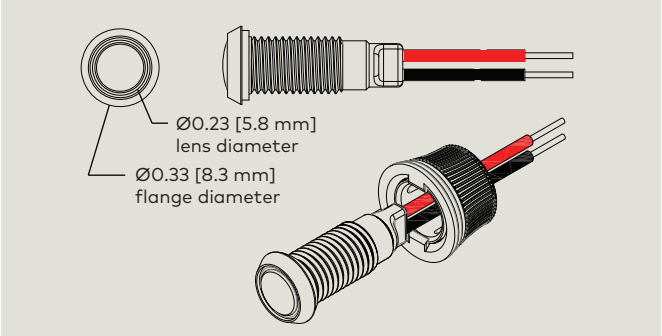
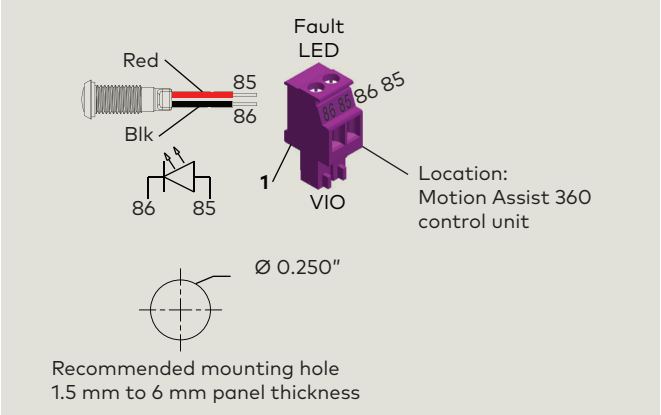


Fig.9.7.2 Fault LED RX6013-001



9.7.1 Fault LED installation.

1. Locate and install Fault LED below or above Mode switch.

9.8.2 Fault LED wiring.

1. Route 2 wires or two conductor cable from Fault LED to Motion Assist 360 control unit (Ref. Para. 7.2) in Remote enclosure.

2. Wires terminate in Fault LED terminal block.

9.8 Service panel (option) installation and wiring

9.8.1 Service panel installation.

1. Locate and install Service panel.

- Note cutout required for panel RJ45 port circuit board.
- Fastener supplied is for installation to metal surface.

TIPS AND RECOMMENDATIONS

Service cable length: 20 feet.

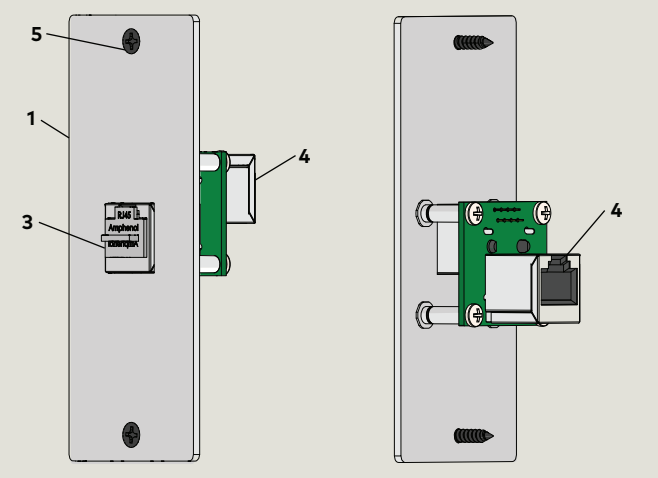
9.8.2 Service panel wiring.

1. Route RJ45 cable (Fig. 9.8.3) from Service panel to Motion Assist 360 control unit (Ref. Para. 7.2) in Remote enclosure.
2. Plug RJ45 connector into Motion Assist 360 control unit COM 2 connector.

NOTICE

Always use dormakaba handheld interface cable DX4662!
Never use conventional network cable with RJ 45 plug!
May cause permanent damage to handheld!

Fig. 9.8.1 Service panel



1 Service panel DX4604-08C
3 RJ45 cover
4 RJ45
5 5/8" undercut flat head machine screw, 6-32 thread, SS

Fig. 9.8.2 Control unit Service COM 2

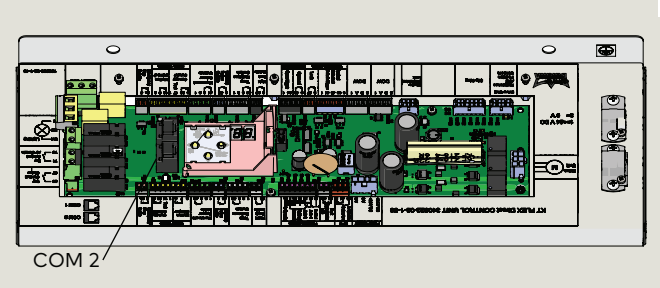
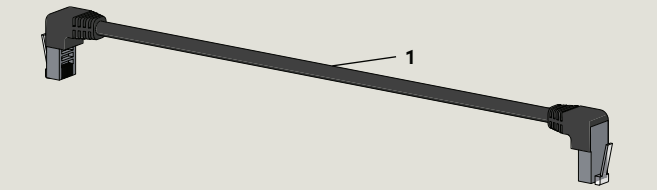


Fig. 9.8.3 RJ45 handheld communication cable

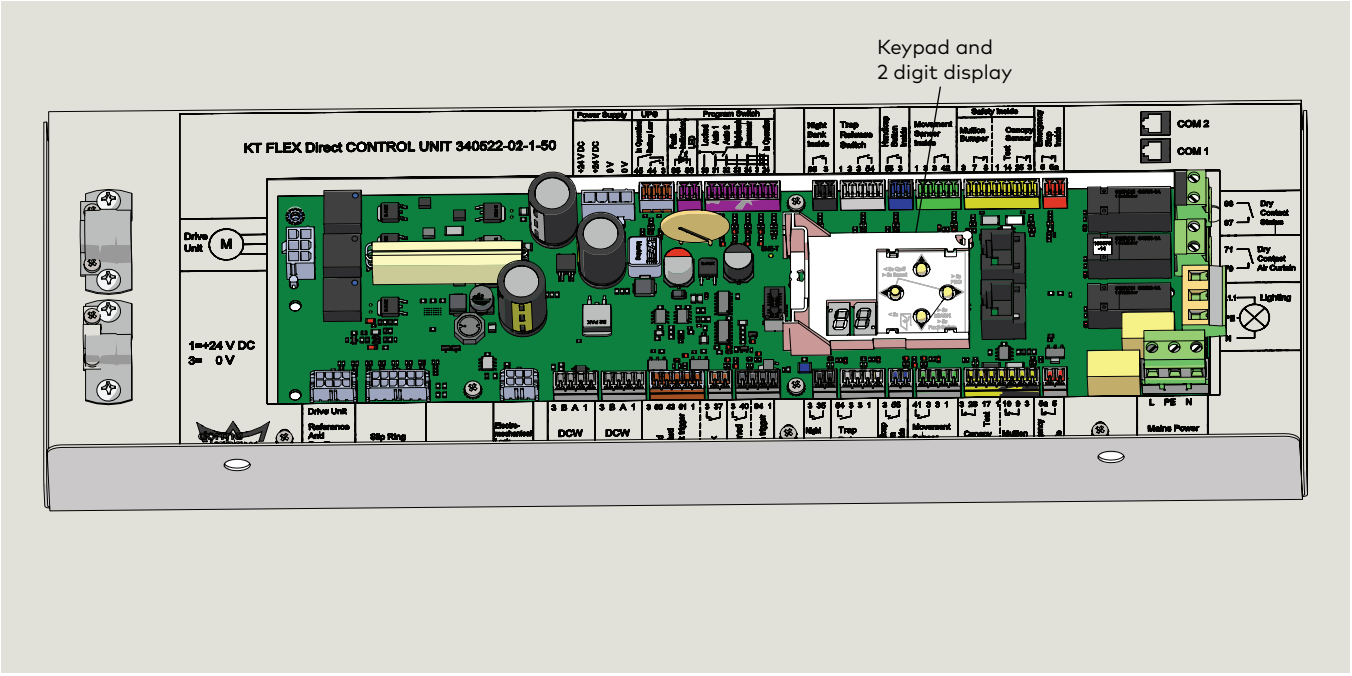


1 RJ45 communication cable, 20' DX4662-003

10 Control unit keypad and display

10.1 Motion Assist 360 control unit keypad and display

Fig. 10.1.1 Control unit keypad and display



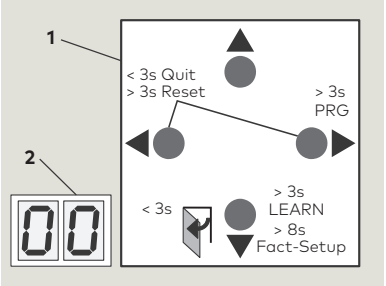
10.1.1 Control unit keypad and display.

The control unit contains the keypad and 2 digit display. Keypad and display are used for viewing and editing:

- Parameters
- Special functions
- Viewing and acting upon diagnostic information.
- Viewing and acknowledging errors.

1 4 button keypad
2 2 digit display

Fig. 10.1.2 4 button keypad, 2 digit display

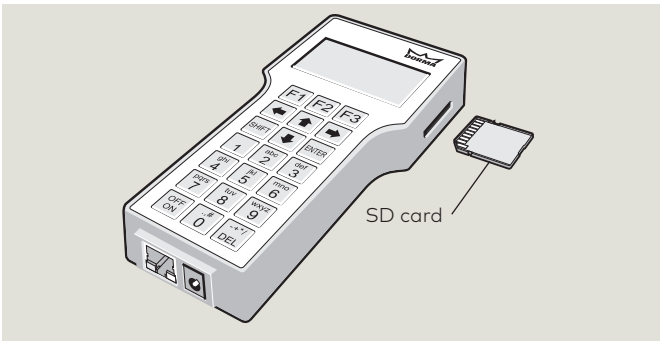


10.2 Control unit firmware version and updates

10.2.1 Firmware version and updates.

- Firmware version is displayed during first commissioning. Reference Chapter 12.
- dormakaba handheld can be used to check firmware version and to perform firmware updates.
- Reference dormakaba handheld manual and Appendix B, dormakaba handheld.

Fig. 10.1.1 dormakaba handheld terminal



10.3 Restore factory settings

10.3.1 Restore factory settings.

- Power supply reset.
- Emergency stop depressed.
- Restore factory settings by pressing the keypad ▼ key greater than 8 seconds.

10.3.2 Restore factory settings - dormakaba handheld

- Reference Appendix B, dormakaba handheld.

10.4 Acknowledging errors

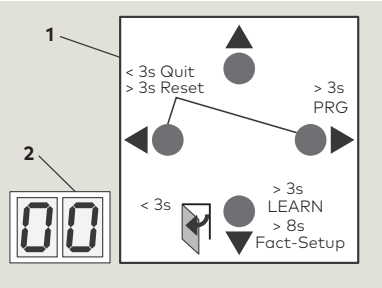
10.4.1 Acknowledging errors.

- Acknowledge errors pressing both ◀ ▶ keys for greater than 3 seconds.

10.5 Accessing and changing parameters

Fig. 10.5.1 Mode switch

Fig. 10.5.2 4 button keypad, 2 digit display



10.5.2 Basic parameters F, d and dE.

Basic parameters (Para. 11.1) are set during first commissioning (Chapter 12).

10.5.3 Driving parameters

Driving parameters (Para. 11.2) can be set once first commissioning has been completed.

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

11 Parameters, special functions, diagnostics

11.1 Basic parameters F, d, and dE

11.1.1 Basic parameters

Symbol	Description
F 	Door type (# of wings).
d 	Door diameter (mm).
dE 	Revolving door direction European.

TIPS AND RECOMMENDATIONS

Reference Chapter 14 for detail on parameters, special functions, and diagnostics.

11.2 Driving parameters

11.2.1 Driving parameters

Symbol	Description	"S" function module
P 	Number of base positions.	X
SS 	Vandalism brake.	X
b 	Night bank operation.	X
T 	Slow-stop time door wing sensor.	
t 	Slow-stop time canopy sensor.	
c 	Positioning speed after stop.	
h 	Number of base positions in night bank operation.	X
SP 	Positioning speed.	
SH 	Disabled access speed.	
SO 	Walking speed.	
rb 	Acceleration ramp.	X

Symbol	Description	"S" function module
rn 	Brake ramp normal.	X
rh 	Brake ramp hard.	
Sd 	Minimum speed for speed limiter.	X
rd 	Counterforce for speed limiter.	X
HG 	Maximum holding force on outer wing edge in starting position.	X
S 	Safety area stop.	
- d 	Polarity wing sensor test input	x
- F 	Polarity canopy sensor test input.	x
U 	Fixing X-position with vandalism brake.	x
A 	Release time.	
Sr 	Function of status relay.	x

11.3 Special functions

11.3.1 Special functions

Special function	Description	"S" function module
Y 	Delay time for warm air curtain.	X
IL 	Lighting	X
PG 	Rotation speed limiter	X
US 	UPS unit	X
	Restore factory settings!	X
	Learning cycle!	X
	Error reset!	X

TIPS AND RECOMMENDATIONS

Functions with shaded cells in the "Description" column are only available via handheld.

