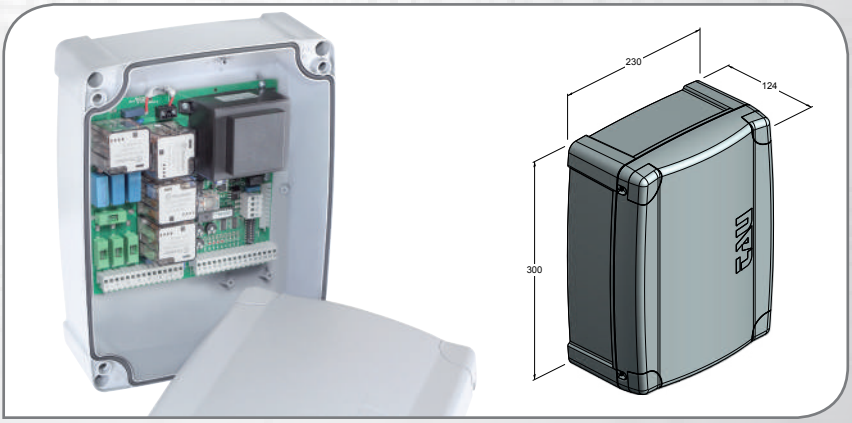
>MOVING LIFE

GUIDA ALL'INSTALLAZIONE
INSTALLATION GUIDE
INSTALLATIONSANLEITUNG
NOTICE D'INSTALLATION
GUÍA PARA LA INSTALACIÓN

D703

Quadro di comando per motore monofase-trifase 230/400 Vac
Control panel for 230/400 Vac single/three-phase motor
Steuerplatine für einphasigen-dreiphasigen 230/400 Vac Motor
Logique de commande pour moteur monophase-triphase 230/400 Vca
Panel de mandos para motor monofásico-trifásico 230/400 Vca



