

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

K580M

Quadro di comando per motorizzatore T-ONE5, T-ONE8, T-ONEXL e MASTER20QR/QM

Control panel for T-ONE5, T-ONE8, T-ONEXL and MASTER20QR/QM gearmotor

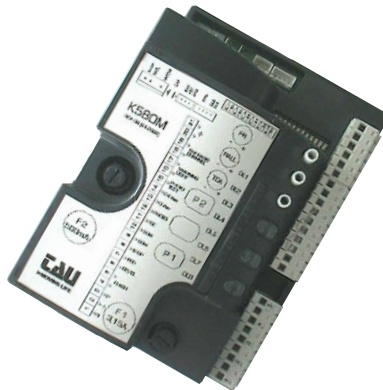
Steuerplatine für den getriebemotor T-ONE5, T-ONE8, T-ONEXL und MASTER20QR/QM

Logique de commande pour motoréducteur T-ONE5, T-ONE8, T-ONEXL et MASTER20QR/QM

Panel de mandos para motorreductor T-ONE5, T-ONE8, T-ONEXL y MASTER20QR/QM

Quadro de comando para motorreductor T-ONE 5, T-ONE8, T-ONEXL e MASTER20QR/QM

D-MNLOK580M 17-11-2015 - Rev.10



IT - Istruzioni originali



MADE IN
ITALY



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SCHEMA CABLAGGIO K580M / K580M WIRING DIAGRAM / SCHALTPLAN DER K580M

