DRIVE - INSTRUCTION MANUAL

WITTUR

SDS Drive
DC-PWM Compatible

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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*

1 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:

- *EN81-1/2;*
- *EN81-20/50;*
- *AS1735;*
- *EN12015/EN12016;*
- *GB7588 + XG1;*

The present document has been drafted in accordance with EN13015

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)*

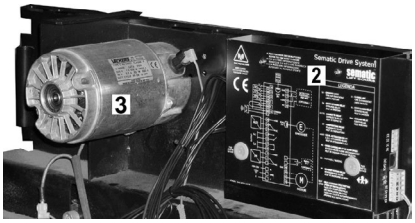
c. ***RISKS OF OVERHEATING***

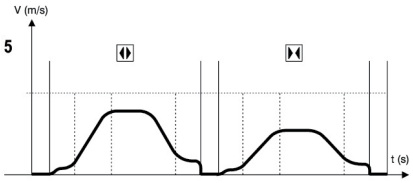
d. ***RISKS GENERATED BY NOISE***

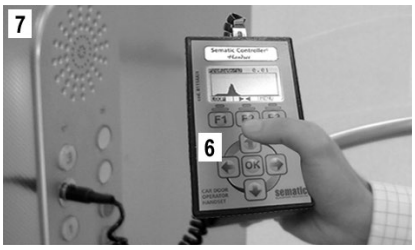
e. ***RISKS GENERATED BY VIBRATION***

f. ***RISKS GENERATED BY MATERIALS AND SUBSTANCES***

2 WHAT IS THE SEMATIC DC-PWM DRIVE SYSTEM© COMPATIBLE?







The System consists of:

- *a Car Door Operator (1)*
- *a microprocessor-based Door Controller (2)*
- *DC Motor (3)*
- *Megnetic Switches with activation magnets (4)*

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 (5) 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 (6) 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 (7).
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.

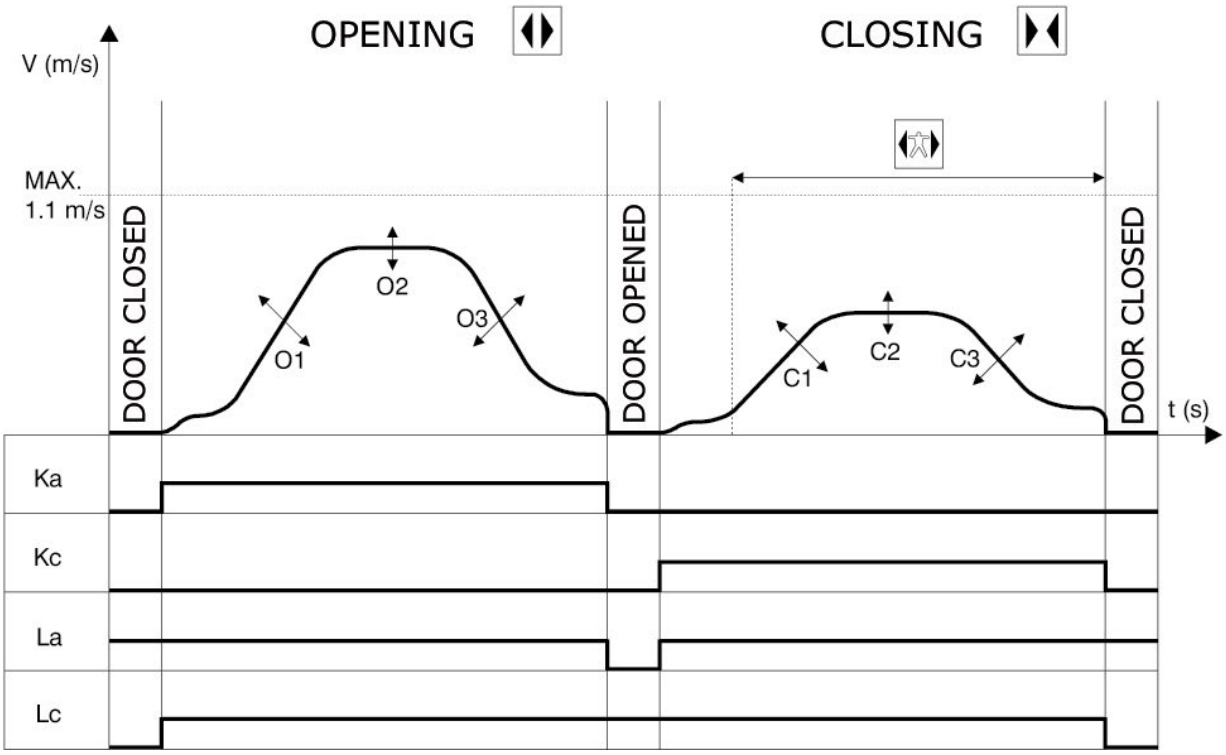
2.1 SPEED PROFILE

Opening cycle

O1	Opening acceleration
O2	Opening hight speed
O3	Opening deceleration

Closing cycle

C1	Closing acceleration
C2	Closing hight speed
C3	Closing deceleration



Key

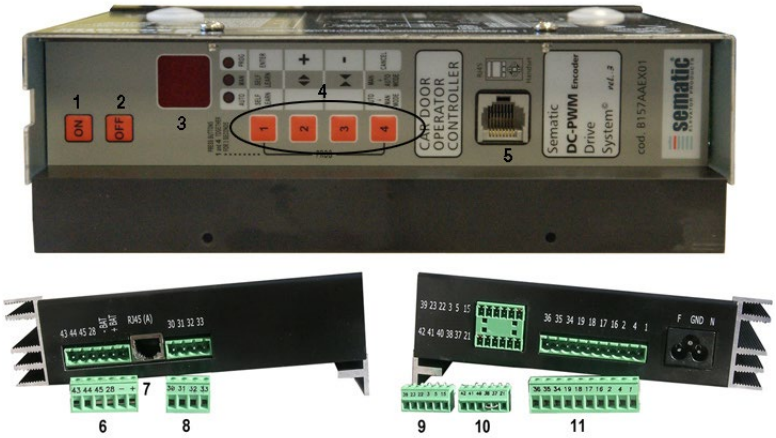
Ka	Door opening
Kc	Door closing
La	Open Limit
Lc	Close limit
	Closing cycle
	Active reversing system
	Opening cycle

3 GENERAL FEATURES

3.1 TECHNICAL INFORMATION

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] battery fuse [5x20, 8 A]
PERFORMANCE SPEED	separately adjustable for opening and closing
REVERSAL SENSITIVITY	Variable, only operational on door closing cycle

