>MOVING LIFE

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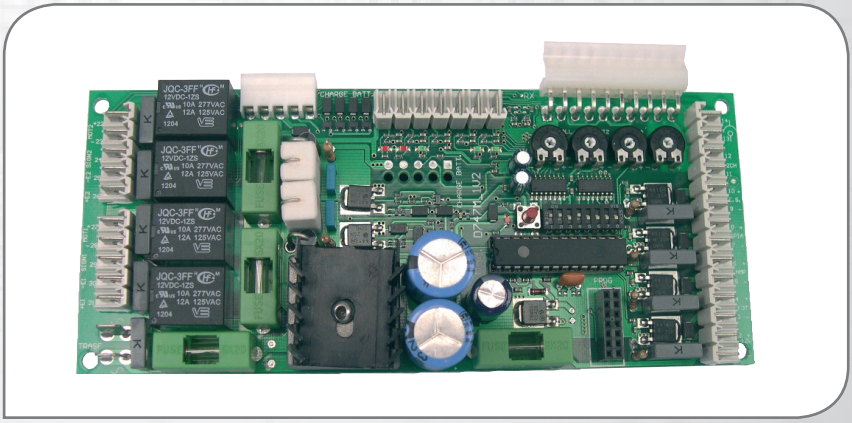
GUIDA ALL'INSTALLAZIONE
INSTALLATION GUIDE
INSTALLATIONSANLEITUNG
NOTICE D'INSTALLATION
GUÍA PARA LA INSTALACIÓN

D747M

Quadro di comando per uno/due motori 12V con encoder
Control panel for one-two 12V motors with encoder
Steuerplatine für einen (zwei) 12V Motor(en) mit Encoder
Logique de commande pour un ou deux moteurs 12V avec encodeur
Panel de mandos para uno or dos motores 12V con encoder