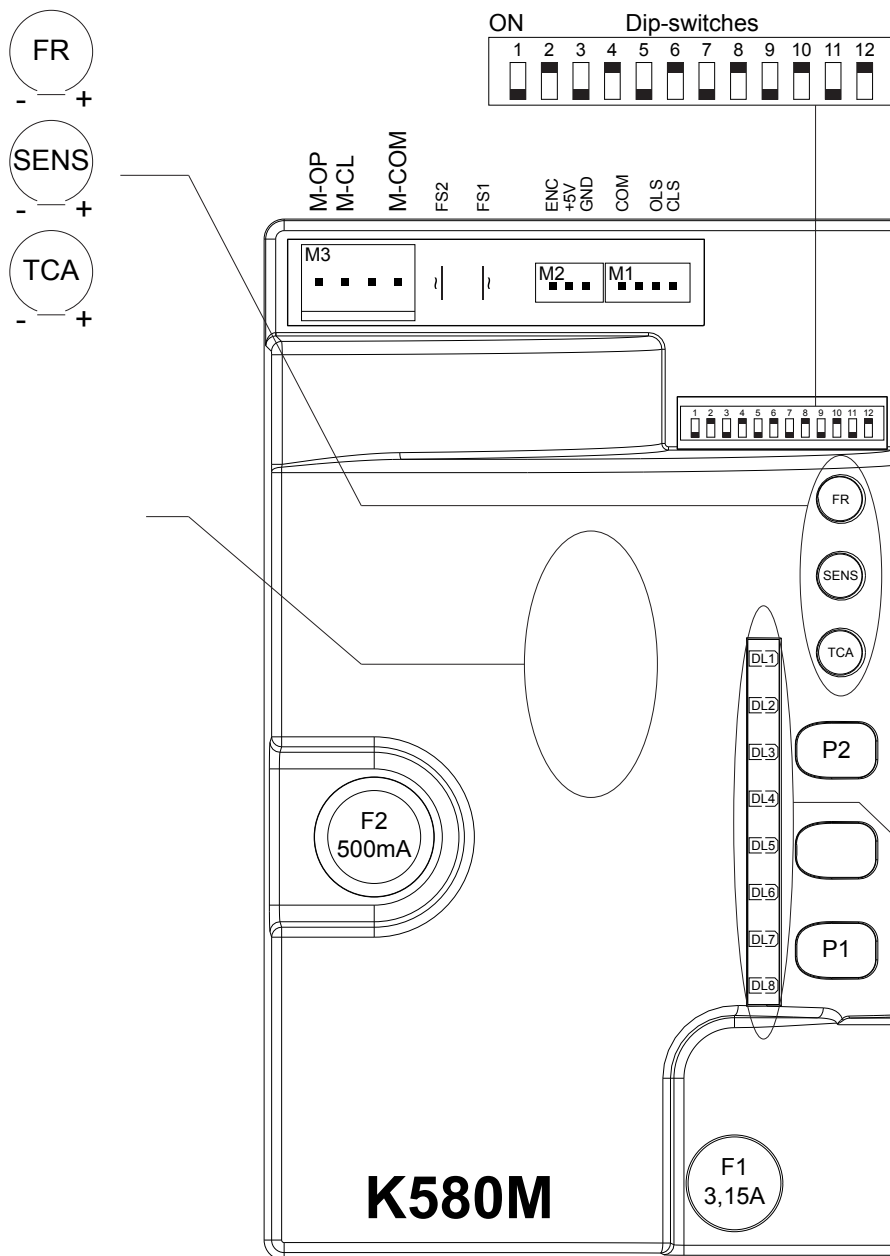
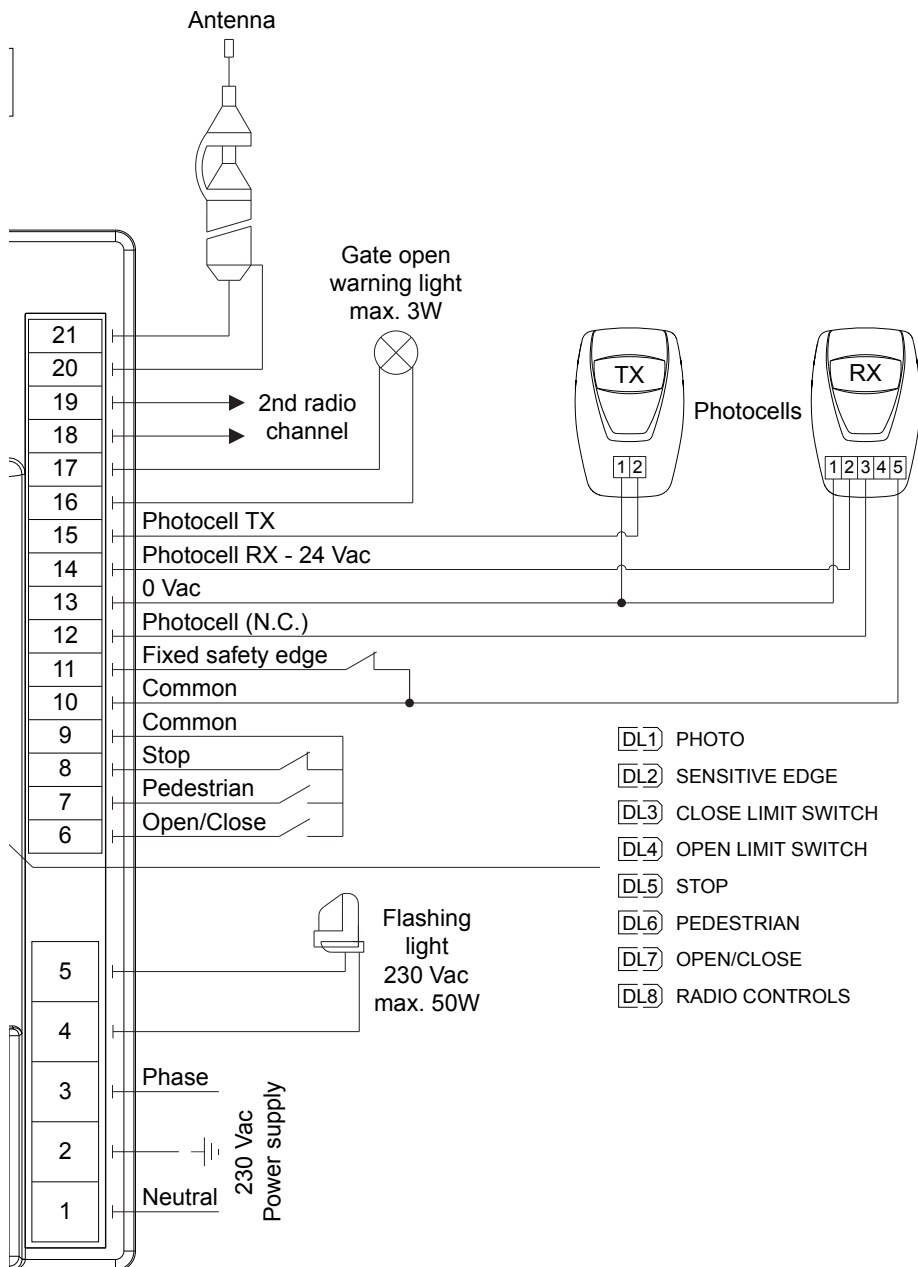