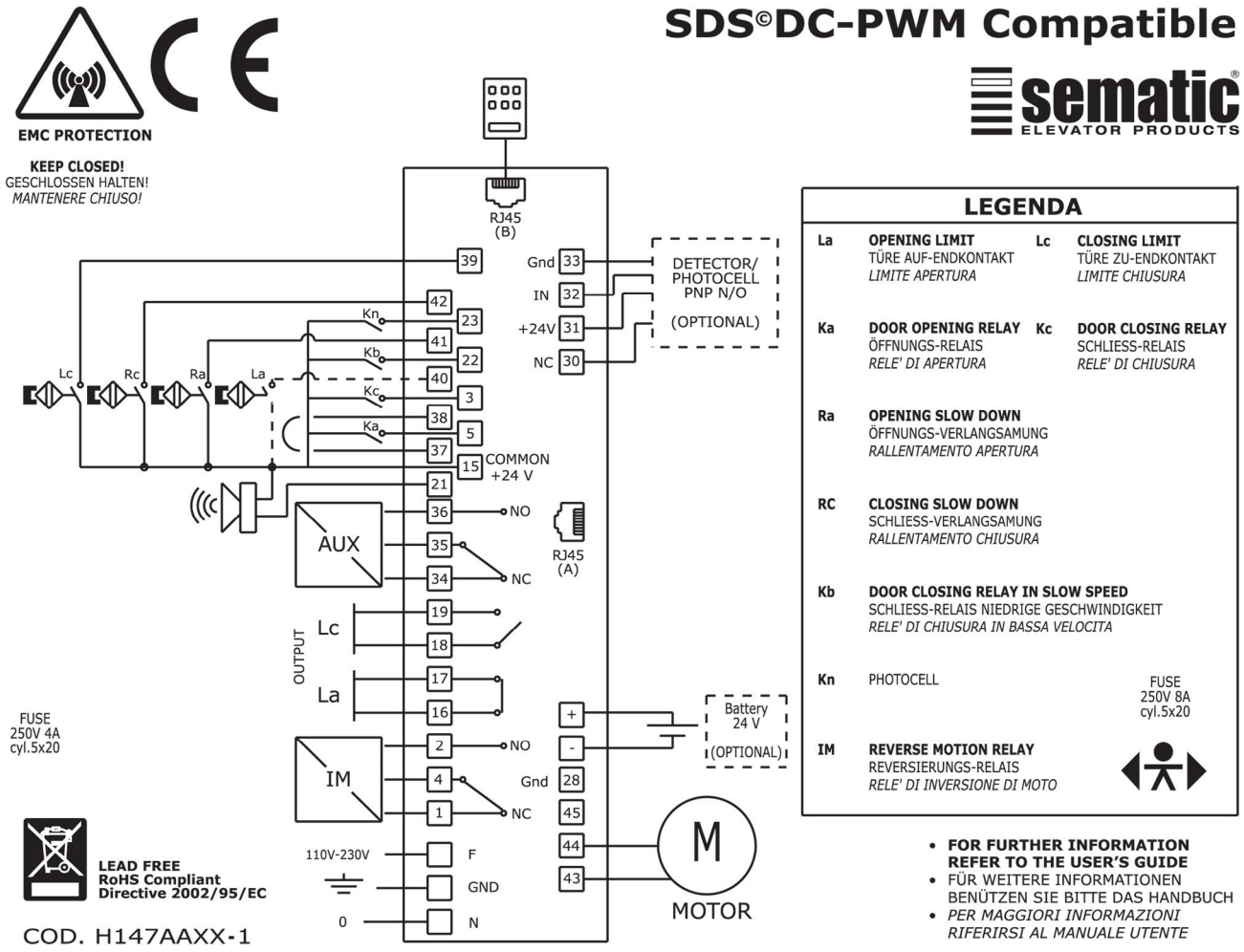
3.2 SEMATIC DRIVE SYSTEM© DOOR CONTROLLER (DC-PWM)



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)*

4 SIGNALS TO/FROM THE DOOR CONTROLLER

4.1 SEMATIC DRIVE SYSTEM© (DC-PWM) COMPATIBLE CONNECTIONS



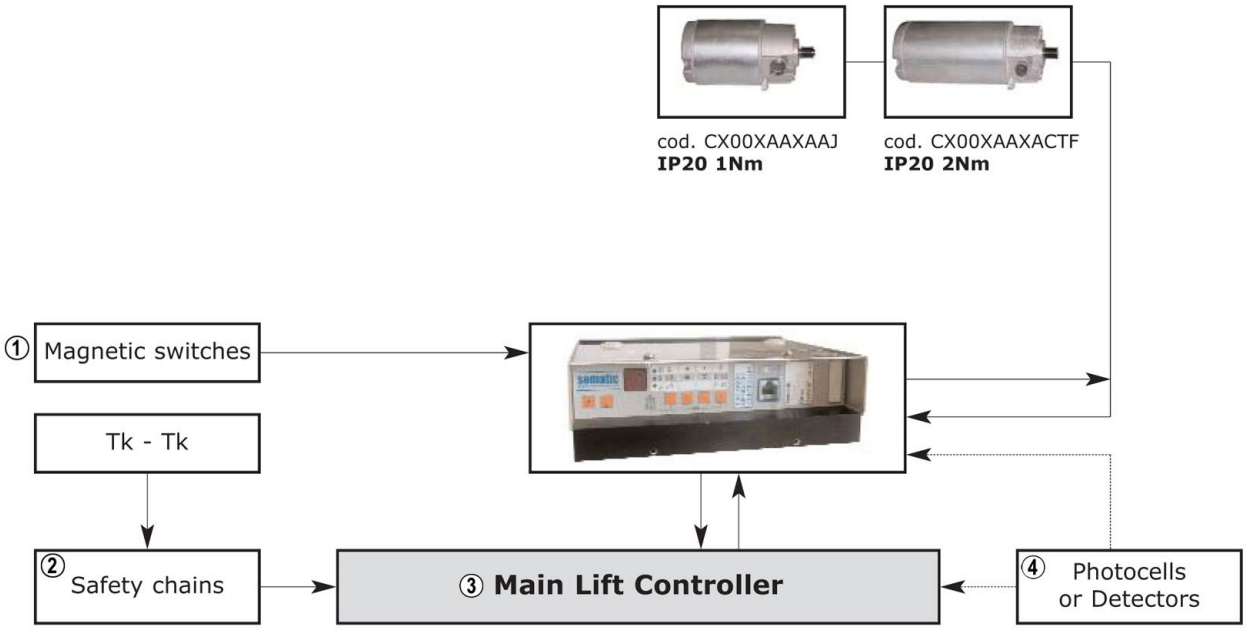
New

Check by a multimeter the magnetic switches input voltage in the specific door position

Mod.

DOOR POSITION	SWITCH STATE LC (39-15) (measure between 39 and 38)	SWITCH STATE RC (42-15) (measure between 42 and 38)	SWITCH STATE RA (41-45) (measure between 41 and 38)	SWITCH STATE LA (40-15) (measure between 40 and 38)
Door closed	OPEN (0Vdc)	CLOSED (24Vdc)	OPEN (0Vdc)	CLOSED (24Vdc)
Door mid travel	CLOSED (24Vdc)	OPEN (0Vdc)	OPEN (0Vdc)	CLOSED (24Vdc)
Door open	CLOSED (24Vdc)	OPEN (0Vdc)	CLOSED (24Vdc)	OPEN (0Vdc)

4.2 SEMATIC DRIVE SYSTEM© SET-UP AND INCOMING/OUTGOING SIGNALS FROM THE DOOR CONTROLLER



1	Magnetic switches
2	Safety chains
3	Main Lift Controller
4	Photocells or Detector

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 and closing commands have no common contacts between the two doors. Shielded, Grounded Wire Highly Recommended
Closing control Kc (coming from the Main Lift Controller)	Connector pins 3-15	These connections require dry (voltage free) contacts (contact open when inactive)	
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)	See 4.1 & 4.2 for the connection to the door controller
Closing limit switch contact Lc	Connector pins 15-39	These connections require dry (voltage free) contacts (contact open when door is closed)	From the operator closing limit magnetic switch
Closing slow down contact La	Connector pins 15-42	These connections require dry (voltage free) contacts (contact open when door is open)	From the operator closing limit magnetic switch
Opening limit switch contact Rc	Connector pins 15-40	These connections require dry (voltage free) contacts (contact open when inactive)	From the operator opening limit magnetic switch (Nnot used for DIGIDOOR compatibility).
Opening slow down contact Ra	Connector pins 15-41	These connections require dry (voltage free) contacts (contact open when inactive)	From the operator opening slow down magnetic switch
Handset (Optional)	Connector RJ45 (B)		

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 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
	Connector pins 2-4	(contact normally open)	
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 a Gong or Buzzer while the door is opening or as a Thermic alarm signal. Contact rating: 3A 250Vac 30Vdc.
	Connector pins 35-36	(contact normally closed)	
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.	

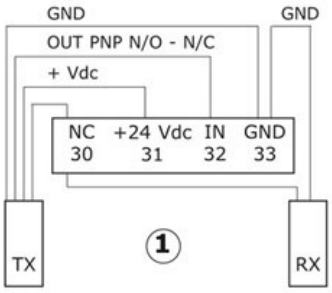
- *For the Door Operator mechanical installation refer to the "Installation and maintenance of Sematic doors" manual.*
- *Warning: to avoid possible induced currents within field wiring, it is recommended to shield the Ka and Kc signals (connector pins 3, 5 and 15) with grounded, shielded cables.*
- *Changes made to the factory wiring length or position can damage the EMC system characteristics and is not recommended.*

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

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" a pag. 19**, **"6.3 Limited Door Reversal" a pag. 19** and **"6.9 Protective Device Logic Kn" a pag. 19**).