- Reference Appendix B (handheld).

Special function	Description	"S" function module
	Locking!	X
	Unlocking!	X
	Door wing sensor bridged.	
	Canopy sensor inside bridged.	
	Canopy sensor outside bridged.	
	Lock settings	X

11.4 Diagnostics

11.4.1 Diagnostics

Diagnostic	Description	"S" function module
	Software version.	X
	Firmware version revision.	X
	Actual error status.	X
	Actual revolutions.	X
E1  to E9 	Error log 1 to 9.	X
	Revolution error 1 to 9.	X
EC 	Delete error log.	X
CS 	Service Reset!	X

TIPS AND RECOMMENDATIONS

Functions with shaded cells in the "Description" column are only available via handheld.

- Reference Appendix B (handheld).

Diagnostic	Description	"S" function module
Ch 	# Stop events.	
Cb 	# Shock-Stop.	X
CC 	# Revolutions.	X
dr 	DCW - Reset.	X
	DCW - Address list.	X
C1 	Function port COM1.	X
C2 	Function port COM2.	X

12 First commissioning

12.1 Before commissioning

12.1.1 Check the revolving door.

- Customer 115 Vac power supply is connected but is turned off.
- The revolving door structure is intact (e.g. no cracks in the wing or door glass).
- Wings can be turned manually.
- Distance of the wing bottom edges to the finished floor surface is 5/16" [8 mm] maximum.

12.1.2 Check in-ground container for water.

WARNING

Electric shock hazard!
Check bottom of in-ground container for standing water.
Any water present must be removed prior to commissioning.

- Check that the in-ground container drain is connected to the building drain system.

12.1.3 Control device wiring.

The following devices must be wired to the control unit:

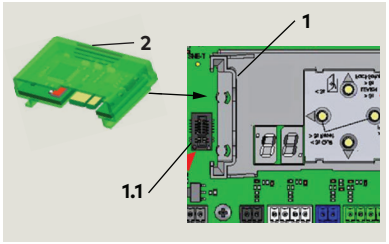
- Program switch
- Emergency Stop switches

12.1.4 "S" function module installation.

WARNING

"S" function module must be installed in control unit function module card slot prior to commissioning!

Fig. 12.1.1 "S" Motion Assist module installation



1 Function module slot
1.1 Function module socket return
2 "S" Motion Assist module (GRN) RX6003-002

TIPS AND RECOMMENDATIONS

Reference Appendix C - Function modules.

12.2 Safety during commissioning

12.2.1 Electrical components.

WARNING

Electric shock hazard!
Drive, control unit and power supply are energized.
Touching the components poses an immediate risk of death from electric shock.

- Immediately replace components and cables with damaged insulation.
- Insure that all cable are routed flush on the structure and cannot come into contact with other components.

12.2.2 Automatic startup.

WARNING

Risk of injury due to automatic startup of revolving door!
The revolving door can set itself in motion automatically. If there are people in the door, they may be at risk of injury.

- Never turn the revolving door on or off when there are people in it.
- Release the Emergency Stop button only when there are no longer any people in the revolving door and the issue causing the emergency stop has been cleared.
- Wait until there are no longer any people in the revolving door before folding the wings back into the starting position.

12.2.3 Safety equipment not yet in operation.

WARNING

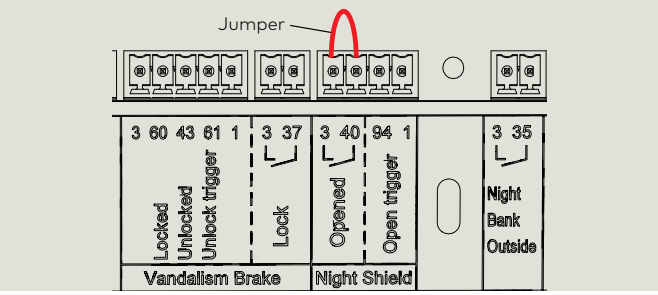
Safety equipment not yet in operation on commissioning!
During commissioning, the safety equipment required for normal operation is not yet operational. This may result in entanglement and crushing hazards at the closing edges, which may cause injuries.

- Start the learning cycle only after everyone has left the danger zone.
- Ensure that no one is present in the area of the closing edges.

12.2.4 Control unit Night shield terminal block jumper.

Jumper must be installed between terminals 3 and 40.

Fig. 12.2.2 Night shield jumper



12.3 Learning cycle safety and information

12.3.1 Danger due to inactive safety equipment.

⚠ WARNING

Life threatening danger due to inactive safety equipment!
During the learning cycle, safety equipment required for normal operation is not yet operational. Persons present in the revolving door during the learning cycle may sustain injuries.

- Insure that no one is present in the area of the wings.
- Start the learning cycle only after everyone has left the area.

12.3.2 Danger due to automatic startup of revolving door.

⚠ WARNING

Life-threatening danger due to automatic startup of revolving door!

12.3.3 Risk of material damage.

CAUTION

Remove all objects inside the revolving door.
Material damage due to objects left in the revolving door during the learning cycle!

12.3.4 Basic parameter settings.

CAUTION

Basic parameters (Para. 11.1) must be entered before starting the learning cycle!

12.3.5 Mode switch.

TIPS AND RECOMMENDATIONS

The Mode switch has no function during the learning cycle.

12.3.6 dormakaba handheld.

TIPS AND RECOMMENDATIONS

The dormakaba handheld can be used to initiate the learning cycle and edit parameters.

12.4 Motion Assist 360 power up

12.4.1 Motion Assist 360 power on procedure.

Step	Action
1.	**Turn Mode switch to "0"** (Off)**.**
2.	**Press Emergency Stop pushbutton.** • At the door entrance or exit.
3.	**Check wings for bookfold.** • Check that all wing deflection contacts are closed (no wings are folded).
4.	**Rotate wings to Home position.** • Wing locks are in line with floor strikes.
5.	**Turn on customer 115 Vac power to Motion Assist 360 drive power supply.** **⚠ WARNING** After power on, **"S" Motion Assist module** green light must be slowly flashing off and on.
.1	• System check; series of letters and numbers rapidly displayed (**5**). • Control unit self check; two segments jumping back and forth (**6**). • Horizontal dashes move up and down (**7**).
.2	Display and keypad orientation. • While 2 digit display segments move up and down (**7**), use ▲ or ▼ buttons to select display and keypad orientation. **TIPS AND RECOMMENDATIONS** ▲ Display and keypad operation inverted. ▼ Display and keypad operation unchanged.
.3	Device ID and firmware display. • After display and keypad orientation (Step 5.2) device ID and firmware version will scroll across display (Fig. 12.4.5). • Device ID _____ • Firmware version (format F x x x x)
.4	Program mode is displayed (Fig. 12.4.6).
6.	**Set basic parameters F, d and dE, go to Para. 12.5**

Fig. 12.4.1 Mode switch off

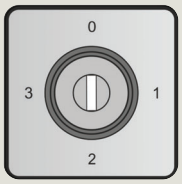
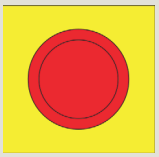
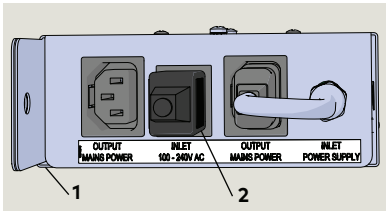


Fig. 12.4.2 Emergency Stop pushbutton



1 Power supply
2 Plug, customer 115 Vac power

Fig. 12.4.3 Motion Assist 360 power supply



5 System check
6 Self check
7 Horizontal dashes move up and down

Fig. 12.4.4 Power up display

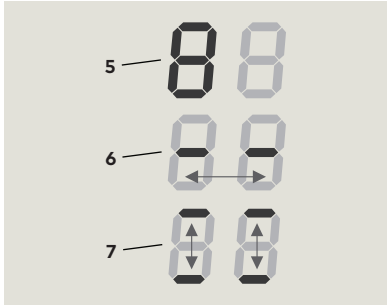
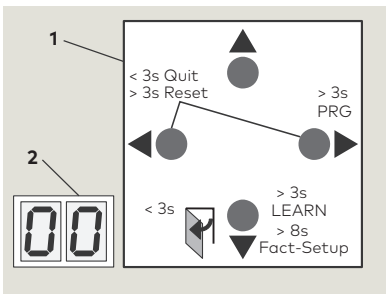


Fig. 12.4.5 Device ID, firmware version display example

Fig. 12.4.6 Program mode

1 Keypad
2 2 digit display

Fig. 12.4.7 Keypad / 2 digit display



12.5 Set basic parameter F, door type

12.5.1 F: Door type (Number of door wings).

NOTICE

F factory setting =03, 3 wings.

- **For system to recognize F = 03 steps in Para. 12.5.2 must be followed.**
- To set **F** = 04, follow steps in Para. 12.5.3.

12.5.2 Select "03" for 3 wing door.

Step 1 Press ▶		Press and hold PRG > 3 s to enter program mode, **F** parameter displayed.
Step 2 Press ▶		Displays "03" , factory setting.
Step 3 Press ▶		"03" starts flashing.
Step 4 Press ▲▼		Scroll to select"04".
Step 5 Press ▲▼		Scroll to select"03".
Step 6 Press ▶		Saves value. Display stops flashing.
Step 7 Press ◀		Returns to Door type parameter.

12.5.3 Select "04" for 4 wing door.

Step 1 Press ▶		Press and hold PRG > 3 s to enter program mode, **F** parameter displayed.
Step 2 Press ▶		Displays "03" , factory setting.
Step 3 Press ▶		"03" starts flashing.
Step 4 Press ▲▼		Scroll to select"04" for 4 wing door.
Step 5 Press ▶		Saves value. Display stops flashing.
Step 6 Press ◀		Returns to Door type parameter.

12.6 Set basic parameter d, door diameter

12.6.1 Door diameter.

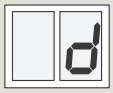
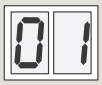
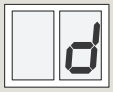
Door diameter (mm) is a 4 digit number.
2 digit display will show one digit value at a time.

- Parameter default is 3800 mm (12.5 feet).

Use inside door diameter.

Door diameter	
Feet	mm
7	2134
8	2438
9	2743
10	3048
11	3353
12	3658

Example: Change default to 2134 mm
(7 foot door diameter).

Step 1 Press ▼		Scroll to door diameter parameter **d**.
Step 2 Press ▶		"1" – 1st digit "3" – 1st digit value.
Step 3 Press ▶		"03" starts flashing.
Step 4 Press ▲▼		Scroll to select"02" for 1st digit.
Step 5 Press ▶		Saves value entered. Display stops flashing.
Step 6 Press ▼		Scrolls to 2nd digit: "2" – 2nd digit "8" – 2nd digit value
Step 7 Press ▶		"08" starts flashing.
Step 8 Press ▲▼		Scroll to select"01" for 2nd digit.
Step 9 Press ▶		Saves value entered. Display stops flashing.
Step 10 Press ▼		Scrolls to 3rd digit: "3" – 3rd digit "0" – 3rd digit value
Step 11 Press ▶		"00" starts flashing.
Step 12 Press ▲▼		Scroll to select"03" for 3rd digit
Step 13 Press ▶		Saves value entered. Display stops flashing.
Step 14 Press ▼		Scrolls to 4th digit: "4" – 4th digit "0" – 4th digit value
Step 15 Press ▲▼		Scroll to select"04" for 4th digit.
Step 16 Press ▶		Saves value entered. Display stops flashing.
Step 17 Press ◀		Return to door diameter parameter.

12.7 Set basic parameter dE, door rotation

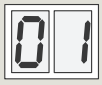
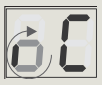
12.7.1 dE: Door rotation.

NOTICE

dE factory setting =01, clockwise.

- **For system to recognize dE = 01 steps in Para. 12.7.2 must be followed.**
- To set **dE** = 00, follow steps in Para. 12.7.3.

