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2 What is the Sematic Drive System®? 8 2.1 Speed profile 9 2.2 Default profiles (Param. Code 33) 10 3 General Features 11 3.1 Technical information Sematic Drive System® (DC-PWM) 11 3.2 Sematic Drive System® Door Controller (DC-PWM) 11 3.2 Sematic Drive System® (DC-PWM) connections 12 4.1 Stepals to/from the door controller. 12 4.2 Detector/Photocell/Barriers: Signal-Only Connection to the Door Controller (Direct Connection) 16 4.3 Detector/Photocell/Barriers: Complete Connection to the Door Controller. 17 5 Instruction without handset. 18 5.1 Automatic Mode "AUTO" 18 5.3 Programming Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.6 Controller setting for SDS DC-PWM 22 6.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system force setting (Param. Code 00) 24 6.3.3 Instructional entorule Test (when moving) [default setting] 24 <th>1</th> <th>Preface .</th> <th></th> <th> 7</th>	1	Preface .		7			
2.1 Speed profile 9 2.2 Default profiles (Param. Code 33) 10 3 General Features 11 3.1 Technical information Sematic Drive System® (DC-PWM) 11 3.2 Sematic Drive System® Door Controller (DC-PWM) 11 3.2 Sematic Drive System® Door Controller (DC-PWM) 11 3.2 Sematic Drive System® (DC-PWM) connections 12 4.1 Sematic Drive System® (DC-PWM) connection to the Door Controller (Direct Connection) 16 4.2 Detector/Photocell/Barriers: Complete Connection to the Door Controller 16 4.3 Detector/Photocell/Barriers: Complete Connection to the Door Controller 17 5.1 Nationatio Mode "AUTO" 18 5.2 Manual Mode "MAN" 18 5.3 Programming Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.4 Verify the correct working of the controller SDS 19 5.6 Controller setting for SDS DC-PWM 22 6.1.1 Reversing system offree 24 6.1.2 Reversing system offree 24 6.3.3 </td <td>2</td> <td colspan="5">What is the Sematic Drive System[©]?</td>	2	What is the Sematic Drive System [©] ?					
22 Default profiles (Param. Code 33) 10 3 General Features 11 31 Technical information Sematic Drive System* (DC-PWM) 11 32 Sematic Drive System* Door Controller (DC-PWM) 11 34 Signals to/from the door controller 12 45 Signals to/from the door controller 12 46 Detector/Photocell/Barriers: Signal-Only Connection to the Door Controller (Direct Connection) 16 47 Detector/Photocell/Barriers: Complete Connection to the Door Controller 16 48 Complete connection from Detector Memco E series to the door controller 17 59 Instruction without handset 18 51 Automatic Mode "AUTO" 18 52 Manual Mode "ANN" 18 53 Programming Mode "PROC" 19 54 Verify the correct working of the controller SDS 19 55 RESET SPEED PROFILE PROCEDURE 19 56 Controller setting for SDS DC-PWM 22 61.1 Reversing system ofice setting (Param. Code 00) 24 61.2 Reversing system ofice feature Code 01) 24 <	2.1	Speed profile					
3 General Features 11 3.1 Technical information Sematic Drive System® (DC-PWM) 11 3.2 Sematic Drive System® Door Controller (DC-PWM) 11 4 Signals to/from the door controller (DC-PWM) connections 12 4.1 Sematic Drive System® (DC-PWM) connection to the Door Controller (Direct Connection) 16 4.2 Detector/Photocell/Barriers: Signal-Only Connection to the Door Controller (Direct Connection) 16 4.3 Detector/Photocell/Barriers: Complete Connection to the Door Controller 16 4.4 Complete connection from Detector Memco E series to the door controller 17 5 Instruction without handset. 18 6.1 Automatic Mode "AUTO" 18 7.4 Verify the correct working of the controller SDS 19 7.5 FREST SPEED PROFILE PROCEDURE 19 7.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system force: Internal or External (Param. Code 00) 24 6.3.1 Main Lift Controller Test (when moving) [default setting] <	2.2	Defa	ult profiles (Param. Code 33)	10			
3.1 Technical information Sematic Drive System® (DC-PWM) 11 3.2 Sematic Drive System® Door Controller (DC-PWM) 11 4 Signals to/from the door controller (DC-PWM) connections 12 4.1 Sematic Drive System® (DC-PWM) connections to the Door Controller (Direct Connection) 16 4.2 Detector/Photocell/Barriers: Signal-Only Connection to the Door Controller (Direct Connection) 16 4.3 Detector/Photocell/Barriers: Complete Connection to the Door Controller 16 4.4 Complete connection from Detector Memco E series to the door controller 17 5.1 Instruction without handset 18 5.2 Manual Mode "AUTO" 18 5.3 Programming Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.5 RESET SPEED PROFILE PROCEDURE 19 5.6 Controller setting for SDS DC-PVM 22 6 Functions available 24 6.1.1 Reversing system force: Internal or External (Param. Code 09) 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.3.1 Instint Stop 25	3	General	Features	. 11			
3.2 Sematic Drive System* Door Controller (DC-PWM) 11 4 Signals to/from the door controller 12 4.1 Sematic Drive System* (DC-PWM) connections 12 4.2 Detector/Photocell/Barriers: Signal-OhJ Connection to the Door Controller (Direct Connection) 16 4.3 Detector/Photocell/Barriers: Complete Connection to the Door Controller 17 4.4 Complete connection from Detector Memco E series to the door controller 17 5.1 Instruction without handset. 18 5.1 Automatic Mode "AUTO" 18 5.2 Manual Mode "AUTO" 18 5.3 Programming Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.4 Verify the correct working of the controller SDS 19 5.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing System offset 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + park	3.1	Tech	nical information Sematic Drive System® (DC-PWM)	11			
4 Signals to/from the door controller 12 4.1 Sematic Drive System* (DC-PWM) connections 12 4.2 Detector/Photocell/Barriers: Signal-Only Connection to the Door Controller (Direct Connection) 16 4.3 Detector/Photocell/Barriers: Complete Connection to the Door Controller 16 4.4 Complete connection from Detector Memco E series to the door controller 17 5 Instruction without handset. 18 5.1 Automatic Mode "AUTO" 18 5.2 Manual Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.4 Verify the correct working of the controller SDS 19 5.4 Verify the correct working of SDS DC-PWM 22 6 Functions available 24 6.1.1 Reversing 24 6.1.2 Reversing system force setting (Param. Code 09) 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving) [default setting] 24 6.3.3.1 Instart Stop 25 6.3.3.1 List Stop 25 6.	3.2	Sem	atic Drive System® Door Controller (DC-PWM)	11			
4.1 Sematic Drive System® (DC-PWM) connections 12 4.2 Detector/Photocell/Barriers: Signal-Only Connection to the Door Controller (Direct Connection) 16 4.3 Detector/Photocell/Barriers: Complete Connection to the Door Controller 16 4.4 Complete connection from Detector Memco E series to the door controller 17 5 Instruction without handset 18 5.1 Automatic Mode "AUTO" 18 5.2 Manual Mode "MAN" 18 5.3 Programming Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.5 RESET SPEED PROFILE PROCEDURE 19 5.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.3.1 Main Lift Controller Test (Param. Code 01) 24 6.3.3 No MLC Signal (Param. Code 01) 24 6.3.3.1 Instant Stop 25 6.3.3.1 Instant Stop 25 6.3.3.1 Low Speed Cycle 25	4	Signals t	o/from the door controller	. 12			
4.2 Detector/Photocell/Barriers: Signal-Only Connection to the Door Controller (Direct Connection). 16 4.3 Detector/Photocell/Barriers: Complete Connection to the Door Controller 16 4.4 Complete connection from Detector Memco E series to the door controller 17 5 Instruction without handset. 18 5.1 Automatic Mode "AUTO" 18 5.2 Manual Mode "MAN" 18 5.3 Programming Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.4 Verify the correct working of the controller SDS 19 5.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3.1 Instant Stop 25 6.3.3.1 1nstant Stop 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop <td< td=""><td>4.1</td><td>Sem</td><td>atic Drive System® (DC-PWM) connections</td><td>12</td></td<>	4.1	Sem	atic Drive System® (DC-PWM) connections	12			
4.3 Detector/Photocell/Barriers: Complete Connection to the Door Controller 16 4.4 Complete connection from Detector Memco E series to the door controller 17 5 Instruction without handset. 18 5.1 Automatic Mode "AUTO" 18 5.2 Manual Mode "PAOG" 19 5.4 Verify the correct working of the controller SDS 19 5.4 Verify the correct working of the controller SDS 19 5.6 RESET SPEED PROFILE PROCEDURE 19 5.6 Controller setting for SDS DC-FWM 22 6 Functions available 24 6.1.1 Reversing 24 6.1.2 Reversing system force setting (Param. Code 09) 24 6.2 Reversing system offset 24 6.3 Main Lift Controller Test (When moving) [default setting] 24 6.3.1 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 01) 24 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed Cycle 25 <	4.2	Dete	ctor/Photocell/Barriers: Signal-Only Connection to the Door Controller (Direct Connection)	16			
4.4 Complete connection from Detector Memco E series to the door controller 17 5 Instruction without handset. 18 5.1 Automatic Mode "AUTO" 18 5.2 Manual Mode "MAN" 18 5.3 Programming Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.5 RESET SPEED PROFILE PROCEDURE 19 5.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1.1 Reversing 24 6.1.2 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.2 Reversing System choice: Internal or External (Param. Code 00) 24 6.3.1 Main Lift Controller Test (When moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving) + parking) 24 6.3.3.1 Instant Stop 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.1 Instant Stop 25 6.3.3.1 Default Para	4.3	Dete	ctor/Photocell/Barriers: Complete Connection to the Door Controller	16			
5 Instruction without handset 18 5.1 Automatic Mode "AUTO" 18 5.2 Manual Mode "MAN" 18 5.3 Programming Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.5 RESET SPEED PROFILE PROCEDURE 19 5.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1.1 Reversing 24 6.1.2 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system choice: Internal or External (Param. Code 00) 24 6.3.1 Main Lift Controller Test (When moving) [default setting] 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed to Stop 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4.1 Default type. 25 6.3.3.1 Instant Stop<	4.4	Com	plete connection from Detector Memco E series to the door controller	17			
5.1 Automatic Mode "AUTO" 18 5.2 Manual Mode "MAN" 18 5.3 Programming Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.5 RESET SPEED PROFILE PROCEDURE 19 5.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1 Reversing 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.2 Reversing system choice: Internal or External (Param. Code 00) 24 6.3 Main Lift Controller Test (Param. Code 01) 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4.1 Default type. 25 6.4.2 Limite	5	Instructi	on without handset	. 18			
5.2 Manual Mode "MAN" 18 5.3 Programming Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.5 RESET SPEED PROFILE PROCEDURE 19 5.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1 Reversing 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.2 Reversing System choice: Internal or External (Param. Code 00) 24 6.3 Main Lift Controller Test (When moving) [default setting] 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving) parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.3 Low Speed to Stop 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4.1 Default type. 25 6.4.2 Limited door reversal. 25 6.4.3	5.1	Auto	matic Mode "AUTO"	18			
5.3 Programming Mode "PROG" 19 5.4 Verify the correct working of the controller SDS 19 5.5 RESET SPEED PROFILE PROCEDURE 19 5.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1 Reversing 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.2 Reversing System offset 24 6.3 Main Lift Controller Test (Param. Code 01) 24 6.3.1 Main Lift Controller Test (When moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4.1 Default type 25 6.4.2 Limited door reversal 25 6.4.3 Safety edge 25 6.5 Car Door Locking Device (USA = Restrictor) (Param.	5.2	Man	ual Mode "MAN"	18			
5.4 Verify the correct working of the controller SDS 19 5.5 RESET SPEED PROFILE PROCEDURE 19 5.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1 Reversing 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.2 Reversing System offset 24 6.3.1 Main Lift Controller Test (Param. Code 09) 24 6.3.1 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed Cycle 25 6.4.4 Min Lift Controller Input Alarm (Param. Code 03) 25 6.4.4 Kn Input (Param. Code 04) 25 6.4.3 Safety edge. 25	5.3	Prog	ramming Mode "PROG"	19			
5.5 RESET SPEED PROFILE PROCEDURE 19 5.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1 Reversing 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.2 Reversing System choice: Internal or External (Param. Code 00) 24 6.3 Main Lift Controller Test (Param. Code 01) 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed Cycle 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type. 25 6.4.2 Limited door reversal. 25 6.4.3 Safety edge. 25 6.4.3 Safety edge. 25 <td>5.4</td> <td>Veri</td> <td>fy the correct working of the controller SDS</td> <td>19</td>	5.4	Veri	fy the correct working of the controller SDS	19			
5.6 Controller setting for SDS DC-PWM 22 6 Functions available 24 6.1 Reversing 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.2 Reversing System choice: Internal or External (Param. Code 00) 24 6.3 Main Lift Controller Test (Param. Code 01) 24 6.3.1 Main Lift Controller Test (When moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed Cycle 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type 25 6.4.2 Limited door reversal 25 6.4.3 Safety edge 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05) 25 6.5 Car Door	5.5	RES	ET SPEED PROFILE PROCEDURE	19			
6 Functions available 24 6.1 Reversing 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.2 Reversing System choice: Internal or External (Param. Code 00) 24 6.3 Main Lift Controller Test (Param. Code 01) 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed Cycle 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type 25 6.4.2 Limited door reversal 25 6.4.3 Safety edge 25 6.4.3 Safety edge 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05) 25 6.5 Car Door Locking Device (USA	5.6	Cont	roller setting for SDS DC-PWM	22			
6.1 Reversing 24 6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.2 Reversing System choice: Internal or External (Param. Code 00) 24 6.3 Main Lift Controller Test (Param. Code 01) 24 6.3 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed Cycle 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type 25 6.4.2 Limited door reversal 25 6.4.3 Safety edge 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05) 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05) 25	6	Function	s available	. 24			
6.1.1 Reversing system force setting (Param. Code 09) 24 6.1.2 Reversing system offset 24 6.2 Reversing System choice: Internal or External (Param. Code 00) 24 6.3 Main Lift Controller Test (Param. Code 01) 24 6.3.1 Main Lift Controller Test (When moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed Cycle 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Min Dift Controller Input Alarm (Param. Code 03) 25 6.4.1 Default type 25 6.4.2 Limited door reversal 25 6.4.3 Safety edge 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05) 25 6.5 Full or formed Clared and Heave Paneled Deard (CLASS AND HEAVY DOORS) (Param Code 06) 25	6.1	Reve	ersing	24			
6.1.2 Reversing system offset 24 6.2 Reversing System choice: Internal or External (Param. Code 00) 24 6.3 Main Lift Controller Test (Param. Code 01) 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed Cycle 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type. 25 6.4.2 Limited door reversal. 25 6.4.3 Safety edge. 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05). 25 6.5 Full or framed Clazed and Heavy Banaled Door (CLASS AND HEAVY DOORS) (Param Code 06) 25		6.1.1	Reversing system force setting (Param. Code 09)	. 24			
6.2 Reversing System choice: Internal or External (Param. Code 00) 24 6.3 Main Lift Controller Test (Param. Code 01) 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed to Stop 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type 25 6.4.2 Limited door reversal 25 6.4.3 Safety edge 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05) 25 6.5 Evil or formed Clored and Heave Pareled Poort (CLASS AND HE AVX DOORS) (Param. Code 06) 25		6.1.2	Reversing system offset	. 24			
6.3 Main Lift Controller Test (Param. Code 01) 24 6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed Cycle 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type 25 6.4.2 Limited door reversal. 25 6.4.3 Safety edge. 25 6.4.3 Safety edge. 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05) 25 6.5 Full or framed Clored and Heavy Panelod Doors (CLASS AND HEAVY DOORS) (Param. Code 06) 25	6.2	Reve	ersing System choice: Internal or External (Param. Code 00)	24			
6.3.1 Main Lift Controller Test (when moving) [default setting] 24 6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed to Stop 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type. 25 6.4.2 Limited door reversal. 25 6.4.3 Safety edge. 25 6.4.3 Safety edge. 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05) 25 6.5 Full or framed Clarad and Heavy Paneled Dearc (CLASS AND HEAVY DOORS) (Param. Code 06) 25	6.3	Maii	n Lift Controller Test (Param. Code 01)	24			
6.3.2 Main Lift Controller Test (when moving + parking) 24 6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed Cycle 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type 25 6.4.2 Limited door reversal 25 6.4.3 Safety edge 25 6.4.3 Safety edge 25 6.4.3 Safety edge 25 6.4.3 Safety edge 25 6.4.4 Safety edge 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05) 25 6.6 Full as framed Clazed and Heavy Paneled Dears (CLASS AND HEAVY DOORS) (Param Code 06) 25		6.3.1	Main Lift Controller Test (when moving) [default setting]	. 24			
6.3.3 No MLC Signal (Param. Code 02) 25 6.3.3.1 Instant Stop 25 6.3.3.2 Low Speed to Stop 25 6.3.3.3 Low Speed Cycle 25 6.3.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type. 25 6.4.2 Limited door reversal. 25 6.4.3 Safety edge. 25 6.4.3 Safety edge. 25 6.4.3 Safety edge. 25 6.4.4 Safety edge. 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05) 25 6.5 Evil or framed Clared and Heavy Papeled Paper (CLASS AND HEAVY DOORS) (Param Code 06) 25		6.3.2	Main Lift Controller Test (when moving + parking)	. 24			
6.3.3.1Instant Stop256.3.3.2Low Speed to Stop256.3.3.3Low Speed Cycle256.3.4Main Lift Controller Input Alarm (Param. Code 03)256.4Kn Input (Param. Code 04)256.4.1Default type256.4.2Limited door reversal256.4.3Safety edge256.5Car Door Locking Device (USA = Restrictor) (Param. Code 05)256.6Full or framed Clarged and Heavy Papeled Deers (CLASS AND HEAVY DOORS) (Param. Code 06)25		6.3.3	No MLC Signal (Param. Code 02)	. 25			
6.3.3.2Low Speed to Stop256.3.3.3Low Speed Cycle256.3.4Main Lift Controller Input Alarm (Param. Code 03)256.4Kn Input (Param. Code 04)256.4.1Default type.256.4.2Limited door reversal.256.4.3Safety edge.256.5Car Door Locking Device (USA = Restrictor) (Param. Code 05)256.6Full or framed Clazed and Heavy Papeled Doorg (CLASS AND HEAVY DOORS) (Param. Code 06)25		6.3.3	.1 Instant Stop	. 25			
6.3.3.3 Low Speed Cycle 25 6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type. 25 6.4.2 Limited door reversal. 25 6.4.3 Safety edge. 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05). 25 6.6 Full or framed Clazed and Heavy Papeled Doors (CLASS AND HEAVY DOORS) (Param Code 06). 25		6.3.3	.2 Low Speed to Stop	. 25			
6.3.4 Main Lift Controller Input Alarm (Param. Code 03) 25 6.4 Kn Input (Param. Code 04) 25 6.4.1 Default type. 25 6.4.2 Limited door reversal. 25 6.4.3 Safety edge. 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05) 25 6.6 Full or framed Clazed and Heavy Papeled Doors (CLASS AND HEAVY DOORS) (Param. Code 06) 25		6.3.3	.3 Low Speed Cycle	. 25			
6.4 Kn Input (Param. Code 04)		0.3.4	Main Lift Controller Input Alarm (Param. Code 03)	. 25			
6.4.1 Default type. 25 6.4.2 Limited door reversal. 25 6.4.3 Safety edge. 25 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05). 25 6.6 Full or framed Clazed and Heavy Papeled Doors (CLASS AND HEAVY DOORS) (Param. Code 06). 25	6.4	Kn li	nput (Param. Code 04)	25			
 6.4.3 Safety edge. 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05). 6.6 Evil or framed Clazed and Heavy Paneled Doors (CLASS AND HEAVY DOORS) (Param. Code 06). 		64.1	Limited door reversal	. 25			
 6.5 Car Door Locking Device (USA = Restrictor) (Param. Code 05)		643	Safety edge	. 25			
6.6 Full or framed Clazed and Heavy Papeled Dears (CLASS AND HEAVY DOORS) (Param Code 06) 25	65	Corl	Source and the second sec	. 25			
	0.0	Car I	or framed Clazed and Heavy Papeled Deers (CLASS AND HEAVY DOODS) (Derem Code (6)	20 25			
6.7 Aux Output Balax (Davam, Cada 07)	0.0	r uil	OF ITALLEU GIAZEU ALLU REAVY FALLELU DOOLS (GLASS AND REAVY DOORS) (PATALLI. COUE 00)	20			
6.7.1 Space Percentage 26	o. <i>1</i>	Aux	Shace Percentage	25 26			



