Ditec 52E Control Panel with K22INV and K10INV motors with Limit Switches Group Instruction Manual

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Contents

GENERAL SAFETY PRECAUTIONS

⚠ This installation manual is intended for professionally competent personnel only. Installation, electrical connections and adjustments must be performed in accordance with Good Working Methods and in compliance with the current standards.
Read the instructions carefully before installing the product. Incorrect installation could be dangerous. The packaging materials (plastic, polystyrene, etc.) should not be discarded in the environment or left within reach of children, as they are a potential source of danger.
Before installing the product, make sure it is in perfect condition. Do not install the product in explosive areas and atmospheres: the presence of inflammable gas or fumes represents a serious safety hazard. Before installing the door, make all the structural modifications necessary in order to create safety clearance and to guard or isolate all the crushing, shearing, trapping and general danger areas.
Make sure the existing structure is up to standard in terms of strength and stability. The safety devices (photocells,

safety edges, emergency stops, etc.) must be installed taking into account current laws and directives, Good Working Methods, the installation environment, the system operating logic and the forces developed by the motorised door or gate.
The safety devices must protect any crushing, shearing, trapping and general hazardous areas of the door.
Display the signs required by law to identify hazardous areas.
Each installation must clearly indicate the door identification data.

 Before connecting the power supply, make sure the plate data correspond to those of the mains power supply. An omnipolar disconnection switch with a contact opening distance of at least 3mm must be fitted on the mains supply.
Check there is an adequate residual current circuit breaker and overcurrent cutout upstream of the electrical system.
Connect the door to an efficient earthing system that complies with current safety standards. The door manufacturer declines all responsibility if components not compatible with safety and good functioning are installed, or modifications of any kind are made that have not been specifically authorised by the manufacturer.
Use only original Ditec spare parts when repairing or replacing products. The installer must supply all information concerning the automatic, manual and emergency operation of the motorised door or gate, and must provide the user with the operating instructions.

- **Optional accessory**
- **Comfort Safety**
- **Top Safety**

52E CONTROL PANEL (INVERTER) – Connections

INPUTS			
Command		**Function**	**Description**
1 2	NC	STOP	If on the programming menu (page 15 point 16)With contact 1-2 enabled, the opening of the contact STOPS the door
1 3	NO	Opening	The closure of the contact activates the opening operation.
1 4	NO	Closure	The closure of the contact activates the closing operation.
41 40	NC	Reversal safety contact	The opening of the safety contact triggers a reversal of the movement (reopening) during the closing operation.
1 8	NC	Reversal safety contact	The opening of the safety contact triggers a reversal of the movement (reopening) during the closing operation.
1 20	NO	Partial opening	The closure of the contact activates a partial opening operation of the duration set with the advanced menu.
1 11	NC	Closing limit switch	The opening of the contact stops the closing operation.
1 13	NC	Opening limit switch	The opening of the contact stops the opening operation.
1 12	NC	Deceleration limit switch	The opening of the contact activates deceleration during opening.
1 9	NO	Closure enabling with SLEC	In the case of doors with SLEC, the opening of the contact allows the door to work only when someone is present.

CONTROL PANEL CONNECTORS

M2	Safety device / Commands
M3	Position signal
M4	Interlock
M4A	Back
M5	Motor / brake motor
J4	Brake resistance
OPEN	Auxiliary panel card
SAFETY	Auxiliary safety card

OUTPUTS		
Output	**Value**	**Description**
1 + 0 –	24V = / 0.5A	**Power supply to accessories.**Power supply output for external accessories, including automation status lamps.
 LAMP	230 V~	**Flashing light (FLM).**Non-flashing signal (jumper ON on FML).Activated during opening and closing operations.
-F +F	200V= / 0.2Aor 24V = / 0.5A	**Electric motor brake.**Automatically set with the choice of door model in the programming menu.The output is active for the duration of both the opening and closing operations.
	230V~ / 6A	**Three-phase motor.**

ADJUSTMENTS AND SETTINGS

Trimmer	Description
P1 	**Opening speed**
P2 	**Closing speed**
P3 	**Deceleration during opening**
P4 	**Adjustment of deceleration during closure**
P5 	**Adjustment of display contrast.**

Dip-switches	Description	OFF	ON
DIP 1	**Future use**	–	–
DIP 2	**Access to advanced menu**	Disabled	Enabled
DIP 3	**Trimmer enabling**	Disabled	Enabled
DIP 4	**Counter**TOT: Number of operationsSVC: Number of operations left until service	Disabled	Enabled
DIP 5	**Access to service menu**	Disabled	Enabled
DIP 6	**Door operating data display**(F working, I Bus, I peak, V Bus)	Disabled	Enabled
DIP 7	**Future use**	–	–
DIP 8	**Cyclic operation menu**	Disabled	Enabled