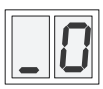
12.7.2 Door rotation: select 01, clockwise.

Step 1 Press ▼		Scroll to door rotation parameter **dE**..
Step 2 Press ▶		Displays "01" , factory setting.
Step 3 Press ▶		"01" starts flashing.
Step 4 Press ▲▼		Scroll to select"00"
Step 4 Press ▲▼		Scroll to select"01"
Step 5 Press ▶		Saves value entered. Display stops flashing.
Step 6 Press ◀		Returns to door rotation parameter.
Step 7 Press ◀		Exits program mode. • Display indicates ready for learning cycle.

12.7.3 Door rotation: select 00, counterclockwise.

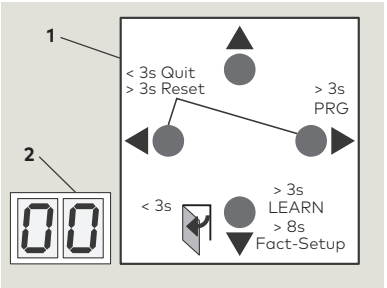
Step 1 Press ▼		Scroll to door rotation parameter **dE**..
Step 2 Press ▶		Displays "01" , factory setting.
Step 3 Press ▶		"01" starts flashing.
Step 4 Press ▲▼		Scroll to select"00" for counterclockwise direction (in-ground drive)
Step 5 Press ▶		Saves value entered. Display stops flashing.
Step 6 Press ◀		Returns to door rotation parameter.
Step 7 Press ◀		Exits program mode. • Display indicates ready for learning cycle.

TIPS AND RECOMMENDATIONS

If display shows  after basic parameters have been set:

- Press ▼ for 3 seconds.
-  will be displayed.

Fig. 12.7.1 4 button keypad, 2 digit display



1 4 button keypad
2 2 digit display

12.8 Perform learning cycle

Step	Action
1.	**WARNING** Ensure that no one is present in or next to the revolving door! **Unlock all Emergency Stop pushbuttons.** • The control system saves the base position with 0º (locking position).
2.	**Revolving door starts learning cycle.** • Current learning cycle phase is shown on 2 digit display. Reference Fig. 12.8.1. • Learning cycle phases depend on options ordered with door. • Learning cycle is terminated as soon as an error occurs during learning cycle.
3.	**Learning cycle completed.** The learning cycle is completed and door is ready for operation.
	Error during learning cycle - reset error (s). Learning cycle terminated: 1. Press an Emergency Stop switch. 2. Perform the fault correction according to the Error list (Para. 16.3). 3. Start the learning cycle again from Step 1 and correct any additional errors, if any.

Fig. 12.8.1 Learning cycle phases

o1	Detection of 0° base or locking position.
o2	Measurement calculation of path between sensors and locking position: • The door starts to spin in positioning speed until the two positive ramps of the reference sensors (installed in the drive system) will be activated.
o3	Determination of the wing inertia while the wings are rotating.

12.9 Verify driving parameters according to ANSI/BHMA A156.27

12.9.1 Verify Driving Parameters.

Driving parameter settings can be verified once the learning cycle has been completed.

TIPS AND RECOMMENDATIONS

Reference Chapter 11 for Driving Parameter detail.

1. Verify driving parameter settings according to ANSI A156.27, Power and Manual Operated Revolving Pedestrian Doors.

WARNING

Material damage due to improper parameter settings!

- Contact dormakaba if additional information is required.

13 Perform learning cycle - door systems already commissioned

13.1 Learning cycle safety and information

13.1.1 Danger due to inactive safety equipment.

⚠ WARNING

Life threatening danger due to inactive safety equipment!
During the learning cycle, safety equipment required for normal operation is not yet operational. Persons present in the revolving door during the learning cycle may sustain injuries.

- Insure that no one is present in the area of the wings.
- Start the learning cycle only after everyone has left the area.

13.1.2 Danger due to automatic startup of revolving door.

⚠ WARNING

Life-threatening danger due to automatic startup of revolving door!

13.1.3 Risk of material damage.

CAUTION

Remove all objects inside the revolving door.
Material damage due to objects left in the revolving door during the learning cycle!

13.1.4 Basic parameter settings.

CAUTION

Basic parameters (Para. 38.4) must be entered before starting the learning cycle!

13.1.5 Mode switch.

TIPS AND RECOMMENDATIONS

The program switch has no function during the learning cycle.

13.1.6 dormakaba handheld.

TIPS AND RECOMMENDATIONS

The dormakaba handheld can be used to initiate the learning cycle and edit parameters.

13.2 Perform learning cycle

13.2.1 Perform learning cycle.

Step	Action
1.	**Press Emergency Stop pushbutton.**
2.	**Set Mode switch to "0" (Off).**
3.	**Verify Basic Parameter settings F, d, and dE.**
4.	**Rotate wings to Home position.** • Wing locks are in line with floor strikes.
5.	**Enter learning cycle.** 1. Press ▼ key greater than (>) 3 seconds, then release key. 2. Display indicates the controller is ready to start the learning cycle (Fig. 13.2.4).
6.	**Unlock all Emergency Stop pushbuttons.** **⚠ WARNING** Ensure that no one is present in or next to the revolving door! • The control system saves the base position with 0° (locking position).
7.	**Revolving door starts learning cycle.** • Current learning cycle phase is shown on 2 digit display. Reference Fig. 13.2.5. • Learning cycle phases depend on options ordered with door. • Learning cycle is terminated as soon as an error occurs during learning cycle.
	Error during learning cycle - reset error (s). Learning cycle terminated: 1. Press an Emergency Stop switch. 2. Perform the fault correction according to the Error list (Para. 16.3). 3. Start the learning cycle again from Step 5 and correct any additional errors, if any.
8.	**Learning cycle completed.**
	The learning cycle is completed and door is ready for operation.

TIPS AND RECOMMENDATIONS

For additional detail, refer to Chapter 12, First Commissioning.

Fig. 13.2.1 Emergency stop

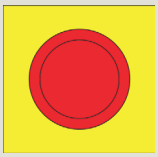


Fig. 13.2.2 Mode switch Off

Fig. 13.2.3 4 button keypad

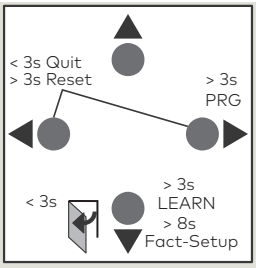


Fig. 13.2.4 o C

Fig. 13.2.5 Learning cycle phases

o1		Detection of 0° base or locking position.
o2		Measurement calculation of path between sensors and locking position: • The door starts to spin in positioning speed until the two positive ramps of the reference sensors (installed in the drive system) will be activated.
o3		Determination of the wing inertia while the wings are rotating.

14 Parameter detail

14.1 Motion Assist 360 modes of operation with "S" module

S (Grn) Power assist

14.2 Basic parameters F, d and dE

14.2.1 Basic Parameters

Parameter	Symbol		Description	Unit	Range	Default	S
Door type (# of wings)	F		Number of door wings. Basic parameter		3 ... 4	**3**	X
Door diameter	d		Door diameter. Basic parameter	mm	1600 ... 3800 5.3 ... 12.5 feet	**3800**	X
Revolving direction European	dE		Revolving direction counterclockwise. Basic parameter		0 = Off 1 = On	**1**	X

14.3 Driving parameters

40.3.1 Driving parameters

CAUTION

Driving parameter default values.
Listed driving parameter default values may change after Learning Cycle completed.

Number of base positions to travel to	P		Number of base positions to travel to in Automatic 1 or 2.		3 ... 18	**5**	X
Vandalism brake	SS		Vandalism brake.		0 = without V. brake 1 = with V. brake	**0**	X
Night bank operation	b		Switch night bank operation on or off in PGS mode OFF.		0 = Off 1 = On	**0**	X
Slow-stop time door wing sensor	T		Drive time in positioning speed after door wing sensor activation.	0.1 s	0 ... 15.9 16.0 = ∞	**16**	
Slow-stop time canopy sensor	t		Drive time in positioning speed after canopy sensor activation.	0.1 s	0 ... 15.9 16.0 = ∞	**16**	
Positioning speed after stop	c		Drive time in positioning speed after stop.	0.1 s	0.0 ... 2.9	**2**	
Number of base positions in night bank operation	h		Number of base positions in night bank operation.		3 ... 18	**4**	X
Positioning speed	SP		Positioning speed.	10 mm /s	15 ... 30 (0.6 ... 1.2"/s)	**25**	
Disabled access speed	SH		Disabled access speed.	10 mm /s	25 ... 40 (1.0 ... 1.6"/s)	**30**	

40.3.1 Driving parameters

Parameter	Symbol		Description	Unit	Range	Default	S
Walking speed	SO		Walking speed.	10 mm /s	35 ... 75 at d > 3m (9.8') (1.4 ... 3"/s) 35 ... 99 d ≤ 3m (9.8') (1.4 ... 3.4"/s)	**60**	
Acceleration ramp	rb		Acceleration ramp.	...	1 = slow acceleration 9 = fast acceleration	**5**	X
Brake ramp normal	rn		Brake ramp normal.		1 = slow acceleration 9 = fast acceleration	**5**	X
Brake ramp hard	rh		Brake ramp hard.		1 = slow brake 9 = fast brake	**5**	
Minimum speed for speed limiter	Sd		Minimum speed for speed limiter	10 mm /s	35 ... 99 (1.4 ... 3.4"/s)	**75**	X
Counterforce for speed limiter	rd		Counterforce for speed limiter.		0 ... 9	**5**	X
Holding force in basic position	HG		Maximum holding force on the outer door wing edge.	N	1 ... 9	**S: 3**	X
Safety area stop	S		Safety area canopy sensor slow stop	mm	800 mm (31") ... upper limit of safety area	**800**	
Polarity wing sensor test input	-d		Polarity of test of rotating slow stop sensors.		0: test signal 24V 1: test signal 0V	**1**	X
Polarity canopy sensor test input	-F		Polarity of test of fixed slow-stop sensors.		0: test signal 24V 1: test signal 0V	**1**	X
Fixing X-position with vandalism brake	U		Fixing X-position with vandalism brake.		0: no 1: yes	**0**	X
Release time	A		Time before starting up the door after an activation of a safety stop.	0.1 s	0 ... 9.9	**1**	
Function of status relay	Sr		0 - No function 1 = Door turns at walking speed. 2 = Door turns at positioning speed. 3 = Door turns at disabled access speed. 4 = Door locked. 5 = Error 6 = Power 7 = UPS battery defective.		0 ... 7	**0**	X

15 Special functions, diagnostic detail

15.1 Motion Assist 360 modes of operation with Motion Assist module

TIPS AND RECOMMENDATIONS

Special functions shaded gray in description column are available only in handheld.

- Reference Appendix B (handheld).

15.2 Special functions

15.2.1 Special functions

Special Function		Symbol	Description	Unit	Range	**Default**	S
Delay WAC	Y		Delay time for warm air curtain.	s	0 ... 600	**10**	X
Lighting	IL		Delay time lighting / manual. 0 = light always on 1 - 60 = automatic delay time		0 .. 60	**15**	X
Rotation speed limiter	PG		Speed limiter 0 = deactivated 1 = activated		0 ... 1	M:1 S:0	X
UPS unit	US		UPS unit connected? 0 = not connected 1 = connected		0 ... 1	**0**	X
Restore factory settings!			Order: Restore factory settings!				X
Learning cycle!			Order: Start learning cycle!				X
Error reset!			Order: Reset error!				X
Locking!			Order: Locking!				X
Unlocking!			Order: Unlocking!				X
Door wing sensor bridged			Bridge door wing sensor. **Only for service work!**		No Yes	**No**	
Canopy sensor inside bridged			Bridge canopy sensor inside. **Only for service work!**		No Yes	**No**	
Lock settings			Switch key lock on/off.		Off On	**Off**	X

15.3 Diagnostics

TIPS AND RECOMMENDATIONS

Diagnostics shaded gray in description column are available only in handheld.

- Reference Appendix B (handheld).