SCHÉMA CÂBLAGE K580M / ESQUEMA DEL CABLEADO K580M / ESQUEMA ELÉCTRICO K580M



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

ENGLISH

Manufacturer:

TAU S.r.l.

Address:

Via E. Fermi, 43
36066 Sandrigo (Vi)
ITALY

Declares under its sole responsibility, that the product:
designed for automatic movement of:
for use in a:
complete with:

*Electronic control unit
Sliding Gates
Residential / Communities
Radioreceiver*

Model:
Type:
Serial number:
Commercial name:

*K580M
K580M
see silver label
Control panel for T-ONE5, T-ONE8, T-ONEXL and
MASTER20QR/QM gearmotor*

Has been produced for incorporation on an access point (*sliding gate*) or 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:

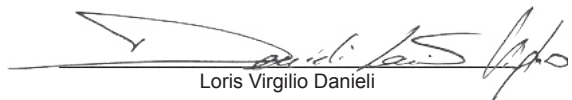
- **1999/5/CE Radio equipment and telecommunications terminal equipment**

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, 28/11/2014

Legal Representative


Loris Virgilio 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 K580M and may therefore not be used for different products!

Important information:

Disconnect the panel from the power supply before opening it.

The K580M 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 classified 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 230V AC MOTOR

- MICROPROCESSOR-CONTROLLED LOGIC
- INPUT STATUS LED'S
- LINE INPUT FUSE
- BUILT-IN FLASHING LIGHT CIRCUIT
- 433.92 MHz 2 CHANNEL BUILT-IN RADIO RECEIVER (CH)
- OPERATING TIME FIXED AT 120 sec.
- AUTOMATIC DETECTION OF THE POWER SUPPLY FREQUENCY (50 or 60 Hz)
- MOTOR TORQUE CONTROL AND OBSTACLE DETECTION BY MEANS OF ENCODER
- ADJUSTABLE DECELERATION

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 you have completed the connection:

- All the green LEDs must be on (each of them corresponds to a Normally Closed input). They go off only when the controls to which they are associated are operated.
- The red opening command LEDs must all be unlit (each corresponding to a Normally Open input) and illuminate only when the commands they are associated with are given; red LED DL8 must be illuminated steadily.

TECHNICAL CHARACTERISTICS

Power input to board	230V AC - 50 Hz
Nominal power	400 W
Fast acting fuse for protection of input power supply 230V AC (F1 - 5x20)	F 3,15 A
Input voltage of motor circuits	230V AC
Input voltage of auxiliary circuits	24V AC
Fast acting fuse for protection of auxiliary circuits 24V AC (F2 - 5x20)	F 500 mA
Working temperature	-20°C ÷ +55°C
Box degree of protection	IP 44