D-MNL0D747M 06-11-2012 - Rev.17

IT - Istruzioni originali

MADE IN ITALY

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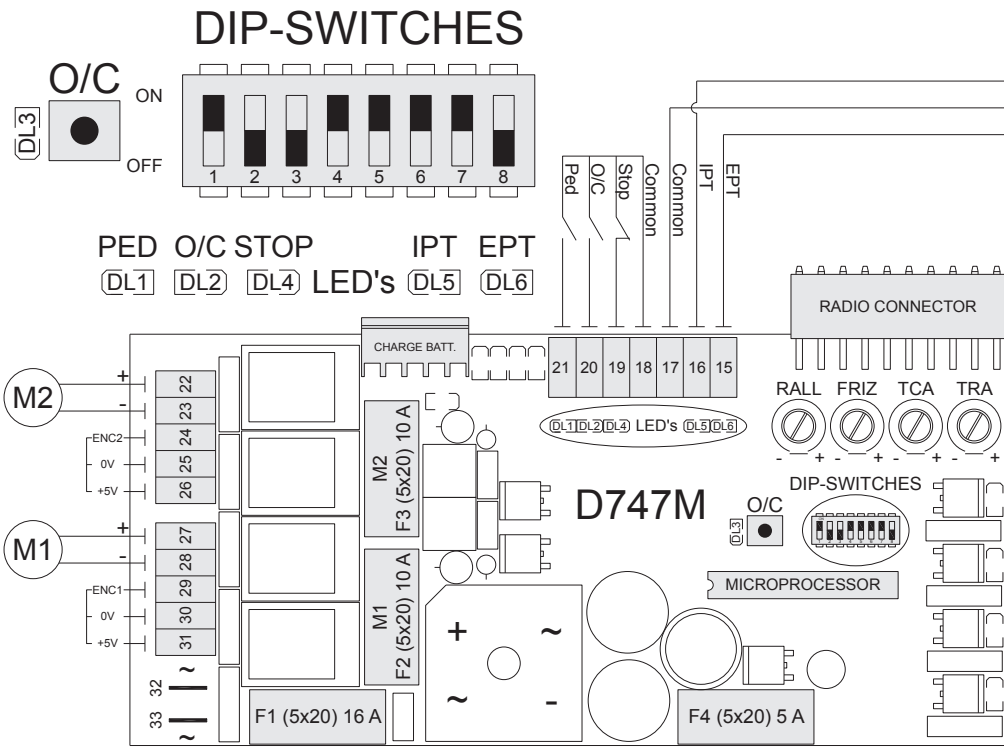
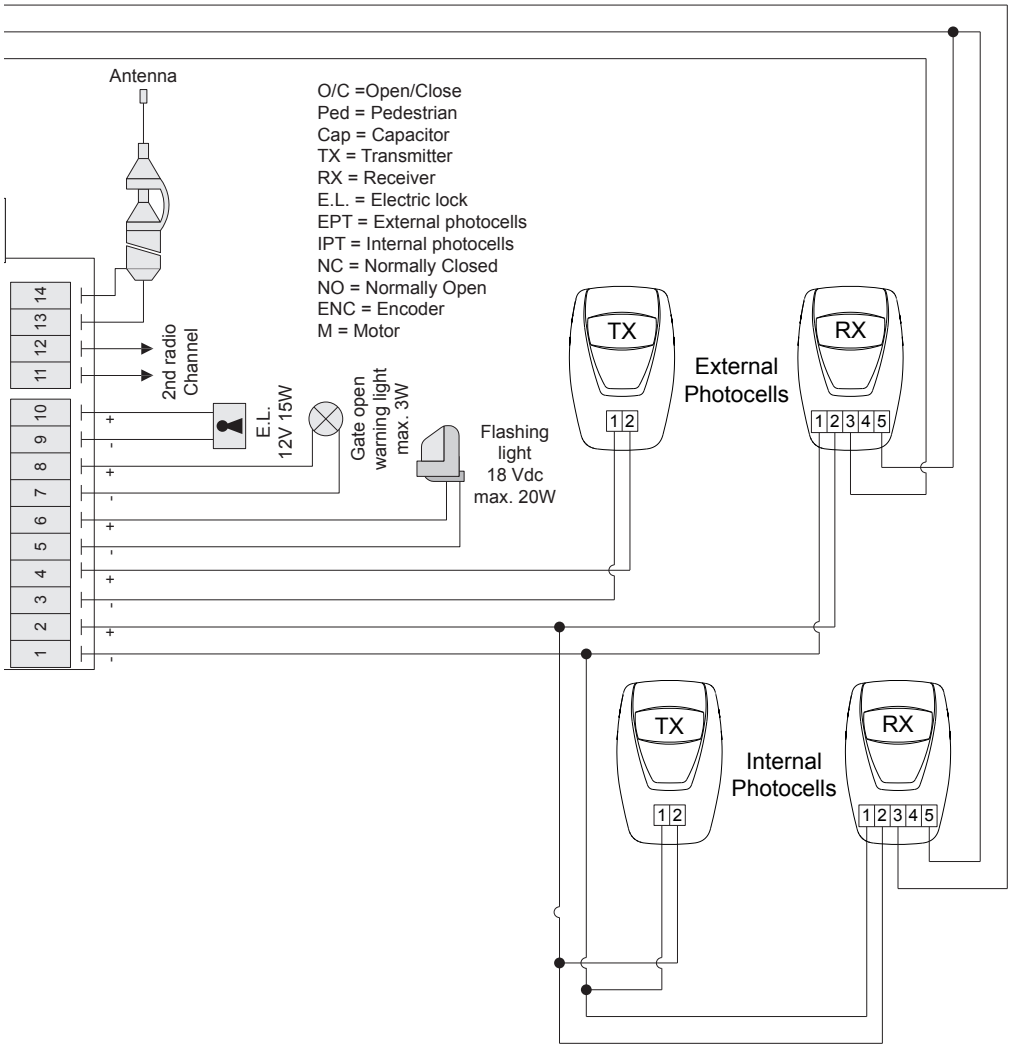
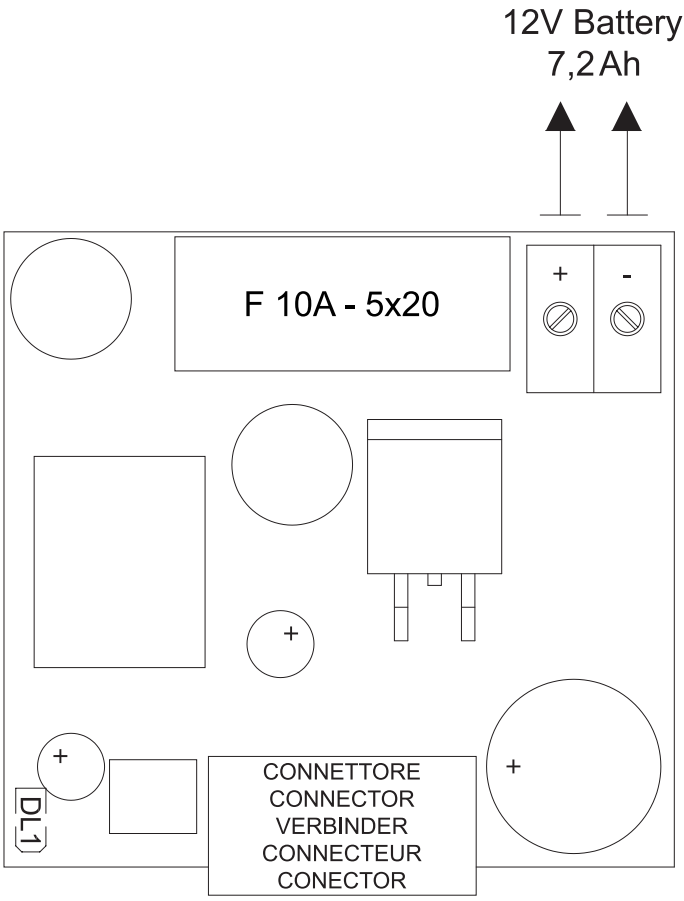