15.3.1 Diagnostics

Diagnostic	Symbol	Description	Range	Default	S
Software version		Display of actual software version.	yyxx e.g. .0100 = Version 1.0	-	X
Revision of firmware version		Display of revision number of firmware version.	zzz	-	X
Actual error status		Display of actual error status.		**C**	X
Actual revolutions		Actual number of revolutions until error.		**C**	X
Error log 1 to 9	E1  to E9 	Old error log 1 to 9.		**C**	X
Revolution error 1 to 9		Revolution with old errors 1 to 9.			X
Delete error log	EC 	Delete the value stored in the Fault. Set to 1 clears the memory, then EC is reset to 0.	0 , 1		X
Service reset!	CS 	Set CS to 1; resets the service cycle counter to 0. CS is then automatically reset to 0. Resets fault memory and service parameters.	0 , 1		X
# Stop events	Ch 	Number of stop events by safety equipment which cause a "Stop".			
# Shock stop	Cb 	Number of brake events by the shock stop unit.			X
# Revolutions	CC 	Number of driven revolutions. (in 1000 with the internal display.)		**C**	X
DCW reset	dr 	DCW Reset => DCW list will be deleted and afterwards transferred to all connected clients. => Set to 1 to start DCW reset.	0 ...1		X
DCW list		Address list of connected DCW clients.			X
COM1	C1 	Function port COM1	0 = Disable 1 = TMS 2 = Debug		X
COM2	C2 	Function port COM2	0 = Disable 1 = Handheld 2 = Analyze		X

16 Error list

16.1 Error indication

16.1.1 Display of error number.

- Errors occurring during the learning cycle or commissioning of sensors are shown on the control unit display with an error number.
- The error list (Para. 16.3) contains information regarding each error number.

⚠ WARNING

Risk of injury due to improper error correction!
Injuries and property damage may result if malfunctions are not properly corrected.
- Have a dormakaba technician correct all errors!

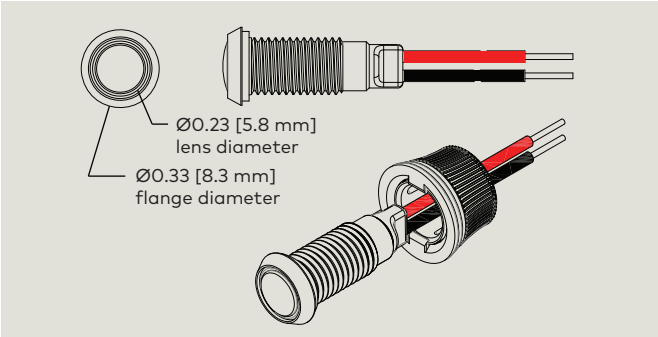
⚠ WARNING

Risk of injury when eliminating fault with unknown error message!
Unauthorized fault elimination of an error message not described may result in serious injuries.
- If error message is not in Error list (Para. 16.3) always contact dormakaba for error correction.
- Never attempt to eliminate an unknown error without assistance from dormakaba service!

16.1.2 Error code indication with fault LED.

Error numbers are indicated with combinations of slow and fast flashing codes.
- The first digit of the error number indicates how frequently the fault LED flashes slowly (approximately 1 Hz).
- The second digit of the error number indicates how frequently the fault LED flashes rapidly (approximately 2 Hz).
- Example: LED flashes 1 x slow and 4 x fast. Error number 14 (braking distance at safety stop too long).

Fig. 16.1.1 Fault LED



16.2 Reset column of error list (Para. 16.3)

16.2.1 Reset column of error list.

Indicates whether an error message:
- Is reset automatically (A).
- Must be reset with the program switch (M).

16.2.2 Error acknowledgment using the program switch.

1. Check error number on controller display and correct it according to the error list.
2. Ensure no one is in revolving door.
3. Set the program switch to "0" — Off.
4. After a minimum 3 second waiting time, restart the revolving door using the program switch.
5. If necessary, perform steps outlined in Behavior after reset column (learning cycle or commissioning of sensors).

⚠ WARNING

Life-threatening danger due to inactive safety equipment!
During the learning cycle, the safety equipment required for normal operation is not yet operational. Persons present in the revolving door during the learning cycle may sustain injuries.
- Insure that no one is present in the area of the door wings.
- Start the learning cycle only after everyone has left the area.

16.3 Error list

Reset column code.

- M Manual; after fault corrected, turn program switch to "0", then back to setting.
- A Automatic; error reset when fault corrected.

16.3.1 Error list

Category	Error No.	Error name, root cause, situation	Behavior	Behavior after reset	Reset
No error	0				
Learning cycle, speed obstacle	11	Output stage voltage is below minimum value of 20 V. (Except when emergency stop is pressed or power fail.)	Door clear.	Door ready.	M
	13	Braking distance too long when speed changes.	Door ready; limit to positioning speed.	Limitation due to positioning speed is canceled again.	M
	14	Braking distance too long with safety stop.	Door ready; limit to positioning speed.	Positioning speed limitation is canceled again.	M
	15	Obstacle fault: door was blocked more than three times within 10º.	Door clear. • Fault can also be reset by manually pushing the door.	Door ready.	M
	16	Motor cable incorrectly connected or defective output stage.	Door clear.	Door ready.	M
	17	Output stage IC signals overcurrent or overheating.	Door clear.	Door ready.	M
	18	Output stage IC signal error.	Door clear.	Door ready.	M
	19	Maximum output stage voltage of 50V exceeded.	Door clear.	Door ready.	M
Locking fault	20	Maximum motor current exceeded for an extended period of time.	Door clear.	Door ready.	
	21	Door is in locking position. Three unsuccessful attempts to unlock door.	Door can only be opened manually, possibly after manual unlocking.	Door ready.	M
	22	Door is in locking position. Three unsuccessful attempts to lock door.	• Door indicates an error but is ready. • Lighting is not switched off in the locking position.	Door ready.	M
	23	Both limit switches of a locking device are closed.	Door can only be opened manually, possibly after manual unlocking.	Door ready.	M
	24	Locking module defective.	Door clear.	Door ready.	M
Mode switch error	31	Program switch defective or missing.	Safety stop - door clear	Door ready.	A
	32	At learned locking device PGS_Auto 1, PGS_Auto 2, or PGS_Summer of the second level are missing.	Door stopped and is then disengaged.	Door ready.	M
	33	Function module missing.	Door stops and is then disengaged.	Door performs positioning travel and is then ready.	M

16.3.1 Error list

Category	Error No.	Error name, root cause, situation	Behavior	Behavior after reset	Reset
Sensor error	41	Test of canopy sensor slow-stop inside failed.	Limit to positioning speed.	Door ready.	M
	42	Test of canopy sensor slow-stop outside failed.	Limit to positioning speed.	Door ready.	M
	43	Test of wing sensor 1 failed.	Limit to positioning speed.	Door ready.	M
	44	Test of wing sensor 2 failed.	Limit to positioning speed.	Door ready.	M
	45	Test of wing sensor 3 failed.	Limit to positioning speed.	Door ready.	M
	46	Test of wing sensor 4 failed.	Limit to positioning speed.	Door ready.	M
	47	Test of SKL vertical blade; 2 x SKL bottom wing, wing deflection switch failed.	Door clear.	Door ready.	M
	48	Test of SKL post vertical inside failed.	Safety stop - door clear.	Door ready.	M
	49	Test of SKL post vertical outside failed.	Safety stop - door clear.	Door ready.	M
Displacement sensor error.	51	Failure of at least one Hall effect sensor.	Safety stop - door clear.	Door performs a positioning travel and is then ready for operation.	M
	52	At the start of a learning cycle or positioning travel: No sensor deflection within the first 120 seconds. In operation: No sensor deflection at learned position, or Sensor deflection at incorrect position.	Door clear..	Door performs positioning travel and is then ready for operation.	M
CPU error / error 2nd disconnection facility.	7	CPU defective.	• Safety stop - door clear. • CPU is then disabled, the error display does therefore not flash and consists only of the number "7".	Reset only by switching the power supply off and on again. The door is then ready.	
	7	EEPROM defective (cannot be written to).	Safety stop - door clear.	Reset only by switching power supply off and on again. The door is then ready.	
	71	EEPROM error (checksum is not correct).	Safety stop - door clear.	The door is ready only after a successful learning cycle.	M
	72	Test of 2nd disconnection facility has failed.	Door clear..	Test of 2nd disconnection facility is repeated. The door is ready if OK.	M

16.3.1 Error list

Category	Error No.	Error name, root cause, situation	Behavior	Behavior after reset	Reset
Power supply failure.	81	Power supply failure with UPS connected.		Reset with no error message from UPS. Door ready.	A
UPS battery fault	82	UPS signals a battery fault, e.g., low battery.		Reset with no battery fault error message from UPS. Door ready.	A
DCW error	91	Locking module inside absent.	Safety stop - door clear.	Door ready.	A
	92	Locking module outside absent.	Safety stop - door clear.	Door ready.	A

17 Information

42.1.1 Information number.

No.	Information description	Reset
5	Night shield limit switch not actuated.	Night shield completely open.
8	Emergency Stop depressed.	No Emergency Stop depressed.

18 Revolving door functional test

18.1 Revolving door functional test

18.1.1 Functional test overview.

Revolving door functions must be tested after the learning cycle has been completed and parameters set.

⚠ WARNING

Safety equipment may not function due to incorrect wiring connections.

- Ensure no one is present in the danger zone before starting the functional tests.
- Leave the danger area immediately if safety equipment does not work or respond as intended.

Depending on revolving door version and customer order, the following functions must be tested in the course of commissioning:

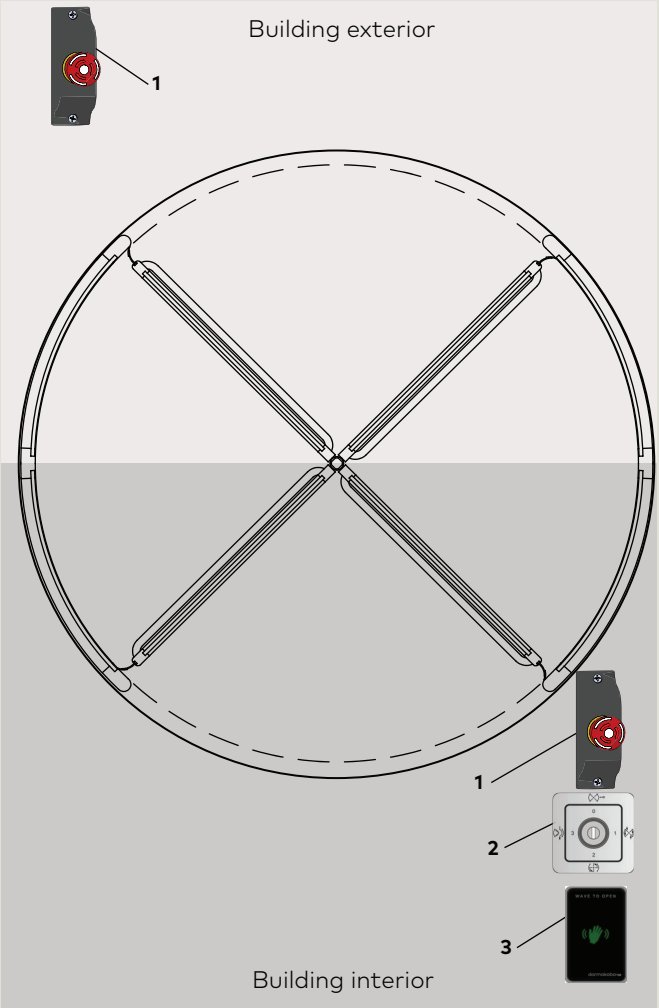
18.1.2 Emergency stop pushbutton test
Automatic 2 mode
18.1.3 Wave to Open plate test
18.1.4 Wing tests
18.1.5 Mode switch setting test
18.1.6 Wing locking device test

⚠ WARNING

Risk of injury due to improper function test!
Safety equipment may not function correctly during functional testing due to incorrect connections.

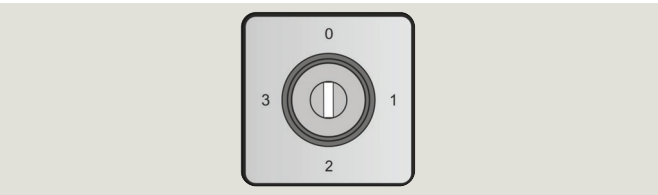
- Ensure no one is present in the danger zone before starting the functional tests.
- Leave the danger area immediately if safety equipment does not work or function as intended.

Fig. 18.1.1 Function test components



1 Emergency stop pushbutton
2 Mode switch
3 Wave to Open plate

Fig. 18.1.2 Mode switch



18.1.2 Emergency stop pushbutton test - Mode switch Automatic 2 mode.

2.1 Activate Emergency Stop pushbutton.		
Step	Action	Result
1.	Set Mode switch to Automatic 2.	
2.	Door will continuously rotate at low energy speed.	
3.	Press Emergency Stop pushbutton while door is rotating.	Revolving door stops immediately and drive is disengaged. The door can be manually rotated.
2.2 Restart after Emergency Stop.		
1.	Unlock all Emergency Stop pushbuttons.	
2.	Door will continuously rotate at low energy speed.	
2.3 Repeat Emergency stop test for each Emergency Stop pushbutton.		
1.	Repeat steps in **2.1** and **2.2** for each Emergency Stop pushbutton.	