TERMINAL BOARD CONNECTIONS

Terminals	Function	Description
1 - 2 - 3	POWER SUPPLY	POWER input 230V AC - 50Hz (115V AC - 60 Hz). 1= NEUTRAL 2= EARTH 3= PHASE;
4 - 5	FLASHING LIGHT	FLASHING LIGHT output 230 Vac 50 W max. The signal is already modulated for direct use. The flashing frequency during closing is double. 4= 230V AC, 5= 0V AC;
6 - 9	OPEN/CLOSE	OPEN/CLOSE pushbutton input (Normally Open contact);
7 - 9	PEDESTRIAN	PEDESTRIAN pushbutton input (Normally Open contact); N.B. by factory setting the automation will open 120 cm.
8 - 9	STOP	STOP pushbutton input (Normally Closed contact);
10 - 11	SENSITIVE EDGE	SENSITIVE EDGE input (resistive sensitive edge or fixed safety edge); Works only when the gate is opening; temporarily stops the gate and partially closes it by about 20 cm in order to allow the obstacle to be removed. (10=Common); NOTE: if a resistive sensitive edge is connected, set dip-switch no. 12 to ON; If a fixed safety edge with NC contact is connected, set dip-switch no. 12 to OFF;

10 - 12	PHOTOCELLS	input for PHOTOCELLS OR SAFETY DEVICES active during closure (Normally Closed contact); They stop the gate during closing and totally reopen it; they temporarily stop the gate during opening in order to allow the obstacle to be removed (if dip switch n° 3 set to ON), (10= Common). If there is more than one safety device, connect all the NC contacts IN SERIES . Note: the photocell transmitter must always be supplied by terminals no. 13 - 15, since the safety system test (photo-test) is carried out on it. To override the testing of the safety system, or when the photocells are not used, set dip-switch no. 6 to OFF. If the photo-test is not successful, the control unit will not operate.
13 - 14	RX PHOTOCELLS	24V AC 10W output to POWER THE RX AND/OR OTHER TX OF OTHER INSTALLED PHOTOCELLS PHOTOCELLS AND/OR EXTERNAL RECEIVERS, etc.; connect a max. of 3 pair of photocells. 13= 0V AC, 14= 24V AC;
13 - 15	TX PHOTOCELL	24V AC 10 W POWER output for PHOTOCELL TX (only the one that performs the Phototest) max. no. 1 photocell transmitter. 13= 0V AC, 15= 24V AC;
16 - 17	GATE OPEN LED	GATE OPEN LED output 24V AC - max. 3W; during opening of the gate the warning light flashes slowly, when the gate is open it remains steadily illuminated and during closure it flashes twice as fast. 16= 0V AC, 17= 24V AC;
18 - 19	2 nd RADIO CHANNEL	2nd RADIO CHANNEL output (its operation depends on dip-switches nos. 7 - 8) to be used for opening/closing another gate, for controlling garden lights or for the "ZONE LIGHTING" function; Warning: to connect other devices to the 2nd Radio Channel (area lighting, pumps, etc.), use an additional auxiliary relay.
20 - 21	AERIAL	433,92 MHz built-in RX antenna input; 20= EARTH, 21= SIGNAL;
M1	LIMIT SWITCH	quick coupling for LIMIT SWITCH connection (Normally Closed contacts). Orange= Closure Limit Switch (CLS), ed= Opening Limit Switch (OLS), grey= Common (COM);
M2	ENCODER	quick coupling for ENCODER connection. Blue= 0V DC (GND), brown= 5V DC (+5V), white= ENCODER SIGNAL (ENC);
FS1 - FS2	CAPACITOR	faston for motor start-up CAPACITOR connection;
M3	230V AC MOTOR	quick coupling for 230 Vac single-phase MOTOR connection common= BLUE (M-COM); closure= BROWN (M-CL); opening= BLACK (M-OP).

LOGIC ADJUSTMENTS

TRIMMER

FR. Motor torque adjustment. The trimmer is set to provide sufficient thrust to work the gate without exceeding the limits established by current standards (EN 12453). **Turning the trimmer clockwise (+) increases the motor torque, turning it anticlockwise (-) reduces it.**

SENS

Adjustable only with ENCODER enabled (DIP 11 ON).