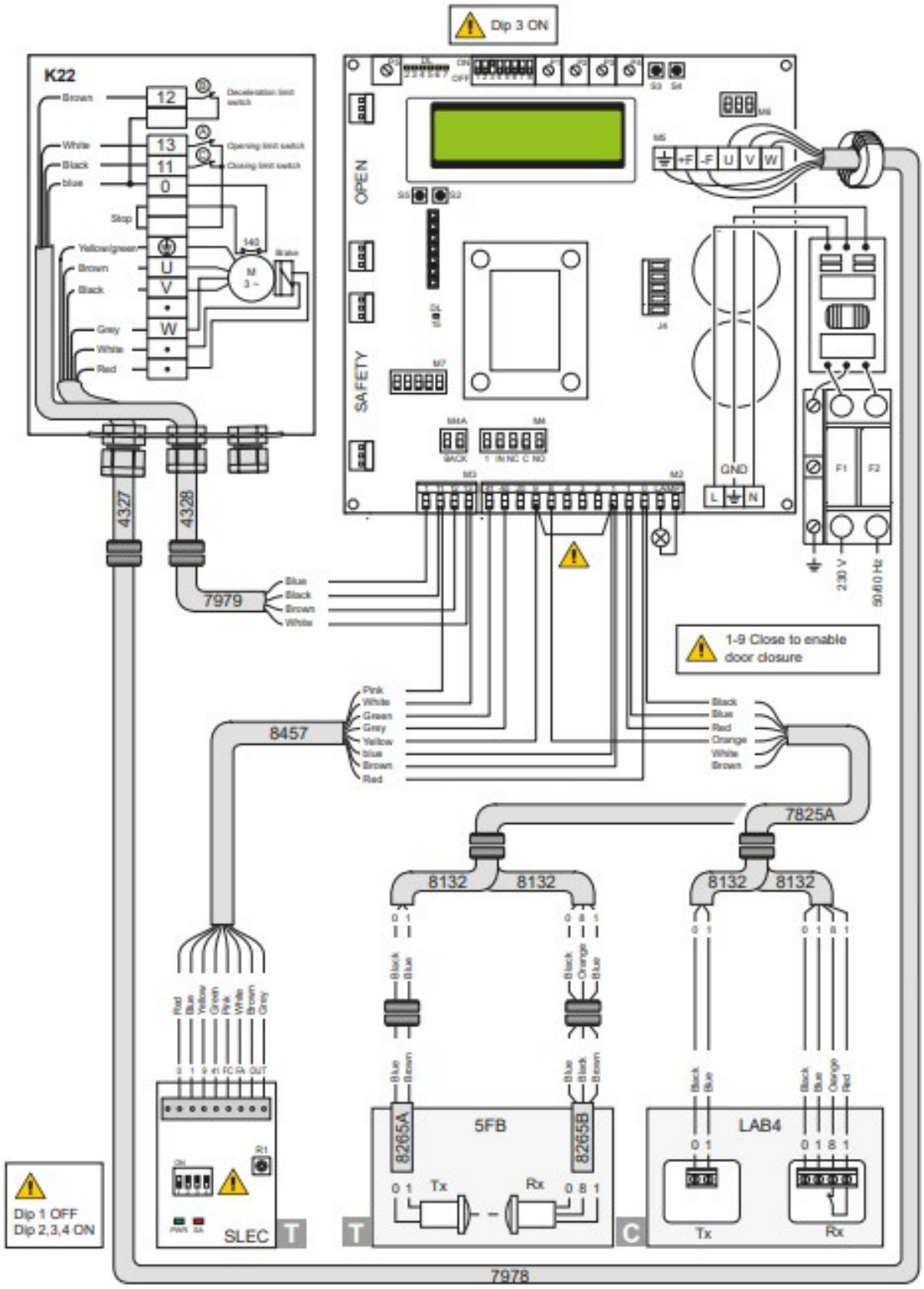
LED	On
DL2	Closing position
DL3	Deceleration
DL6	Partial opening
DL7	Opening position
DL15	Autostart

Buttons	Description
S2	USED FOR PROGRAMMING
S3	NOT USED
S4	NOT USED
S5	USED FOR PROGRAMMING

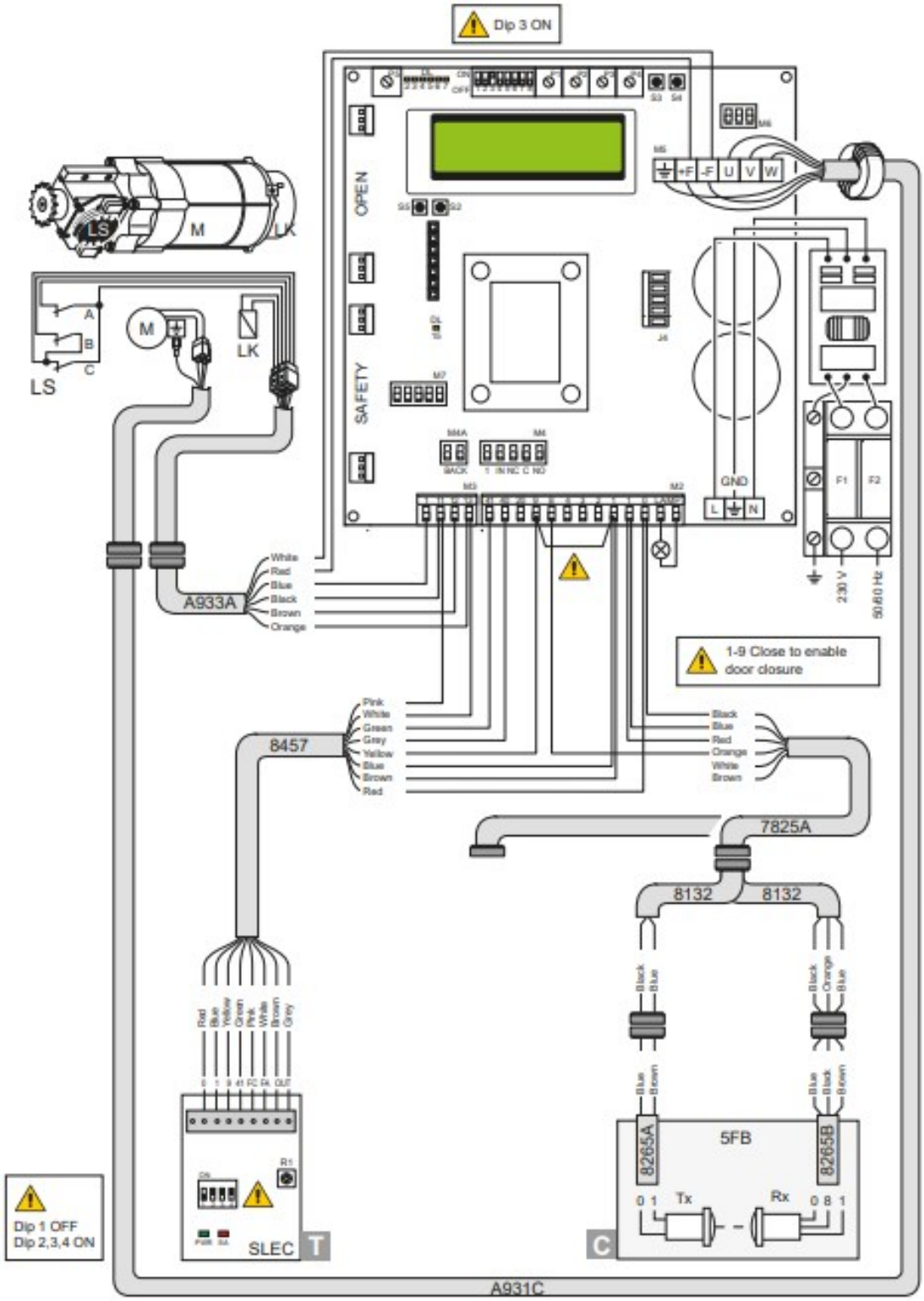
	Operating mode Standard	**Programming Operating**
Button	**LED**	**Button**
 Starts the opening operation.	• The green LED on indicates the presence of the 24 V= power supply.	Menu scrolling
 Starts the partial opening operation.		Confirm
 Starts and stops the STOP operation.	• The red LED on indicates that the STOP has been activated.- The flashing red LED indicates that the safety devices havebeen activated.- The quick flashing red LED indicates that the service thresholdhas been reached	
 Starts the closing operation.		Menu scrolling