⚠ WARNING

Risk of injury due to deactivated safety equipment!

After the Emergency Stop pushbutton is activated, the drive is unlocked. The safety devices are no longer in operation. This can cause serious injuries if attempts are made to rotate the door manually.

- Before turning the door manually, check to make sure that no one is present in or next to the door.
- If people have been locked into the revolving door, carefully rotate the door unit people are able to exit.
- When turning the door manually, make sure there are no limbs between the closing edges.

TIPS AND RECOMMENDATIONS

All emergency stop pushbuttons must be unlocked to test the restart function.

18.1.3 Wave to Open plate (Option) test.

3.1 Activate pushplate.		
Step	Action	Result
1.	Mode switch to Automatic 1.	
2	Swipe Wave to Open plate.	Rotary movement of revolving door is started at low energy speed. Revolving door automatically stops in the next starting position as soon as it is no longer manually operated
3.2 Repeat test for each Wave to Open plate.		

TIPS AND RECOMMENDATIONS

Wave to Open plate only used with "S" Motion Assist module.

18.1.4 Wings.

4.1 Folding the wing.		
Step	Action	Result
1.	1. Check forward and backward folding of wings during running operation.	

WARNING

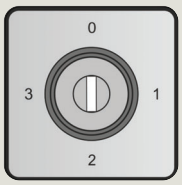
Risk of injury due to improper testing!

TIPS AND RECOMMENDATIONS

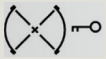
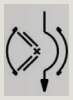
Check each of the wings individually.

18.1.5 Mode switch.

Fig. 18.1.3 Mode switch



1. Check door operation each Mode switch setting. Operation based on green "S" (power assist) module

Mode switch position		Function	**S** - (Green module) - Motion Assist
	**0**	Off	• Revolving door will stay in the home position. • After a set period of time, any internal lighting is switched off.
	**1**	AUTOMATIC 1	• A knowing act (Para. 18.1.7) switch starts rotary movement of the door wings at low energy speed (Para. 18.1.6). Acceleration to walking speed is done manually. • Manually pushing the door starts rotary movement of the door wings at low energy speed. Acceleration to walking speed is done manually. • Revolving door automatically stops in the next starting position as soon as it is no longer manually operated.
	**2**	AUTOMATIC 2	• Door rotates continuously at a low energy speed. Acceleration to walking speed is done manually. • After door passage, the door slows down to low energy speed and continues to rotate at low energy speed.
	**3**	Summer	• Revolving door stops at its starting position and the drive is unlocked. • Door wings can be rotated manually. • Bookfold: wings can be folded to the side.

18.1.6 Low energy speed definition - ANSI/BHMA A156.27.

Door speed resulting in a maximum of 2.5 lbf-ft [3.4 Nm] of kinetic energy.

18.1.7 Knowing act,

Consciously activating a switch with the knowledge of what will happen such as starting, slowing or stopping a revolving door. Switching devices may include wall or jamb-mounted contact switches such as push plates, fixed contact switches and controlled access devices such as keypads, card readers, and key switches.

18.1.8 Manual locking devices.

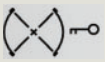
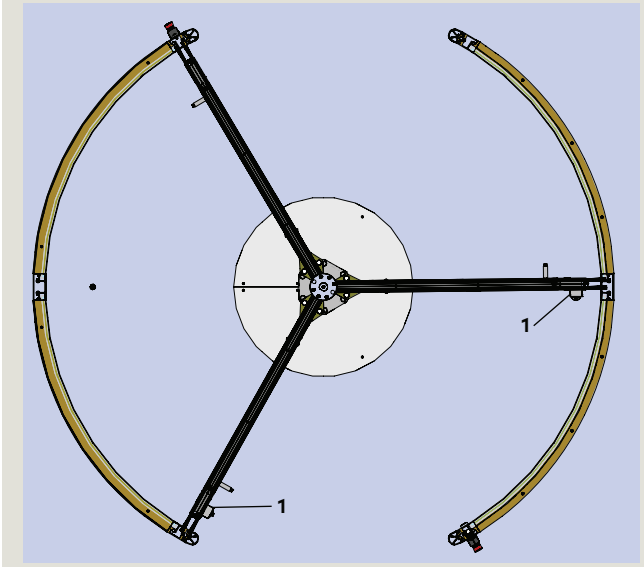
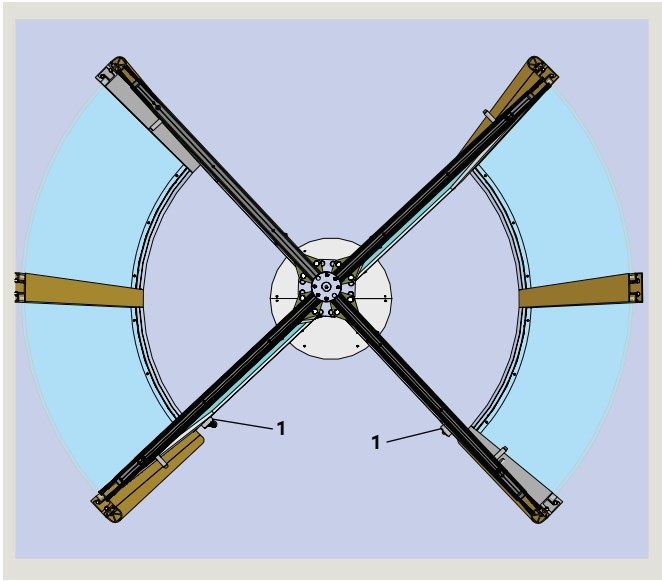
Check locking devices.		
Step	Action	Result
1.	Set Mode switch to Off.	
2.	Door is at home position or returns to home position.	
3.	Lock wing using wing locking devices, then unlock.	

Fig. 18.1.4 3 Wing mechanical locking devices at Home position



1 Mechanical wing lock

Fig. 18.1.5 4 Wing mechanical locking devices at Home position



1 Mechanical wing lock

19 Install in-ground container covers

19.1 Install outer section container lids

Fig. 19.1.1 Outer section container lid

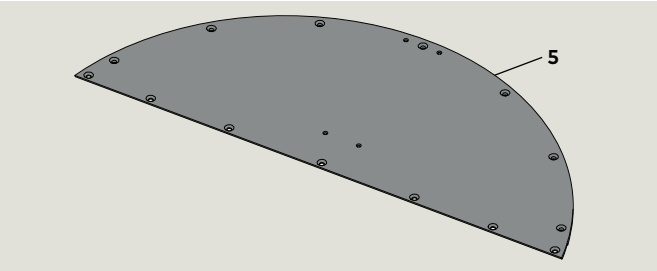


Fig. 19.1.2 Foam rubber seal

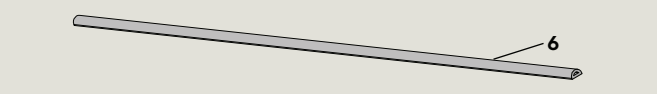


Fig. 19.1.3 Container lid fastener hardware

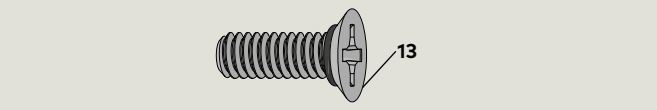


Fig. 19.1.4 Foam rubber seals installed

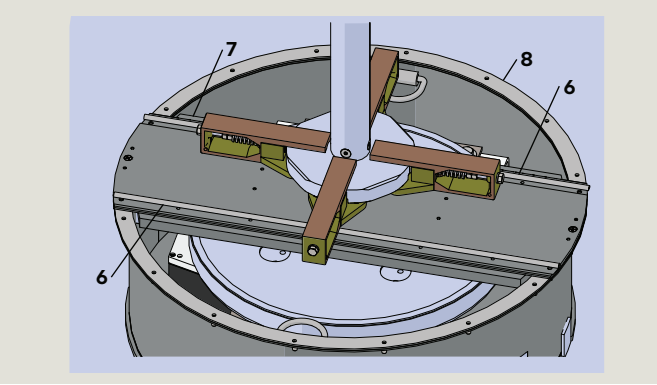


Fig. 19.1.5 Container lids installed

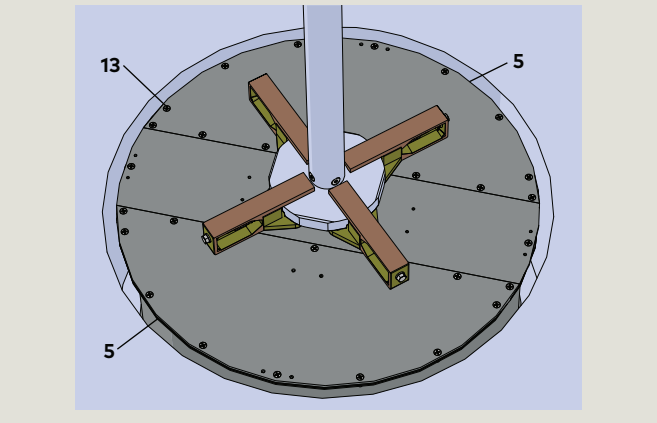


Table 19.1.1 Container lid hardware

5	RS6033	Outer section container lid
6	RC6047	Foam rubber seal, 3/8" wide x 7/32" high with acrylic adhesive backing
7	RC6049	Container lid center section
8	RC6046	Flange gasket
13	RF6025-01G	1/4-20 x 3/4" sealing flat head screw

45.2.1 Install outer section container lids.

WARNING

Mode switch must be in Off position.

WARNING

Press an Emergency Stop pushbutton.

TIPS AND RECOMMENDATIONS

Wings not shown to provide detail on lid fastening.

1. Place foam rubber seal on each side of container lid center section(Fig. 19.1.4).
   - Seal has adhesive backing.
   - Seals must be placed directly against center section container lid flange as shown in Fig. 19.1.6. This will allow proper installation of outer section container lids and installation of flat head screws (13).
2. Install two outer section container lids using fastener hardware in Fig. 19.1.3.

CAUTION

Insure flange gasket (**8**) is intact and holes line up with holes in in-ground container flange.

Fig. 19.1.6 Foam rubber seals installation

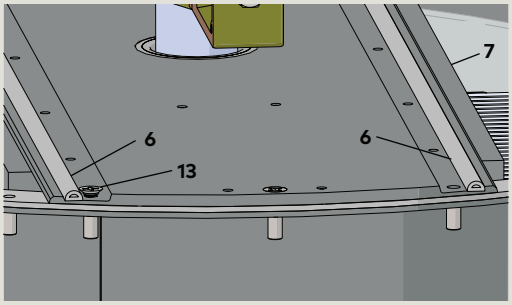
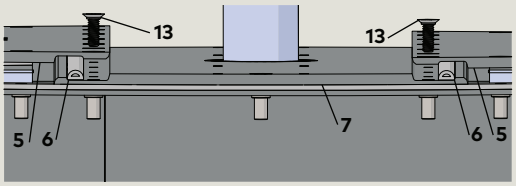


Fig. 19.1.7 Outer container lid installation



19.2 Install floor cover plates

Fig. 19.2.1 Floor cover plate

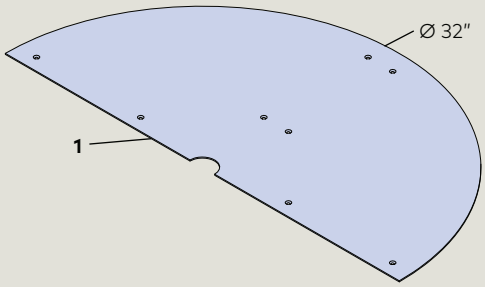


Fig. 19.2.2 Sealing flat head screw

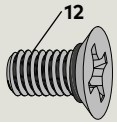


Fig. 19.2.3 Floor cover plate fasteners

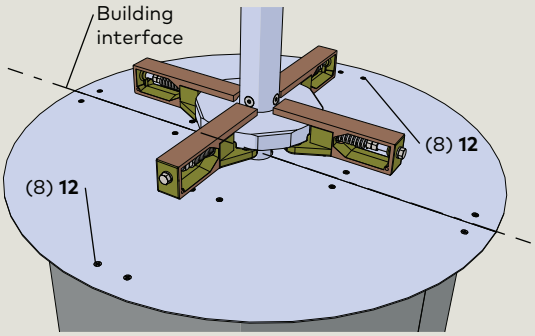


Fig. 19.2.4 Floor cover plates installed

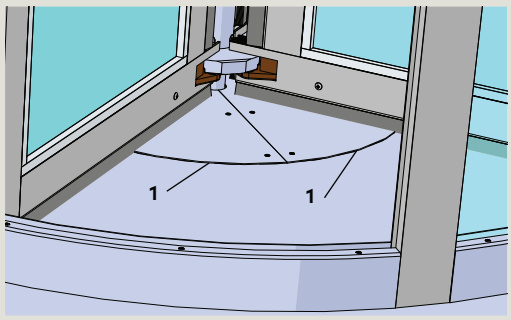


Table 19.2.1 Floor cover plate hardware

1	RC6048	Floor cover plate
12	RF6026-01C	10-32 x 3/8" sealing flat head screw SS

19.2.1 Install in-ground container floor cover plates.

⚠ WARNING

Mode switch must be in Off position.