Obstacle detection additional adjustment;

Note: by rotating the TRIMMER FR. clockwise the sensitivity to obstacles of the operator decreases and therefore the thrust force increases; vice-versa, by rotating it anti-clockwise, the sensitivity to obstacles of the operator increases and therefore the thrust force decreases.



WARNING: with the trimmer at maximum, the obstacle detection is disabled!!

T.C.A. Automatic closing time adjustment from 5 to 120 seconds.

Dip switch

1	AUTOMATIC CLOSING	On	after opening, the gate automatically closes when the delay set on the T.C.A. trimmer expires.
		Off	automatic closing disabled.

2	2 / 4 STROKE	On	with automatic closing enabled, a sequence of open/close commands causes the gate to OPENCLOSE-OPEN-CLOSE etc (see also dip switch 4).
		Off	in the same conditions, the same command sequence causes the gate to OPEN-STOP-CLOSESTOP-OPEN-STOP (step-by-step).
3	OPENING PHOTOCELLS OPERATION	On	during opening, cutting photocell stops the gate until the obstacle is removed. When the obstacle is removed the gate resumes opening;
		Off	during opening, the photocell does not cut in.
4	NO REVERSE	On	NO-REVERSE function activated; the gate ignores the closure commands during opening; reversal of movement occurs only during closure;
		Off	the open-close pushbutton reverses the direction of movement of the gate even while it is opening.
5	PRE-FLASHING	On	pre-flashing function enabled.
		Off	pre-flashing function disabled.
6	PHOTOCELL TEST	On	"photocell test" function is enabled;
		Off	"photocell test" function is disabled. Note: to be used when the photocells are not used.

7 - 8 2nd RADIO CHANNEL operation (terminals no. 18 - 19)

Dip 7	Dip 8	Function
Off	Off	<i>Gate contact open:</i> The contact activates on opening the gate and remains active during the open time, during the TCA and during reclosure. It deactivates once the gate has completed its closure movement.
Off	On	<i>Bistable function active:</i> the radio control impulse causes the contact to activate and remain active until the subsequent impulse.
On	Off	<i>Monostable function active for 2 sec.:</i> the radio control impulse causes the contact to activate and remain active for 2 sec.
On	On	<i>Monostable function active for 180 sec.:</i> the radio control impulse causes the contact to activate and remain active for 180 sec.

9	GATE TYPE	On	setting for heavy gates
		Off	setting for standard gates
10	OPENING DIRECTION SETUP	On	left-hand leaf opening function;
		Off	right-hand leaf opening function;
11	ENCODER	On	ENCODER enabled: encoder obstacle detection function activated (use the trimmers FR and SENS to adjust the sensitivity to obstacles);
		Off	ENCODER disabled - obstacle detection disabled;
12	SENSITIVE EDGE	On	RESISTIVE SENSITIVE EDGE (terminal no. 11);
		Off	FIXED EDGE (NC contact – terminal no. 11).



NOTE: moving DIP 11 from ON to OFF (or vice versa), learning process has to be initialized again.

OBSTACLE DETECTION

If the obstacle detection function (which can be set through trimmers FR and SENS) gets activated during an opening manoeuvre, the gate closes approx. 20 cm., if it is activated during a closing manoeuvre, the gate opens fully.



WARNING: the control panel logics may interpret mechanical friction as an obstacle.

SETUP PROCEDURE



WARNING: The learning process has to be done even if ENCODER function is disabled (DIP 11 OFF).

It is recommended to start the learning process with the gate partially opened. Press and hold simultaneously P1 and P2 until DL8 blinks fast. Release the buttons to start automatically the learning process:

1_ the automation starts closing to reach the Closing Limit switch (CLS);



If the automation opens instead of closing, stop the learning process (by cutting the photocells or opening the STOP contact), invert DIP 10 and continue the learning process by pressing P1 briefly.