ELECTRICAL CONNECTIONS

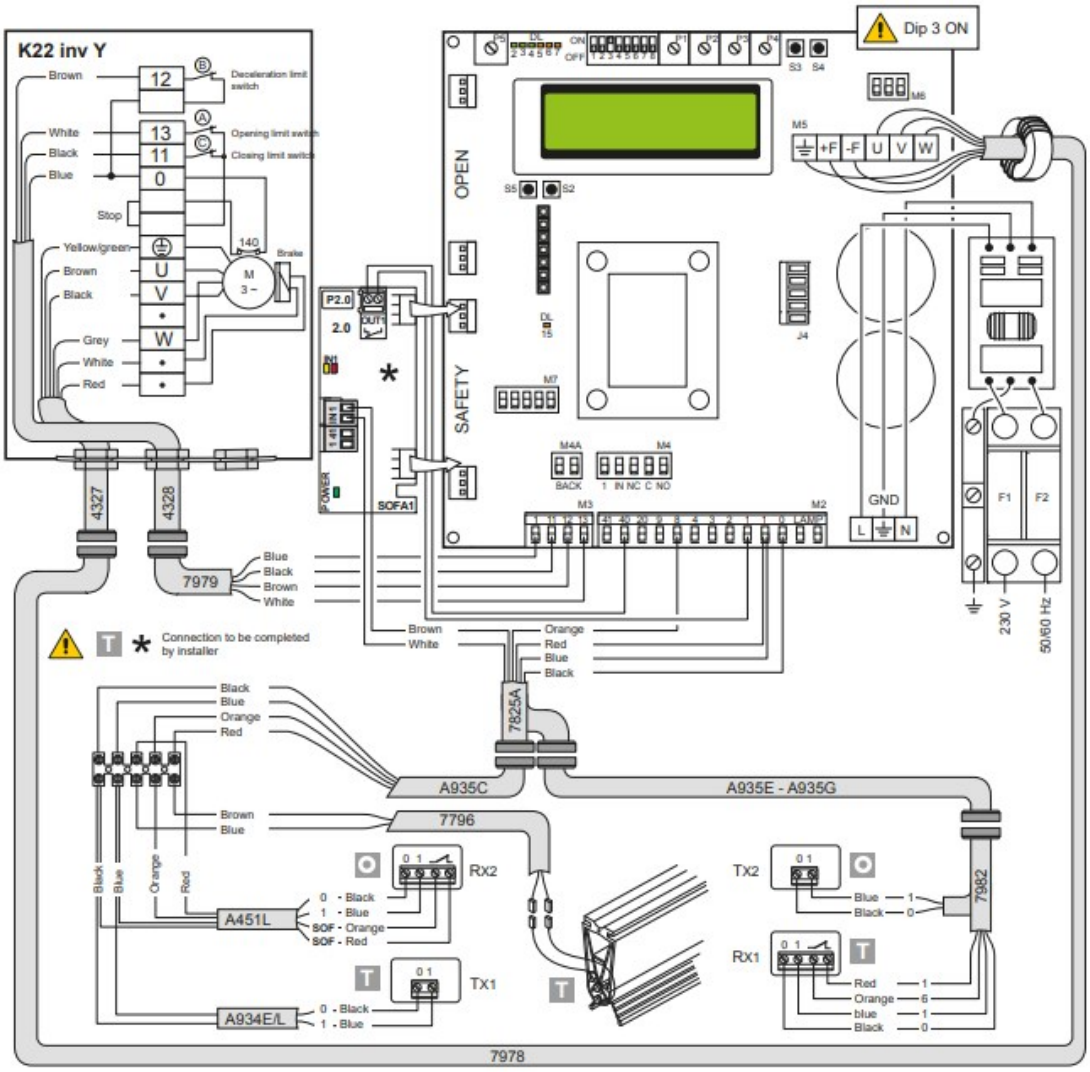
SMART RESET

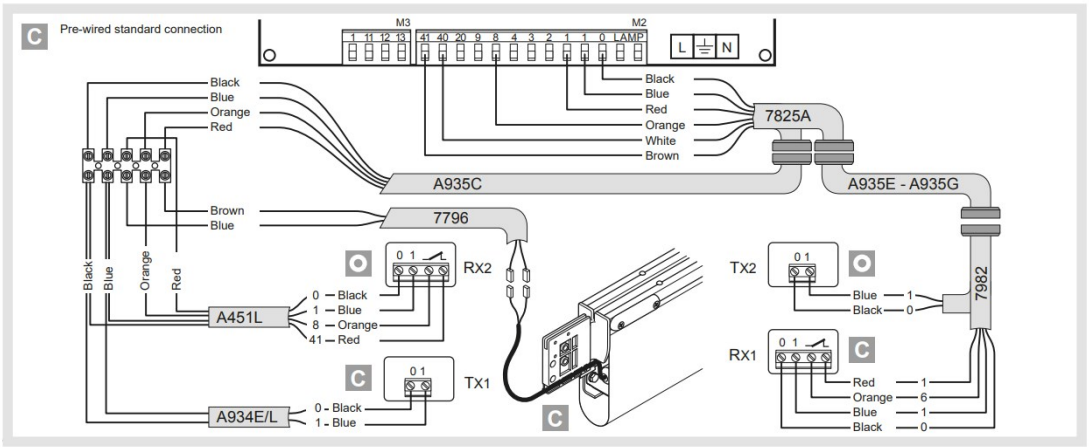


SECTOR RESET

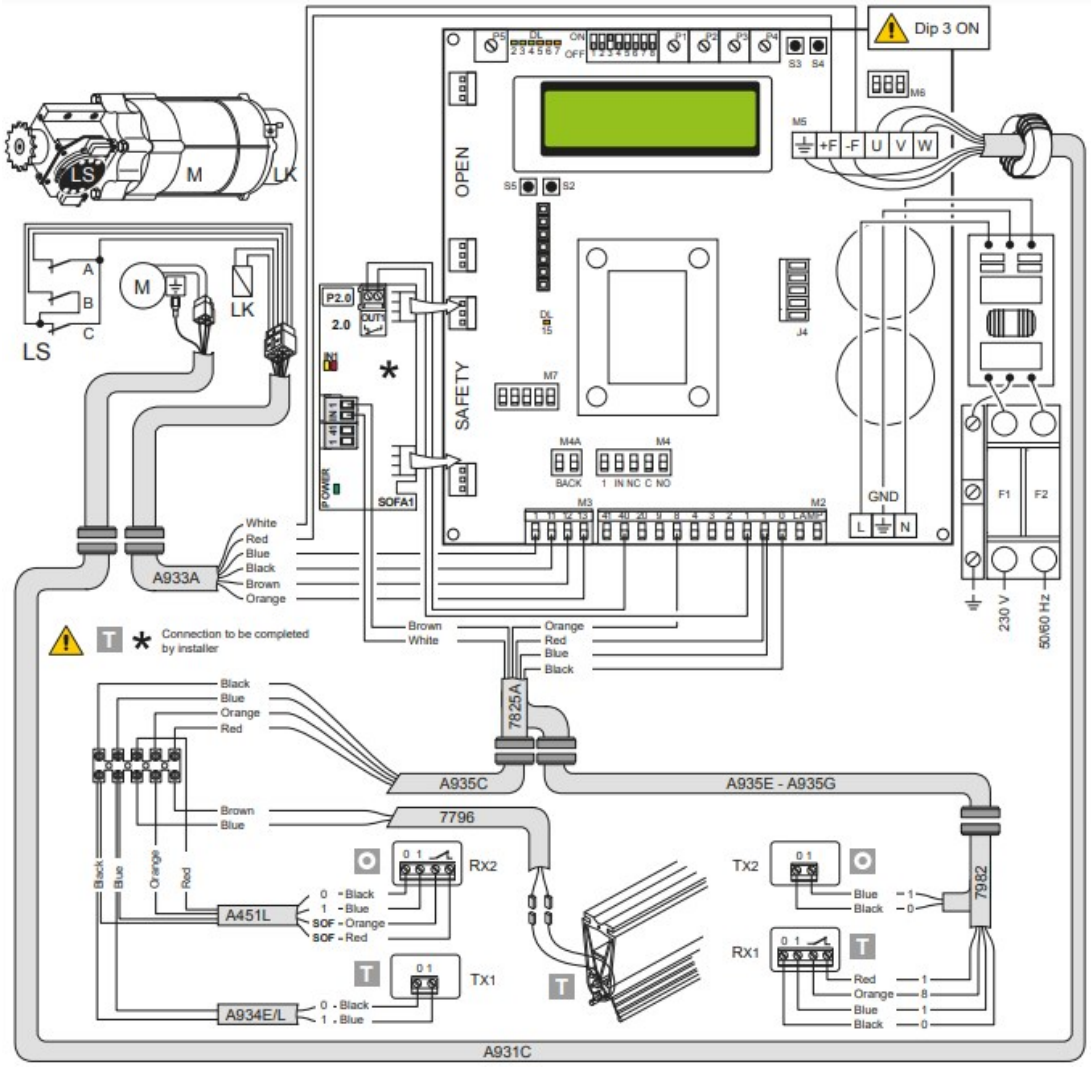

Dip 3 ON
OPEN
SAFETY
LS
M
LK
A
B
C
A933A
White
Red
Blue
Black
Brown
Orange
8457
Pink
White
Green
Grey
Yellow
Blue
Brown
Red
1-9 Close to enable door closure
Black
Blue
Red
Orange
White
Brown
7825A
8132
8132
Black
Blue
Black
Orange
Blue
Blue
Brown
Blue
Black
Brown
8265A
8265B
5FB