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	6.7.2	Gong While Opening	26		
	6.7.3	Thermic alarm signal	26		
6.8	Forced Closing (Nudging)				
6.9	Fire	Fighting (Param. Code 19)	. 26		
6.10	Dou	ble TB	. 26		
6.11	E.O.	D. (Emergency Opening Device) and timeout (Param. Code 20)	. 27		
6.12	Prot	ective Device Logic Kn (Param. Code 21)	. 27		
6.13	Mot	or Rotation during closing (Param. Code 22)	. 27		
6.14	Mot	or type (param. code 90)	. 27		
6.15	Clos	sing parking mode (Param. Code 25)	. 27		
	6.15.1	Closed skate parking (default)	27		
	6.15.2	Opened skate parking	27		
	6.15.3	PM activation Delay (Default 300 sec.)	27		
	6.15.4	PM Opening space (Default 90 mm)	27		
	6.15.5	PM position error (Default 5 mm)	27		
	6.15.6	PM position control (Default 00)	28		
6.16	Ska	te type (Param. Code 26)	. 28		
6.17	AUΣ	(Input (Param. Code 32)	. 28		
	6.17.1	Disabled (default)	28		
	6.17.2	% Partial Reopening	28		
6.18	IM (reversing motion) signal type (Param. Code 34)	. 29		
	6.10.1	Im puise.	29		
	6 18 3	Im Continuous (default)	29		
6 10	0.10.5	Portions (Derem Code 27)	29		
0.19	6 10 1	Peru Sense Off (Default)	. 29 29		
	6 19 2	Rev. Sense On	29		
7	Trial ope	erations before start up the door controller	31		
7.1	Self	-learning cycle	31		
7.2	Self	-learning cycle with the door controller only (without using the handset)	.31		
8	Instruct	ion with handset	32		
8.1	Han	dset (optional)	32		
8.2	Use	r Handset menus and submenus	33		
83	Self	-learning cycle activation by means of the handset	34		
8.0	Jen rearring cycle activation by means of the her dect 34				
0.4 8.5	2 C Ontion "Depend profile"				
0.0	9.6 Ontion "Advanced Sottings"				
0.0	8 6 1	Ontion "Parameters"	. 34 35		
	8.6.2	Option "MLC Parameters"	36		
	8.6.3	Option "Inputs Parameters"	36		



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	8.6.4	Option "Output Parameters"	36			
	8.6.5	Option "Opening Parameters"	36			
	8.6.6	Option "Closing Parameters"	36			
	8.6.7	Option "Reversing System"	37			
	8.6.8	Option "Change Password"	37			
8.7	Opti	ion "Reserved Area"	37			
9	Door op	erator setup	38			
9.1	Acti	vation of Skate type setting by means of the Handset	38			
9.2	Acti	vation of Motor type by means of the Handset	38			
9.3	Activation of Closing Rotation by means of the Handset					
9.4	Activation of the Car Door Locking Device setting by means of the Handset					
9.5	Activation of the Glazed Panel and Heavy Doors setting by means of the Handset					
9.6	Acti	vation of Speed profile setting by means of the Handset	. 39			
10	Mainten	ance Menu - diagnostics and alarm management	40			
10.1	Con	sulting the Maintenance Menu with the Handset	. 40			
11	Controller software upgrade 41					
12	Door operator maintenance					
13	3 Spare parts 41					



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We care about your integrated solution!

COMPONENT SYSTEMS

- Automatic lift doors
- . Frame and frameless glass doors
- Enhanced car door operator solutions
- Complete cabins
- Car Frames
- Custom integrated packages
- Special lift doors, cabins and car frames

ELEVATOR SYSTEMS & SUBSYSTEMS

- Rope traction elevators
 - Machineroomless roped elevators
- Modular hydraulic elevators
- Hydraulic elevators
- Panoramic elevators Hospital elevators
- Special executions



PREFACE

This manual has been drafted taking into account that the Company installing genuine Sematic products will comply with the following necessary requirements:

- personnel responsible for the installation and/or maintenance of the doors must be familiar with the General and Specific regulations in force on the subjects of work safety and hygiene (89/391/CEE 89/654/CEE 89/656/CEE);
- personnel responsible for the installation and/or maintenance must be familiar with the Sematic product and must have been trained by Sematic or by an authorized Sematic agent;
- installation equipment used must be in good working order with all measuring instruments calibrated (2009/104/EC).