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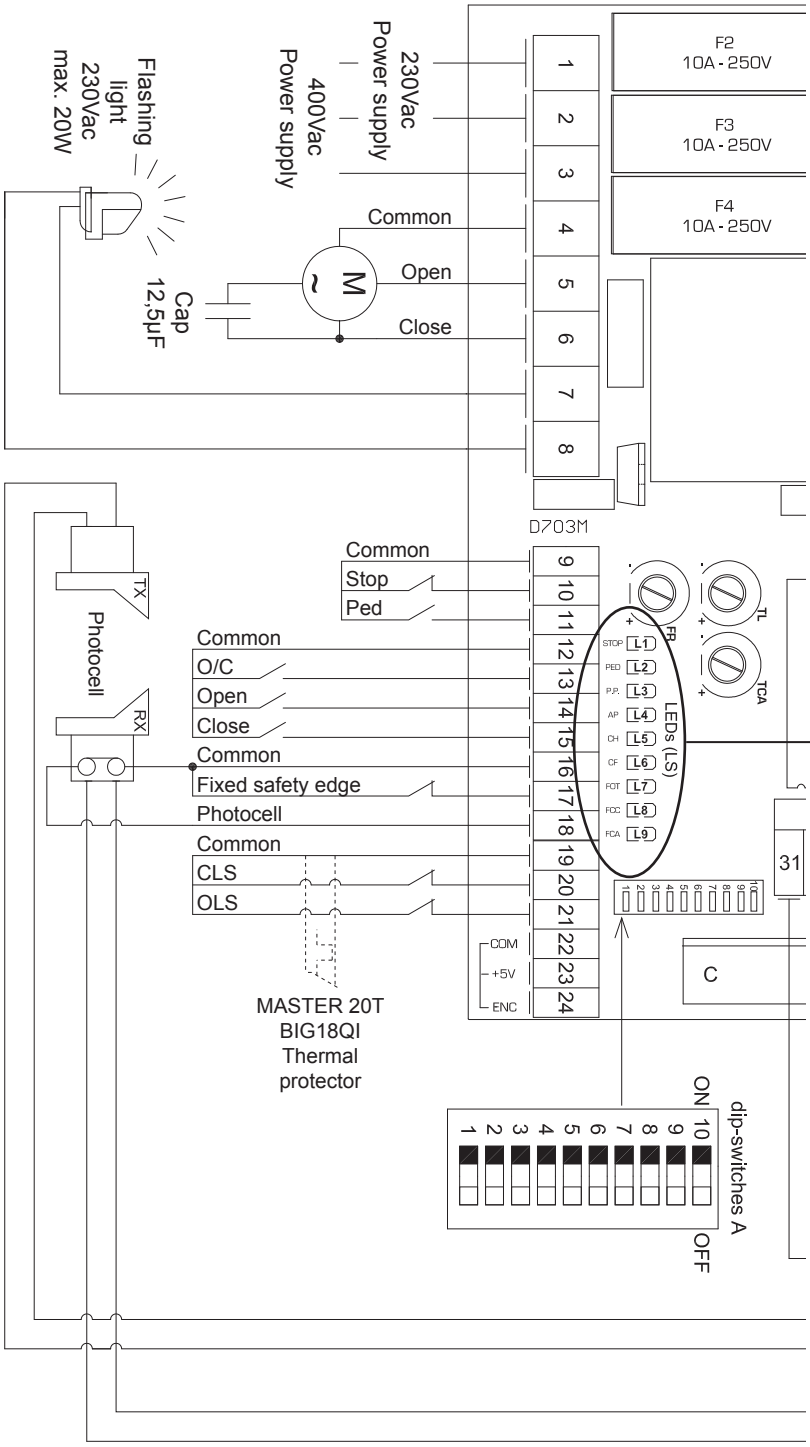
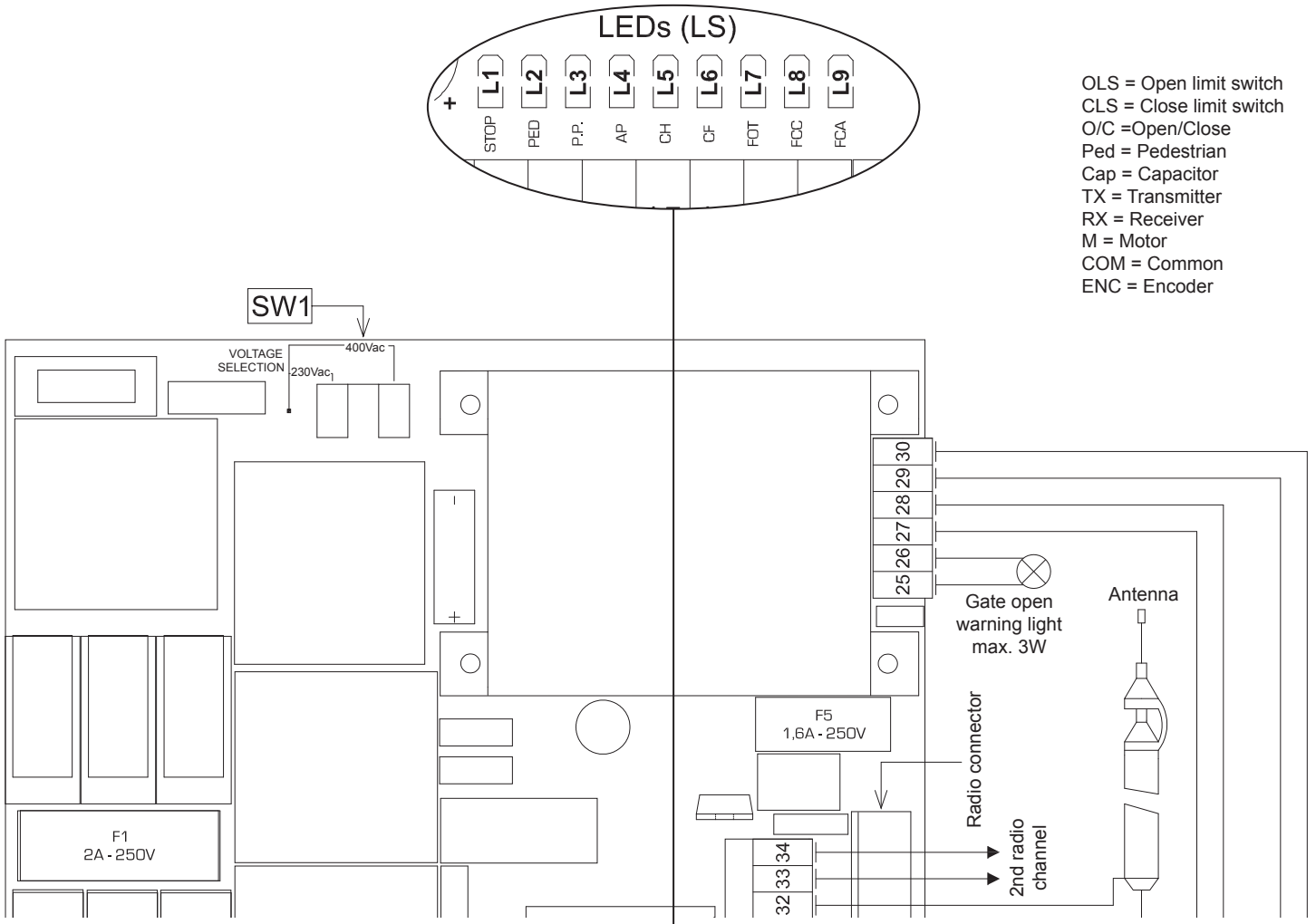