⚠ WARNING

Press an Emergency Stop pushbutton.

1. Align floor cover plates with building interface.
2. Install two cover plates using fastener in Fig. 19.2.2.
   - Snug, do not overtighten fasteners.

CAUTION

Floor cover plates must be flush with finished floor surface.

Appendix A - Definitions

A.1 Revolving door definitions, from ANSI/BHMA A156.27 appendix

A1.1 **Active area** - An area where sensors detect the presence of motion

A1.2 **Automatic door operator** - A power operated door mechanism that is attached to a revolving door for the purpose of mechanically opening the door upon receipt of an activating signal (also called a power door operator).

A1.3 **Automatic home positioning** - Manual revolving doors with automatic home positioning are small 3 or 4 wing revolving doors that utilize a low energy operator or mechanism to return the doors to the home position once a person exits the door and the door stops rotating.

A1.4 **Automatic door speed** - The rate at which an automatic revolving door rotates measured in revolutions per minute (RPM). The three classifications are:

Standard speed- the maximum allowable RPM for a revolving door.

Slow speed- One half of standard speed.

Low energy speed- Door speed resulting in maximum of 2.5 lbf-ft of kinetic energy.

A1.5 **Bookfold position** - When each wing has been released from its fixed position permitting wings to pivot in the direction of egress

A1.6 **Bottom rail** - The lower horizontal member of the door wing.

A1.7 **Breakout** - A process whereby wings and/or door panels can be pushed open manually for emergency egress.

A1.8 **Canopy**- A he area above the wings and enclosure comprised of a ceiling (soffit), fascia (cladding), and roof (cover).

A1.9 **Center shaft** - The rotating center, 12 inches [305 mm] or less in diameter, of revolving doors to which the wings are attached.

A1.10 **Clearance** - The minimum gap around the wing to the ceiling, enclosure, and floor, not including the weather stripping, at any point in its rotation.

A1.11 **Control** - A unit containing electrical components for automatic control of door operation and overload protection.

A1.12 **Control mat** - A presence sensing device that detects pressure from people or objects to give an activating signal to the automatic revolving door.

A1.13 **Core** - The rotating central portion, greater than 12 inches [305 mm] in diameter of a large diameter revolving door to which the wings are attached.

A1.14 **Enclosure** - The walls in which the wings operate. Also known as Drum.

A1.15 **Entry point sensor** - A presence sensor designed to detect a person in the area between the outer leading edge of the enclosure wall and the approaching outer leading edge of the wing

A1.16 **Fascia** - The vertical surfaces of the canopy.

A1.17 **Home position** - The desired at-rest position for a revolving door. Home position "X" - the (4 wing) stops in the (X) position with all four wings in contact with the entrance wall posts.

Home position "+" - the (4 wing) stops in the (+) position with two wings in contact with the center mullions and two wings in the middle of the throat opening.

Home position "Y" - the (3 wing) stops in the (Y) position with two wings in contact with the entrance wall posts and one wing in contact with the wall center mullion.

A1.18 **Knowing act** - Consciously activating a switch with the knowledge of what will happen such as starting, slowing or stopping a revolving door. Switching devices may include wall or jamb-mounted contact switches such as push plates, fixed contact switches and controlled access devices such as keypads, card readers, and key switches.

A1.19 **Manual operation** - The capability of rotating the revolving door by a person applying a force to a door wing.

A1.20 **Manual speed control** - A device used to regulate manual revolving door speed by making it difficult to push the door beyond the maximum allowed RPM.

A1.21 **Motion sensor** - A sensor designed to detect the movement of a person or equivalent a the point of entry to the door that gives an activating signal to the power operated door.

A1.22 **Obstruction force** - The maximum static force the door is allowed to apply to a person or object measured at the outside edge of the rotating wing.

A1.23 **Power operated door** - A revolving door with a power operated mechanism that is attached to it for the purpose of mechanically opening the door upon receipt of an activating signal (also called Automatic Door).

A1.24 **Peripheral speed** - The rotating speed of a revolving door measured at the outer edge of the wing.

A1.25 **Presence sensor** - A sensor designed to detect the presence of a stationary person in the vicinity of the doorway and give a signal to the power operated door.

A1.26 **Push bar** - A bar attached to the wing upon which pressure is applied to set a manual revolving door in motion. A push bar is not required on automatic doors.

A1.27 **Push to slow device** - A knowing act switch used to create an activating signal to cause reduction of speed of the revolving door.

A1.28 **Safety glass** - Comprised of either fully tempered or laminated glass or other safety rated glazing to prevent injuries from breakage.

A1.29 **Sensor** - A device that detects motion or presence of a person or object.

A1.30 **Small vehicular** - Carts used to transport persons or objects.

A1.31 **Stile** - A vertical edge member of the door wing.

A1.32 **Throat opening** - The width between the enclosure side walls that creates the entry point.

A1.33 **Trained traffic** - People trained in the safe use and operation of a particular automatic door installation.

A1.34 **Weather stripping** - The material used to fill a clearance.

2.35 **Wing** - A panel which rotates within and seals the enclosure. (Sometimes called a Leaf).

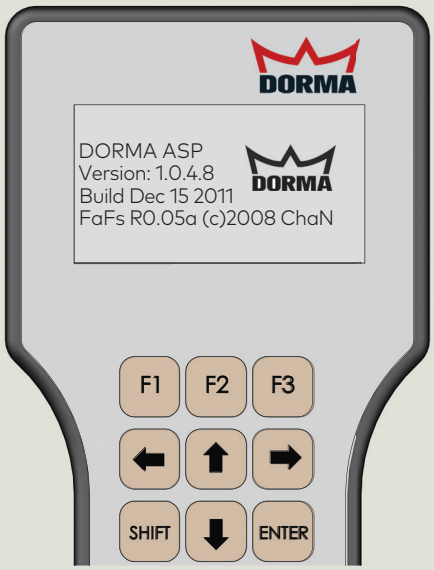
Appendix B - dormakaba handheld

B.1 Firmware update

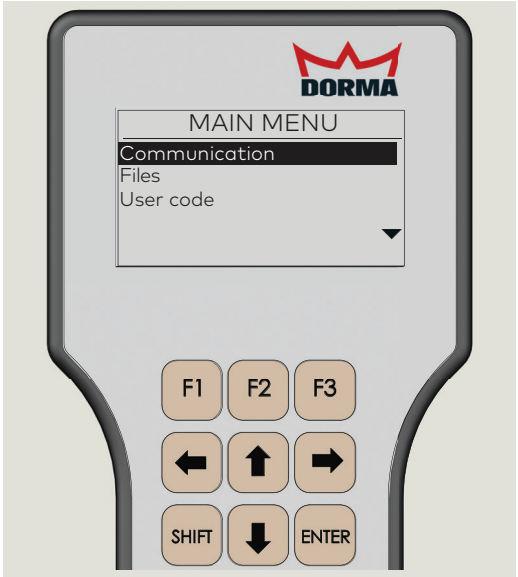
B.1.1 Firmware update procedure.

CAUTION

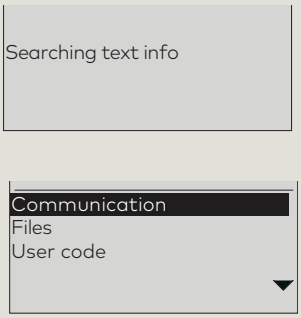
For all firmware changes, set program switch to Position 1 (OFF) and allow door to close completely before any updates are made!



1. Connect Handheld to COM 1 port (Para. 18.1) and power on.

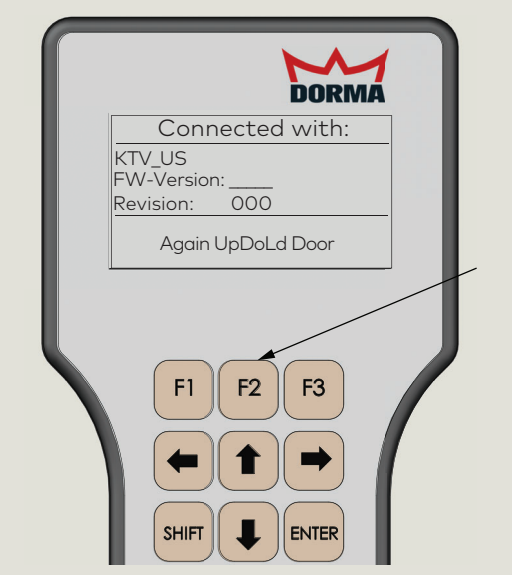


2. With Communication highlighted, press ENTER.

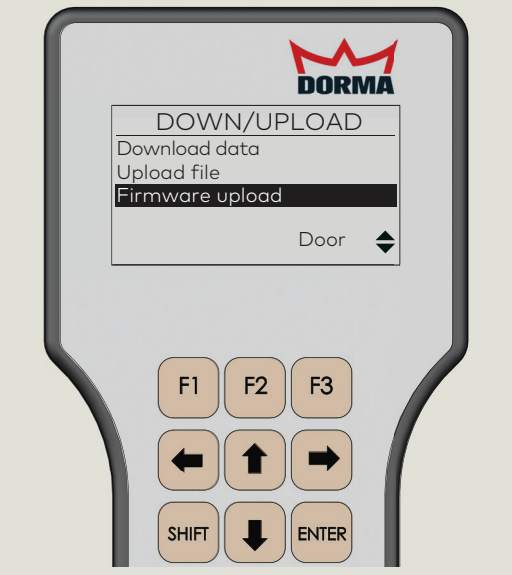


- Handheld will boot up and display main menu.

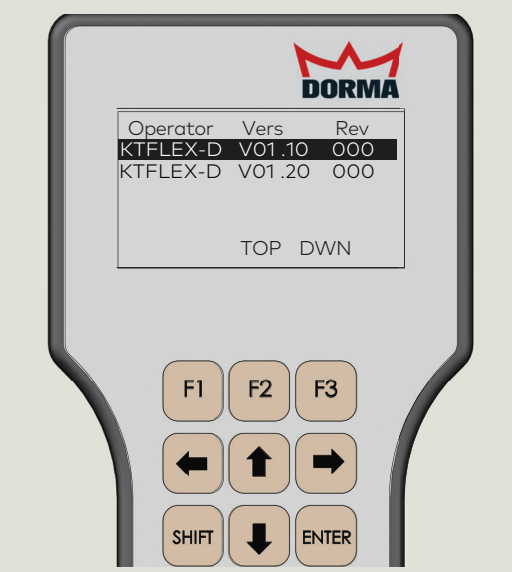
3. Enter Handheld user code; press ENTER.
- Default user code: 123456.