Sematic:

- undertakes to update the present manual and send the customer copies of all new updates together with material;
- within its continuous product improvement policy, reserves the right to make changes to the designs and materials of its products. Sematic will give an agreed reasonable time to all its customers to allow them to adapt to the new changes their complementary current constructions;
- guarantees a good performance only of the original parts sold directly and correctly installed.

Therefore:

parts manufactured and/or added to the Sematic product without having it checked by Sematic, or non-original parts based upon a Sematic design (even if supplied by authorised agents) cannot be considered under guarantee since the following conditions have not been ensured:

- 1. Quality control of raw material supply
- 2. Process control
- 3. Product control
- 4. Conformity tests according to Sematic specifications
- Furthermore, Sematic
 - guarantees the performance life of its products only if correctly stored (indoors storage at temperatures ranging between -10 and +60 °C out of direct sunlight) and correctly installed;
 - guarantees the perfect performance of the products installed in environments with temperatures between -10 and +60 °C and with a non-condensing, relative humidity level inbetween 20% and 80%. (Special note: for temperatures and humidity rates outside these ranges, please consult our Technical Dept.)

The product is compliant with the following EU Directives:

- 98/37/CE Machinery Directive and subsequent modifications (when applicable)
- 2014/33/EU Lifts Directive
- 93/68/CEE Markings
- 90/269/CEE Heavy loads handling
- Noise (Acoustic emission) 86/188/CEE modified according to Directive 98/24/CEE
- Electromagnetic compatibility 2014/30/EU
- Low Voltage Directive 2014/35/EU

and with the following particular standards:

- EN81-20 & 50;
- AS1735;
- EN12015/EN12016;
- ASME A17.1
- UL508C,
- GB 7588 + XG1

The present document has been drafted in accordance with EN13015

Also evaluate in accordance with ANSI/ASME A17.1 -2013-10-21 and A17.5-2014-08-01 Also evaluate in accordance with CAN/CSA B44,and B44.1

Taking into account, during all project planning, the Risk Assessments relating to:

a. RISKS OF MECHANICAL HAZARDS

- Squeezing during operations
- Squeezing after Trapping caused by friction (glass panels)
- Cuts caused by sharp edges, or static sharp pieces
- b. RISKS OF ELECTRICAL HAZARDS
- Persons in contact with energized parts (direct contact)
- Persons in contact with parts that become energized due to a fault (indirect contact)
- c. RISKS OF OVERHEATING
- d. RISKS GENERATED BY NOISE
- e. RISKS GENERATED BY VIBRATION
- f. RISKS GENERATED BY MATERIALS AND SUBSTANCES

2 WHAT IS THE SEMATIC DRIVE SYSTEM[®]?











The System consists of:

• a Car Door Operator (1)

• a microprocessor-based Door Controller (2)

The Sematic Drive System® automatically controls the opening and closing of the lift doors, monitoring the timing, current variations, speeds (high, low, acceleration and deceleration curves), various safety systems (reversing system, Limited Door Reversal etc.) and faults (high voltage, signal failure, ...).

There are two independent speed curve profiles for the opening and closing cycles (3) which can be modified by means of the door controller push buttons or by means of the Sematic handset (an optional 8 digit keypad and display accessory which can be connected to the card by an RJ45 plug).

The handset (4) is a key pad that allows viewing and modification of the function parameters stored in the controller. It is important to use the Sematic handset for installation or maintenance, as it enables viewing and/or variation of the controller parameters, systems, and operation errors.

Furthermore, it is possible to use the Sematic handset directly from the inside of the car (5). Making it possible to monitor and modify the door operating parameters from a completely safe position, and also to control the movement of the coupled car and landing doors during their effective operating cycle.

Note: the pictures on this document are examples only; real components appearances may differ according to supplied configuration of door operator and motor.



2.1 SPEED PROFILE

Opening cycle



Closing cycle



Key

Ка	Door opening		
Кс	Door closing		
La	Open Limit		
Lc Close limit			
	Closing cycle		
	Active reversing system		
	Opening cycle		

Warning: for big size doors (for example total moving mass over 400 Kg) it's advisable not to modify the pre-set closing high-speed factory default, according to EN81 standard (closing kinetic energy limitations).



2.2 DEFAULT PROFILES (PARAM. CODE 33)

This parameter allows to select one of the five default speed profiles (50%= low performance; 100% = standard performance, 150% = high performance). The default speed profile parameter only affect the panels movement

0 -> 50%	3 -> 125%
1 -> 75%	4 -> 150%
2 -> 100%	



3 GENERAL FEATURES

3.1 TECHNICAL INFORMATION SEMATIC DRIVE SYSTEM® (DC-PWM)

MAIN SUPPLY VOLTAGE	90-290 Vac (115 V-20%, 230V+26%), 50-60 Hz
TYPICAL POWER CONSUMPTION	200 VA
PEAK POWER CONSUMPTION	300 VA
MOTOR OVERLOAD PROTECTION	@In <15 minutes @2In <3 minutes
OPERATIONAL TEMPERATURE RANGE	from -10°C to +60°C
HUMIDITY	non-condensing between 20% and 80%
PROTECTION	rapid cartridge fuse [5x20, 4 A, R/C JDYX2] battery fuse [5x20, 8 A, R/C JDYX2]
PERFORMANCE SPEED	separately adjustable for opening and closing
REVERSAL SENSITIVITY	Variable, only operational on door closing cycle

Suitable for use on a circuit capable of delivering not more than 5000 Arms, symmetrical Amperes, 240 V AC maximum

3.2 SEMATIC DRIVE SYSTEM[®] DOOR CONTROLLER (DC-PWM)





- 1. Power ON button
- 2. Power OFF button
- **3.** Display

- 4. Manual mode buttons
- 5. RJ45 Connection port (Handset)
- 6. 6 poles motor and auxiliary EOD battery power supply connector (cod. E066AARX-05)
- 7. RJ45 Connection port (Motor optical Encoder)
- 8. 4 poles detector / photocells connector (cod. E066AARX-06)
- 9. 6 poles Main Lift Controller signals connector (cod. E066AARX-03)
- 10. 6 poles Main Lift Controller signals connector (cod. E066AARX-04)
- 11. 10 poles Main Lift Controller signals connector (cod. E066AARX-07)



SIGNALS TO/FROM THE DOOR CONTROLLER

4.1 SEMATIC DRIVE SYSTEM® (DC-PWM) CONNECTIONS



Adjustable internal motor overload protection:

The Sematic door drive system estimates the motor temperature and it stop any motor movement in case of overtemperature (Alarm 02 active). The function is based on i²T algorithm.



Field wiring tern	ninal marking	in accordance	with UL508A
-------------------	---------------	---------------	-------------

Terminals number	Connection mode	Typer of connections	Wiring conductor type	Wiring temperature rating	Tightening torque	Wire size AWG UL/CUL
6	Tightening screw	24Vcc Battery power supply and Load (Motor power)	Use Copper Conductors Only	Not Required	Max 0,6 Nm Min 0,5Nm	Max 12 Min 30
8	Tightening screw	24Vcc Detector/ Photocell power supply and control circuit	Use Copper Conductors Only	Not Required	Max 0,6 Nm Min 0,5Nm	Max 12 Min 30
7	Plug type	Motor encoder	Use Copper Conductors Only	Not Required	Not Required	Not Required
9	Tightening screw	Control circuit	Use Copper Conductors Only	Not Required	Max 0,6 Nm Min 0,5Nm	Max 14 Min 30
10	Tightening screw		Copper Conductors Only	Not Required	Max 0,6 Nm Min 0,5Nm	Max 12 Min 30
11	Tightening screw			Not Required	Max 0,6 Nm Min 0,5Nm	Max 12 Min 30
12	Plug type (Terminal not separable from the cable)	Main power supply voltage	Flexible cord in agreement with UL category code ZJCZ "Use Copper Conductors Only"	60°C (140°f)	Not Required	Max 14 Min 18

Sematic Drive System® setup incoming/outgoing signals from the door controller



1	= with these motors the complete Sematic Drive System® operator acquires the IP43 protection.
2	Safety chains
3	Main Lift Controller
4	Photocells or Detectors



INCOMING SIGNALS FROM THE DOOR CONTROLLER					
Signal	Connector Pins	Contact type & normal state	Note		
Opening control Ka (coming from the Main Lift Controller)	Connector pins 5-15	These connections require dry (voltage free) contacts (contact open when inactive)	When the Door Controller is installed on a Front & Rear entrance car, it is important that the opening		
Closing control Kc (coming from the Main Lift Controller)	Connector pins 3-15	These connections require dry (voltage free) contacts (contact open when inactive)	and closing commands have no common contacts between the two doors. Shielded, Grounded Wire Highly Recommended		
Forced closing control at low speed Kb	Connector pins 15-22	These connections require dry (voltage free) contacts (contact open when inactive)	The main lift controller may signal the forced closing when the photocell (or similar device) shall be made inoperative due to a failure, or after several door closing failures.		
Re-opening control Kn	Connector pins 15-23	These connections require dry (voltage free) contacts (both logics available)			
Fire-Fighting Contact Kff	Connector pins 15-39	These connections require dry (voltage free) contacts (contact open when inactive)			
Contact K2TB	Connector pins 15-41	These connections require dry (voltage free) contacts (contact open when inactive)	This signal allows the door controller to recognize different door opening widths in the same lift installation. Given this signal, the opening and closing operations are carried out referring to an alternative TB (door width recorded by an additional self-learning cycle).		
Encoder signals	Connector RJ45 (A)	Factory prewired connector			
Contact KEOD	Connector pins 15-40	These connections require dry (voltage free) contacts (contact open when inactive)	This connection is to signal the use of the Sematic E.O.D. Emergency Opening Device to the Door controller		
Handset (Optional)	Connector RJ45 (B)				
Auxliary contact Kaux	Connector pins 15-42	These connections require dry (voltage free) contacts (contact open when inactive)	Not yet implemented		

Note: Sematic Drive System® controller may be used also with incoming signal from the Main Lift Controller with voltage range between 6 and 24 Vdc.

To use this feature:

- Remove the shunt between 37-38 connector pins
 Connect the 38 connector pin at the 0V DC external incoming signal Power supply



OUTGOING SIGNALS FROM THE DOOR CONTROLLER					
Signal	Connector Pins	Contact type & Normal state	Notes		
Opening limit switch contact La	Connector pins 16-17	These connections provide dry (voltage free) contact.	The contact is open when the door is fully open. Contact rating: 3A 250Vac 30Vdc		
Closing limit switch contact Lc	Connector pins 18-19	These connections provide dry (voltage free) contact.	The contact is open when the door is fully closed. Contact rating: 3A 250Vac 30Vdc		
Reversing system signal IM	Connector pins 1-4	These connections provide dry (voltage free) contact. (contact normally closed)	This signal is generated by dry (voltage free) Form C contacts (relay within the Door Controller) and is activated only		
	Connector pins 2-4	(contact normally open)	when either a mechanical obstacle (excessive force) prevents the doors from closing, or a signal is received from an external safety device that is connected to the door controller. It is used to signal the main lift controller to interrupt the door close command and give a door open signal. Contact rating: 3A 250Vac 30Vdc		
Auxliary autput signal AUX	Connector pins 34-35	These connections provide dry (voltage free) contact. (contact normally open	These contacts can be used to signal that a particular (pre-set) door opening distance has been achieved, or as		
	Connector pins 35-36	(contact normally closed)	a Gong or Buzzer while the door is opening or as a Thermic alarm signal. Contact rating: 3A 250Vac 30Vdc.		
Motor	Connector pins 43-44-45	Factory-prewired connector			
Acoustic alarm (BUZZER) Optional	Connector pins 15-21	These connections provide a 24Vdc, 100ma contact. Contact is open when not active.			

- For the Door Operator mechanical installation refer to the "Installation and maintenance of Sematic doors" manual.
- The door controller is supplied already mounted on the operator (not applicable for C-MOD door model). All the connections between the door controller and the motor are pre-wired at Sematic. In order to prevent possible damage to the wiring cables by coming into contact with the drive belt, they are fixed to the header as shown in the following image.