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

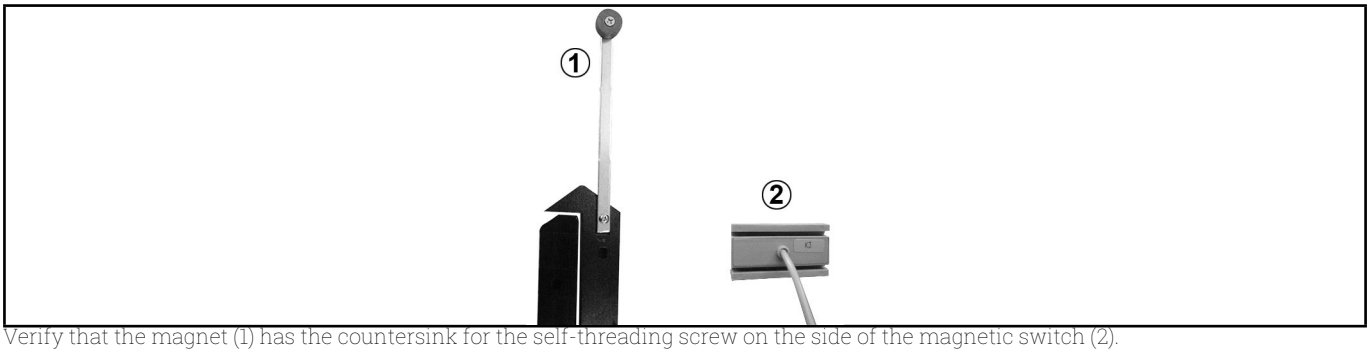
Complete Connection means that the device draws its power supply from and sends the re-open signal directly and only to the Sematic Drive System© controller.
It is possible to have the complete connection of detectors or photocells with a 24 Vdc max 100 mA supply and a PNP N/O or N/C output, through the connector pins:
Connector pin 30 can be used as a pass-through (dummy) connector pin for connections between the detector system components.



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).

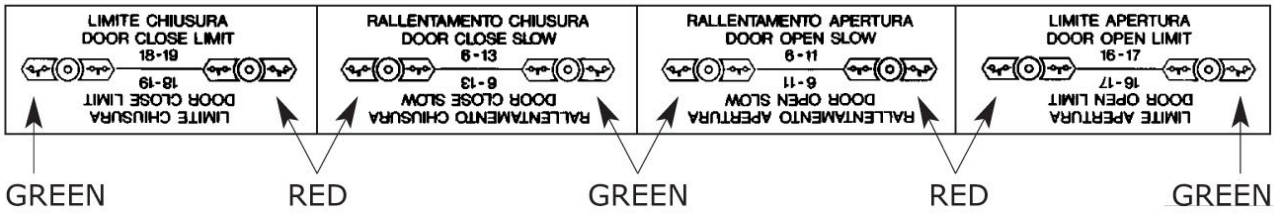
The operating reopening modes depend upon the setting of the REVERSING SYSTEM, LIMITED DOOR REVERSAL EFFECT and PROTECTIVE DEVICE LOGIC settings (see sections **"6.2 Reversing System choice: INTERNAL or EXTERNAL" a pag. 19**, **"6.3 Limited Door Reversal" a pag. 19** and **"6.9 Protective Device Logic Kn" a pag. 19**)

4.5 MAGNETIC SWITCHES

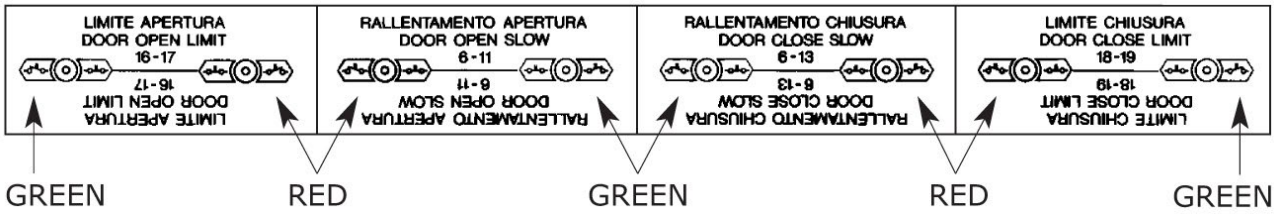


Verify that the magnet (1) has the countersink for the self-threading screw on the side of the magnetic switch (2).
Open and close the door by means of the controller or manually and make sure that the magnetic switches work correctly.

For K1-2-3R



For K1-2-3L and K2-4-6



These are the operations of the magnetic switches:

- ***Closed door*** *- the door close limit (pre-adjusted by the manufacturer) must operate when the carriage has already stopped but the retractable skate is not closed;*
- ***Open door*** *- the door open limit (pre-adjusted by the manufacturer) must operate approx 5 mm before the door is totally open; (note: not used for DIGIDOOR operator compatibility);*
- *The* ***closing slow down limit*** *causes the doors to slow down before they are totally closed;*
- *The* ***opening slow down limit*** *causes the doors to slow down before they are totally open.*

Attention: the distance between the slowing limits can be adjusted according to specific needs.

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.*
- *Keys 2 and 3 are not functional during automatic mode.*
- *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).*
- *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 for at least 10 minutes, the Door Controller will switch to the "automatic mode "AUTO".*

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

oP (flashing)	Door opening (Flashing Display)
oP	Door open
CL (flashing)	Door closing (Flashing Display)
CL	Door closed
FC	Forced closing
AL	It signals an alarm and flashes giving the code of the recognised alarm. See **"10 Controller software upgrade" a pag. 31**.
IM	Reversing system on

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").*

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

Param. codes	Default	Parameter	Range	Note
00	00	Reversing system choice	00, 01	00-> Internal 01-> External
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	Limited Door Reversal Effects	00, 01	00 -> Off 01 -> On
05	00	Car door locking device	00, 01	00 -> Off 01 -> On
06	00	Glass doors	00, 01	00 -> Off 01 -> On
07	00	Aux Output Relay	00, 01, 02, 03	00 -> Off 01 -> Gong While opening 02 -> According to % of space 03 -> Termic Alarm signal
08	00	Space Percentage (Percentage of the available space to operate the AUX relay)	00...99	00..99% (00 = closing limit)
09	66	Reversing force setting	00...99	10-150 N (10-135 N U.S. version)
10	33	Opening High Speed	01...99	
11	50	Opening Low Speed	01...99	
12	50	Opening "comfort"	01...99	
13	30	Closing High Speed	01...99	
14	50	Closing Low Speed	01...99	
15	80	Closing "comfort"	01...99	
16	-	Not Used	-	
17	-	Not Used	-	
18	-	Not Used	-	
21	00	Protective Device Logic Kn	00, 01	00 -> N/O, on obstruction closed 01 -> N/C, on obstruction open
22	01	Emulation Type	01, 02, 03, 04, 05, 06	01 ->Emulation F28 02 -> Emulation F29 03 -> Emulation Digidoor 1 Nm 04 -> Emulation Digidoor 2 Nm 05-> Emulation LM-DC 2010 06 -> Emulation LM-DC 2011
23	00	Ka, Kc, Kb inputs logic (see also **"7.6 Option "Reserved Area"" a pag. 26**)	00, 01	00 -> Ka, Kc, Kb inputs activated by +24V (high level logic) 01 ->Ka, Kc, Kb inputs activated by 0V (low level logic)

6 FUNCTIONS AVAILABLE

6.1 REVERSING SYSTEM FORCE SETTING

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 minor sensitivity corresponds to higher values and vice versa. After a number of operations, such parameter may change due to an automatic adjustment system.

6.2 REVERSING SYSTEM CHOICE: INTERNAL OR EXTERNAL

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, the Door Controller signals, through the IM contacts, the presence of an obstacle to the main lift controller, which in turn must signal the re-opening command using Ka. 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.

6.3 LIMITED DOOR REVERSAL

(Partial door re-opening, controlled by photoelectric barriers with either "Direct" or "Complete" Connection to the Door Controller; see **"4.2 Sematic Drive System© set-up and incoming/outgoing signals from the door controller" a pag. 12** and **"4.3 Detector/Photocell/ Barriers: Signal-Only Connection to the Door Controller (Direct Connection)" a pag. 14**.
This function allows a partial reopening of the doors when an obstacle has been detected by means of optoelectronic, traditional or proximity door protection devices.
The doors re-open only for the time during which the obstacle is detected and not necessarily up to the opening limit.
IM signal is sent to the lift controller as long as the obstacle is present.

6.4 MAIN LIFT CONTROLLER TEST

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".