Tx
Rx
0 1
0 8 1
GND
L
N
F1
F2
230 V
50/60 Hz
Dip 1 OFF
Dip 2,3,4 ON
SLEC
T
C
A931C

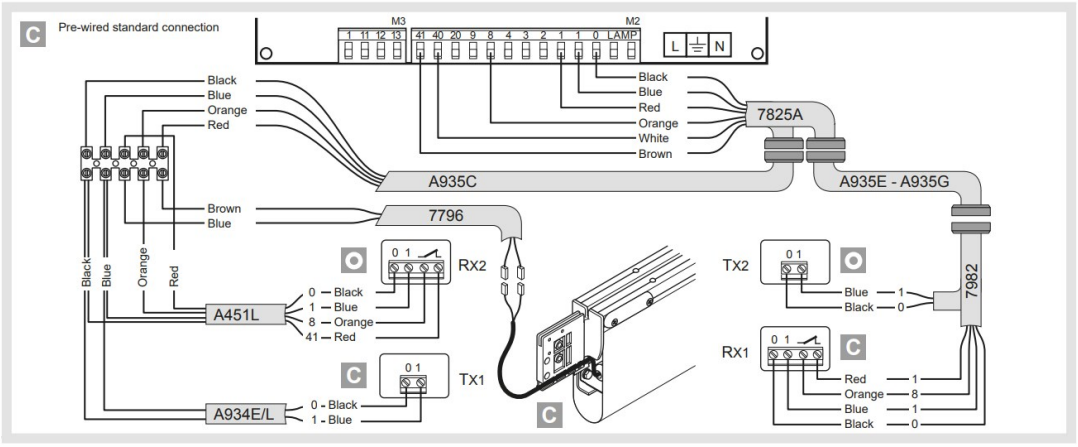
SMART PLUS


K22 inv Y
Brown
White
Black
Blue
Stop
Yellow/green
Grey
Red
Deceleration limit switch
Opening limit switch
Closing limit switch
Brake
Dip 3 ON
OPEN
SAFETY
POWER
SOFA1
GND
F1
F2
230 V
50/60 Hz
4327
4328
7979
7825A
A935C
A935E - A935G
7796
7982
A451L
A934E/L
RX2
TX2
RX1
TX1
Connection to be completed by installer
7978