1	Sematic Drive System	2	Motor	3	Encoder cable
4	Rear view	5	Ensure cables are clamp fix		



Note: In case of motor replacement be sure to bind the excess cable lenght as above pictured, to avoid any contact of the motor cable with the driving belt.



Warning: to avoid possible induced currents within field wiring, it is recommended to shield the Ka and Kc signals (connector pins 3, 5 and 15) with grounded, shielded cables.

Changes made to the factory wiring length or position can damage the EMC system characteristics and is not recommended.

4.2 DETECTOR/PHOTOCELL/BARRIERS: SIGNAL-ONLY CONNECTION TO THE DOOR CONTROLLER (DIRECT CONNEC-TION)

This connection requires a dry (voltage free) external relay contact connected to the Door Controller Connector pins 15 & 23. If desired, it is possible to connect the single output signal from a photocell (or similar device) formed by a voltage free contact, so that the door controller will directly receive the command to re-open.

The photocell (or similar device) has therefore an independent power supply and sends only its outgoing signal to the Sematic Drive System® controller.

Reopening is operated according to the REVERSING SYSTEM, LIMITED DOOR REVERSAL EFFECT and PROTECTIVE DEVICE LOGIC settings (see sections **"6.2 Reversing System choice: Internal or External (Param. Code 00)" a pag. 26, "6.3 Main Lift Controller Test (Param. Code 01)" a pag. 26, "6.12 Protective Device Logic Kn (Param. Code 21)" a pag. 29).**



4.3 DETECTOR/PHOTOCELL/BARRIERS: COMPLETE CONNECTION TO THE DOOR CONTROLLER

Complete Connection means that the device draws its power supply from and sends the re-open signal directly and only to the Sematic Drive System® controller.

It is possible to have the complete connection of detectors or photocells with a 24 Vdc max 100 mA supply and a PNP N/O or N/C output, through the connector pins:



1	Example of photocells/barriers with transmitter and receiver connected between themselves through the dummy free connector pin 30.
33 GND	ground connector pin
32 IN	PNP N/O or N/C signal from detector/photocell/barrier
31 + 24 Vdc	Vdc power supply to detector/photocell/barrier
30 NC	dummy free connector pin (it can be used as a dummy connector for connection between the detectors system components).

The operating reopening modes depend upon the setting of the REVERSING SYSTEM, LIMITED DOOR REVERSAL EFFECT and PROTECTIVE DEVICE LOGIC settings.



4.4 COMPLETE CONNECTION FROM DETECTOR MEMCO E SERIES TO THE DOOR CONTROLLER

Alternatives of detector connection MEMCO E 12-18 (RX) with E11-18 (TX) detectors- SDS





5 INSTRUCTION WITHOUT HANDSET

Display in Automatic and Manual Mode



5.1 AUTOMATIC MODE "AUTO"

- When the Door Controller is working in automatic mode the "AUTO" red led is on, whereas the other two red leds are off.
- When the Door Controller is switched on, or after a self-resetting, it starts directly in the automatic mode.
- All the signals sent by the main lift controller and by the external devices (barriers, photocells, etc.) are active in this mode.
- Key 2: keep pressed for at least 3 sec. to check the last alarm code
- Key 3: keep pressed for at least 3 sec to reset last alarm
- Key 2+Key3: press together for at least 5 sec to perform the "reset speed profile" operation
- Key 1: selects Self Learning Cycle.
- When Key 4 is kept pressed for a while, the Door Controller (ca. 3 sec.), switches to the manual mode "MAN".

5.2 MANUAL MODE "MAN"

- When the Door Controller is working in manual mode the "MAN" red led is on, whereas the other two red leds are off.
- All signals coming from the main lift controller and from other external devices are ignored.
- The IM contact is deactivated, therefore the Door Controller does not recognize any signal coming from the external devices to reverse door movement, such as photocells or barriers.
- Opening and Closing commands may be manually input by pushing Key 2 (open) or Key 3 (close).
- Key 1 selects Self Learning Cycle.
- When key 4 is kept pressed for a while (Appx. 3 sec.), the Door Controller switches to the automatic mode "AUTO".
- If no keys are pressed the Door Controllerremains in manual mode.

Both in automatic and manual mode the Door Controller will show the following display:

>op <
OP
CL
SL
FC

Door opening (Flashing Display)

Door open

Door closing (Flashing Display)

Door Closed

Self learning

Forced closing

It signals an alarm and flashes giving the code of the recognised alarm.

Reversing system on

Waiting commands from MLC



5.3 PROGRAMMING MODE "PROG"

- When the Door Controller is working in "programming mode" the "PROG" red led is on whereas the other two red leds are off.
 Press contemporaneously Key 1 and Key 4 for few seconds to enter the programming mode. The display on the Door Controller will
- show "P" and "00" flashing alternately.
 When the Door Controller is in the programming mode, all signals coming from the main lift controller and from the external devices (barriers, photocells,...) are ignored.
- The parameter to be modified is selected by means of the increasing and decreasing KEYs, respectively the buttons 2 and 3; this parameter is then confirmed by pushing the key 1, ENTER.
- After confirming the parameter to be modified, the display shows the relevant numeric value.
- Modify the chosen parameter using the key 2, increase, and 3, decrease, and confirm the changes by pressing key 1 ENTER.
- At the end of the necessary configurations, using the key 4 press to select the required operating mode (manual *MAN* or automatic *AUTO*).

5.4 VERIFY THE CORRECT WORKING OF THE CONTROLLER SDS

In order to verify if the controller is broken or not please follow the instruction below:

INSTRUCTIONS:

- 1. Remove all the connections to the controller including the power supply.
- 2. Verify the controller power supply fuse. Note: Eventually replace the fuse.
- 3. Connect only the power supply cable
- 4. Verify, that after switching ON the controller by the key ON, the controller disply will light "/--/" after 5 seconds
- 5. Switch OFF the controller and connect the motor and the encoder
- 6. Switch ON and verify the display lighting
- 7. Press key 4 to enter in MAN mode (led MAN switch on).
- 8. Press key 2 and 3 to verify the partial motor movement (partial opening and closing movement). **Note** In case of alarm or loss of movement try to connect another motor with encoder (only the connection, do not replace it initially on the door and repeat from point 5 to point 8. If the new motor works correctly replace the motor on the door.

CHECK: CONTROLLER NOT DEFECTIVE

5.5 RESET SPEED PROFILE PROCEDURE

- 9. Verify that after switching ON the controller by the key ON, the controller display will show "|--|" after 5 seconds
- **10.** Press contemporaneously Key 1 and Key 4 for a few seconds to enter PROGRAMMING MODE. The display on the Door Controller will show "P" and "00" flashing alternately.
- When the Door Controller is working in PROGRAMMING MODE the "PROG" red led is on while the other two red leds are off.
 When the Door Controller is in PROGRAMMING MODE, all signals coming from the main lift controller and from the external devices (barriers, photocells, ...) are ignored.
- Choose parameter 70 increasing or decreasing the value shown on the display through keys 2 and 3 respectively; to confirm the parameter press key 1, ENTER.
- **14.** The display will automatically restart in approximately 7 seconds and the SDS controller will get back in AUTO mode, ready to work.



The following table contains the available parameters, the relevant codes, the description and the allowed modification range:

Code param.	Default	Parameter	Range	Note
00	00	Reversing system choice	00, 01, 02	00-> Internal 01-> External - Moving 02-> External - Moving + Parking
01	00	Main Lift Controller Test	00, 01, 02	00-> When moving 01-> Moving + Parking 02-> Off
02	00	No MLC signal	00, 01, 02	00 -> Instant Stop 01 -> Low Speed to Stop 02 -> Low Speed Cycle
03	00	MLC Input Alarm	00, 01	00 -> Off 01 -> On
04	00	Kn Input	00, 01, 02	00 -> Default 01 -> Limited door reversal 02 -> Safety edge
05	00	Car door locking device	00, 01	00 -> Off 01 -> On
06	00	Glass doors and heavy doors	00, 01	00 -> Off 01 -> On
07	03	Aux Output Relay	00, 01, 02, 03	00 -> Off 01 -> Gong While opening 02 -> Space percentage 03 -> Alarm signal
08	50	Space Percentage (Percentage of the available space to operate the AUX relay)	0099	0099% (00 = closing limit)
09	49	Reversing force setting	0099	110-150 N (110-135 N U.S. version)
10	50	Opening High Speed	0199	with PC 33=02
11	50	Opening Low Speed	0199	with PC 33=02
12	80	Opening "comfort"	0199	with PC 33=02
13	35	Closing High Speed	0199	with PC 33=02
14	16	Closing Low Speed	0199	with PC 33=02
15	99	Closing "comfort"	0199	with PC 33=02
16	-	Not Used	-	
17	-	Not Used	-	
18	-	Not Used	-	
19	01	Fire Fighting Mode	00, 01	00 -> Reversing system Off 01 -> Reversing System reduced sensitivity
20	01	Timeout EOD	00> 05 minutes	Opening time on EOD contact (minutes)
21	00	Protective Device Logic Kn	00, 01	00 -> N/O, on obstruction closed 01 -> N/C, on obstruction open
22	00	Closing Rotation	00, 01	00 -> Clockwise 01 -> Anti-clockwise
23	70	% Partial reopening	0199	
24	00	Smooth reopening	0001	00 -> Off 01 -> On



25	00	Closed parking mode	00, 01	00 -> Closed skate parking 01 -> Opened skate parking
26	01	Skate Type	00, 01, 02	00 -> Standard (STD) skate 01 -> Expansion (EXP) skate 02 -> Expansion (EXP-B) skate
27	01	KB options	00, 01	00 -> Rev. Sense OFF 01 -> Rev. Sense ON KSKB@VRVRt IN NORMAL OPERATION
29	-	Not Used	-	
32	00	Aux In	00, 01	00 -> Off 01 -> % Partial reopening (See Param. codes 23)
33	02	Default Profile	00, 01, 02, 03, 04	00 -> 50% 01 ->70% 02 -> 100% 03 -> 120% 04 -> 140%
34	00	IM signal type	00, 01, 02	00 -> IM pulse 01 -> IM continuous 02 -> Monostable pulse
36	00	Max power Op	00, 01	00 -> Off 01 -> On
37	01	LA out with NO command	00, 01	00 -> Off 01 -> On
38	25	LA Threshold	0540	
39	00	Soft Degradation OP	00, 01	00 -> Off 01 -> On
42	01	Fset Autoregulation	00, 01	00 -> Off 01 -> On
43	00	Park OP No torque	00, 01	00 -> Off 01 -> On
44	02 (for std skate) 07 (for exp skate)	Parl CL low torque thr.	0110	01 = 1 mm 10 = 10 mm
45	60	Park CL low torque delay	05240	05 = 5 sec 240 = 240 sec
62	00	Offset deceleration OP	-50+50	
63	00	Offset deceleration CI	-50+50	
64	14	Low speed end OP	0099	
70		Reset speed profile		Press button 1 to confirm
90	00	Motor	00, 01, 02, 03, 04, 12, 13, 14, 15, 16, 20, 21, 22, 23	00->auto 01->B105AAXX01 02->B105AAXX02 03->DC-PWM 5 40V 04->DC PWM 5 30V 12->B105AANX 13->B105AALX 14->B105AALX (Brushless) 15->B105AAIX (Brushless) 16->B105AAIX (Brushless) 20->B105AAXX 21->B105AAYX 22->B105AAXX 22->B105AAXX



5.6 CONTROLLER SETTING FOR SDS DC-PWM

Param. codes	Defa	ult SEMATIC	Parameter	Range	Note
04	To be set as for door configuration		KN Input	00, 01, 02	00> Default 01> Partial reopening 02> Machanical safety edge
05	To be set as for door configuration		Car door locking device	00, 01	00> Off 01> On
06	To be set as for door configuration		Glass heavy door	00, 01	00> Off 01> On
19	01		Fire Fighting Mode	00, 01	00> Reversing system off 01> Reversing system reduce sensi- tivity
22	To be set as for	door configuration	Closing rotation	00, 01	00> Clockwise 01> Anticlockwise
25	00		Parking Mode	00, 01	00> Clutch closed 01> Clutch open
26	To be set as for door configuration		Clutch Type	00, 01, 02	00> Alu clutch standards (STD) 01> Expansion clutch (EXP) 02> Expansion clutch (EXP-B)
99	To be set as for door configuration		I/O Interface	00, 01, 02	00> Default type 01> Loni-BV type 02> TX-R5