6.4.1 No MLC Signal

The default option "INSTANT STOP" is setted: the door controller stops the door movement in case of Main Lift Controller signal drops.

6.4.2 Main Lift Controller Input Alarm

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.

6.5 CAR DOOR LOCKING DEVICE (USA = RESTRICTOR)

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.

6.6 FULL OR FRAMED GLAZED PANELED DOORS

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.

6.7 AUX OUTPUT RELAY

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).

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).

6.8 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.

6.9 PROTECTIVE DEVICE LOGIC KN

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.

6.10 EMULATION TYPE

SDS DC-COMPATIBLE controller may replace different kind of old controllers. Usig this parameter is possible to select requested controller emulation type within the following list:

- *Emulation F28*
- *Emulation F29*
- *Emulation DIGIDOOR 1Nm*
- *Emulation DIGIDOOR 2Nm*
- *Emulation LM-DC 2010*
- *Emulation LM-DC 2011*

It's possible to select the emulation type with the SDS Handset (**"8.10 Emulation Type" a pag. 28**) or in programming mode "PROG" (**"5.3 Programming Mode "PROG"" a pag. 17**).

Note: *if Digidoor controller compatibility is requested please verify the Main Lift Controller signals logic and voltage rate.*
If these values don't fit with the range and the logic explained in **"4 Signals to/from the door controller" a pag. 11**, *it is possible to install the Sematic Interface Kit cod. B066AAPX following the enclosed instruction.*

6.11 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 (No MAIN LIFT CONTROLLER signal) 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 mechanical strain (Note 2)	Auto reset after a time depending on motor
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.
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 (Note 4)	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 occurrences 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	Generic alarm due to an internal malfunction 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.

Notes:

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" (see **"6.4 Main Lift Controller Test" a pag. 19**).*
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.*
3. *This alarm can only occur if the REVERSING SYSTEM parameter has been set to "EXTERNAL" (see **"6.2 Reversing System choice: INTERNAL or EXTERNAL" a pag. 19**).*
4. *If motor connections 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.*

7 INSTRUCTION WITH HANDSET

7.1 HANDSET (OPTIONAL)

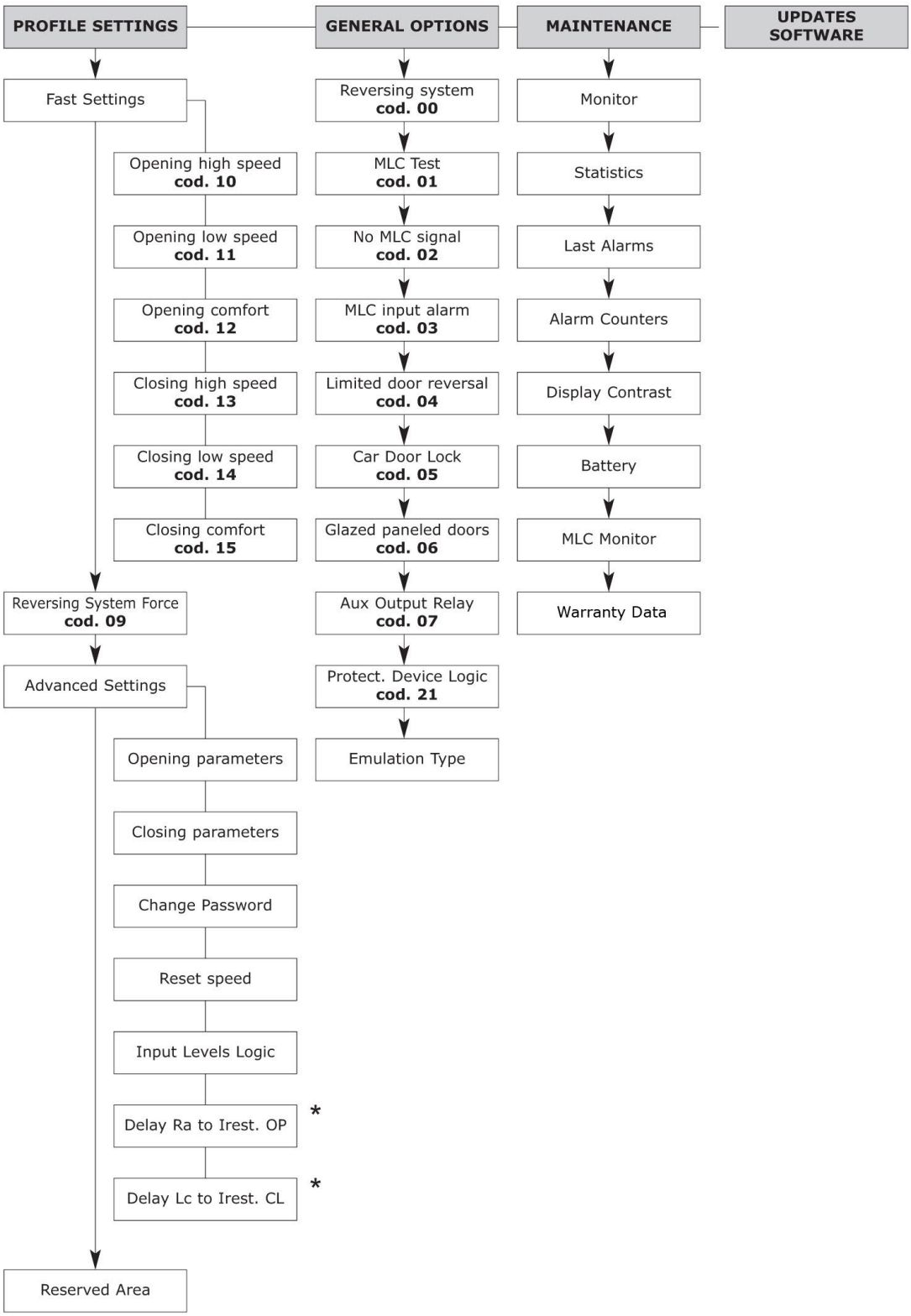
Fig. 1 Optional Kit - cod. B147AABX

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 ↓ and ↑ 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.
The output LA and LC are both kept OPEN (not valid condition in normal operation).
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.

7.2 USER HANDSET MENUS AND SUBMENUS



*** only for Digidoor Emulation**

7.3 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 PROFILE SETTINGS;*
- *Press the "OK" key to confirm the option.*
- *On the display the following options are viewed:*
  - *FAST SETTING*
  - *REVERSING SYSTEM*
  - *ADVANCED SETTINGS*
  - *RESERVED AREA*
- *Using keys ↑ and ↓ run through the menu "PROFILE SETTING" and choose the option REVERSING SYSTEM FORCE*
- *Using the "OK" key, confirm the option*

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 ← and →.
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 PROFILE SETTINGS;*

7.4 SPEED PROFILE AND HIGH SPEED ADJUSTMENTS 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 "PROFILE SETTINGS";*
- *Press the "OK" key to confirm the option*
- *On the display the following options are viewed:*
  - *FAST SETTING*
  - *REVERSING SYSTEM*
  - *ADVANCED SETTINGS*
  - *RESERVED AREA*
- *Using keys ↑ and ↓ run through the menu "PROFILE SETTINGS" 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";*

7.4.1 Option “Fast settings”

This option allows to easily and quickly modify the speed profiles. Choose this option as indicated in the first part of **“8.5 Limited door reversal Activation by means of the handset” a pag. 27**
The following options are viewed on the display:

- *OPENING PARAMETERS;*
- *A diagram shows the examined cycle speed profile (opening or closing);*
- *On the upper left side a number is given which indicates the currently used speed percentage. Using keys ↑ and ↓ on the handset to modify it.*
- *On the lower left side a number is given which indicates the currently used speed m/s.*
- *On the lower left side a number is given which indicates the time "T:" in seconds required to perform the opening cycle;*
- *Using keys ↑ and ↓, the value of the speed parameter is respectively increased or decreased;*
- *Using keys ← and →, it is possible to change the parameter to be set; the parameters which are available are "HIGH SPEED", "LOW SPEED", "COMFORT";*
- *The parameter "Comfort" determines acceleration value or deceleration value that the controller has to comply with while changing profile velocity. This parameter is important to establish the panel fluidness movement. The display shows the parameter value expressed in percentage and below the real value of the parameter;*
- *At the end of the parameters modifications the diagram will adapt and will show the new speed profile;*
- *Press key F2 (<> - ><) to check the door operation with the new set profile and, by performing an opening cycle, this will update the indicator of time necessary to carry out the opening cycle with the new set profile;*
- *Press key F3 (NEXT) to carry on the profile setting with the CLOSING PARAMETERS setting; the same operations must be followed as above in relation to the OPENING PARAMETERS setting;*
- *Press key F1 (BACK) to the previous menu;*

7.5 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 PROFILE SETTING;*
- *Press the "OK" key to confirm the option*
- *On the display the following options are viewed:*
  - *FAST SETTING*
  - *REVERSING SYSTEM*
  - *ADVANCED SETTINGS*

- *RESERVED AREA*

- *Using keys ↑ and ↓ run through the menu "PROFILE SETTING" and choose the option ADVANCED SETTING*
- *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. 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 ↓; Press OK at the end.