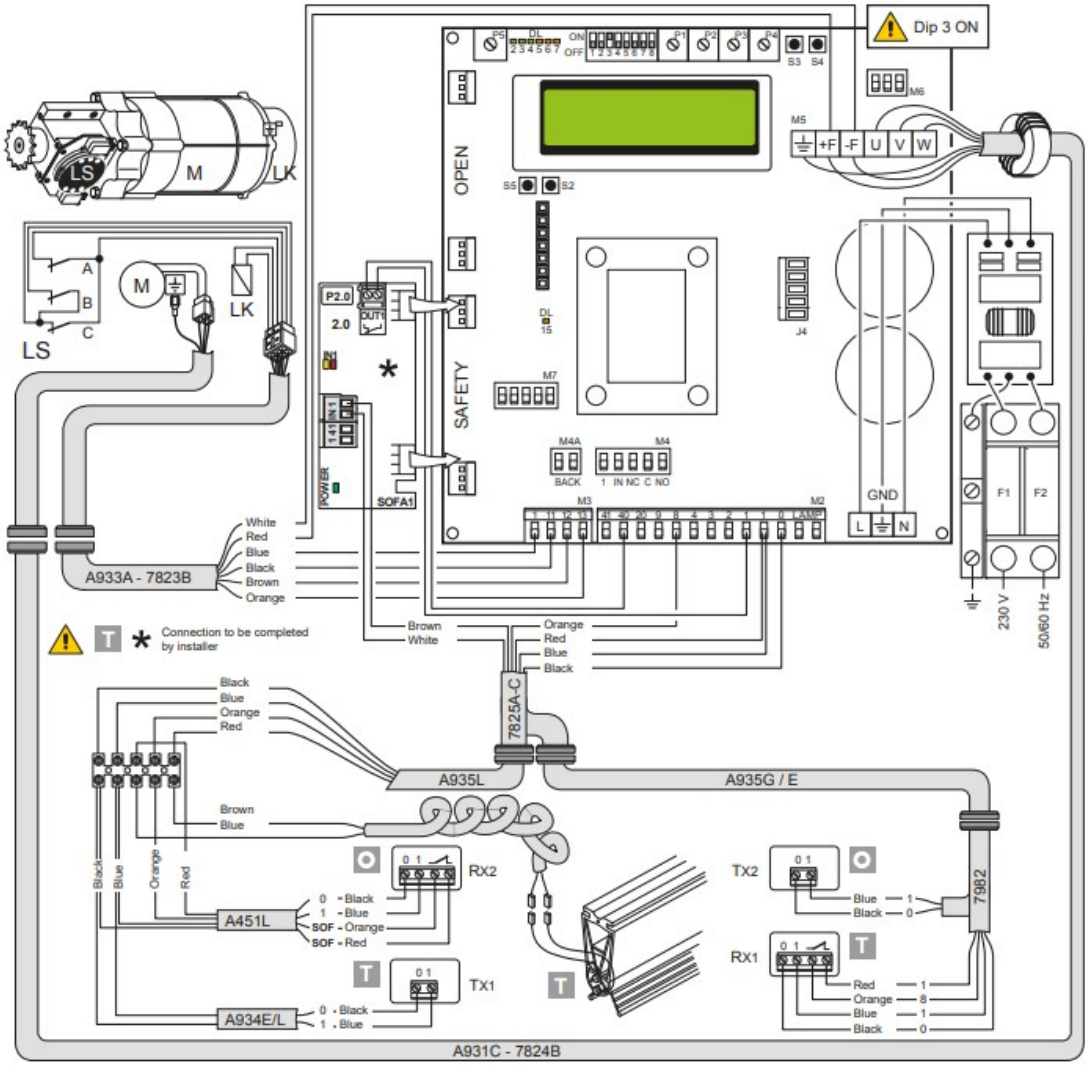

Pre-wired standard connection
Black
Blue
Orange
Red
Brown
White
7825A
A935C
A935E - A935G
7796
7982
A451L
A934E/L
RX2
TX2
RX1
TX1