DIP-SWITCHES
O/C
DL3
ON
OFF
1 2 3 4 5 6 7 8
Ped
O/C
Stop
Common
Common
IPT
EPT
PED O/C STOP IPT EPT
DL1 DL2 DL4 LED's DL5 DL6
RADIO CONNECTOR
CHARGE BATT.
21 20 19 18 17 16 15
RALL FRIZ TCA TRA
M2
M1
ENC2
ENC1
0V
+5V
22 23 24 25 26 27 28 29 30 31 32 33
M2 F3 (5x20) 10 A
M1 F2 (5x20) 10 A
F1 (5x20) 16 A
F4 (5x20) 5 A
D747M
DIP-SWITCHES
O/C
MICROPROCESSOR


Antenna
O/C =Open/Close
Ped = Pedestrian
Cap = Capacitor
TX = Transmitter
RX = Receiver
E.L. = Electric lock
EPT = External photocells
IPT = Internal photocells
NC = Normally Closed
NO = Normally Open
ENC = Encoder
M = Motor
14
13
12
11
10
9
8
7
6
5
4
3
2
1
2nd radio Channel
E.L. 12V 15W
Gate open warning light max. 3W
Flashing light 18 Vdc max. 20W
TX
1 2
External Photocells
RX
1 2 3 4 5
TX
1 2
Internal Photocells
RX
1 2 3 4 5

SCHEDA BATTERIA (OPZIONALE)
BATTERY CHARGER BOARD (OPTIONAL)
BATTERIELADEKARTE (OPTIONAL)
CARTE CHARGEUR DE BATTERIE (EN OPTION)
TARJETA CARGA BATERÍA (OPCIONAL)