F2
10A - 250V
F3
10A - 250V
F4
10A - 250V
230Vac
Power supply
400Vac
Power supply
Common
Open
Close
Cap
12,5µF
Flashing
light
230Vac
max. 20W
D703M
Common
Stop
Ped
Common
O/C
Open
Close
Common
Fixed safety edge
Photocell
Common
CLS
OLS
Photocell
TX
RX
MASTER 20T
BIG18QI
Thermal
protector
COM
+5V
ENC
LEDs (LS)
STOP L1
PED L2
P.P. L3
AP L4
CH L5
CF L6
FOT L7
FCC L8
FCA L9
FR
TL
TCA
31
C
dip-switches A
ON
OFF



OLS = Open limit switch
CLS = Close limit switch
O/C =Open/Close
Ped = Pedestrian
Cap = Capacitor
TX = Transmitter
RX = Receiver
M = Motor
COM = Common
ENC = Encoder

WARNINGS

This manual has been especially written for use by qualified fitters. No information given in this manual can be considered as being of interest to end users. This manual is enclosed with control unit D703 and may therefore not be used for different products!

Important information:

Disconnect the panel from the power supply before opening it.

ATTENTION: Capacitors C5, C6 and C7 located over the fuse "F1A" may be live even after the panel has been disconnected from the mains supply. Short the 2 terminals of each with a screwdriver before touching them.

The D703M control unit has been designed to control an electromechanical gear motor for automating gates and doors of all kinds.

Any other use is considered improper and is consequently forbidden by current laws.

Please note that the automation system you are going to install is classifi ed as "machine construction" and therefore is included in the application of European directive 2006/42/EC (Machinery Directive).

This directive includes the following prescriptions:

- Only trained and qualified personnel should install the equipment;
- the installer must first make a "risk analysis" of the machine;
- the equipment must be installed in a correct and workmanlike manner in compliance with all the standards concerned;
- after installation, the machine owner must be given the "declaration of conformity".

This product may only be installed and serviced by qualified personnel in compliance with current, laws, regulations and directives.

When designing its products, TAU observes all applicable standards (please see the attached declaration of conformity) but it is of paramount importance that installers strictly observe the same standards when installing the system.