2_ the automation automatically opens to reach the Opening Limit switch (OLS);



WARNING: - SETTING SLOWDOWN: (skip this procedure to disable slowdown) During the opening cycle press P1 or close the OPEN/CLOSE contact at the desired position where to start the slowdown.

3_ the automation automatically closes to reach the Closing Limit Switch (CLS);



WARNING: - SETTING SLOWDOWN: (skip this procedure to disable slowdown) During the opening cycle press P1 or close the OPEN/CLOSE contact at the desired position where to start the slowdown.

4_ LED8 turns steady ON. Learning process procedure is terminated.



WARNING: if during the learning process either the STOP, or PHOTOCELLS or SAFETY EDGE contact will be opened the automation stops. By pressing P1 or closing the OPEN/CLOSE contact the learning process starts again from point nr. 1

ADVANCED FUNCTIONS

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.

Note: the gate remains open as long as the Op/Cl input continues to be activated.

“Open only” function: setting dip 1 and dip 4 to ON, the Op/Cl input will function solely as an opening command and the gate will close only after the automatic closure time has elapsed.

“Gate contact open” function: setting dip 7 and dip 8 to OFF, the 2nd ch radio (connectors 18 - 19) will act as a dry contact which indicates when the gate is open. This function can be used to connect “ZONE LIGHTING” or as a gate open signal.

DIAGNOSTICS LED

DL1 (PHOTO)	PHOTOCCELL green LED signal
DL2 (SENSITIVE EDGE)	SENSITIVE EDGE green LED signal
DL3 (CLOSE LIMIT SWITCH)	CLOSE LIMIT SWITCH green LED signal
DL4 (OPEN LIMIT SWITCH)	OPEN LIMIT SWITCH green LED signal
DL5 (STOP)	STOP button green LED signal
DL6 (PEDESTRIAN)	PEDESTRIAN button red LED signal
DL7 (OPEN/CLOSE)	OPEN/CLOSE button red LED signal
DL8 (RADIO CONTROLS)	RADIO CONTROLS programming red LED

LED - DL8

The DL8 LED indicates errors in the control board with a series of pre-set flashes:

always on:	normal operation;
2 flashes:	photo-test error; <i>Disable photo-test (dip-switch 6 OFF), check the operation of the photocells and their connection;</i>
5 flashes:	no encoder signal (only with dip 11 ON); <i>Check wiring, check encoder by TEST-ENCODER (optional);</i>

6 flashes:	obstacle detected (only with dip 11 ON); <i>Make sure there are no obstacles across the path of the gate and that it slides smoothly;</i>
7 flashes:	Learning process not completed; <i>Repeat the Learning process procedure;</i>
fast flashing:	Learning procedure in progress;
fast flashing: (duration 30 sec.)	Only when powered up: wrong power supply frequency (50 Hz default setting);

RESTORING AUTOMATIC OPERATION

Should the gate needs to be operated manually, use the release system. After a manual operation:

- after a power failure, such as a black-out (control board remains disconnected), before powering the control board up again make sure the gate is either fully open or fully closed;
- after a Manual Operation without Power Failure (control board remains connected), before giving any open or close command again, make sure the gate is either fully open or fully closed.

433.92 MHz BUILT-IN RADIO RECEIVER

The radio receiver can learn up to a maximum of 30 rolling codes (BUG2R, BUG4R, K-SLIM-RP, T-4RP) which can be set on both the two channels as desired.

The first channel directly commands the control board for opening the automatic device; the second channel commands a relay for a N.O. dry contact (terminals 18 and 19, max. 24 Vac, 1 A).