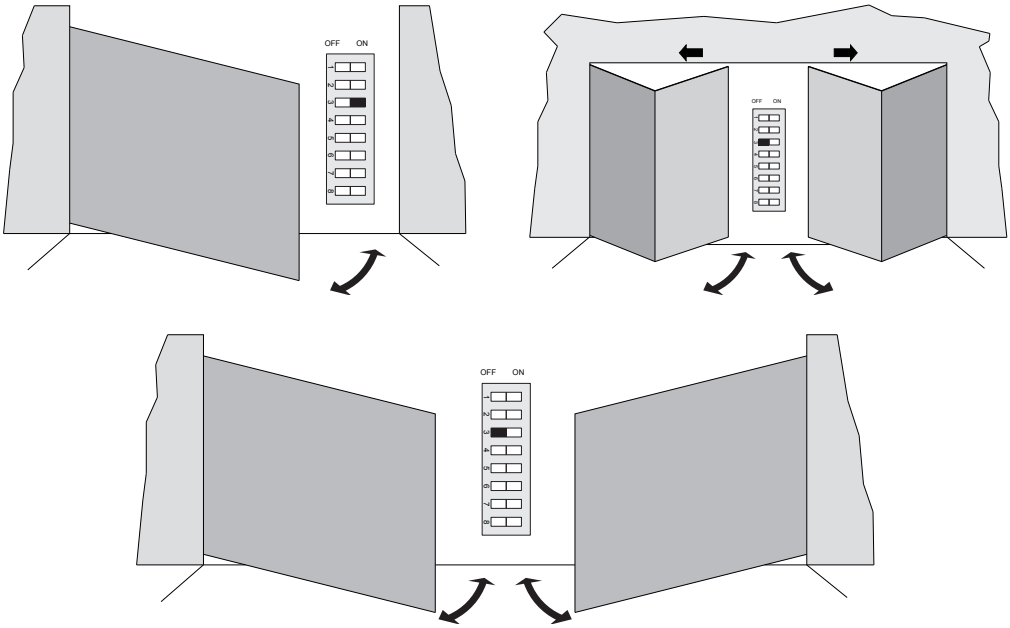
F 8A - 5x20 Fusibile rapido 8 Ah 5x20 a protezione della batteria 12 V 7,2 Ah

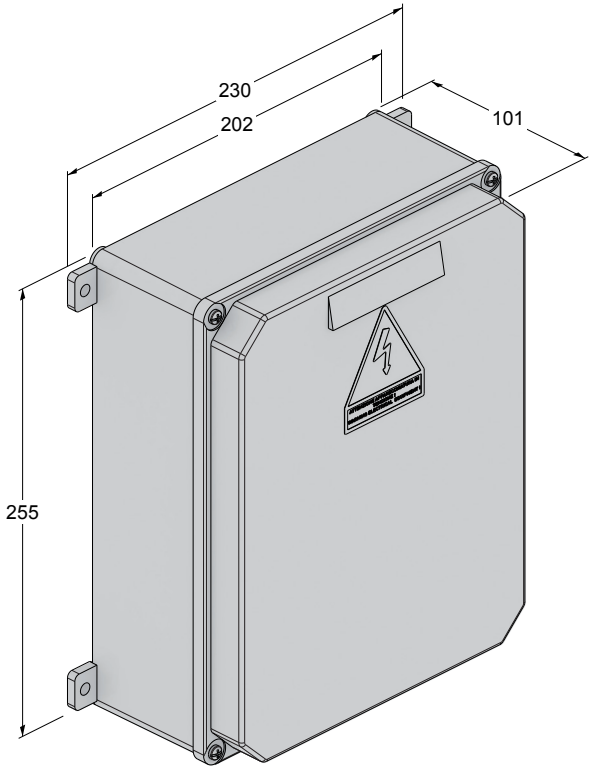
F 8A - 5x20 8 Ah 5x20 fast-acting fuse for protection of 12 V 7.2 Ah battery

F 8A - 5x20 Schnellsicherung 8 Ah 5x20 zum Schutz der Batterie 12 V 7,2 Ah

F 8A - 5x20 Fusible rapide 8 Ah 5x20 pour la protection de la batterie 12 V 7,2 Ah

F 8A - 5x20 Fusible rápido 8 Ah 5x20 como protección de la batería 12 V 7,2 Ah


OFF ON
OFF ON
OFF ON


230
202
101
255

ENGLISH

MANUFACTURER'S DECLARATION OF INCORPORATION
(in accordance with European Directive 2006/42/EC App. II.B)

Manufacturer:	TAU S.r.l.
Address:	Via E. Fermi, 43 36066 Sandrigo (Vi) ITALY

Declares under its sole responsibility, that the product:	*Electronic control unit*
designed for automatic movement of:	*Swing Gates*
for use in a:	*Residential / Communities*
complete with:	-
Model:	*D747M*
Type:	*D747M*
Serial number:	*see silver label*
Commercial name:	*Control panel for one-two 12V motors with encoder*

Has been produced for incorporation on an access point (*swing gate*) of for assembly with other devices used to move such an access point, to constitute a machine in accordance with the Machinery Directive 2006/42/EC.