The following options are viewed on the display:

- *OPENING PARAMETERS*
- *CLOSING PARAMETERS*
- *CHANGE PASSWORD*
- *RESET SPEED*
- *INPUT LEVELS LOGIC*
- *DELAY Ra TO IREST OPENING (ONLY FOR DIGIDOOR EMULATION)*
- *DELAY Lc TO IREST CLOSING (ONLY FOR DIGIDOOR EMULATION)*

Using keys ↑ and ↓ 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*

7.5.1 Option “Opening Parameters”

The following options are viewed on the display:

- *LOW START SPEED*
- *ACCELERATION START*
- *ACCELERATION*
- *HIGH SPEED*
- *OFFSET DECELERATION*
- *DECELERATION*
- *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*

7.5.2 Option “Closing Parameters”

The following options are viewed on the display:

- *LOW START SPEED*
- *ACCELERATION START*
- *ACCELERATION*
- *HIGH SPEED*
- *OFFSET DECELERATION*
- *DECELERATION*
- *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*

7.5.3 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.

7.5.4 Option “Reset speed”

This option allows the user to change the speed at wich the controller operate the initial reset cycle.
Select the desired reset speed using keys ↑ and ↓. Press OK at the end.

7.5.5 Option “Input levels logic”

This option allows the user to change the Input/Output levels logic, to interface correctly the main lift controller

- *On the display are viewed all the input/output signals: the user can change the logic if needed;*
- ***H** (High Level) means that the signal will be activate by +24V*
- ***L** (Low level) means that the signal will be activate by 0V*
- *Using keys ↑ and ↓ select the required input/output and using ← or → select the required logic (H or L)*

- *Press the "OK" key to confirm levels logic settings*

For the Digidoor Interface connection verify that:

INPUT
Ka ➔ L
Kc ➔ L
Kb ➔ L
Kn ➔ H (to verify if it's needed)

OUTPUT
La ➔ H (to verify if it's needed an L - Low level logic)
Lc ➔ H (to verify if it's needed an L - Low level logic)

7.5.6 Option “Opening slow down delay to opening rest current” (Only for digidoor emulation)

This option allows the user to change the opening rest current delay from the opening slow down Ra signal.
The setted time starts from the Ra switch signal.
Select the desired time using keys 🡅 and 🡇. Press OK at the end.

7.5.7 Option “Closing limit delay to closing rest current” (Only for digidoor emulation)

This option allows the user to change the closing rest current delay from the closing limit Lc signal.
The setted time starts from the Lc switch signal.
Select the desired time using keys 🡅 and 🡇. Press OK at the end.

7.6 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 PROFILE SETTING*
- *Press the "OK" key to confirm the option*
- *On the display the following options are viewed:*
  - *FAST SETTING*
  - *REVERSING SYSTEM*
  - *ADVANCED SETTINGS*
  - *RESERVED AREA*
- *Using keys 🡅 and 🡇 run through the menu "PROFILE SETTING" 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 🡄 and ➔ to insert the codes; to select the required code and modify its value use keys 🡅 and 🡇.

8 GENERAL OPTION

- *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 GENERAL OPTIONS*
- *Press OK to confirm the choice*
- *The GENERAL OPTION menu allows the Door Controller to operate by means of the following parameter options:*
  - *REVERSING SYSTEM*
  - *MAIN LIFT CONTROLLER TEST*
  - *NO MLC SIGNAL*
  - *MLC INPUT ALARM*
  - *LIMITED DOOR REVERSAL*
  - *CAR DOOR LOCKING DEVICE*
  - *GLAZED PANELED DOORS*
  - *AUX OUTPUT RELAY*
  - *PROTECTIVE DEVICE LOGIC*
  - *EMULATION TYPE*

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

8.1 REVERSING SYSTEM SETTING BY MEANS OF THE HANDSET

- *See **"6.1 Reversing system force setting" a pag. 19** for the meaning of this parameter*
- *Using keys ↑ and ↓ run through the GENERAL OPTIONS and choose the option REVERSING SYSTEM*
- *Press the "OK" key to confirm the choice*
- *The following options are viewed on the display:*
  - *INTERNAL*
  - *EXTERNAL*
- *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 GENERAL OPTIONS*
- *The following options are available:*
  - *"BACK": Press key F1 to restore the menu GENERAL OPTIONS*
  - *"MENU": Press key F3 to restore the MAIN MENU*

8.2 ACTIVATION OF THE MAIN LIFT CONTROLLER TEST BY MEANS OF THE HANDSET

- *See **"6.4 Main Lift Controller Test" a pag. 19** for the meaning of this parameter*
- *Using keys ↑ and ↓ run through the GENERAL OPTIONS and choose the option MAIN LIFT CONTROLLER TEST*
- *Press the "OK" key to confirm the choice*
- *The following options are viewed on the display:*
  - *WHEN MOVING*
- *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 GENERAL OPTIONS*
  - *"MENU": Press key F3 to restore the MAIN MENU*

8.3 ACTIVATION OF THE MAIN LIFT FAILURE BY MEANS OF THE HANDSET

- *See **"6.4.1 No MLC Signal" a pag. 19** for the meaning of this parameter*
- *Using keys ↑ and ↓ run through the GENERAL OPTIONS and choose the option NO MLC SIGNAL*
- *Press the "OK" key to confirm the choice*
- *The following options are viewed on the display:*
  - *IMMEDIATELY STOP*
- *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 GENERAL OPTIONS*
  - *"MENU": Press key F3 to restore the MAIN MENU*

8.4 MAIN LIFT CONTROLLER ALARM - (MLC INPUT ALARM)

- *See **"6.4.2 Main Lift Controller Input Alarm" a pag. 19** for the meaning of this parameter*
- *Using keys ↑ and ↓, run through the GENERAL OPTIONS and choose the option MLC INPUT ALARM*
- *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 GENERAL OPTIONS*
- *The following options are available:*
  - *"BACK": Press key F1 to restore the menu GENERAL OPTIONS*
  - *"MENU": Press key F3 to restore the MAIN MENU*

8.5 LIMITED DOOR REVERSAL ACTIVATION BY MEANS OF THE HANDSET

- *See **"6.3 Limited Door Reversal" a pag. 19** for the meaning of this parameter*

- *Using keys ↑ and ↓, run through the GENERAL OPTIONS and choose the option LIMITED DOOR REVERSAL*
- *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 GENERAL OPTIONS*
- *The following options are available:*
  - *"BACK": Press key F1 to restore the menu GENERAL OPTIONS*
  - *"MENU": Press key F3 to restore the MAIN MENU*

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

- *See **"6.5 Car Door Locking Device (USA = Restrictor)" a pag. 19** for the meaning of this parameter*
- *Using keys ↑ and ↓, run through the GENERAL OPTIONS 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 GENERAL OPTIONS*
- *The following options are available:*
  - *"BACK": Press key F1 to restore the menu GENERAL OPTIONS*
  - *"MENU": Press key F3 to restore the MAIN MENU*

8.7 ACTIVATION OF THE GLAZED PANELED DOORS SETTING BY MEANS OF THE HANDSET

- *See **"6.6 Full or framed Glazed Paneled Doors" a pag. 19** for the meaning of this parameter*
- *Using keys ↑ and ↓, run through the GENERAL OPTIONS and choose the option GLAZED PANELED 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 GENERAL OPTIONS*
- *The following options are available:*
  - *"BACK": Press key F1 to restore the menu GENERAL OPTIONS*
  - *"MENU": Press key F3 to restore the MAIN MENU*