4. Press F2 to select UpDoLd.

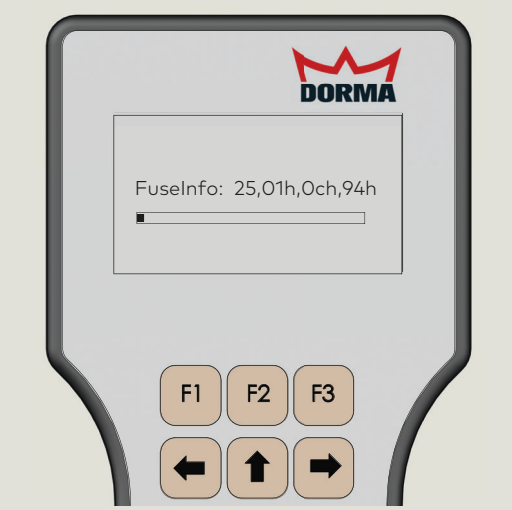


5. Using Down arrow, scroll down to highlight Firmware upload and press ENTER.

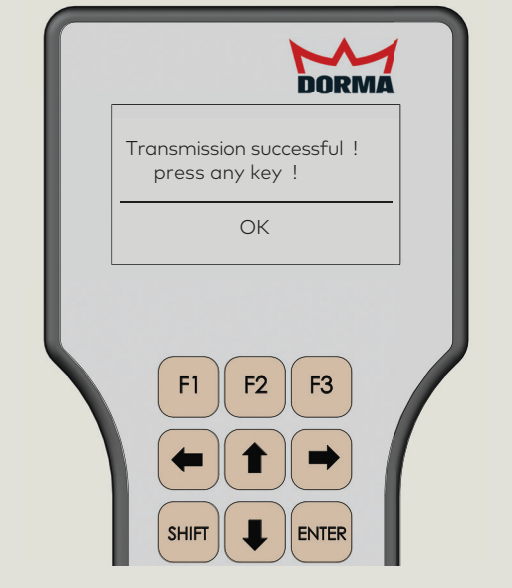


6. Using Up and Down arrows, highlight firmware version and press ENTER.

7. Press any key to start firmware upload.



8. Firmware uploading to controller.



9. Press any key to complete firmware update.

B.2 dormakaba handheld; access parameters

B2.1 Connect handheld to control unit.

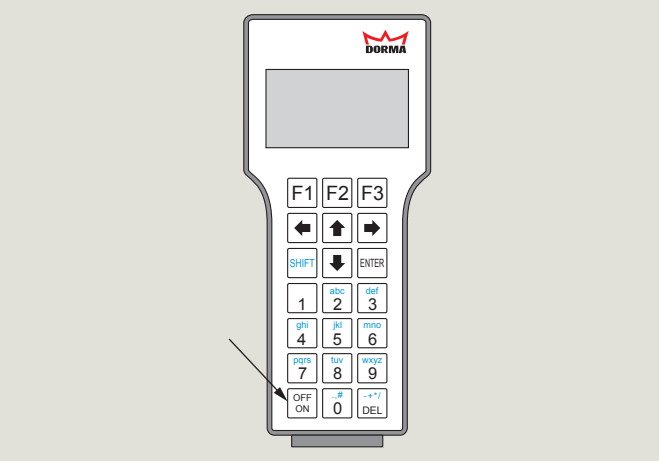
Connect dormakaba handheld interface cable DX4604-020 (Para. 14.6) to handheld plug connection on Motion Assist 360 control unit.

CAUTION

Never use conventional network cable with RJ45 plugs! Risk of permanent damage to the connected Motion Assist 360 control unit.

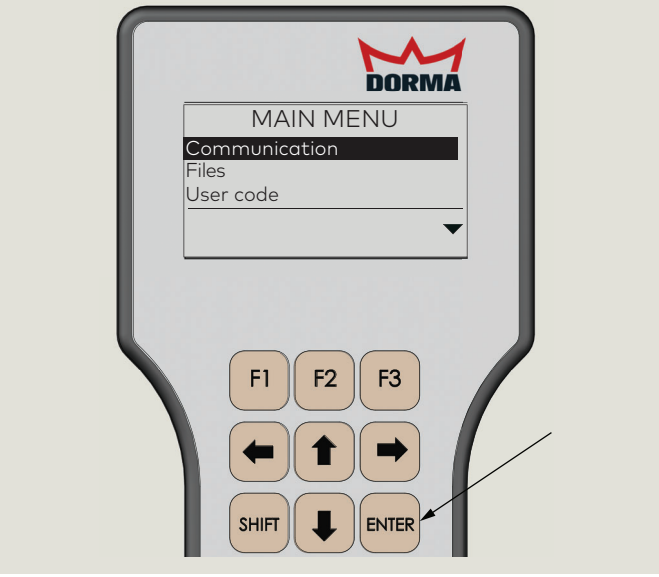
B2.2 Instructions to access parameters.

1. Press handheld OFF ON key to turn handheld ON.

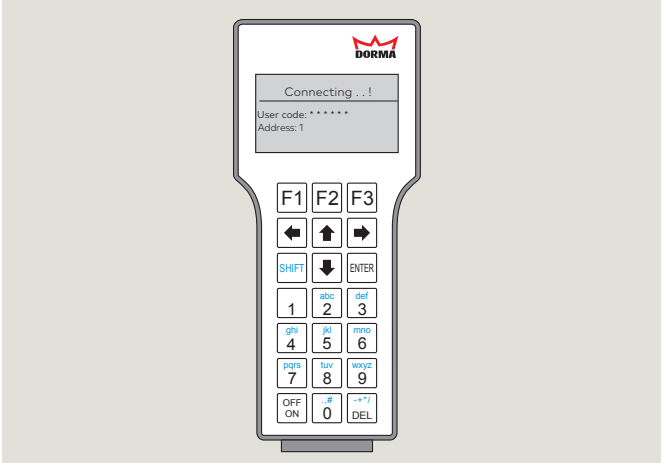


2. Handheld will boot up and display Main Menu.

3 Press ENTER to select Communication.

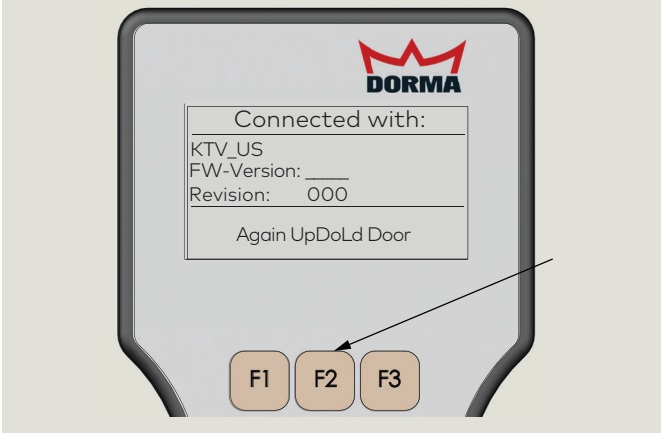


4. Enter User code (dormakaba original setting: 123456). Press ENTER..



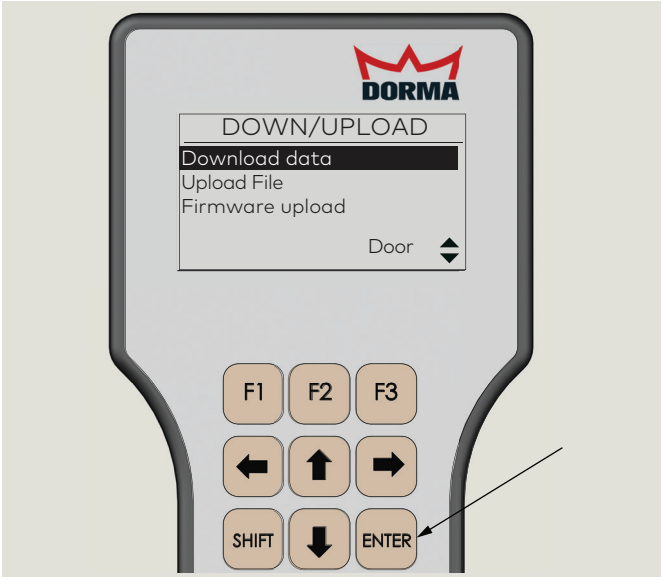
5. Handheld displays door type and current software version of the connected door.

6. Press F2 to select UpDoLd menu.



7. Down/Upload menu is displayed.

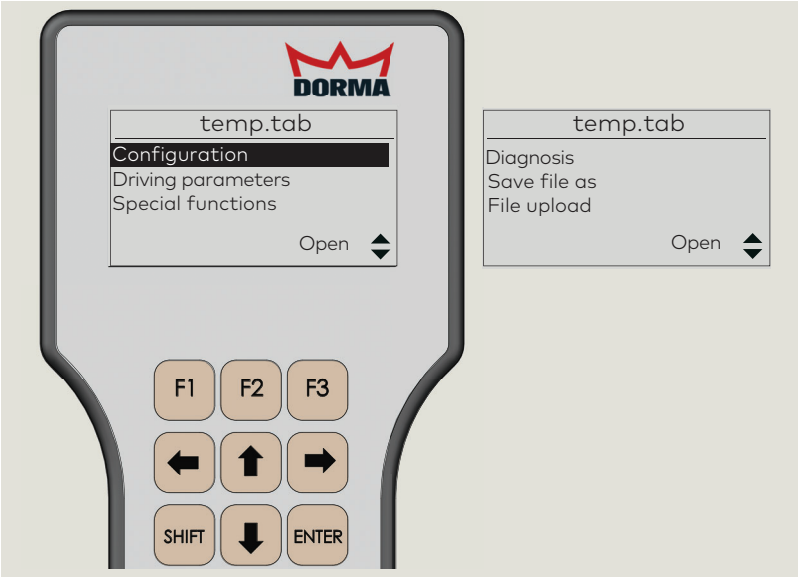
8 Press ENTER to select Download data.



9. Current adjustments and parameters are downloaded.

10. System stores this data as a temporary file under the file name "temp.tab".

- Every change in configuration and driving parameters or special functions that is made and confirmed with the ENTER key automatically uploads to the KT Flex control unit.
- The handheld does NOT automatically save the changes.
- Therefore, the handheld will prompt you to save changes when exiting the menu.
- Press left arrow.



B2.3 Editing parameter values.

1. Certain parameter value changes can only be made in a specified range.

- If a value is entered outside of this range, the handheld will display "control unit limits value"!
- Incorrect adjustments are not uploaded to the control unit.

B.3 dormakaba handheld configuration parameters

NOTICE

Parameters and detail may change depending on firmware version.

B3.1 Configuration parameters

#	Parameter	Description	Setting
1	# wings	Number of door wings.	(3 .. 4) **3**
2	Door diameter	Indicates diameter of door [mm]	1600 .. 3800 **2500**
5	Night bank operation	Activates or deactivates Night bank function.	**no** yes
12	Vand.brake X-pos.	Activates or deactivates anti-vandalism brake in X-position (X-pos.).	**off** on

B.4 dormakaba handheld driving parameters

B4.1 Driving parameters

#	Parameter	Description	Setting
3	#start. pos Auto1-2	Indicates number of starting positions in AUTOMATIC mode 1 or 2.	(1 .. 18) **4**
9	#start. pos NB	Number of starting positions (start. pos) while Night bank operation is On.	(2 . . 18) **5**
7	Slow Stop canopy	Indicates slow stop time for canopy integrated sensors	(0.0 . . 15.9) s **0.5**
6	Slow Stop wing	Indicates slow stop time for wing sensors	(0.0 . . 15) s **10**
13	Hold after stop	Time until the door starts after a safety stop.	(0 . . 9.9) s **1.0**
11	Sec. area stop	Indicates monitoring range of canopy integrated sensor for Slow Stop function.	(400 . . 6999) mm **800** (15.7 . . 276) " **32**
8	Wait after stop	Time the system moves at positioning speed after leaving stationary position following a safety stop.	(0.0 . . 2.9) s **0.5**
14	Status relay	Status relay function 0 No function 1 Door in walking speed 2 Door in positioning speed 3 Door in handicapped spd 4 Door locked 5 Error 6 Power supply monitoring 7 UPS low	(0 . . 7) **0**

#	Parameter	Description	Setting
50	Positioning speed		(150 . . 300) mm/s **250** (5.9 . . 11.8)"/s 9.8
51	Handi-capped speed	Speed when disability access pushbutton engaged.	(250 . . 400) mm/s **300** (9.8 . . 15.7)"/s 11.8
53	Acceleration ramp	1 = slow acceleration 9 = fast acceleration	(1 . . 9) **5**
54	Brake ramp normal	1 = slow brake 9 = fast brake	(1 . . 9) **5**
55	Brake ramp hard	1 = slow brake 9 = fast brake	(1 . . 9) **5**
56	Minimum speed for speed limiter		(350 . . 2500) mm/s **750** (9.8 . . 39.3)"/s 29.5
57	Counter-force for speed limiter	0 = no brake 1 = soft brake 9 = hard brake	**5**
58	Holding force in basic position	Maximum holding force on outer door leaf edge (0 . . . 9) N (0 . . . 2) lb f	**A: 9** **S/P: 3**