Also declares that this product complies with the essential safety requirements of the following EEC directives:

- ***2006/95/EC Low Voltage Directive***
- ***2004/108/EC Electromagnetic Compatibility Directive***

and, where required, with the Directive:

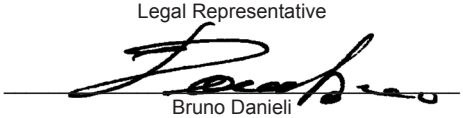
- ***1999/5/CE Radio equipment and telecommunications terminal equipment***

Also declares that ***it is not permitted to start up the machine*** until the machine in which it is incorporated or of which it will be a component has been identified with the relative declaration of conformity with the provisions of Directive 2006/42/EC.

The manufacturer undertakes to provide, on sufficiently motivated request by national authorities, all information pertinent to the quasi-machinery.

Sandrigo, 31/03/2010

Legal Representative



Bruno Danieli

Name and address of person authorised to draw up all pertinent technical documentation:

Loris Virgilio Danieli - via E. Fermi, 43 - 36066 Sandrigo (Vi) Italy

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 D747M and may therefore not be used for different products!

Important information:

Disconnect the panel from the power supply before opening it.

The D747M 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

Before proceeding, make sure the mechanical components work correctly. Also check that the gear motor assembly has been installed according to the instructions. Then make sure that the power consumption of the gear motor is not greater than 3A (otherwise the control panel may not work properly).

THE EQUIPMENT MUST BE INSTALLED “EXPERTLY” BY QUALIFIED PERSONNEL AS REQUIRED BY LAW.

Note: it is compulsory to earth the system and to observe the safety regulations that are in force in each country.

IF THESE ABOVE INSTRUCTIONS ARE NOT FOLLOWED IT COULD PREJUDICE THE PROPER WORKING ORDER OF THE EQUIPMENT AND CREATE HAZARDOUS SITUATIONS FOR PEOPLE. FOR THIS REASON THE “MANUFACTURER” DECLINES ALL RESPONSIBILITY FOR ANY MALFUNCTIONING AND DAMAGES THUS RESULTING.

CONTROL PANEL FOR ONE-TWO 12V MOTORS WITH ENCODER

- LOGICS WITH MICROPROCESSOR
- STATUS OF INPUTS SIGNALLED BY LEDs
- “PEDESTRIAN GATE” FUNCTION
- INCORPORATED FLASHING CIRCUIT
- ENCODER SENSOR FOR OBSTACLE DETECTION AND SELF-LEARNING OF TRAVEL
- RECEIVER CONNECTOR
- BATTERY AND BATTERY CHARGER CONNECTOR (OPTIONAL)
- DIAGNOSTICS OF MALFUNCTIONS SIGNALLED BY LED

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.**
- **we recommend to use the TAU cable code M-03000010C0 to connect the motors to the control board.**

TESTING

When you have completed the connection:

- All the green LS LEDs must be on (each of them corresponds to a Normally Closed input). The go off only when the controls to which they are associated are operated.
- All the red LS LEDs must be off (each of them corresponds to a Normally Open input). The light up only when the controls to which they are associated are operated.