Unqualified personnel or those who are unaware of the standards applicable to the "automatic gates and doors" category may not install systems under any circumstances.

Whoever ignores such standards shall be held responsible for any damage caused by the system!

Do not install the unit before you have read all the instructions.

Installation

This product must be correctly installed by a qualified fitter. The maker declines all liability for damage caused by incapacity or neglect.

In particular:

1. position the board vertically and as near as possible to the gear motor, taking care to keep the connection cables as short as possible;
2. make sure the cross-section of the power cables (power input, motors, earth and flashing light) is sufficient for the absorption and length of the wires. The above also applies to the other cables used by control and auxiliary devices;

To connect the power supply of control board in 400 V, use at least a 2.5 mm² cable, max. 40 m long.

3. make connections to the terminal board so as not to alter the level of protection offered by the container which must be installed in a dry and protected place;
4. keep the power circuits separate from the control and auxiliary circuits, especially if the cables are long;
5. short any unused Normally Closed contacts.

The product must be properly earthed and the safety regulations in force in the country of installation must be observed.

CONTROL PANEL FOR 230/400V AC SINGLE/THREE-PHASE MOTOR

- MICROPROCESSOR-CONTROLLED LOGIC
- INPUT STATUS LED'S
- LINE INPUT FUSE
- "PEDESTRIAN ENTRY" FUNCTION
- BUILT-IN FLASHING LIGHT CIRCUIT
- "MAN PRESENT" FUNCTION
- ELECTRIC BRAKING
- WEEKLY TIMER INPUT
- ENCODER SENSOR FOR OBSTACLE DETECTION (OPTIONAL ACCESSORY)
- RECEIVER CONNECTOR

ATTENTION:

- **do not use single cables (with one single wire), ex. telephone cables, in order to avoid breakdowns of the line and false contacts.**
- **do not re-use old pre-existing cables.**

TESTING

When all connections have been made:

- All the green LS LED's must be on (each corresponds to a Normally Closed input).
- They only turn off when the commands they are associated with are active.
- All the red LS LED's must be off (each corresponds to a Normally Open input) they only turn on when the commands they are associated with are active.

TECHNICAL CHARACTERISTICS

Power input to board	230/400V AC - 50÷60Hz
Maximum power	1,5 Kw ca.
Flashing light rapid fuse (F1 - 5x20)	F2A - 250V AC
Primary input line rapid fuse (F2-F3-F4 - 5x20)	F10A - 250V AC
Input voltage of motor circuits	230/400V AC
Input voltage of auxiliary circuits	24V AC
24Vac line rapid fuse (F5 - 5x20)	F1,6A - 250V AC
Logic circuit input voltage	5 V DC
Working temperature	-20°C ÷ + 55 °C
Box protected to	IP43

TERMINAL BOARD CONNECTIONS

Terminals	Function	Description
1 - 2	*POWER SUPPLY*	POWER input 230V AC, 50Hz, single-phase;
1 - 2 - 3	*POWER SUPPLY*	POWER input 400V AC, 50Hz, three-phase;
4 - 5 - 6	*230-400V AC MOTOR*	motor output single-phase 230V AC or three-phase 400V AC, max. 700 W, common=4, opening phase=5, closing phase=6, for single-phase motors connect the capacitor between terminals 5 and 6; **Note: select working voltage with jumper SW1 before powering the board.**
7 - 8	*FLASHING LIGHT*	FLASHING LIGHT output 230V AC, 20W max. The signal is already modulated for direct use. Flashing frequency increases slightly during closing;
9 - 10	*STOP*	STOP button input (normally closed contact); this stops the automatic system. At the next command, the opposite operation to the previous one is performed (common=9);