8.8 AUX OUTPUT RELAY SETTING BY MEANS OF THE HANDSET

- *See **"6.7 Aux Output Relay" a pag. 19** for the meaning of this parameter*
- *Using keys ↑ and ↓, run through the GENERAL OPTIONS and choose the option AUX OUTPUT RELAY*
- *Press the "OK" key to confirm the choice*
- *The following options are viewed on the display*
  - *OFF*
  - *GONG WHILE OPENING*
  - *SPACE PERCENTAGE*
- *Using keys ↑ and ↓, choose the required option and press the "OK" key to confirm it; If the option "SPACE PERTENTAGE" is chosen, the present space percentage is viewed on the display. To modify it, use key ↑ and ↓ as shown on the display right side. Confirm the required option by pressing the "OK" key. 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 PROFILE SETTING*
  - *"MENU": Press key F3 to restore the MAIN MENU*

8.9 PROTECTIVE DEVICE LOGIC KN SETTING BY MEANS OF THE HANDSET

- *See **"6.9 Protective Device Logic Kn" a pag. 19** for the meaning of this parameter*
- *Using keys ↑ and ↓, run through the GENERAL OPTIONS and choose the PROTECTIVE DEVICE LOGIC option*
- *Press the "OK" key to confirm the choice*
- *The following options are viewed on the display:*
  - *ON OBSTRUCT. : CLOSED*
  - *ON OBSTRUCT. : OPEN*
- *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 GENERAL OPTIONS*
- *The following options are available:*
  - *"BACK": Press key F1 to restore the menu PROFILE SETTINGS*
  - *"MENU": Press key F3 to restore the MAIN MENU*

8.10 EMULATION TYPE

- *See **"6.10 Emulation Type" a pag. 20** for the meaning of this parameter*
- *Using keys ↑ and ↓, run through the GENERAL OPTIONS and choose the EMULATION TYPE Option*
- *Press the "OK" key to confirm the choice*

- *The following options are viewed on the display:*
  - *Emulation F28*
  - *Emulation F29*
  - *Emulation DIGIDOOR 1Nm*
  - *Emulation DIGIDOOR 2Nm*
  - *Emulation LM-DC 2010*
  - *Emulation LM-DC 2011*
- *Using keys ↑ and ↓, choose the required option and press the "OK" key to confirm it*
- *The display shows the confirmed option and the controller operates a reset coming back to the MAI MENU*

9 MAINTENANCE MENU - DIAGNOSTICS AND ALARM MANAGEMENT

9.1 CONSULTING THE MAINTENANCE MENU WITH THE HANDSET

- *Connect the handset to the RJ45 connector*
- *If necessary, using keys ↑ 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*
  - *STATISTICS*
  - *LAST ALARMS*
  - *ALARMS COUNTERS*
  - *DISPLAY CONTRAST*
  - *BATTERY*
  - *MLC MONITOR (MAIN LIFT CONTROLLER MONITOR)*
  - *WARRANTY DATA*
- *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*
- *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 ↑ and ↓, 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 ↑ and ↓, 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 in **"6.11 Alarms" a pag. 21**

If the option **DISPLAY CONTRAST** is chosen, the display shows a dark square and allows the setting of the LCD contrast, by means of the ↑ and ↓ keys; adjust to best view and confirm with "OK" key. 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 **BATTERY** is chosen, the display shows either battery voltage (in Volt) and status (in charge or in use) or just "not present". 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 **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*

If the option **WARRANTY DATA** is chosen, the display shows:

- *warranty expiration date*
- *the activity hours left before warranty expiration*
- *the software version in use*
- *the motor code in use*

The following options are available:

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

10 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 or confirm the suggested language with "OK"*
- *Using keys ↑ and ↓, run through the MAIN MENU and choose "UPGRADE"*
- *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*
- *It is anyway advisable to run a new SELFLEARNING CYCLE and to check the parameter settings*

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 beginnin.

11 UPGRADE FROM CONTROLLERS PREVIOUS TO F28/F29 CONTROLLER (CONTROLLER TYPE: ASC 10/20, ADC10/11, SEM10/11, LMDC 10/11) F28/29 B

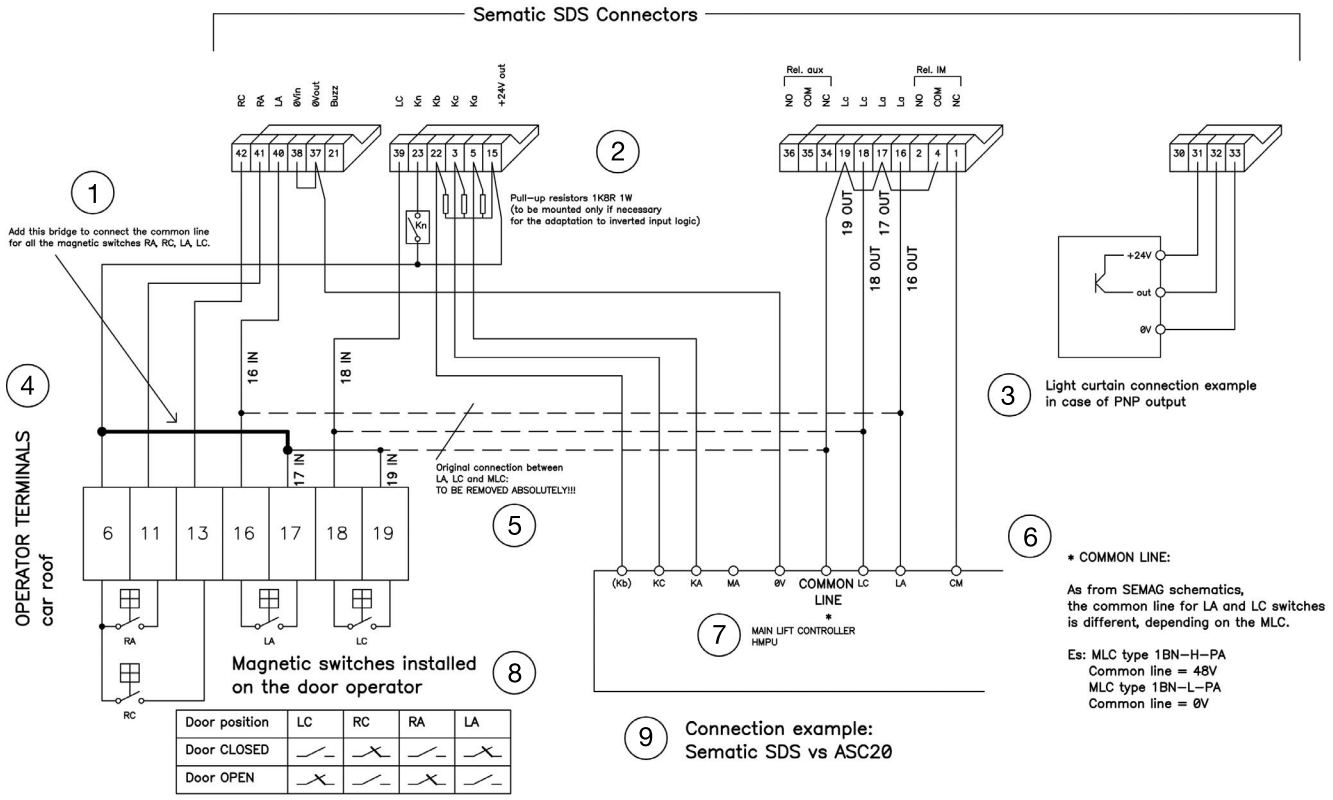
- *Eliminate the transformer 220/24 V with all its cables because the new SDS is fitted with an in-built switching transformer*
- *Cut the old terminal connection because the new connector is provided with cables with screws*
- *The wires (numbered) must be stripped and wired into the four connectors of the compatible SDS Controller following the correspondence given in the underneath table:*
- *Connect the 220 Vac input to the SDS controller by means of the feeding cable supplied code no. E066AAWX-A*
- *Select option EMULATION F28 or EMULATION F29 from the Menu General Option (see chapter 8.10) or programm parameter 22 using the keys on the frontal panel (01 o 02, see also* ***"5.3 Programming Mode "PROG"" a pag. 17****).*
- *Check the correct functioning*