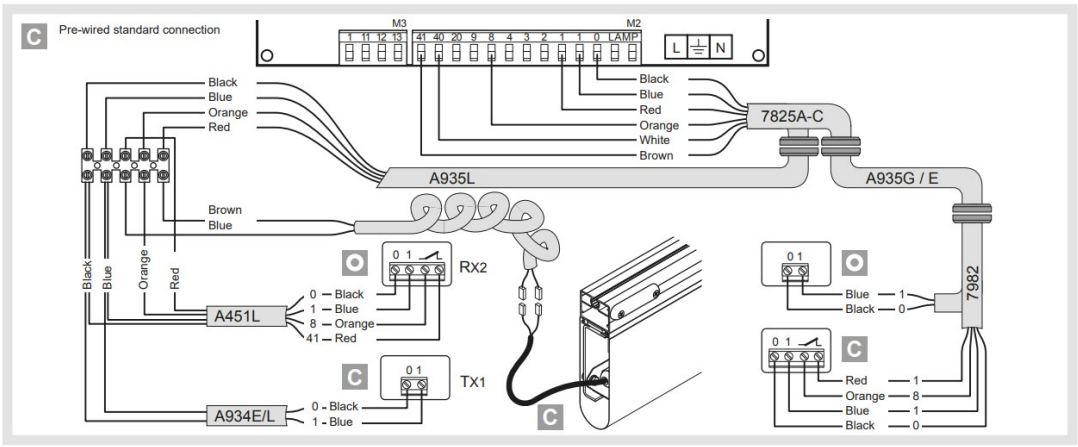
SECTOR PLUS

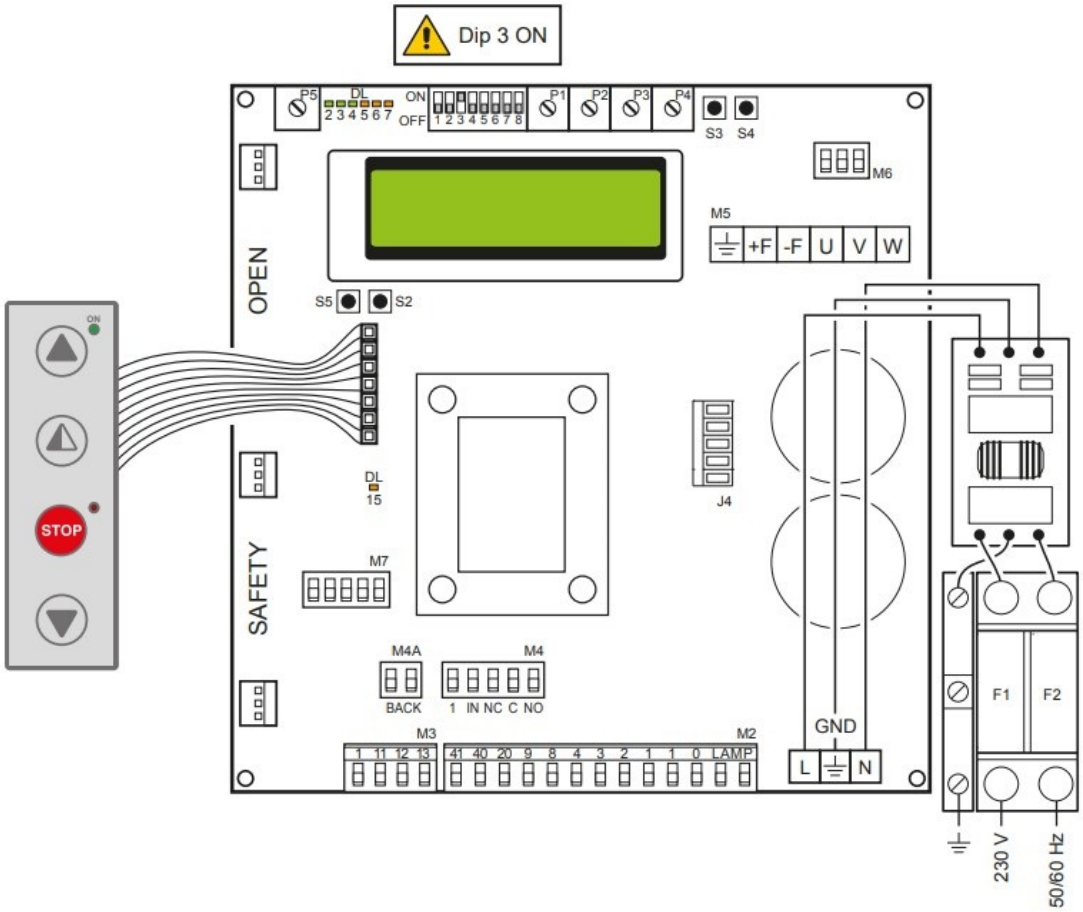

Dip 3 ON
OPEN
SAFETY
LS
M
LK
A
B
C
P2.0
2.0
OUT1
IN1
POWER
SOFA1
M5
+F
-F
U
V
W
M6
S5
S2
S3
S4
M7
M4A
M4
BACK
1 IN NC C NO
M3
M2
LAMP
L
N
GND
F1
F2
230 V
50/60 Hz
J4
DL 15
White
Red
Blue
Black
Brown
Orange
A933A
Connection to be completed by installer
Brown
White
Orange
Red
Blue
Black
7825A
A935C
A935E - A935G
Black
Blue
Orange
Red
Brown
Blue
7796
RX2
TX2
RX1
TX1
A451L
0 - Black
1 - Blue
SOF - Orange
SOF - Red
A934E/L
0 - Black
1 - Blue
7982
A931C


C
Pre-wired standard connection
M3
M2
1 11 12 13
41 40 20 9 8 4 3 2 1 1 0 LAMP
L
N
Black
Blue
Orange
Red
Brown
Blue
Black
Blue
Red
Orange
White
Brown
7825A
A935C
A935E - A935G
7796
RX2
TX2
RX1
TX1
A451L
0 - Black
1 - Blue
8 - Orange
41 - Red
A934E/L
0 - Black
1 - Blue
7982
Red
Orange
Blue
Black

TRAFFIC C

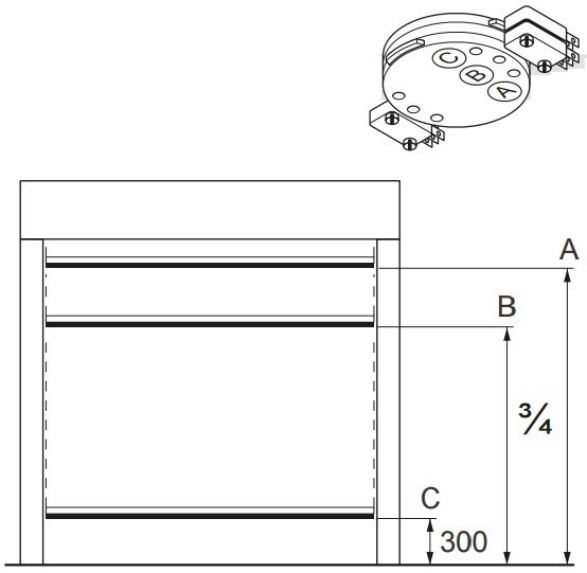

Dip 3 ON
OPEN
SAFETY
LS
M
LK
A
B
C
P2.0
2.0
OUT
POWER
SOFA1
M5
M6
M7
M4A
M4
M3
M2
J4
S5
S2
S3
S4
+F
-F
U
V
W
GND
L
N
F1
F2
230 V
50/60 Hz
White
Red
Blue
Black
Brown
Orange
A933A - 7823B
Connection to be completed by installer
Brown
White
Orange
Red
Blue
Black
7825A-C
A935L
A935G / E
Black
Blue
Orange
Red
Brown
Blue
RX2
TX2
RX1
TX1
A451L
0 - Black
1 - Blue
SOF - Orange
SOF - Red
A934E/L
0 - Black
1 - Blue
7982
Blue — 1
Black — 0
Red — 1
Orange — 8
Blue — 1
Black — 0
A931C - 7824B