B.5 dormakaba handheld special functions

B5.1 Special functions

#		Description	Setting
100	Air curtain delay	Adjustment of follow up time for warm air curtain.	(0 . . 600) s **10**
101	Delay time lighting / manual	0 = light always on 1 -60 = automatic delay time	(0 . . 60) s **15**
	Speed limiter	0 = deactivated 1 = activated	
116	UPS unit connected	0 = not connected 1 = connected	**0**
103	Original settings r/o	Press "ENTER" to reset all parameters to original settings.	Command >
	Learning cycle r/o	Press ENTER to start learning cycle.	Command >
	Acknowledgment r/o	Press ENTER to acknowledge errors.	Command >
	Lock r/o	Press ENTER to lock the door.	Command >
	Unlock r/o	Press ENTER to unlock the door.	Command >
	Wing sens. act.	Activation of slow stop sensor at door wing.	**no** yes
	Door closer mode	Manual operation	**off** on
	Key lock	Enables/disables the keypad	**off** on
	Bridge door wing sensor	Only for service work!	**no** yes
	Bridge canopy sensor inside	Only for service work!	**no** yes
	Switch key lock on/off		**off** on

B.6 dormakaba handheld diagnostics

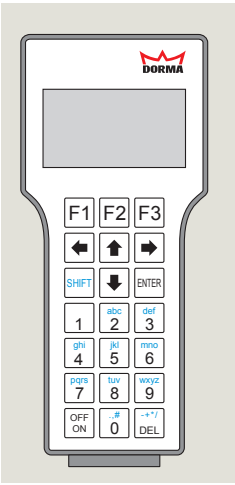
B6.1 Diagnostics

#		Description	Setting
250	Software version r/o	Indicates current version of the control unit. xx.yy (e.g., 01.00 - version 1.00)	xx.yy
150	Current error r/o	Display of current error status. (0 = no error)	(. .)
151	Cur. revolutions r/o	Displays number of revolutions at current error (fifth position is rounded off).	(. .)
152 168	Error log 1 to Error log 9	This log stores errors that have occurred in the past. 0 = no error	(. .)
153 169	Revolutions log 1 to Revolutions log 9	Revolutions during former error 1 (fifth digit is rounded off).	(. .)
	Delete error log	Delete the value stored in the fault. Set to 1 clears the memory, then set to 0.	
171	Service reset	Press ENTER to reset error log and maintenance parameters (current revolutions, anti-vandalism brake, wind brake activations).	Command >
172	# stop events r/o	Stop events caused by a safety stop.	
173	# Shock stop r/o	Number of brake events caused by shock stop unit.	(. .)
175	# revolutions r/o		
	Last maintenance	Last maintenance date (month and year, e.g., 1110=November 2010)	mmyy
	Door diameter	Indicates door diameter.	(. .) mm
	Door position r/o	Indicates current door position.	(0 . . 360)˚
	Door speed r/o	Indicates current door speed.	(. .)* 0.1 ˚/s
	Locked r/o	Is the door locked?	no yes
	Unlocked r/o	Is the door unlocked?	no yes
	SCS r/o	Indicates status of safety contact strips.	activated OK (= deactivated)
	Int. motion det. r/o	Indicates status of internal motion detector (inside).	OK (=deactivated) activated
	Ext. motion det. r/o	Indicates status of internal motion detector (inside).	OK (=deactivated) activated
	Ext. CS Slow r/o	Indicates status of external canopy sensor (CS) for Slow Stop.	activated OK (=deactivated)
	Int. CS Slow r/o	Indicates status of internal canopy sensor (CS) for Slow Stop.	activated OK (=deactivated)
	CS outside stop r/o	Indicates status of canopy sensor (CS) for Slow Stop (outside).	activated OK (=deactivated)
	CS inside stop r/o	Indicates status of canopy sensor (CS) for Slow Stop (inside).	activated OK (=deactivated)
	Wing sensor r/o	Indicates status of wing sensor.	activated OK (=deactivated)
	X pos. sensor R/o	Indicates status of X position sensor.	activated OK (=deactivated)
	Lock.pos.sensor	Indicates status of locking position sensor.	OK (=deactivated) activated

	Emergency Stop r/o	Indicates status of Emergency Stop pushbutton.	activated OK (= deactivated)
	Disabled pusb. r/o	Indicates status of disabled access pushbutton.	OK (=deactivated) activated
	OFF r/o	Indicates input status of program switch while set to OFF mode.	deactivated activated
	AUTOMATIC 1 r/o	Indicates input status of program switch while set to AUTOMATIC 1 mode.	deactivated activated
	AUTOMATIC 2 r/o	Indicates input status of program switch while set to AUTOMATIC 2 mode.	deactivated activated
	Summer config. r/o	Indicates input status of program switch while set to SUMMER mode.	deactivated activated
298	DCW reset r/o	Press ENTER to initialize DCW bus. System checks how many DCW components are cpnnected	Command >
	DCW list r/o	Indicates number of logged in DCW bus components.	(. .)

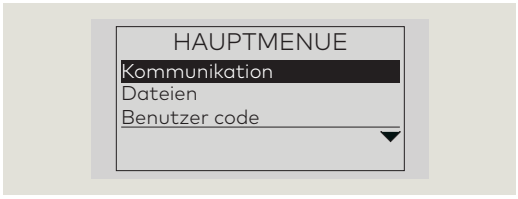
B.7 New dormakaba handheld; language change to English

Fig. B7.1.1
dormakaba handheld

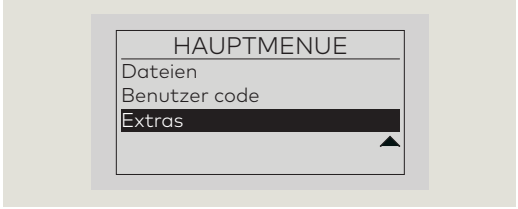


B7.1.1 New dormakaba handheld; language change.

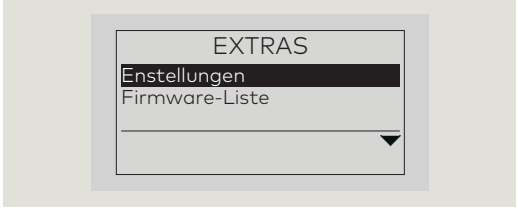
If German language is displayed on screen when handheld is first turned on use following steps to change to English.



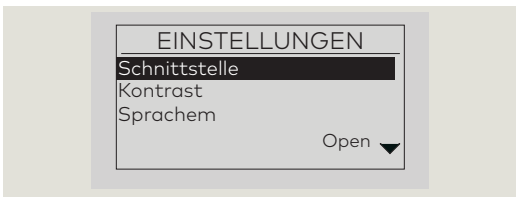
1. Scroll down Main Menu to EXTRAS:
- Press [↓] 3 times to highlight EXTRA.



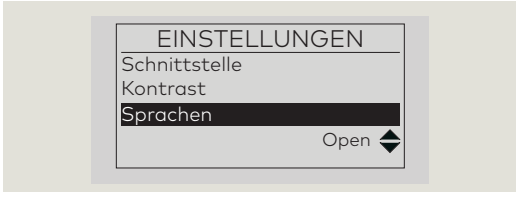
2. Press [ENTER] to select EXTRAS menu.



3. Press [ENTER] to select EINSTELLUNGEN (Settings) menu.

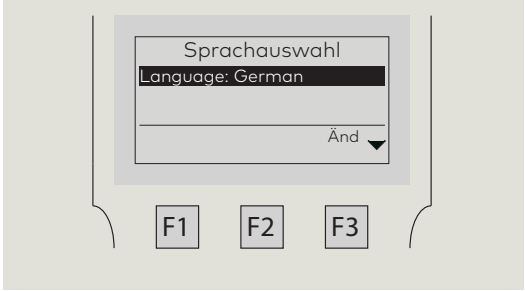


4. Scroll down EINSTELLUNGEN Menu to Sprachen (Languages):
- Press [↓] twice to highlight Sprachen.



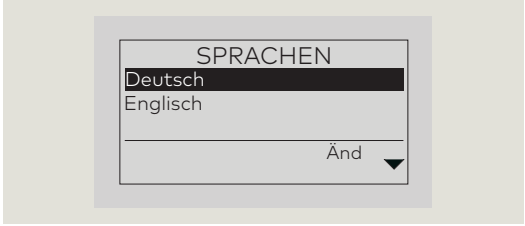
5. Press [ENTER] to select Sprachen.

6. Sprachauswahl (Language selection) menu is displayed.

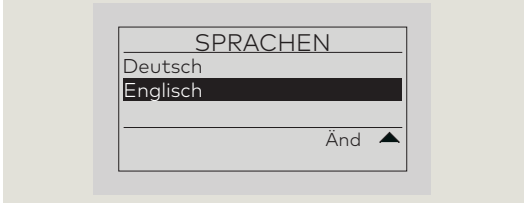


7. Press [F3] to select Änd (Amendments).

8. Sprachen(Languages) menu is displayed

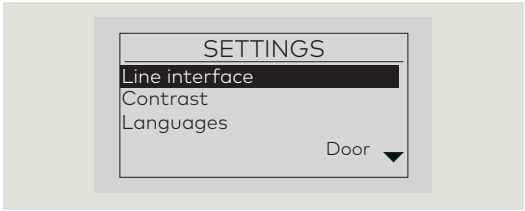


9. Scroll down SPRACHEN menu to Englisch: Press [↓] once to highlight "Englisch"



10. Press [ENTER] to select Englisch.

11. Settings menu is displayed



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".

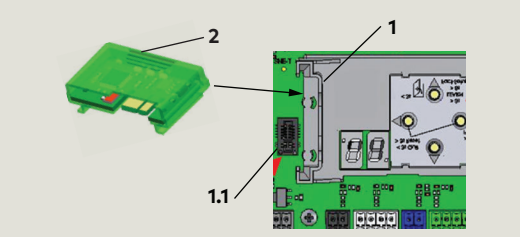
Appendix C - Function modules

C.1 Function modules

C.1.1 Function module installation.

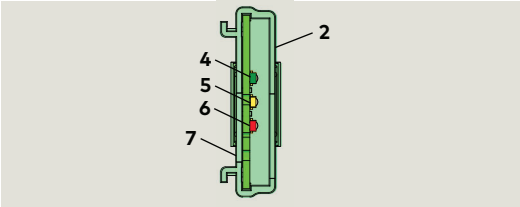
Motion Assist 360 drive can be configured for different modes of operation using function modules.
When a function module is installed, information is exchanged between and permanently allocated to both the Control unit and the function module.

Fig. C.1.1 Function module and slot



1 Function module slot
1.1 Function module socket
2 "S" function module (GRN) RX6003-002 Power assist

Fig. C.1.2 Status LEDs



2 "S" module (GRN) RX6003-002
4 Green LED
5 Yellow LED
6 Red LED
7 Function module

C.2 Container module

C.2.1 Container module

- The first function module installed becomes the container module.
- Every control unit has only one function module.

C.2.2 Function module removal.

- If the function module is removed, all previously enabled functions will be deactivated **after a certain time.**

C.2.3 Control unit replacement

- If the control unit is replaced, the container module is removed from the old Control unit and inserted into the new Control unit.
- The new control unit synchronizes with the container module and all upgrade card functions are available.

C.2.4 Inserting a function module that has already been activated

- Rapidly flashing yellow LED on upgrade card indicates card is rejected.
- Card's functions in Control unit are still valid.

C.2.5 Inserting a container module from third party control unit.

- Rapidly flashing yellow and green LEDs on container module indicates module is rejected.
- Container module can only be synchronized with one control unit.

C.3 Installing function module

C.3.1 Set Mode switch to Position 0 "Off".

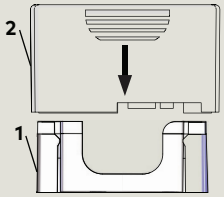
Set Mode switch to Position 0, OFF

1 2 digit display with horizontal bars

2 digit display horizontal bars indicate Control unit in stand by mode.

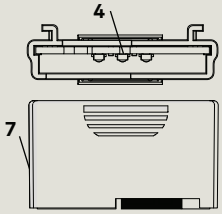
C.3.2 Installing function module.

1 Function module slot
2 Function module



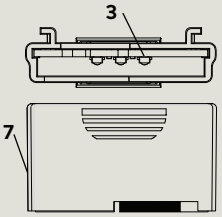
1. Insert function module into module slot.
2. This module will become the container module.

4 Yellow LED
7 Container module



3. Yellow LED flashes on and off once during module insertion.

3 Green LED
7 Container module



4. Green LED slowly flashes on and off indicating communication between module and Control unit.
5. Function module becomes container module, green LED continues to slowly flash on and off. Module functions are now available.

dormakaba
DORMA USA, Inc.
1 Dorma Drive, Drawer AC
Reamstown, PA 17567
USA
T: 717-336-3881
F: 717-336-2106