CONNECTOR	FUNCTION	SEMATIC SDS Rel. 3 DC COMPATIBILE
1	IM reversing system N/C signal	1
2	IM reversing system N/O signal	2
3	Kc closing control	3
4	IM reversing system COM	4
5	Ka opening control	5
6	Ra and Rc opening and closing slow down COM	15
7	24 Vac power	NOT CONNECTED
8	24 Vac power	NOT CONNECTED
9	motor power	43
10	motor power	44
11	Ra opening slow down Input signal	41
12		NOT CONNECTED
13	Rc closing slow down Input signal	42
14		NOT CONNECTED
15	24 Vdc COM	15

OPERATOR TERMINALS	FUNCTION	SEMATIC SDS Rel. 3 DC COMPATIBILE
16 OUT	La Opening limit switch output contact (to the main lift controller)	16
17 OUT	La Opening limit switch output contact (to the main lift controller)	17
18 OUT	Lc Closing limit switch output contact (to the main lift controller)	18
19 OUT	Lc Closing limit switch output contact (to the main lift controller)	19

MAGNETIC BISTABLE SWITCHES FOR OPENING AND CLOSING LIMITS	FUNCTION	SEMATIC SDS Rel. 3 DC COMPATIBILE
16 IN	La Opening limit switch input contact (from the magnetic switch)	40
17 IN	La Opening limit switch COM (from the magnetic switch)	15
18 IN	Lc Closing limit switch input contact (from the magnetic switch)	39
19 IN	Lc Closing limit switch output contact (to the main lift controller)	15

Warning!
If in the old drive the magnetic switches **La**-Opening Limit and **Lc**-Closing Limit are directly connected to the main lift controller, disconnect and re-connect them at the new SDS Rel.3 DC COMPATIBILE controller 39 - 15 - 40 - 15 input terminals (as shown in the table). Connect SDS Rel. 3 DC COMPATIBILE La and Lc outputs to the main lift controller, at terminals 16 - 17 - 18 - 19.

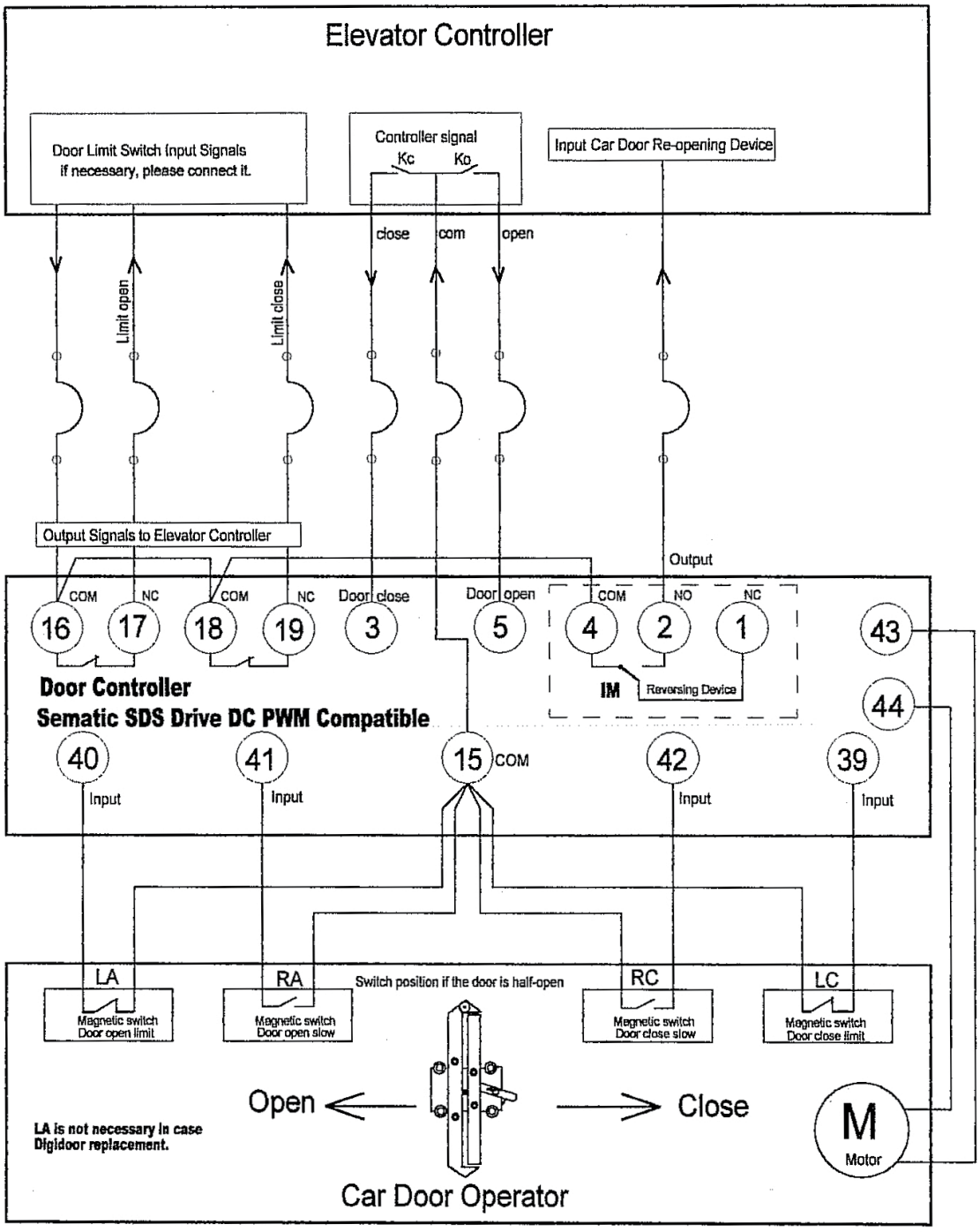


1	Add this bridge to connect the common line for all magnetic switches RA, RC, LA, LC.
2	Pull-up resistors 1K8R 1W (to be mounted only if necessary for the adaptation to inverted input logic)
3	Light curtain connection example in case of PNP output
4	OPERATOR TERMINALS car roof
5	Original connection between LA, LC, and MLC: TO BE REMOVED ABSOLUTELY!!!
6	*** COMMON LINE** As from SEMAG schematics, the common line for LA and LC switches is different, depending on the MLC. Es. MLC type 1BN-H-PA Common line = 48V MLC type 1BN-L-PA Common line = 0V
7	MAIN LIFT CONTROLLER HMPU
8	Magnetic switches installed on the door operator
9	Connection examples: Sematic SDS vs ASC20

This schematic example shows the connection between SDS DC-compatible and ASC10/20.
Due to the variety of lift controllers and connections, it may be necessary to modify this schematics, to adapt to the particular situation.
In the specific manual, it is possible to find (**"11 Upgrade from controllers previous to F28/F29 controller (Controller type: ASC 10/20, ADC10/11, SEM10/11, LMDC 10/11) F28/29 B" a pag. 32**), all the interface different systems. In case of difficulty, please contact Sematic support.

12 UPGRADE FROM F28/F29 AND LMDC 2010/2011/DIGIDOOR

Short instruction replacement F28/F29 and LMDC 2010/2011/DIGIDOOR



01	F28	03	Digidoor 1 Nm	05	LMDC 2010
02	F29	04	Digidoor 2 Nm	06	LMDC 2011

Select the correct Emulation type at P22

➔ Learn trip is not necessary. Please read carefully the manual!