C
Pre-wired standard connection
M3
M2
1 11 12 13
41 40 20 9 8 4 3 2 1 1 0 LAMP
L
N
Black
Blue
Orange
Red
Brown
Blue
Black
Blue
Red
Orange
White
Brown
7825A-C
A935L
A935G / E
RX2
TX1
A451L
0 — Black
1 — Blue
8 — Orange
41 — Red
A934E/L
0 - Black
1 - Blue
7982
Blue — 1
Black — 0
Red — 1
Orange — 8
Blue — 1
Black — 0



FUSES			
ID	**Value**	**Size**	**Circuit**
F1 – F2	12A – 500V	10.3 x 38	Single phase line

LIMIT SWITCH ADJUSTMENT



1. Set the deceleration ramps at zero (P3 – P4)
2. Set the limit switch (C) on the gearmotor so that the door stops about 200/300mm from its closure point.
3. Set the opening limit switch (A) at the opening point.

4. Set the deceleration limit switch (B) so it is triggered at about ¾ of the opening stroke.
5. Set the opening and closure speeds using trimmers (P1) and (P2) respectively.
6. Set the trimmers of the deceleration ramps – (P3) for opening and (P4) for closure – to ensure the door stops at its actual “open” and “closed” positions.

TROUBLESHOOTING

Display message	Problem	Check
Current limit exceeded	Requested motor torque exceeds available torque.	• Reduce opening speed • Check power supply • Check power supply wiring.
Insert brake resistance	Voltage on BUS exceedsthreshold	• For Sector Reset doors, connect the brake resistance and set the item on the advanced menu to “YES”. • Switch off the control panel, wait 3 minutes and reconnect thepower supply • If the error reoccurs, check that the voltage on the BUS is lowerthan 360 V.
Max. BUS voltage	BUS voltage exceedsthreshold	• Switch off the control panel, wait 3 minutes and reconnect thepower supply • Check the control panel power supply voltage.
Stand by Encoder	Installation of a new control/ replacement control already programmed previously Absolute Encoder not connected.	To reset the control panel follow the procedure: • DIP2 in ON • push STOP (the control panel goes in the “programmin menu” showing the data already set) • scroll the menù till the step “COMMAND MODE” and set LIMIT SWITCHES • DIP2 in OFF

PROGRAMMING

INSTALLATION MENU

When the control panel is switched on, after showing the messages DITEC and microprocessor and card FW VERSION, the device automatically enters the installation menu and displays the message SELECT LANGUAGE

Confirm with 

Remove cables from PIN 3, 4, 20 during programming

STEP	1st level options	2nd level options	Menu scrolling	Notes
1	Select language			Confirm with: 
	Confirm with: 	ENGLISH		
		ITALIAN		
		FRANÇAIS		
		DEUTCH		
		ESPANOL – POLSKACES KY – MAGYAR		
2	Door model			Confirm with: 
	Confirm with: 	SOFT RESET		
		SECTOR RESET		
		SMART PLUS		
		SECTOR PLUS		
		TRAFFIC C		
		SMART RESET		
3	Position control			Confirm the Limit Switch option with: 
	Confirm with: 	LIMIT SWITCH		
		ENCODER		
	Calibrating positions			

4	Confirm with:	CLOSED POSITION		The door will move to the required position in operator present mode and at low speed. Confirm the Limit Switch position after setting
		PARTIAL POSITION(indicates the deceleration start position)		
		OPEN POSITION		
5	Command mode			Confirm with: Selecting 1-9: if 1-9 is closed, the command mode will be impulsive, if 1-9 is open the command mode will be “dead man”
	Confirm with:	IMPULSIVE		
		MAN PRESENT		
		INPUT 1-9		
6	CONFIRM DATA			Confirm with:

PROGRAMMING COMPLETED

The door is now programmed and operating with the set default speed values. With the door MOVING, the voltage and current values will be displayed on the BUS.

ADVANCED MENU

The advanced menu allows you to modify the position of the limit switches which have previously been set and modify the set default parameters.

To access the Advanced Menu:

- **STOP the door**
- **Set DIP 2 to ON**

“LIM. SWITCH CAL.”, the first item in the advanced menu, will appear on the display.

ONCE PROGRAMMING HAS ENDED, SET DIP2 TO OFF

Remove cables from PIN 3, 4, 20 during programming

STEP	1st level options	Scrolling	Confirm	2nd level options		Notes
1	Encoder Calibration			Closed position		The door will move to the desired position in man present mode and at low speed. All the positions (closing, partial opening, opening) must be set.
2	Photocell excluded (step present only for Reset doors)			Change value (1 unit @ 3mm)		By increasing the value, the position of the photocell by-pass is raised
3	Primary safety device excluded			Change value (1 unit @ 3mm)		By increasing the value, the position of the primary safety by- pass is raised
4	Automatic closing (default SI with T= 5 s)			YES NO		
5	Automatic closing time			Time variant		Option available only if YES hasbeen selected for point 4).Value ranging from 0 to 100 sec.
6	Command mode			Impulsive Man present		Selecting 1-9: if 1-9 is closed, the command mode will be impulsive, if 1-9 is open the command mode will be “dead man”

				INPUT 1-9		
7	Opening safety de vice			YES NO		If set to YES, the closed doo r that receives an opening c ommand does not open if th e photocell is activated.
8	Interlock			NO INTERLOCK AIRLOCK INTERLOCK		AIRLOCK: door 2 opens wit h ex- ternal command only if door 1 is closed. INTERLOC K: door 2 opens auto- matic ally when door 1 has closed
9	Pre-flashing when opening (default n o)			YES NO		Pre-flashing has a set time o f3 sec.
10	Opening ramp adv ance			CHANGE VALUE (1 unit @ 3mm)		When the value increases, t he deceleration distance wh en opening increases.
11	Opening speedin (Hz)			CHANGE VALUE		The setting of values that ar e higher than the default one s must be assessed accordi ng to door dimensions and o perating conditions.