		Default pro	ofiles			
		50%	75%	100%	125%	150%
Opening Parameters	High Speed (Pc10)	30%	40%	50%	70%	90%
	Low Speed (Pc11)	50%	50%	50%	50%	50%
	Comfort (Pc12)	99%	90%	80%	70%	60%
	Low speed end (Pc64)	50%	50%	50%	50%	50%
Closing Parameters	High Speed (Pc13)	30%	35%	35%	50%	60%
	Low Speed (Pc14)	16%	16%	16%	16%	16%
	Comfort (Pc15)	99%	99%	99%	90%	90%
Rev. force setting	Max	150 N	150 N	150 N	150 N	150 N
	Set (Pc09)	130 N	130 N	130 N	130 N	130 N
	Min	110 N	110 N	110 N	110 N	110 N
		-				
Rev. Offset setting		100%	100%	100%	100%	100%

	Standar	d Doors	Heavy Doors		
PROFILE SETTING	Clutch space 90mm (EXP	Clutch space 120mm	Clutch space 90mm (EXP	Clutch space 120mm	
	type)	(EXP-B type)	type)	(EXP-B type)	



Advance Setting						
Opening Parameters*						
Low start speed	0,10 m/s	0,10 m/s	0,10 m/s	0,10 m/s		
Acceleration start	0,09 m	0,110 m	0,9 m	0,110 m		
Acceleration	1 m/s2	1 m/s2	1 m/s2	1 m/s2		
High Speed	0,55 m/s	0,55 m/s	0,5 m/s	0,5 m/s		
Offset Deceleration	0 m	0 m	0 m	0 m		
Deceleration	0,5 m/s2	0,5 m/s2	0,5 m/s2	0,5 m/s2		
Low Speed	0,045 m/s	0,045 m/s	0,045 m/s	0,045 m/s		
Fittings	80%	80%	80%	80%		

Closing Parameters*						
Low start speed	0,10 m/s	0,10 m/s	0,10 m/s	0,10 m/s		
Deceleration Stop	0,095 m	0,125 m	0,100 m	0,125 m		
Acceleration	0,3 m/s2	0,3 m/s2	0,3 m/s2	0,3 m/s2		
High Speed	0,24 m/s	0,24 m/s	0,24 m/s	0,24 m/s		
Offset Deceleration	0 m	0 m	0 m	0 m		
Deceleration	0,2 m/s2	0,2 m/s2	0,2 m/s2	0,2 m/s2		
Low Speed	0,048 m/s	0,048 m/s	0,048 m/s	0,048 m/s		
Fittings	99%	99%	99%	99%		

*-> DEFAULT PROFILES=100%

General Option				
Revers. System choice	External, when moving	External, when moving	External, when moving	External, when moving
MLC Test	When moving	When moving	When moving	When moving
No MLC signal	Instant stop	Instant stop	Instant stop	Instant stop
MLC Input alarm	Off	Off	Off	Off
KN Input	Default	Default	Default	Default
Car door locking device	Off	Off	Off	Off
Glazed/Heavy doors	Off	Off	On	On
AUX rele out	Off	Off	Off	Off
Fire fighting options	Rev. Sense reduced	Rev. Sense reduced	Rev. Sense reduced	Rev. Sense reduced
EOD time out	01 min	01 min	01 min	01 min
Protective device logic	Normally closed	Normally closed	Normally closed	Normally closed
Closing rotation	Clock wise	Clock wise	Clock wise	Clock wise
Motor	Auto	Auto	Auto	Auto
Closing parking mode	Closed skate parking	Closed skate parking	Closed skate parking	Closed skate parking
Skate type	EXP type	EXP-B type	EXP type	EXP-B type
Skate space	0,09 m	0,120 m	0,09 m	0,120 m
Skate low speed	0,05 m/s	0,05 m/s	0,05 m/s	0,05 m/s
Aux IN	Off	Off	Off	Off
IM signal type	IM pulse	IM pulse	IM pulse	IM pulse



6 FUNCTIONS AVAILABLE

6.1 REVERSING

Parameter for managing the reversing function during the door closing cycle. This is divided into:

6.1.1 Reversing system force setting (Param. Code 09)

The reverse motion torque parameter sets the sensitivity degree to detect an obstacle during the door closure, thus giving the reopening command. The parameter's value can be manually set.

Please note that a lower sensitivity corresponds to higher values and vice versa.

Fset with Parameter 42 Off (00)

- The value can be set within the Fmax and Fmin range
 - The value will remain stable during time

- Always perform a measure of closing force with a suitable equipment in case of Fset value set out of the limits foreseen by regulation.

Fset with Parameter 42 On (01)



- The value can be set within the Fmax and Fmin range

- Fset valuewill adjust automatically during time to reach the maximum sensibility

Note 1: Back to "Reversing force setting" menu you can notice that the set value is changed

Note 2: If necessary you can decrease the sensibility increasing Fmin value parameter (only with handset)

- Always perform a measure of closing force with a suitable equipment in case of Fset value set out of the limits foreseen by regulation.

6.1.2 Reversing system offset

The set value represents the size of the space (expressed as a percentage) for disabling the "Reversing" function. By decreasing the percentage (values < 100%) the controller is able to improve the reactivity of the system in reversing situations even with obstacles with small dimensions.

6.2 REVERSING SYSTEM CHOICE: INTERNAL OR EXTERNAL (PARAM. CODE 00)

If the reversing system is internal, the reopening of the doors due to obstacle detection is solely controlled by the Door Controller and door reopening is signalled to the main lift controller through the IM contacts (1, 4 contacts normally closed, 2, 4 contacts normally open). If the reversing system is external-MOVING, the Door Controller signals, through the IM contacts, the presence of an obstacle to the main lift controller, which in turn must signals the re-opening command using Ka. The IM signal is present up to the complete reopening of the doors.

If the main lift controller does not give the re-opening signal during the doors movement, the Door Controller commands a low-speed closure.

If the doors are completely open and an obstacle is present, the door controller does not allow the door to close until a Kb (forced closing) is given from the main lift controller.

If the reversing system is external-MOVING + PARKING, the Door Controller signals, through the IM contacts, the presence of an obstacle to the main lift controller, which in turn must signals the re-opening command using Ka. The IM signal is present up to the complete reopening of the doors.

If the main lift controller does not give the re-opening signal, the Door Controller commands a low-speed closure.

If the doors are completely open and an obstacle is present, the door controller allows to close the door if a Kb (forced closing) is given from the main lift controller. If a Kc closing signal is given from the main lift controller, the door controller commands a low-speed closure and shows a "Reversing system fault"

6.3 MAIN LIFT CONTROLLER TEST (PARAM. CODE 01)

When set to "OFF" selection (no Main Lift Controller Test), a simple impulse of signal Ka or Kc from the Main Lift Controller is sufficient to produce door movement; the signal is stored by the Door Controller which will complete the required movement even if the main lift controller signal fails. The impulse width must be at least 400ms in duration.

When the Main Lift Controller Test is set to "When Moving" (default setting) or set to "Moving + Parking", the operation is as described in the next two sections.

6.3.1 Main Lift Controller Test (when moving) [default setting]

When this parameter is set to "WHEN MOVING", the Door Controller checks for the Ka or Kc signal coming from the main lift controller only during the door movement (Ka signal during the opening cycle, Kc signal during the closing cycle). At the end of the movement, which can be detected through the La and Lc signals, respectively Door Open and Door Closed, it is possible to remove the signal that has controlled the movement, without the Door Controller detecting this as failure.

For this setting, the main lift controller must be equipped with 2 relays: 1 for the opening command, and 1 for the closing command. The Door Controller checks for continuous presence of the Ka and Kc signals coming from the main lift controller.

The Door Controller detects signal drops exceeding 200ms; this is interpreted as NO MLC Signal alarm if the relevant parameter MAIN LIFT CONTROLLER TEST is set on "WHEN MOVING".

In case of signal failure, the Door Controller acts as described in the parameter setting NO MLC SIGNAL.

6.3.2 Main Lift Controller Test (when moving + parking)

If the main lift controller test is set to MOVING+PARKING, the Door Controller checks for the Ka or Kc signals coming from the main lift



26

controller both during movement (Ka signal during the opening cycle, Kc signal during the closing cycle) and during parking (Ka signal while opening, Kc signal while closing).

This test setting should only be applied for main lift controllers that are equipped with just 1 relay to command both opening and closing.

The Door Controller detects signal drops exceeding 200ms; this is interpreted as NO MAIN LIFT CONTROLLER Input alarm if the relevant parameter MAIN LIFT CONTROLLER TEST is set on "MOVING+PARKING".

In case of signal failure, the Door Controller acts as described in the parameter setting NO MAIN LIFT CONTROLLER SIGNAL

6.3.3 No MLC Signal (Param. Code 02)

This submenu is not available if the parameter MAIN LIFT CONTROLLER TEST is set to "off". If the Main lift controller test is set either to "When Moving" or to "When Moving+Parking" this menu allows the selection of the Door Controller behaviour that must be adopted in case of signal loss or failure of the main lift controller. The following 3 options are available:

6.3.3.1 Instant Stop

If the "INSTANT STOP" option is activated (default setting), the door controller stops the door movement.

6.3.3.2 Low Speed to Stop

If the "Low Speed to Stop" option is activated, the door controller switches to low speed until completion of the interrupted movement.

6.3.3.3 *Low Speed Cycle*

If the parameter NO MLC SIGNAL is set on "LOW SPEED CYCLE":

- If the doors are opening or fully opened, the door controller operates the buzzer output, it stays open for a time then closes at low speed;
- If the doors are closing but not fully closed, the door controller operates the buzzer output, reverses direction, opens fully and stays open for a time then closes at low speed;
- If the doors are closed, the doors will stay in the closed position, and the buzzer is operated for a short time.
- The buzzer will be de-activated upon door closed.

6.3.4 Main Lift Controller Input Alarm (Param. Code 03)

This option allows the installer to choose to consider or not to consider a recorded fault the case that the door controller detects the signal failure, both Ka and Kc, when the Main Lift Controller Test is activated. 00 -> Off (function disable)

01 -> On (function able)

6.4 KN INPUT (PARAM. CODE 04)

This parameter allow to choose 3 possible options for the Kn function:

6.4.1 Default type.

With light photocells or light curtains directly connected to the controller, in case an obstacle is detected the door open completely. The inversion motion signal IM (reversing motion) is being sent by the controller to the main lift controller until the doors are fully open.

6.4.2 Limited door reversal.

This option allow a partial reopening of the doors when an obstacle has been detected by means of optoelectronic,traditional or proximity door protection devices. The door re-opening only for the time during witch the obstacle is detected and not necessarily up to open limit. IM (reversing motion) signal is sent to the lift controller as long as the obstacle is present.

6.4.3 Safety edge.

Safety edge and mechanical detection systems are directly connected into Kn contact ,the controller manages the emergency door reopening. The IM(reversing motion) is being sent by the controller to the main lift controller until the door are fully open. Defaulf profile limited at 100%.

6.5 CAR DOOR LOCKING DEVICE (USA = RESTRICTOR) (PARAM. CODE 05)

This option must be set when the optional car door locking device is installed. This function provides for proper operation with the car door locking device.

00 -> Off (without car door lockig device)

01 -> On (with car door lockig device)

6.6 FULL OR FRAMED GLAZED AND HEAVY PANELED DOORS (GLASS AND HEAVY DOORS) (PARAM. CODE 06)

In presence of car and landing door with Glazed Paneled Doors, this feature must be activated. When active, the Opening High Speed as additional featurevalue is restricted to conform to EN81-1/2 Standard, 7.2.3.6.d. and 8.6.7.5.d.

Note activate this option also with heavy doors paneled applications: 00 -> Off (function disable) 01 -> On (function able) Pc 33=00/01/02 Vmax Op=0,5 m/s

6.7 AUX OUTPUT RELAY (PARAM. CODE 07)

This option can be used to signal the achievement of a particular opening distance (pre-set) or as Gong while opening (device not supplied by Sematic). **Note**: default setting: 03 -> Alarm signal



6.7.1 Space Percentage

If set, this option allows the Aux Output Relay contacts to send a signal during door opening that relates to a pre-set distance percentage (in comparison to the total door opening) and a signal during the door closing up to the same opening percentage.

6.7.2 Gong While Opening

If set, this option allows the Aux Output Relay contacts to send a signal during the door opening (to a device not supplied by Sematic).