9 - 11	*PEDESTRIAN*	PEDESTRIAN button input (normally open contact); partially opens the automatic system (by about 1 m) to allow pedestrians to pass by (common=9);
12 - 13	*OPEN/CLOSE*	OPEN/CLOSE button input (contact normally open); for operating information see dip switch 2 and 8 functions;
12 - 14	*OPEN*	OPEN button input (contact normally open); for operating information see dip switch 3 functions (common=12);
12 - 15	*CLOSE*	CLOSE button input (contact normally open); for operating information see dip switch 3 functions (common=12);
16 - 17	*FIXED SAFETY EDGE*	FIXED SAFETY EDGE input (normally closed contact); only works during the opening phase by temporarily stopping the gate and then closing it again by approx. 20 cm. A manual command is required to continue operation (common=16);
16 - 18	*PHOTOCELL*	PHOTOCELL or SAFETY DEVICES input (normally closed contact); if these trigger during the closing phase, the gate stops and then completely reopens. During the opening phase it temporarily stops the gate until the detected obstacle has been removed (if programmed, dip switch 9 to ON), (common=16); **Note: the photocell transmitter must always be connected (terminals 27 and 28) as it is checked by the safety system; the control unit will not work if it is disconnected. To disable the safety system move dip switch 6 to OFF.**
19 - 20	*CLS (FCC)*	CLOSE LIMIT SWITCH input (normally closed contact), (common=19);
19 - 21	*OLS (FCA)*	OPEN LIMIT SWITCH input (normally closed contact), (common=19); **Note: the thermal protection (for MASTER20T and BIG-18QI only) must be wired in series to the common of the limit switch (terminal 19).**
22 - 23 - 24	*ENCODER*	ENCODER power input 22 BLEU = common, 23 BROWN = +5V, 24 WHITE = signal; ENCODER operation is governed by dip switch 5 (only for motors with ENCODER);
25 - 26	*GATE OPEN WARNING LIGHT*	GATE OPEN LED output; 24V AC, max. 3 W; the LED lights up at the same frequency as the flashing light throughout the opening and closing manoeuvres; it then stays on when the OPEN LIMIT SWITCH (FCA) is reached and switches off when the CLOSED LIMIT SWITCH (FCC) is reached;
27 - 28	*PHOTOCELL TX*	24V AC power output (only for the photocell transmitter) max. no. 1 photocell transmitter;
29 - 30	*PHOTOCELL*	24V AC auxiliary power output (power input to photocells or other devices);
31 - 32	*AERIAL*	AERIAL input (earth=31, signal=32) (only for RX 40.665MHz);
33 - 34	*2nd RADIO CH*	2nd RADIO CHANNEL output; **Warning: to connect other devices to the 2nd Radio Channel (area lighting, pumps, etc.), use an additional auxiliary relay (with receiver connected).**
C	*RECEIVER*	radio board connector.

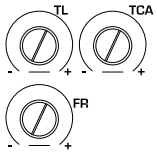
LOGIC ADJUSTMENTS

TRIMMER

T.L. Work Time adjustment: from approx. 5 to 240 seconds;

T.C.A. Automatic Closing Time adjustment: from approx. 5 to 120 seconds (see dip switch 1);

FR. obstacle detection sensitivity adjustment (only for motors with encoder).



Note: turn the TRIMMER clockwise to increase adjustments; turn it anti-clockwise to decrease.

Dip switches

1	*AUTOMATIC CLOSING*	**On**	after opening, the gate automatically closes when the delay set on the T.C.A. trimmer expires;
		Off	a command is required to close the gate;
2	*2 / 4 STROKE*	**On**	with automatic closing enabled, a sequence of open/close commands causes the gate to OPEN-CLOSE-OPEN-CLOSE etc.;
		Off	in the same conditions, the same command sequence causes the gate to OPEN-STOP-CLOSE-STOP-OPEN-STOP (step-by-step) (see also dip switch 9);
3	*MAN PRESENT*	**On**	Man Present; the automation system will continue to open or close as long as the OPEN or CLOSE buttons are held down. The gear motor will stop when the button is released;
		Off	normal (or pulse); when the OPEN, CLOSE or the PP button is pushed, the automatic system performs a complete opening or closing manoeuvre;

Note: in the Man Present mode, the PP input (n° 13) is disabled, as is the radio receiver.