12	Closing speedin (Hz)			CHANGE VALUE		The setting of higher values must be assessed according to door dimensions and oper ating conditions.
13	Service Alarm			YES		
				NO		
				RESET?		Restart the service count do wn
14	Service thresh			CHANGE VALUE		Option available only if YES hasbeen selected for point 1 3).Set value to steps of 1000 cycles Max 200,000 cy cles
15	Enable stop 1-2			YES		If set to YES, opening of the contact 1-2 STOPS the door.
				NO		
16	Brake resistance (default NO)			YES		Set to YES when the door is supplied with brake resistan ce.
				NO		
17	PARAMETER RE SET			CONFIRM		Confirm to go back to theinstallation menu.

ONCE PROGRAMMING HAS ENDED, SET DIP2 TO OFF

Timed opening menu

With door in STOP position and DIP 8 ON you enter the menu CYCLIC MODE. By activating this mode it is possible to set a timed opening at regular time intervals. Once the mode is set put DIP 8 OFF.

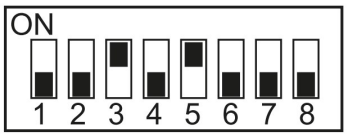
STEP	1st level options	Scrolling	Confirm	2nd level options		Notes

1	CYCLIC MODE			TIMER OFF		Timer not active
				TIMER ON		Timer active
2	TIME UNIT			MIN.		Timer by minuts
				SEC.		Timer by seconds
3	OPENING TIME			1 …200		Set the regular time intervals
4	AUTO CLOS.TIME			1….200		Set the time during which the door remains open
5	TOT			VALUE		Cycle counter
6	RESET CYCLES			RESET?		Cycle counter reset

When CYCLIC MODE is active, the display shows every 2 sec:
TOT cycle – count down to next open/OPENING TIME

Service menu (password required)

To access the Service menu:



- STOP the door
- Set DIP5 to ON
- Enter the PW: button sequence OPEN- OPEN- CLOSE- PARTIAL OPENING

Remove cables from PIN 3, 4, 20 during programming

STEP	1st level options	Notes

1	MIN BRAKING VOLT. Default 340V dc	Threshold for partial intervention of braking resistance
2	MAX BRAKING VOLT. Default 380 Vdc	Threshold for total intervention of braking resistance
3	OVERCURRENT LIMITDefault 10 A	If the current on the BUS exceeds the set threshold, the door open s athalf the speed to reduce absorption.
4	RAMP SLOPE DURING OPENING	Changes the slope of the deceleration ramp when opening. Defaul t 15. (If the value is increased, the ramp distance is reduced).
5	BATTERY LEVEL	Visualizes the encoder battery charge level from 0% to 100%
6	ALARM LIST	The last 50 alarms are displayed: Overcurrent; bus voltage exceed s limit, Intervention of brake resistance, inverter overtemperature, f aulty motor driver (encoder). To exit, press partial opening

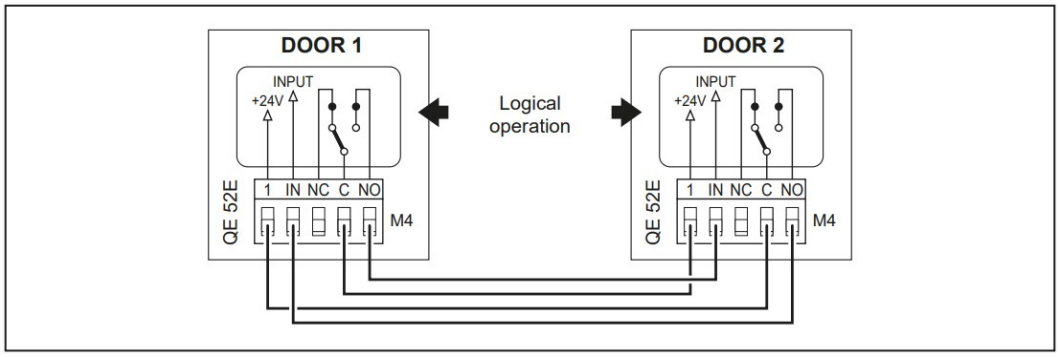
ONCE PROGRAMMING HAS ENDED, SET DIP5 TO OFF

ALARMS

MESSAGE	SITUATION	NOTES

Ditec	door closed waiting for command	
Opening of VBUS IBUS	door opening	
Door open – automatic closing ti me	Door open	
Closing of VBUS IBUS	door closing	
Input 40 closed; input 8 open	intervention of photocell	When door is moving
input 40 open; input 8 closed	Primary safety device intervention(SL EC / SAFETY EDGE)	When door is moving
Limit switches open	Intervention of safety microswitch on manual opening device / intervention of thermal protection on motor / openi ng (A) and closure(C) limit switches si multaneously active.	
Opening safety device activated	photocell engaged when door is close d and door does not open	Message that only appears if the “s afety in open” function is set to YES on the advanced menu (step 7).
Door stopped	stop command activated	
Stand by encoder	New control panel power on / replacin g control panel power onAbsolute Enc oder not connected.	Control panel already programmed t o work with motor having absolute e ncoder. To reset see troubleshooting chapter.

INTERLOCK



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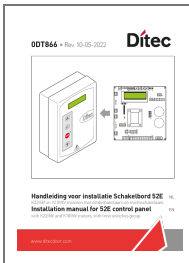
Documents / Resources

	Ditec 52E Control Panel with K22INV and K10INV motors with Limit Switches Group [pdf] Instruction Manual K22INV, K10INV, 52E Control Panel with K22INV and K10INV motors with Limit Switches Group, 52E Control Panel, Control Panel, Panel