TECHNICAL FEATURES

Board power supply	13,5V AC - 50 Hz
Max motor 1 power DC	50 W - 18V DC
Max motor 2 power DC	50 W - 18V DC
Fast acting fuse for protection of input power supply 13,5V AC (F1 - 5x20)	F 16 A
Fast acting fuse for motor 1 protection (F2 - 5x20)	F 10 A
Fast acting fuse for motor 2 protection (F3 - 5x20)	F 10 A
Fast acting fuse for protection of auxiliary circuits 18V DC (F4 - 5x20)	F 5 A
Motor power supply circuits voltage	18V DC
Auxiliary device circuits supply voltage	18V DC
Logic circuits supply voltages	5V DC
Operating temperature	-20 °C ÷ +55 °C

DIAGNOSTICS LED

DL1	PEDESTRIAN button red LED signal
DL2	OPEN/CLOSE button red LED signal
DL3	ERRORS red LED signal
DL4	STOP button green LED signal
DL5	INTERNAL PHOTOCELL green LED signal
DL6	EXTERNAL PHOTOCELL green LED signal

TERMINAL BOARD CONNECTIONS

Terminals	Function	Description
1 - 2	*AUX*	auxiliary circuits output 18V DC max. 15 W for photocells, relays, receivers, etc... (1 = NEGATIVE - 2 = POSITIVE)
3 - 4	*TX PHOTOCELLS*	18V DC output for transmitter photocell – phototest - max. no. 1 photocell transmitters. (3 = NEGATIVE - 4 = POSITIVE)
5 - 6	*FLASHING LIGHT*	18V DC max. 20 W output for flashing light supply, flashing signal supplied by the control unit, rapid for closing, slow for opening. (5 = NEGATIVE - 6 = POSITIVE)
7 - 8	*GATE OPEN WARNING LIGHT*	18V DC max. 3 W output for supply to open and moving gate warning light. (7 = NEGATIVE - 8 = POSITIVE)
9 - 10	*ELECTRIC LOCK*	12V AC, 15 W output for electric lock.
11 - 12	*2nd CH RADIO*	2nd radio channel output - for control of an additional automation or for switching on lights, etc... (N.O. clean contact) **Warning: to connect other devices to the 2nd Radio Channel (area lighting, pumps, etc.), use an additional auxiliary relay (see note at end of paragraph).**
13 - 14	*AERIAL*	plug-in radio-receiver aerial input. (13 = SIGNAL - 14 = GROUND)
15 - 17	*EXTERNAL PHOTOCELLS*	PHOTOCELL OR SAFETY DEVICE input OUTSIDE the gate (Normally Closed contact). Then these devices trigger during the closing phase, they stop the gate and then totally open it again. 17 = COMMON. **Note: the photocell transmitter must always be supplied by terminals no. 3 and no. 4, since the safety system test (phototest) is carried out on it. Without this connection, the control unit does not work. To override the testing of the safety system, or when the photocells are not used, set dip-switch no. 6 to OFF.**
16 - 17	*INTERNAL PHOTOCELLS*	PHOTOCELL OR SAFETY DEVICE input INSIDE the gate (Normally Closed contact). When these devices trigger during the opening phase, they temporarily stop the gate until the obstacle has been removed; during the closing phase they stop the gate and then totally open it again. 18 = COMMON.
18 - 19	*STOP*	N.C. input for STOP button – It stops the gate in any position, temporarily inhibiting its automatic closing, if programmed. (18 = COM - 19 = STOP)
18 - 20	*OPEN/CLOSE*	N.O. input for OPEN/CLOSE button - It commands the opening and closing of the gate and its operation is controlled by dip-switches 2 and 3. (18 = COM - 20 = O/C)
18 - 21	*PEDESTRIAN*	PEDESTRIAN button N.O. input – Controls the total opening and closing of motor 1 (M1) and the functioning is regulated by dip-switches 2 and 4. (18 = COM - 21 = PED)
22 - 23	*MOTOR 2*	motor 2 (M2) supply output 18V DC max. 50 W.
24 - 25 - 26	*ENCODER (M2)*	encoder supply and input. (24 = WHITE signal - 25 = BLUE negative - 26 = BROWN positive)
27 - 28	*MOTOR 1*	motor 1 (M1) supply output 18V DC max. 50 W.
29 - 30 - 31	*ENCODER (M1)*	encoder supply and input. (29 = WHITE signal - 30 = BLUE negative - 31 = BROWN positive)

32 - 33	*POWER SUPPLY*	13,5V AC control unit power supply input – Supplied by the toroidal transformer and protected by fuses on the 230V AC power supply.