4			not used;
5	*ENCODER*	**On**	encoder disabled (obligatory if the motor is not fitted with an encoder);
		Off	encoder enabled (only for motors with encoder);
6	*PRE-FLASHING FOTOTEST*	**On**	pre-flashing and “photocell test” function enabled;
		Off	pre-flashing and “photocell test” function disabled;
7	*CLOSE AFTER PHOTOCELL*	**On**	after the photocell contact triggers (input 16 - 18), the automation system closes after 5 seconds;
		Off	function disabled;
8	*NO REVERSE*	**On**	the gate works as set by dip switch 2
		Off	the gate ignores the close command during the opening cycle;
9	*OPENING PHOTOCELLS OPERATION*	**On**	during opening, the photocell cuts in to stop the gate until the obstacle is removed. During closing, it stops the gate and then totally reopens it.
		Off	during opening, the photocell does not trigger while during closing, it behaves as if the dip switch were on;
10	*BRAKING*	**On**	braking enabled;
		Off	braking disabled;

Note: the braking system activates whenever the motor must stop (FCC - FCA - STOP – change of direction) and reduces the inertia accumulated by the gear motor during movement.

Clock function:
A timer can be connected to the open-close pushbutton in order to keep the gate open at certain times during the day, after which it reverts to automatic closing.

DIAGNOSTICS LED

DL1	STOP button green LED signal
DL2	PEDESTRIAN button red LED signal
DL3	STEP BY STEP button red LED signal
DL4	OPEN button red LED signal
DL5	CLOSE button red LED signal
DL6	SENSITIVE EDGE green LED signal
DL7	PHOTOCELL green LED signal
DL8	CLOSE LIMIT SWITCH green LED signal
DL9	OPEN LIMIT SWITCH green LED signal

MALFUNCTIONS: POSSIBLE CAUSES AND SOLUTION

The automation does not start

a_ Check there is 230Vac power supply with the multimeter;
b_ Set the SW1 jumper on the correct available voltage;
c_ Check that the NC contacts of the card are actually normally closed (5 green LEDs on);
d_ Set the dip 3 (man present function) to OFF, dip 5 (encoder) to ON, dip 6 (phototest) to OFF;
e_ Check that the fuses are intact with the multimeter.

The radio control has very little range

a_ Connect the radio aerial to the terminals of the receiver card and not to terminals 31-32 of the control card (for frequency 433,92 MHz);
b_ Check that the ground and the aerial signal connections have not been inverted;
c_ Do not make joints to increase the length of the aerial wire;
d_ Do not install the aerial in a low position or behind walls or pillars;
e_ Check the state of the radio control batteries.

The gate opens the wrong way

a_ Invert the motor connections on the terminal block (terminals 5 and 6);
Consequently, invert the connections of the limit switches (terminals 20 and 21).

NOTES ON USING THE BIG18 WITH A SINGLE PHASE TO THREE PHASE INVERTER

1. With all power removed convert the D703 to a single phase control board by moving the wire one terminal at SW1.
2. The motor wires connected at terminals 4, 5 and 6 on the D703 need to be connected to terminals U, V and W on the inverter.
3. You will need two 240 volt relays. Connect terminal 4 (COM) on the D703 to one side of the coil of both relays.
4. Connect 5 (OPEN) from the D703 to the other side of the coil of one relay.
5. Connect 6 (CLOSE) to the other side of the coil on the second relay.
6. Take the COM from the relay side of both relays to DCM (COM) on the inverter.
7. Take the N/O from the “OPEN” relay to FOR on the inverter.
8. Take the N/O from the “COSE” relay to REV on the inverter.
9. Connect 240 volts to the inverter at R, S and E and also to the D703 at terminals 1 and 2.

You are now ready to start testing your installation for motor for drive both ways and correct direction as well as limits.