LEARNING PROCEDURE FOR TRANSMITTERS

P1 = OPEN/CLOSE

P2 = 2nd channel

- 1_ press button P1 briefly to associate a transmitter with the OPEN/CLOSE function;
- 2_ LED DL8 turns off to indicate that the code learning mode has been activated (if no code is entered within 10 seconds, the board exits the transmitters learning mode);
- 3_ press the desired channel of the transmitter to be memorized;
- 4_ the DL8 LED turns on to indicate saving is complete and then turn off immediately waiting for another transmitter to be memorized (if this is not the case, try to re-transmit or wait 10 seconds and restart from point 1);
- 5_ to memorise other transmitters, press the desired channel of the new transmitter within 2-3 sec otherwise the learning procedure will be automatically closed and DL8 LED turns on. To repeat the procedure to learn new remote controls start again from point 1 (up to a maximum of 30 transmitters);
- 6_ to memorise codes on the 2nd channel, repeat the procedure from point 1 using button P2 instead of P1;
- 7_ to exit manually the learning mode without memorising a code, press button P1 or P2 briefly.

Note: If the maximum number of codes is reached (30), the LED DL8 will begin to flash rapidly for about 3 seconds without performing any memorisation.

REMOTE PROGRAMMING BY MEANS OF T-4RP and K-SLIM-RP (V 4.X)

With the new version of software V 4.X it is possible to carry out a remote self-learning of transmitters T-4RP and K-SLIM-RP (new version V 4.X), without pressing the receiver's programming buttons.

It will be sufficient to have an already programmed transmitter on the receiver in order to start the procedure of remote programming of the new transmitters. Follow the procedure written on the instructions of the transmitters T-4RP and K-SLIM-RP (V 4.X).

CANCELLING CODES FROM RADIO CONTROL DEVICES

- 1_ keep button P1 pressed for 3 seconds in order to cancel all the associated transmitters;
- 2_ LED DL8 flashes slowly to indicate that the cancellation mode has been activated;

- 3_ press button P1 again for 3 seconds;
- 4_ LED DL8 turns off for approx. 3 seconds and then remains steady to indicate that the codes has been cancelled;
- 5_ repeat the procedure from point 1 using button P2 to cancel all the associated transmitters;
- 6_ to exit the cancelling mode without deleting any code, press button P1 or P2 briefly.

MALFUNCTIONS: POSSIBLE CAUSES AND SOLUTION

The automation does not start

- a- Check there is 230Vac power supply with the multimeter;
- b- Check that the N.C. contacts on the card really are normally closed (5 green LEDs illuminated) and that the red opening command LEDs are turned off;
- c- Check that the red LED DL8 is steadily illuminated;
- d- Set dip 6 (phototest) to OFF;
- e- Check that the fuses are intact with the multimeter.

The radio control has very little range

- a- Check that the ground and the aerial signal connections have not been inverted;
- b- Do not make joints to increase the length of the aerial wire;
- c- Do not install the aerial in a low position or behind walls or pillars;
- d- Check the state of the radio control batteries.

The gate opens the wrong way

- a_ Invert the position of dip-switch No. 10 after having turned off the power to the control unit.

GUARANTEE: GENERAL CONDITIONS

TAU guarantees this product for a period of 24 months from the date of purchase (as proved by the sales document, receipt or invoice).

This guarantee covers the repair or replacement at TAU's expense (ex-works TAU: packing and transport at the customer's expense) of parts that TAU recognises as being faulty as regards workmanship or materials.

For visits to the customer's facilities, also during the guarantee period, a "Call-out fee" will be charged for travelling expenses and labour costs.

The guarantee does not cover the following cases:

- If the fault was caused by an installation that was not performed according to the instructions provided by the company inside the product pack.
- If original TAU spare parts were not used to install the product.
- If the damage was caused by an Act of God, tampering, overvoltage, incorrect power supply, improper repairs, incorrect installation, or other reasons that do not depend on TAU.
- If a specialised maintenance man does not carry out routine maintenance operations according to the instructions provided by the company inside the product pack.
- Wear of components.

The repair or replacement of pieces under guarantee does not extend the guarantee period. In case of industrial, professional or similar use, this warranty is valid for 12 months.