ENGLISH

IMPORTANT:

- **Do not connect auxiliary relays or other devices tot he 18 V DC output (terminals 1 – 2) to avoid malfunctions of the control unit. Use separated power supply / transformers instead;**
- **do not connect switching feeders or similar apparatus close to the control unit that may be a source of disturbance.**

MEMORIZATION PROCEDURE

WARNING: After powering the control panel, wait 2 seconds before you start performing the adjustment operations.

The gate must be equipped with the opening and closing safety stops.

When you have completed the installation procedures :

1_ position the leaf of the gate at approx. 1 m from the closing stop;

2_ set dip-switch no. 8 to ON;

3_ operate the automation using one of the following inputs: O/C, radio control or card button.

4_ the gate must start to close.

If it opens, stop the programming procedure by resetting the electric panel (disconnect the power supply to the panel for at least 5 sec. and set dip-switch no. 8 to OFF); with the control panel disconnected, exchange the motor supply wires. Restart the procedure from point 1.

5_ when the gate has closed, after approximately 2 seconds a complete opening manoeuvre is executed automatically;

6_ when the gate has opened, set dip-switch no. 8 to OFF;

7_ the automation is now ready for operation.

Make the logic adjustments.

When any adjusting devices (trimmers or dip-switches) on the control panel are operated, a complete manoeuvre must be carried out in order for the new settings to take effect.

LOGIC ADJUSTMENTS

TRIMMER

RALL. slowdown distance adjustment: from about 10 to 100 cm;

T.C.A. Automatic Closing time adjustment: from about 3 to 240 seconds (see dip-switch no. 1);

T.R.A. 2nd wing closing delay adjustment from 2 to 15 seconds.

FRIZ. obstacle detection sensitivity adjustment.

NOTE: by rotating the TRIMMER FR. clockwise the sensitivity of the gearmotor to obstacles diminishes and therefore the thrust force increases; vice-versa, by rotating it counter-clockwise, the sensitivity of the gearmotor to obstacles increases and therefore the thrust force diminishes.

Dip switch

1	*AUTOMATIC CLOSING*	**On**	when the gate has opened, it closes automatically after the time established through the T.C.A. trimmer;
		Off	the closing manoeuvre requires a manual command;

2	*2 / 4 STROKE*	**On**	when the automation is operational, a sequence of opening/closing commands causes the gate to OPEN-CLOSE-OPEN-CLOSE etc.
		Off	under the same circumstances, the same sequence of commands causes the gate to OPEN-STOP-CLOSE-STOP-OPEN-STOP, etc. (step-by-step function) (see also dip switch 4);
3	*MOTORS SELECTION*	**On**	enables just one motor (M1);
		Off	enables 2 motors;
4	*NO REVERSE*	**On**	the gate behaves as established by dip switch no. 2;
		Off	the gate ignores the closing commands during the opening manoeuvre and during the automatic closing time. Therefore the A/C input works only by opening command;
5	*PRE-FLASHING*	**On**	the pre-flashing function is enabled;
		Off	the pre-flashing function is disabled;
6	*FOTOTEST*	**On**	the “photocell test” function is enabled;
		Off	the “photocell test” function is disabled. N.B.: to be used when the photocells are not used;
7	*CLOSE AFTER PHOTOCELL*	**On**	following the connection of the photocell contact (input 15 - 17), the gate closes automatically after 5 seconds;
		Off	function disconnected;
8	*MEMO*	**On**	the memorization function is enabled for self-learning of the travel;
		Off	leave the dip-switch in this position when the memorization procedure has been completed.

TIMER-OPERATED OPENING AND CLOSING CYCLES

The opening and closing of the gate can be controlled through a digital timer equipped with a relay contact on the output. The timer must be connected to terminals 18 - 20 (OPEN/CLOSE button) and can be programmed so that, at the desired opening time, the relay contact closes until the desired closing time (when the timer’s relay contact opens, enabling the automatic closing of the gate).