6.7.3 Thermic alarm signal

If set, this option allows the Aux Output Relay contacts to send a signal during a thermic protection alarm presence.

6.8 FORCED CLOSING (NUDGING)

If the main lift controller operates with a disabling photocell circuit (or similar device), after several failed attempts at closure, it is possible to command the closure of the doors in low speed (forced closing), by closing the 15-22 connector pins by means of a relay (voltage free contact).

During the closing cycle the connector 21 (Gnd) and the connector 15 (+24 V) are activated for the direct use of a 24 Vdc max 100 mA buzzer (device not supplied by Sematic) or adequate relay.



Param. code 27 (00 -> Rev. Sense OFF)

Closing force detection is disabled

Param. code 27 (01 -> Rev. Sense ON)

Closing force detection is enabled and set by Fset value parameter (PC 09)

6.9 FIRE FIGHTING (PARAM. CODE 19)

The FIRE FIGHTING option is possible for specific installations where the main lift controller contains the applicable functions. For operative details of the complete lift installation, refer to the following standards:

- BS5588: Part 5: 1991
- EN81-72: 2003
- ASME A17.1: 2000
- AS-1735.1:2003

The Fire Fighting option has a dedicated input, Kff.

When Kff switches from OPEN to CLOSED the directly or completely connected light barriers or similar devices are ignored, as these are assumed to be devices which may be affected by smoke or heat due to fire conditions; the reopening system can be set to either ignore mechanical obstacle (parameter 19 = 0) or to have its sensitivity reduced (parameter 19 = 1).

mechanical obstacle (parameter 19 = 0) or to have its sensitivity reduced (parameter 19 = 1). **Warning** the default setting is "reduced sensitivity" (parameter 19 = 1). Change of this parameter is according to customer's choice, following careful assessments and check of the standards required in the Country of installation.

At the end of the first closing cycle the main lift controller takes the car to the Fire Fighters' access floor, if it is not already there. The Sematic Drive System[®] Door Controller operates only on signals coming from the main lift controller. Even during the opening cycle it is possible to reverse the movement by deactivating the Ka signal and activating the Kc signal.

The Main lift controller must steadily monitor the continuous pressure of the car push-buttons (open door and floor call push-buttons), performed by the Fireman controlling the installation.

During a closing cycle, the release of the floor call push-button must release the Kc signal, insert the Ka signal and cancel the call. During an opening cycle, the release of the door opening push-button must release the Ka signal and insert the Kc signal. At the end of the closing or opening run (detectable through the Lc and La signals respectively) the main lift controller can detect the release of the floor call or open door push buttons without inserting the Ka and Kc signals respectively; the door controller will wait for a new control signal.

Important! Other systems that interface with the Car Door Operator reversing functions (e.g. optical barriers/photocells etc.) which are operated by the main lift controller and which may be affected by smoke or heat should be deactivated by the main lift controller itself.

6.10 DOUBLE TB



This function allows the Door Controller to store two different door opening widths (TB), for different floors and on the same side, envisaged in the same installation and operated by the same car door drive.

A magnetic switch, mounted on the Door Operator by Sematic, is connected to the 15-41 connectors and is operated by magnets mounted only on the landing doors with different door opening widths (TB)(the smaller) by means of a special support plate (see drawing). This signal allows the Door Controller to distinguish floors with different opening width.

- Complete a self-learning cycle (see "8.3 Self-learning cycle activation by means of the handset" a pag. 36)
- Take the car to a floor with the different TB: upon receiving the Ka signal (given by the main lift controller or manually by the installer) the Door Controller will automatically carry out a second self learning cycle if the magnets on the landing doors with different TB are correctly positioned.

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Important Note: the double TB option is the only operation in which the door controller can carry out a self-learning cycle automatically (as a matter of fact it takes place anyhow when a manual self-learning cycle is activated). It is very important that the installer be present during the second automatic self-learning cycle to check that it is completed correctly.

6.11 E.O.D. (EMERGENCY OPENING DEVICE) AND TIMEOUT (PARAM. CODE 20)

In an emergency situation such as a main power supply failure, it may be beneficial that when the car is aligned with landing doors (inside the lock release zone) they open automatically, remain open for a set time, and then close, all with normal opening/closing speed profiles. According to this requirement Sematic offers to its Customers as an extra option the Sematic E.O.D. (Emergency Opening Device).

When the Sematic Drive System[®] controller is powered by battery, the KEOD input allows a signal to open the doors at the proper time, when the car is brought to a designated escape floor. After set disactivation, (see parameter 20 disactivation time E.O.D.) the controller closes the doors, in order to save battery life.



A magnetic switch (option), mounted on the Door Operator by Sematic, is connected to the 15-40 connectors and is operated by magnets (option) mounted on the designed emergency landing door by means of a special support plate (see drawing). This signal allows the door controller to open the doors. Please refer to the specific instruction Sematic 301-036-000 "BATTERY KIT AND ACTIVATOR FOR AUTOMATIC EMERGENCY OPENING DEVICE (SEMATIC EOD) FOR SEMATIC DRIVE SYSTEM® rel. 3"

6.12 PROTECTIVE DEVICE LOGIC KN (PARAM. CODE 21)

This parameter sets the logic on the protective device input Kn (Photocells, optical barrier...); its default value (0) means that the contact is open in normal condition and it is closed to signal the presence of an obstacle; the alternative value (1) reverses the logic, i.e. the contact is closed in normal conditions and it opens to signal the presence of an obstacle.



WARNING: if the selected logic is Kn N/C on obstruction open (contact opens to signal the presence of an obstacle) and is used only one protective device input (15-23 terminals for photocells, 30-31-32-33 terminals for direct connection of protective barriers), the other input must be shorted. For example if N/C logic protective barriers are connected to 31-32-33 terminals, 23 and 15 terminals must be shorted; if N/C logic photocells are connected to 23 and 15 terminals, 31 and 32 terminal must be shorted.

6.13 MOTOR ROTATION DURING CLOSING (PARAM. CODE 22)

This parameter sets the closing rotation verse: its default value (0) means that the motor turns clockwise during door closing cycle; the alternative value (1) means that the motor turns anti-clockwise during door closing cycle.

6.14 MOTOR TYPE (PARAM. CODE 90)

Sematic Drive System rel. 3 door controller may be used with different motors (DC, Brushless or Brushless Plus). The door controller automatically recognizes as default the connected motor type, DC - PWM B105AANX, B105AALX, B105AAXX01/02. For the rest of the motor is possible to manually choose the motor type from the complete Sematic list of motors.

6.15 CLOSING PARKING MODE (PARAM. CODE 25)

This function allows the user to choose the closing parking mode:

6.15.1 Closed skate parking (default)

The motor is powered during the closing door parking condition and the operator skate arms are closed.

6.15.2 Opened skate parking

This option has been introduced for decrease/avoid the power consumption of the plant (so to preserve the use of the motor) when it is found in close position.

Important note: during the car travel it is necessary that the Main Lift controller gives the closing Kc command, to allow the skate arms closing during the movement.

6.15.3 PM activation Delay (Default 300 sec.)

This sub-parameter represents the delay in entering the open skate parking phase after the activation event represented by the disabling of the closing command KC. So the system waits for a time equal to the parameter, before opening the skates and going into energy saving condition.

6.15.4 PM Opening space (Default 90 mm)

The value represents the size of the space reached by the skate when it is completely open during open skate parking.

6.15.5 PM position error (Default 5 mm)

This sub-parameter represents the space threshold (with relation to the open skate parking point represented by the PM ACTIVATION DELAY parameter) within which the panels can move. When the set value is exceeded the controller loses the door closed signal LC and



activates immediate automatic closure of the skate. During this last operation the Main Lift Controller should however give the closing or opening command to the door operator.

6.15.6 PM position control (Default 00)

The sub-parameter allows the selection of two different currents that may be applied to the motor:

- 00: No parking current. In this situation it is possible to open the doors by hand.
- 01: Maximum parking current. The motor does not allow the manual opening of the doors, supplying current that opposes the opening movement ONLY when necessary

6.16 SKATE TYPE (PARAM. CODE 26)

This function allows the user to set the skate type:

- Standard (STD) skate: the speed profile setting are optimized for the Sematic standard ALU skate type.
- Expansion (EXP and EXP-B) skate: the speed profile setting are optimized for the Sematic 2000 US Expansion skate type.







00 - STD Skate (Aluminium skate)

01 - EXP Skate

Use this setting when you have a single hole in the upper fixing plate (left picture) or you have two holes and you are connecting the belt to the lower one (right picture)

02 - EXP Skate-B

Use this setting when you have two holes in the upper fixing plate and you are connecting the belt to the upper one

Setting a different skate type means telling the controller that different opening dimensions have to be used (20mm std, 90mm exp and 120 mm exp type B) and this allows correct operation in opening and closing cycles.

6.17 AUX INPUT (PARAM. CODE 32)

This parameter allow the choose of two possible options:

6.17.1 Disabled (default)

In this case the door controller implement a complete door opening after a opening command.

6.17.2 % Partial Reopening

In this case is active the "partial opening" of a door (set in percentage) for a particular plan or with a control key. The "Aux Input" is able and the controller open the door (after the open command) until to percentage of self-learning space





6.18 IM (REVERSING MOTION) SIGNAL TYPE (PARAM. CODE 34)

This parameter allow to choose 3 different signals to manage the IM (reversing motion) coming from external to main lift controller:

6.18.1 Im pulse.

The IM (reversing motion) is active until KA (door opening relay) arrive from MLC (main lift controller).

6.18.2 IM Continuous (default)

IM (reversing motion) is active up to the end of complete opening of a doors LA (contact limit open doors).

6.18.3 Monostable pulse.

IM (inversion of movement) is active only for a preset time of 0.5 [sec]. After this time interval the output is disabled.

6.19 KB OPTIONS (PARAM. CODE 27)

This function allow IM (KSKB) activation during the door closing in low speed with KB/VRVRT command active.

6.19.1 Rev. Sense Off (Default)

IM/KSKB can't be activate during the closing in low speed

6.19.2 Rev. Sense On

IM/KSKB can be actiovated during the closingh in low speed if:

- The reopening force exceed the FSET
- KN (closing edge) input activation
- Photocel activation if it's connect in the Detector INPUT
- After the SDS restart in case of closing with VRVRT th IM/KSKB can not activate.



ALARMS

The Sematic Drive System[®] controller has the ability to diagnose and record a number of defects; such diagnostics is very helpful to the maintenance personnel in order to locate possible operational problems.

When any monitored error occurs, the Door Controller display will signal it and the error code will show.

The following table illustrates the type of signalling and the relevant alarm detected by the Door Controller:

ALARMS TABLE								
Code on display	Viewed error	Error description	Action undertaken by Door controller					
01	No MLC Signal	Main lift controller is disconnected or has failed (Note 1)	Auto reset when proper condition is restored.					
02	Over current protection	Motor over current due to door mechani- cal strain (Note 2)	Auto reset after: ca. 5 seconds after the first and second trials (fast alarm) ca. 5 minutes (B105AANX motor type) and 3 mi- nutes (B105AALX motor type) at the third trial					
03	Reversing system fault	The main lift controller does not send the reopening command after the Door Controller has signalled an obstacle (Note 3)	Door drive keeps on closing at low speed					
04	Power-on motor inverted	Inverted motor connection or inverted Encoder channels. Door performs a jerk and then stops (Note 4)	Auto reset, after about 10 seconds, when normal operating conditions are restored; after 5 trials the system stops.					
05	Encoder jerk	Interruption of the motor's Encoder ca- bles, or interruption of the motor cables after system's start up or the connecting plug to the Encoder motor is inverted	Auto reset after 5 seconds; after 5 occurrences within 5 minutes the system stops					
06	Motor thermal protection	Motor over-heating (with motors where internal PTC sensor is present)	Auto reset when normal operating conditions are restored.					
07	Motor jerk	Interruption of the motor cables	Auto reset after 5 seconds; after 5 occurrences within 5 minutes the system stops					
08	Over-voltage	Over-voltage in the power supply	Door controller switches to low speed, signals the error, and performs an auto-reset; after 5 occur- rences within 5 minutes the system stops					
09	PWM-Trip	Impulse over-current	Auto reset when proper condition is restored; after 5 occurrences within 5 minutes the system stops.					
10	Internal fault	Generic alarm due to an internal mal- function of the Door Controller	Auto reset when proper condition is restored.					
11	Power supply protection	Internal switching power supply over current, due to mechanical strain	Auto reset when proper condition is restored; after 5 occurrences within 5 minutes the system stops.					
12	Mechanical block	Door movement blocked during the normal opening phase (note2)	After max 7 sec. the system reduce the opening torque					

Notes:

- 3. This alarm can only occur if the REVERSING SYSTEM parameter has been set to "EXTERNAL".
- **4.** If both connections (motor and Encoder signals) are inverted, the door opens when a closing signal is received and closes with an opening signal. The Door Operator is pre-wired and tested by the manufacturer, so special attention must be taken when replacing motor and/or cables.