13 UPGRADE FROM F28/F29 CONTROLLER

- *Eliminate the transformer 220/24 V with all its cables because the new SDS is fitted with an in-built switching transformer*
- *Disconnect the wires from the old connectors and wire them again according to the correspondence given in the underneath table.*
- *Connect the 220 Vac input to the SDS controller by means of the feeding cable supplied code no. E066AAWX-A*
- *Select option EMULATION F28 or EMULATION F29 from the Menu General Option (see chapter 8.10) or programm parameter 22 using the keys on the frontal panel (01 o 02, see also* ***"5.3 Programming Mode "PROG"" a pag. 17****).*
- *Check the correct functioning*

F28-29C TERMINALS	FUNCTION	SEMATIC SDS Rel. 3 DC COMPATIBILE
1	IM reversing system N/C signal	1
2	IM reversing system N/O signal	2
4	IM reversing system COM signal	4
3	Kc closing control	3
5	Ka opening control	5
15	24 Vdc COM	15
6	Ra and Rc opening and closing slow down COM	15
6	Ra and Rc opening and closing slow down COM	15
11	Ra opening slow down Input signal	41
13	Rc closing slow down Input signal	42
9	Motor power	43
10	Motor power	44
7	24 Vac power	NOT CONNECTED
8	24 Vac power	NOT CONNECTED
+	Auxiliary emergency power supply	+
-	Auxiliary emergency power supply	-
20	Buzzer	15
21	Buzzer	21
22		NOT CONNECTED

OPERATOR TERMINALS	FUNCTION	SEMATIC SDS Rel. 3 DC COMPATIBILE
16 OUT	La Opening limit switch output contact (to the main lift controller)	16
17 OUT	La Opening limit switch output contact (to the main lift controller)	17
18 OUT	Lc Closing limit switch output contact (to the main lift controller)	18
19 OUT	Lc Closing limit switch output contact (to the main lift controller)	19

MAGNETIC BISTABLE SWITCHES FOR OPENING AND CLOSING LIMITS	FUNCTION	SEMATIC SDS Rel. 3 DC COMPATIBILE
16 IN	La Opening limit switch input contact (from the magnetic switch)	40
17 IN	La Opening limit switch COM (from the magnetic switch)	15
18 IN	Lc Closing limit switch input contact (from the magnetic switch)	39
19 IN	La Closing limit switch COM (from the magnetic switch)	15

Warning!
If in the old drive (F28/F29 C) the magnetic switches **La**-Opening Limit and **Lc**-Closing Limit are directly connected to the main lift controller, disconnect and re-connect them at the new SDS Rel.3 DC COMPATIBILE controller 39 - 15 - 40 - 15 input terminals (as shown in the table). Connect SDS Rel. 3 DC COMPATIBILE La and Lc outputs to the main lidt controller, at terminals 16 - 17 - 18 - 19.

14 UPGRADE FROM F28/F29 CONTROLLER REL. 2.0 CONTROLLER

- *Eliminate the transformer 220/24 V with all its cables because the new SDS is fitted with an in-built switching transformer*
- *Disconnect all the connectors on the controller to be substituted and connect them again to the new controller using the connectors-adatpers Code nr. B066AASX; this way no wiring operation is necessary and the substitution is quick and easy.*
- *If the connectors-adapters Code nr. B066AASX are not available: disconnect the wires from the old connectors and connect them again following the correspondence given in the underneath table*
- *Connect the 220 Vac input to the SDS controller by means of the feeding cable supplied code no. E066AAWX-A*
- *Select option EMULATION F28 or EMULATION F29 from the Menu General Option (see chapter 8.10) or programm parameter 22 using the keys on the frontal panel (01 o 02, see also* ***"5.3 Programming Mode "PROG"" a pag. 17****).*
- *Check the correct functioning*

F28-29 Rel. 2.0 TERMINALS	FUNCTION	SEMATIC SDS Rel. 3 DC COMPATIBILE
1	IM reversing system N/C signal	1
2	IM reversing system N/O signal	2
4	IM reversing system COM signal	4
3	Closing control Kc	3
5	Opening control Ka	5
15	COM 24 Vdc	15
16 OUT	Opening limit switch output contact La (to the main lift controller)	16
17 OUT	Opening limit switch output contact La (to the main lift controller)	17
18 OUT	Closing limit switch output contact Lc (to the main lift controller)	18
19 OUT	Closing limit switch output contact Lc (to the main lift controller)	19
6	Opening and closing slow down Ra and Rc COM	15
6	Opening and closing slow down Ra and Rc COM	15
11	Opening slow down Ra Input signal	41
13	Closing slow down Rc Input signal	42
16 IN	Opening limit switch contact La (from the magnetic switch)	40
17 IN	Opening limit switch contact La (from the magnetic switch)	15
18 IN	Closing limit switch contact Lc (from the magnetic switch)	39
19 IN	Closing limit switch contact Lc (from the magnetic switch)	15
9	Motor power	43
10	Motor power	44
7	24 Vac power	NOT CONNECTED
8	24 Vac power	NOT CONNECTED
+	Auxiliary emergency power supply	+
-	Auxiliary emergency power supply	-
20	Buzzer	15
21	Buzzer	21
22	Forced closing (nudging) input contact	22

15 UPGRADE FROM LMDC 2010/11 CONTROLLER

- *Eliminate the transformer 220/24 V with all its cables because the new SDS is fitted with an in-built switching transformer*
- *Disconnect all the connectors on the controller to be substituted and connect them again to the new controller using the connectors-adatpers Code nr. B066AATX; this way no wiring operation is necessary and the substitution is quick and easy.*
- *If the connectors-adapters Code nr. B066AATX are not available: disconnect the wires from the old connectors and connect them again following the correspondence given in the underneath table*
- *Connect the 220 Vac input to the SDS controller by means of the feeding cable supplied code no. E066AAWX-A*
- *Select option EMULATION LM-DC 2010 or EMULATION LM-DC 2011 from the Menu General Option (see **"8.10 Emulation Type" a pag. 28**) or programm parameter 22 using the keys on the frontal panel (05 o 06, see also **"5.3 Programming Mode "PROG"" a pag. 17**).*
- *Check the correct functioning*

LM-DC 2010/11 TERMINALS	FUNCTION	SEMATIC SDS Rel. 3 DC COMPATIBILE
LS1	Photocell or similar devices 24 Vdc COM	15
LS2	Photocell or similar devices control input	23
3	Kc closing control	3
5	Ka opening control	5
15	COM 24 Vdc	15
6	Ra and Rc opening and closing slow down COM	15
6	Ra and Rc opening and closing slow down COM	15
11	Ra opening slow down Input signal	41
13	Ra and Rc opening and closing slow down COM	42
16	La Opening limit switch input contact (from the magnetic switch)	40
17	La Opening limit switch COM (from the magnetic switch)	15
18	Lc Closing limit switch input contact (from the magnetic switch)	39
19	Lc Closing limit switch COM (from the magnetic switch)	15
+B	Auxiliary emergency power supply	+
-B	Auxiliary emergency power supply	-
9	Motor power	43
10	Motor power	44

16 UPGRADE FROM DIGIDOOR CONTROLLER

- *Eliminate the transformer 220/24 V with all its cables because the new SDS is fitted with an in-built switching transformer*
- *Disconnect all the connectors to be substituted on the controller and connect them again to the new controller using the connectors-adatpers Code nr. B066AAPX; this way no wiring operation is necessary and the substitution is quick and easy.* ***IMPORTANT****: Please check the signal logic and the voltage range of the in-coming signals from the control board. In case all the parameters do not correspond to the range and logics given in chapter 4, it is possible to instal the Sematic interface kit code no. B066AAPX and follow the instructions enclosed to it and in chapter 7.*
- *If the connectors-adapters Code nr. B066AAPX are not available: disconnect the wires from the old connectors and connect them again following the correspondence given in the underneath table*
- *Connect the 220 Vac input to the SDS controller by means of the feeding cable supplied code no. E066AAWX-A*
- *Select option EMULATION DIGIDOOR 1Nm or EMULATION DIGIDOOR 2Nm from the Menu General Option (see* ***"8.10 Emulation Type" a pag. 28****) or programm parameter 22 using the keys on the frontal panel (03 o 04, see also* ***"5.3 Programming Mode "PROG"" a pag. 17****).*
- *Check the correct functioning*

TERMINALS	FUNCTION	SEMATIC SDS Rel. 3 DC COMPATIBILE
1	IM reversing system N/C signal	1
2	IM reversing system N/O signal	2
3	Closing control Kc	3
4	IM reversing system COM signal	4
5	Ka opening control	5
6	COM 24 Vdc	15
7	24 Vac power	NOT CONNECTED
8	24 Vac power	NOT CONNECTED
9	Motor power	43
10	Motor power	44
11	Ra opening slow down Input signal	41
12		NOT CONNECTED
13	Rc closing slow down Input signal	42
14		NOT CONNECTED
15	COM 24 Vdc	15
20	Forced closing (nudging) Input control	22
21		15
22		
23		
24	Lc Closing limit switch input contact (from the magnetic switch)	39
25	La Opening limit switch output contact (to the main lift controller)	16
26	La Opening limit switch output contact (to the main lift controller)	17
27	Lc Closing limit switch output contact (to the main lift controller)	18
28	Lc Closing limit switch output contact (to the main lift controller)	19

17 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*

18 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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