The automatic closing function must be enabled by setting Dip-switch no. 1 to ON).

D747M CHARACTERISTICS

LED - DL3

The LED, besides indicating that the power supply is connected, also signals errors with a series of pre-defined flashes:

steady light:	normal operation;
1 flash:	buffer battery voltage lower than 11,3V DC;
Check the mains power supply, charge the battery, replace the battery;	
2 flashes:	phototest error;
Disable phototest (dip-switch 6 OFF), check operation and connection of photocells;	
3 flashes:	power failure;
Check the thermal-magnetic circuit breaker (upstream from system), check the fuses;	
4 flashes:	max current limit exceeded;
Gearmotor has exceeded absorption limits, check for obstacles across the path of the gate, check the current absorption of the motor when loadless and under load;	
5 flashes:	absence of encoder signal / no motor signal;
Check wiring, check encoder through TEST-ENCODER (optional);	
Check wiring, check that the motor rotates freely when powered directly by battery, check fuse F2;	

6 flashes: presence of obstacle after 5 failed attempts to close;
Make sure there are no obstacles across the path of the gate and that it slides smoothly;

7 flashes: no memorization procedure has been executed;
Execute memorization procedure.

Multiple errors are signalled by a 2-second pause between signals.
If the encoder is activated 5 consecutive times during the same closing manoeuvre (obstacle detection), the control unit opens completely. On the next manoeuvre, the control unit will switch to slow-down mode as it searches for the closing travel limit.

GATE OPEN WARNING LIGHT (18V DC - max. 3W)
The gate open warning light flashes during the opening or closing manoeuvre in synchrony with the flashing light, then shows a steady light when the gate has opened completely. Once the closing manoeuvre has been completed this light goes off .
In addition, the gate open warning light signals the following:

- programming phase (when dip-switch 8 is set to ON);
  it flashes in sync with the flashing light;
- mains power supply restored
  it emits a series of flashes for approx. 2 seconds;
- presence of obstacles across the path of the gate after 5 attempts to close have failed;
  it flashes in sync with the flashing light.

BATTERY CHARGER BOARD (OPTIONAL)
If the system is equipped with a battery charger board, it con operate even during power failures. If the voltage drops below 11,3V DC, the automation stops working (the control panel is still powered). When it drops below 10,2V DC, the board disconnects the battery completely (the control panel is no longer powered).

OBSTACLE DETECTION
If the obstacle detection function (which can be set through trimmer FR) is activated during an opening manoeuvre, the gate closes approx. 20 cm., if it is activated during a closing manoeuvre, the gate opens all the way .
WARNING: the control panel logics may interpret mechanical friction as an obstacle.

SLOW-DOWN
To prevent the gate from shuddering at the end of its travel, you can set (through the RALL trimmer) the slow down function for the opening and closing manoeuvres at a distance of 10 to 100 cm from the end of travel (by rotating the trimmer clockwise the slow-down distance is increased; vice-versa, by rotating it counter-clockwise the slow-down distance is diminished). When setting the slow-down distance, you should take into account the weight of the gate as well as mechanical frictions.
The A/C button on the board has the same function as the OPEN/CLOSE button.

REALIGNMENT PROCEDURE

Should the Gate need to be operated manually, use the release system. After the manual operation:

- after a Mains Power Failure, such as a black-out (controller remains disconnected for a certain time), the gate will be moving slowly to allow the Controller to establish its Limits;
- after a Manual Operation without Mains Power Failure (controller remains connected) it will take 4 to 5 complete cycles to complete the realignment procedure. During these cycles, Limits and Soft-Stops will not be working.

MALFUNCTIONS: POSSIBLE CAUSES AND SOLUTION

The automation does not start

a- Check there is 230V AC power supply with the multimeter;
b- Check that the NC contacts of the card are actually normally closed (3 green LEDs on);
c- Set dip 6 (phototest) to OFF;
d- Increase the FRIZ trimmer to the limit;
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 13-14 of the control card;
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

Invert the motor connections on the terminal block (terminals 27 and 28 for M1; terminals 22 and 23 for M2).