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^{1.} This alarm can only occur if the Main Lift Controller Test has been set either to "WHEN Moving" or "Moving+Parking" and the "Main Lift Controller Input Alarm" parameter has been set to "ON".

^{2.} This alarm indicates an excessive strain in the operator's functioning; it is advisable to check that the system has no friction whatsoever, especially during the opening phase. The alarm is just recorded in the alarm list but not displayed on the door drive front panel.

TRIAL OPERATIONS BEFORE START UP THE DOOR CONTROLLER

To avoid damages, check that the power supply voltage be within the rated values before starting up the door controller

Before the lift goes in operation, a self-learning cycle must be carried out and parameters must be set according to the General Options.

7.1 SELF-LEARNING CYCLE

The self-learning cycle allows the Door Controller to store the running distance between the closing and opening limit. It can only be activated manually and must be carried out under direct supervision of maintenance personnel so that they may check that the operation is correctly completed (i.e. the Door Controller must store the correct data). The self-learning cycle is shown on the door controller display with "SL".

Important!

- During the self-learning cycle please check carefully that the door panels slide freely and that the Door Operator completes its total expected travel. The self-learning cycle is essential if a replacement Door Controller has been installed.
- If a car door locking device is installed the self-learning cycle must be carried out with the operator coupled to a landing door.
 Outside the lock release zone of the landing doors, this device prevents the car door opening.
- Every time the system is re-powered (for instance after power supply interruption) it performs a reset cycle, i.e. it searches a closing limit at low speed, not a self-learning cycle.

7.2 SELF-LEARNING CYCLE WITH THE DOOR CONTROLLER ONLY (WITHOUT USING THE HANDSET)

- Power the system
- Turn on the door controller "ON"
- For the manual self-learning procedure keep key 4 pressed for a while to switch from automatic to manual mode (check that the AUTO red led turns off and the MAN red led turns on).
- To start up the self-learning cycle keep key 1 pressed for a while, Self Learn.
- The keys 2, opening, and 3, closing, on the door controller command the opening and closing operations.

When a closing command is given, the Door Controller carries out a closing cycle at low speed (the Door Controller display shows the sign "SL") or remains in closed position.

When an opening command is given, the Door Controller carries out an opening cycle at low speed (on the Door Controller display the sign "SL" flashes). During this operation please check carefully that the operator completes its total expected travel). At the end of the opening cycle, the self-learning cycle is complete (the sign "SL" disappears and "oP" appears).

Keep key 4 pressed again for a while to activate the automatic mode.



Note: the Self Learning cycle can also be started with the door drive in automatic mode; the door close and door open signals are sent by the main lift controller. To enter the Self Learning phase in Automatic mode just keep the key 1 pressed for a while, then let the main lift controller to send door open/door close signals.



8 INSTRUCTION WITH HANDSET

8.1 HANDSET (OPTIONAL)



Fig. 1 Optional Kit - cod. B147AABX

IMPORTANT: handset can only be used on the car roof with the lift in "inspection" mode

Recommendation!

Although the handset (see picture 1) can be directly connected by the installer/maintenance personnel to the door controller on the car's roof, the ideal situation is to have a connection with the door controller inside the car (see picture 2).

In this way the installer/maintenance personnel can work in absolutely safe conditions and can control the movement of the coupled doors during their effective operational mode.

To make this connection, ask Sematic for the appropriate adapter cod. B147AABX (see picture 3) (a 16 mm. diameter hole is required in any chosen position within the Car walls).

Note: when the handset is connected to the controller the display shows the warrantly expiration date (2 years from the manufacturer date) and the activity hours left before warrantly expiration. Subsequently choose the language by means of the keys Ψ and \uparrow and confirm the choice through the "OK" key.

Important note: when the handset is connected, all the signals from the main lift controller (but not the K2TB, if used) and Kn are ignored; this in order not to interfere with the commands sent through the handset.

If Monitor menu is selected also Kn is monitored. When the MLC Monitor menu is selected, though, the system performs as if the handset was not connected at all, allowing the complete monitoring of input/output signals by means of the handset.



8.2 USER HANDSET MENUS AND SUBMENUS



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(*) Access to advanced options with user PASSWORD (**) PC99 is reachable just with SCH or SEM PASSWORD

(***) With SCH PASSWORD you can just enter in the interface type selection and to the complete reset parameter



8.3 SELF-LEARNING CYCLE ACTIVATION BY MEANS OF THE HANDSET

By using the handset to operate a self-learning cycle, interferences with possible signals coming from the main lift controller are avoided • Power the system

- Turn "on" the door controller; if there are any closing or opening signals from the main lift controller, the operator will perform the relevant reset cycle in low speed up to the end run limit
- Connect the handset to RJ45 connector
- If necessary, using keys ♠ and ♥ choose the required language and confirm with the "OK" key
- Using keys *n* and *√* run through the MAIN MENU and choose "DOOR CONFIGURATION", using the "OK" key confirm the option.
 Then choose "SELF LEARNING" and press "OK"
- If the operator is not on a closing position use key F2 (><) to allow the door to complete a closing cycle in low speed
- Once the closure has been made, push again key F2 (<>) to allow a complete opening cycle in low speed
- During this operation please check carefully that the operator completes its total expected travel.

At the end of the opening cycle the self-learning cycle is completed.

This will be signalled with the information "Self-learning completed".

The following will be requested: "Guided Profile setting?"

- Press the "OK" key to choose the option "Fast settings"
- Press key F1 (EXIT) to restore the ["]main menu"

8.4 REVERSING SYSTEM FORCE SETTING BY MEANS OF THE HANDSET

- Connect the handset to RJ45 connector
- If necessary, using keys ♠ and ♥ choose the required language and confirm with the "OK" key
- Using keys ♠ and ♥ run through the MAIN MENU and choose "advanced settings". Press the "OK" key to confirm the option.
- Then choose REVERSING SYSTEM and press the "OK" key to confirm the option.
- On the display the following options are viewed:
- PCOO RÉVERS. SYSTEM CHOICE
 - PC34 IM SIGNAL TYPE
 - PC42 FSET SELF TUNING
 - PC09 REVERS. FORCE SETTING
 - REVERS. OFFSET SETTINGS
- Using the keys *↑* and *↓* scroll through the REVERSING menu and select the option "REVERSING SYSTEM FORCE SETTING"
 Press "OK" to confirm the choice;

On the left display side three values are shown selectable with ♠ and ♥ keys: the maximum value (MAX), the set value (SET) and the minimum value (MIN).

It is possible to change those values with \leftarrow and \rightarrow .

On the right display side a graph is shown with the set force percentage regarding the maximum force.

- Using keys ← and → the viewed value is respectively decreased or increased;
- Press key F2 (<> ><) to check the door operation with the set reversing force value
- Press key F3 (Menu) to restore the MAIN MENU
- Press key F1 (BACK) to restore the menu ADVANCED SETTINGS;

8.5 OPTION "RESET SPEED PROFILE"

Choose this option to reset the movement parameter to the factory default values.

- Connect the handset to RJ45 connector
- If necessary, using keys ♠ and ♥ choose the required language and confirm with the "OK" ke
- Using keys ♠ and ♥ run through the MAIN MENU and choose MAINTENANCE;
- Press the "OK" key to confirm the option.
- On the display the following options are viewed:
 - MONITOR
 - MLC MONITOR
 - RESET SPEED PROFILE
 - LAST ALARMS
 - ALARMS COUNTERS
 - DATA DOWNLOAD
 - DATA UPLOAD
 - STATISTICS
 - SOFTWARE UPGRADES
- Using keys ♠ and ♥ run through the menu "MAINTENANCE" and choose the option "Reset speed profile".
- Using the "OK" key, confirm the option

8.6 OPTION "ADVANCED SETTINGS"

- Connect the handset to RJ45 connector
- If necessary, using keys ♠ and ♥ choose the required language and confirm with the "OK" key
- Using keys ♠ and ♥ run through the MAIN MENU and choose ADVANCED SETTINGS;

After confirming the choice by pressing the "OK" key, a 5-code password is required on the display. The factory default access code is 00001.

Use keys 🗲 and 🗲 to move to different digits and to select the necessary coded digit use keys 🛧 and \clubsuit Press OK at the end.



36

The following options are viewed on the display:

- PARAMETERS
- OPENING PARAMETERS
- CLOSING PARAMETERS
- REVERSING SYSTEM _
- CHANGE PASSWORD
- RESERVED AREA
- Using keys ♠ and ♥ run through the menu. Using the "OK" key, confirm the option

Using keys \bigstar and \checkmark run through the menu and choose the required option

- Using the "OK" key, confirm the option
 - The following options are available:
 - "BACK": press key F1 to restore the MAIN MENU
 - "MENU": press key F3 to restore the MAIN MENU

The following diagram shows the correspondance between speed profiles and available parameters:



01 - Low start speed	Cl - Low start speed
02 - Accelleration start	C2 - Accelleration start
03 - Accelleration	C3 - Accelleration
04 - High speed	C4 - High speed
05 - Offset deceleration	C5 - Offset deceleration
06 - Deceleration	C6 - Deceleration
07 - Low speed	C7 - Low speed

8.6.1 Option "Parameters"

The following options are viewed on the display:

- MLC PARAMETERS
- INPUTS PARAMETERS
- OUTPUTS PARAMETERS
- CLOSED PARKING MODE
- RESET CURRENT
- CL REST CURRENT
- REVERS SYSTEM SPACE
- SERIAL BUS SETTINGS
- SMOOTH REOPENING •
- MAX POWER OP
- SOFT DEGRADATION OP .
- PARK OP NO TORQUE
- PARK CL LOW TORQUE THRESHOLD
- PARK CL LOW TORQUE DELAY

For each of the above listed parameter the parameter name is displayed at the top, the current value is displayed at the bottom with the relevant unit measure; the up/down arrow keys allow changing the current value.

- The following options are available:
 - "BACK": press key F1 to restore the MAIN MENU
 - F2 KEY: to open and close the door, to test the modified profile
 - "DRAW": press key F3 to update the speed profile drawing



8.6.2 Option "MLC Parameters"

The following options are viewed on the display:

- PCO1 MLC TEST
- PC02 NO MLC SIGNAL
- PC03 MLC INPUT ALARM

For each of the above listed parameter the parameter name is displayed at the top, the current value is displayed at the bottom with the relevant unit measure; the up/down arrow keys allow changing the current value.

- The following options are available:
 - BACK": press key F1 to restore the MAIN MENU
 - F2 KEY: to open and close the door, to test the modified profile
 - "DRAW": press key F3 to update the speed profile drawing

8.6.3 Option "Inputs Parameters"

The following options are viewed on the display:

- PC04 KN INPUT
- PC21 PROTECTIVE DEV. LOGIC
- PC32 AUX IN
- PC27 KB OPTIONS
- PC19 FIRE FIGHTING OPTIONS
- PC20 EOD TIMEOUT

For each of the above listed parameter the parameter name is displayed at the top, the current value is displayed at the bottom with the relevant unit measure; the up/down arrow keys allow changing the current value.

- The following options are available:
 - BACK": press key F1 to restore the MAIN MENU
 - F2 KEY: to open and close the door, to test the modified profile
 - "DRAW": press key F3 to update the speed profile drawing

8.6.4 Option "Output Parameters"

The following options are viewed on the display:

- PC07 ĂUX RELAY OUT
 - PC37 LA OUT WITH NO COMMAND
- PC38 LA THRESHOLD

For each of the above listed parameter the parameter name is displayed at the top, the current value is displayed at the bottom with the relevant unit measure; the up/down arrow keys allow changing the current value.

• The following options are available:

- "BACK": press key F1 to restore the MAIN MENU
- F2 KEY: to open and close the door, to test the modified profile
- "DRAW": press key F3 to update the speed profile drawing

8.6.5 Option "Opening Parameters"

The following options are viewed on the display:

- PCI1 LOW START SPEED
- ACCELERATION START
- ACCELERATION
- PC 10 HIGH SPEED
- PC 62 OFFSET DECELERATION
- DECELERATION
- PC 64 LOW SPEED
- FITTINGS

For each of the above listed parameter the parameter name is displayed at the top, the current value is displayed at the bottom with the relevant unit measure; the up/down arrow keys allow changing the current value.

- The following options are available:
 - "BACK": press key F1 to restore the MAIN MENU
 - F2 KEY: to open and close the door, to test the modified profile
 - "DRAW": press key F3 to update the speed profile drawing

8.6.6 Option "Closing Parameters"

The following options are viewed on the display:

- LOW START SPEED
- DECELERATION STOP
- ACCELERATION
- PC 13 HIGH SPEED
- PC 63 OFFSET DECELERATION
- DECELERATION
- PC 14 LOW SPEED
- FITTINGS

For each of the above listed parameter the parameter name is displayed at the top, the current value is displayed at the bottom with the relevant unit measure; the up/down arrow keys allow changing the current value.

• The following options are available:



- "BACK": press key F1 to restore the MAIN MENU
- F2 KEY: to open and close the door, to test the modified profile
- "DRAW": press key F3 to update the speed profile drawing

8.6.7 Option "Reversing System"

The following options are viewed on the display:

- PCOO REVERS. SYSTEM CHOICE
- PC34 IM SIGNAL TYPE
- PC42 FSET SELF TUNING
- PC09 REVERS. FORCE SETTIMG
- REVERS. OFFSET SETTINGS

This option allows the user to set the space in wich the door operates a reopening cycle (caused by an obstruction between the doors noticed by the reversing system). Increasing the space the stopping before reopening time increase and viceversa. Use keys \uparrow and \checkmark to modify the reversing system space value and press the "OK" key to confirm it

- The following options are available:
 - "BACK": press key F1 to restore the Main Menu
 - "MENU": press key F3 to restore the Main Menu

8.6.8 Option "Change Password"

This option allows the user to change access passwords; input the new password as follows:

Select the desired code digit using keys ♠ and ♥; Use keys € and ➔ to move to different digits. Press OK at the end.

8.7 OPTION "RESERVED AREA"

- Connect the handset to RJ45 connector
- If necessary, using keys ♠ and ♥ choose the required language and confirm with the "OK" key
- Using keys ♠ and ♥ run through the MAIN MENU and choose ADVANCED SETTINGS
- Press the "OK" key to confirm the option
- •
- Using keys ♠ and ♥ run through the menu "ADVANCED SETTINGS" and choose the option RESERVED AREA
- Using the "OK" key, confirm the option

After confirming the choice by pressing the "OK" key, a 5-code password is required on the display. This selection is reserved for factory use only.

Use keys \leftarrow and \rightarrow to insert the codes; to select the required code and modify its value use keys \Uparrow and \checkmark .



9 DOOR OPERATOR SETUP

- Connect the handset to RJ45 connector;
- If necessary, using keys ♠ and ♥ choose the required language and confirm with the "OK" key
- Using keys ♠ and ♥ run through the MAIN MENU and choose DOOR OPERATOR SETUP
- Press OK to confirm the choice
- The DOOR OPERATOR SETUP menu allows the Door Controller to operate by means of the following parameter options:
 PC26 SKATE TYPE
 - PC90 MOTOR
 - PC22 CLOSING ROTATION
 - PC05 CAR DOOR LOCK. DEVICE
 - PC06 GLAZED DOORS
 - PC33 SPEED PROFILE

These parameter meanings and settings are detailed in the following paragraphs.

9.1 ACTIVATION OF SKATE TYPE SETTING BY MEANS OF THE HANDSET

- Using keys ♠ and ♥ run through the DOOR OPERATOR SETUP and choose the SKATE TYPE option
- Press the "OK" key to confirm the choice
 - The following options are viewed on the display:
 - STD TYPE
 - EXP TYPE
 - EXP-B TYPE
- Using keys ♠ and ♥, choose the required option and press the "OK" key to confirm it
- The display shows the confirmed option and restores the menu DOOR OPERATOR SETUP
- The following options are available.
 - "BACK": Press key F1 to restore the menu DOOR CONFIGURATION
 - "MENU": Press key F3 to restore the MAIN MENU

9.2 ACTIVATION OF MOTOR TYPE BY MEANS OF THE HANDSET

- Using keys ♠ and ♥, run through the DOOR OPERATO SETUP and choose the MOTOR option
- Press the "OK" key to confirm the choice
- For Sematic Drive System DC-PWM "cod. B157AAEX01" controller the following motor list is displayed (these motors are automatically recognized):
 - B105AAAX01
 - B105AAAX02
 - B105AANX
 - B105AALX
- Using keys ↑ and ↓ is possibile to manually chose the following motor types:
 DC-PWM BI05AAAX01
 - DC-PWM B105AAAX02
 - DC-PWM B105AAAX0.
 - DC-PWM BI05AANX
 DC-PWM BI05AALX
 - DC-PWM S40 V
 - DC-PWM S40 V
 DC-PWM S30 V
 - DC-PWM S30 V – DC-PWM В1054 A
 - DC-PWM B105AAWX
 - DC-PWM BIO5AAYX
 - DC-PWM B105AAZX - DC-PWM B105AAXX

9.3 ACTIVATION OF CLOSING ROTATION BY MEANS OF THE HANDSET

- Using keys 🖈 and 🐓 run through the DOOR OPERATOR SETUP and choose the CLOSING ROTATION option
- Press the "OK" key to confirm the choice
- The following options are viewed on the display:
 - CLOCKWISE
 - ANTICLOCKWISE
- Using keys ♠ and ♥, choose the required option and press the "OK" key to confirm it
- The display shows the confirmed option and restores the menu DOOR OPERATOR SETUP
- The following options are available:
 - "BACK": Press key F1 to restore the menu DOOR CONFIGURATION
 - "MENU": Press key F3 to restore the MAIN MENU

9.4 ACTIVATION OF THE CAR DOOR LOCKING DEVICE SETTING BY MEANS OF THE HANDSET

- Using keys ♠ and ♥, run through the DOOR OPERATOR SETUP and choose the option CAR DOOR LOCKING DEVICE;
- Press key "OK" to confirm the choice
- The following options are viewed on the display:
 - OFF
 - *ON*
- Using keys ♠ and ♥, choose the required option and press the "OK" key to confirm it
- The display shows the confirmed option and restores the menu DOOR OPERATOR SETUP



- The following options are available:
 - "BACK": Press key F1 to restore the menu DOOR CONFIGURATION
 - "MENU": Press key F3 to restore the MAIN MENU

9.5 ACTIVATION OF THE GLAZED PANEL AND HEAVY DOORS SETTING BY MEANS OF THE HANDSET

- Using keys ♠ and ♥, run through the "DOOR OPERATOR SETUP" and choose the option GLAZED PANEL AND HEAVY DOORS
- Press key "OK" to confirm the choice
- The following options are viewed on the display:
 - OFF
 - *ON*
- Using keys ♠ and ♥, choose the required option and press the "OK" key to confirm it
- The display shows the confirmed option and restores the menu "DOOR OPERATION SETUP"
- The following options are available:
 - BACK": Press key F1 to restore the menu DOOR CONFIGURATION
 - "MENU": Press key F3 to restore the MAIN MENU

9.6 ACTIVATION OF SPEED PROFILE SETTING BY MEANS OF THE HANDSET

- Using keys ♠ and ♥, run through the DOOR OPERATOR SETUP and choose the SPEED PROFILE option
- Press the "OK" key to confirm the choice
- The following options are viewed on the display: 50%, 75%, 100%, 125%, 150%
- Using keys ♠ and ♥, choose the required door speed profiles and press the "OK" key to confirm it
- The display shows the confirmed option and restores the menu General Options
- The following options are available:
 - "BACK": Press key F1 to restore the menu DOOR CONFIGURATION
 - "MENU": Press key F3 to restore the MAIN MENU



10 MAINTENANCE MENU - DIAGNOSTICS AND ALARM MANAGEMENT

10.1 CONSULTING THE MAINTENANCE MENU WITH THE HANDSET

- Connect the handset to the RJ45 connector
- If necessary, using keys
 A and
 Choose the required language and confirm with the "OK" key or confirm the suggested language
 with "OK"
- Using keys Up Arrow" and ♥, run through the "main menu "and choose "Maintenance"
- Press "OK" to confirm the choice
- The following options are viewed on the display:
 - MONITOR
 - MLC MONITOR
 - RESET SPEED PROFILES
 - LAST ALARMS
 - ALARMS COUNTERS
 - DATA DOWNLOAD
 - DATA UPLOAD
 - STATISTICS
 - SOFTWARE UPGRADES
- The following options are available
 - "BACK": Press key F1 to restore the MENU MAINTENANCE
 - "MENU": Press key F3 to restore the MAIN MENU
- Using keys 🛧 and 🖌 run through the MAINTENACE menu and choose the required option
- Using keys ♠ and ♥, run through
 Press "OK" to confirm the choice

If the option **MONITOR** is chosen, the display shows opening and closing speed profiles, with a indication of the speed in m/s. The following options are available:

- "Loop": Pressing key F1 the door performs a number of consecutive opening and closing cycles until key F1 is pressed again. Before
- movement it is possible to set the pause gap between an opening and closing cycle. Confirm with "OK" key.
- "<>" or " >< ": Press key F2 to let the doors respectively open or close
- "MENU": Press key F3 to restore the MAIN MENU

If the option **STATISTICS** is chosen, the display shows the door total working time expressed in days:hours:minutes, the cycle total number which have been performed in this working time and the manufacture date. The following options are available:

- BACK": Press key F1 to restore the menu MAINTENANCE
- "MENU": Press key F3 to restore the MAIN MENU

If the option LAST ALARMS is chosen the display shows the last occurred alarms showing their code, the relevant description and time of occurrence (day :hour :minute from the door controller start-up). Using keys \bigstar and \clubsuit , run through the stored alarm list. The following options are available:

- "BACK": Press key F1 to restore the menu MAINTENANCE
- "CANC": Press key F2 to cancel all stored alarms
- "MENU": Press key F3 to restore the MAIN MENU

If the option **ALARMS COUNTERS** the display views the alarm list showing their code, the relevant description and the number of times they have occurred. Using keys \uparrow and Ψ , run through the stored alarm list.

The following options are available:

- "BACK": Press key F1 to restore the menu MAINTENANCE
- "CANC": Press key F2 to cancel all stored alarms
- "MENU": Press key F3 to restore the MAIN MENU

The viewed alarms are the same as in the Alarms Table "-" a pag. 32

If the option **MAIN LIFT CONTROLLER MONITOR** is chosen, the system IS BACK TO FOLLOW MAIN LIFT CONTROLLER'S SIGNALS; the display shows a complete list of the input/output signals with their value.

When the input or output signal is activated the character on the display will change their graphic in white with dark background. The following options are available:

- "BACK": Press key F1 to restore the menu MAINTENANCE
- "MENU": Press key F3 to restore the MAIN MENU
- The following options are available:
 - "BACK": Press key F1 to restore the menu MAINTENANCE
 - "MENU": Press key F3 to restore the MAIN MENU



11 CONTROLLER SOFTWARE UPGRADE

- Connect the handset to the RJ45 connector
- If necessary, using keys ♠ and ♥ choose the required language and confirm with the "OK" key
- Press "OK" to confirm the choice
- Display shows the last available update and the software version in use at the moment.
- Press "OK" to confirm the software update
- Controller operates a reset and the display shows "Upload" with the progression value of data loading
- At the end of the upload the controller operates a reset

In case of interruption of connection between handset and controller during the data transfer, turn "off" the controller, turn it "on" again and reconnect the handset. The upload starts again from the beginning.

12 DOOR OPERATOR MAINTENANCE

At least once a year complete the following checks:

- Clean the doors (tracks, bottom tracks, belts etc.) from dust or debris as this maintains the door good mechanical operation
- Check the electric connections and their fitting to the connectors
- Check that the door operator toothed belt is tight enough and in good working condition
- Check and clean the cable connections of the motor and of the motor Encoder

13 SPARE PARTS

It is possible to order all the Sematic Drive System[®] spare parts using the spare parts catalogue, by specifying the required quantity and the code of the ordered piece.

The spare parts manual is extremely important to avoid misunderstandings and to ensure a rapid supply of the correct spare parts. The spare parts catalogue, with photographs and details will make the Sematic doors spare parts purchase easy and quick.

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