TAU
>MOVING LIFE

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

K125M

Quadro di comando per motoriuttore T-ONE5B
Control panel for T-ONE5B gearmotor
Steuerplatine für den getriebemotor T-ONE5B
Logique de commande pour motoréducteur T-ONE5B
Panel de mandos para motorreductor T-ONE5B

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IT - Istruzioni originali

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CONTROL BOARD FOR T-ONE5B GEARMOTOR
- MICROPROCESSOR-CONTROLLED LOGIC
- INPUT STATUS LED'S
- LINE INPUT FUSE
- "PEDESTRIAN GATE" FUNCTION
- BUILT-IN FLASHING LIGHT CIRCUIT
- 433.92 MHz 2 CHANNEL BUILT-IN RADIO RECEIVER (CH)
- BATTERY CHARGER BOARD (INTEGRATED)
- BATTERY CONNECTOR
- ENCODER SENSOR FOR OBSTACLE DETECTION AND SELF-LEARNING OF TRAVEL
- ADJUSTABLE DECELERATION
- DIAGNOSTICS OF MALFUNCTIONS SIGNALLED BY LED
- EN COMPLIANT AND CERTIFIABLE UP TO 500 KG LEAF

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). 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. Except for the DL3 diagnostics led which must always be on.

TECHNICAL CHARACTERISTICS

Board power supply	13,5 Vac - 50 Hz
Max motor power DC	50 W - 18 Vdc
Fast acting fuse for protection of input power supply 13.5 Vac (F1 - 5x20)	F 16 A
Fast acting fuse for motor protection (F2 - 5x20)	F 10 A
Fast acting fuse for protection of auxiliary circuits 18 V dc (F3 - 5x20)	F 2 A
Fast acting fuse for protection of battery (F4 - 5x20)	F 10 A
Motor power supply circuits voltage	18 Vdc
Auxiliary device circuits supply voltage	18 Vdc
Logic circuits supply voltages	5 Vdc
Operating temperature	-20 °C ÷ +70 °C
Box protected to	IP 44

DIAGNOSTICS LED

DL1 (PEDESTRIAN)	PEDESTRIAN button red LED signal
DL2 (OPEN/CLOSE)	OPEN/CLOSE button red LED signal
DL3 (ERR)	ERRORS red LED signal
DL4 (STOP)	STOP button green LED signal
DL5 (PHOTO)	PHOTOCELL green LED signal
DL6 (SENSITIVE EDGE)	SENSITIVE EDGE green LED signal
DL7 (TENSION)	POWER ON (also battery voltage) green LED signal

CONNECTIONS TO TERMINAL BOARD

FS1 - FS2   board supply input 13,5 Vac – Powered by the toroidal transformer housed in the T-ONE5B motor and protected by a fuse on the 230 Vac power supply.

1 - 3   *(Fixed safety 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.
1= SENSITIVE EDGE, 3= COMMON.

⚠️ **If a resistive sensitive edge is connected, set dip-switch no. 9 to ON;**
If a fixed safety edge with NC contact is connected, set dip-switch no. 9 to OFF.

2 - 3   *(Photocell)* 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). If there is more than one safety device, connect all the NC contacts *__IN SERIES__*. *2= PHOTOCELL.*

⚠️ **The photocell transmitter must always be supplied by terminals no. 10 - 11, since the safety system test (phototest) 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 phototest is not successful, the control unit will not operate.**

4 - 5   *(Stop)* STOP pushbutton input (Normally Closed contact); It stops the gate in any position, temporarily inhibiting its automatic closing, if programmed.
4= COMMON, 5= STOP.

4 - 6   *(Open/Close)* OPEN/CLOSE pushbutton input (Normally Open contact); It commands the opening and closing of the gate and its operation is controlled by dip-switches 2 and 4. *5= OPEN/CLOSE.*

4 - 7   *(Pedestrian)* PEDESTRIAN pushbutton input (Normally Open contact); It commands the partial opening and closing of the gate for ~1 m of travel and its operation is controlled by dip-switches 2 and 4. *7= PEDESTRIAN.*

8 - 9   *(Photocell RX)* 18 Vdc, max. 15 W, output to POWER THE RXs AND ANY OTHER TXs OF PHOTOCELLS THAT ARE PRESENT, EXTERNAL RECEIVERS, etc.; connect a max. of 3 pair of photocells. *8= NEGATIVE, 9= POSITIVE.*

10 - 11   *(Photocell TX)* 18 Vdc, output for PHOTOCELL TX (only the one that performs the Phototest) max. no. 1 photocell transmitter. *10= NEGATIVE, 11= POSITIVE.*

12 - 13   *(Flashing light)* FLASHING LIGHT output 18 Vdc, max. 20 W. The signal is already modulated for direct use. Flashing frequency during closing is double.
12= NEGATIVE, 13= POSITIVE.

14 - 15   *(Gate open warning light)* GATE OPEN LED output 18 Vdc, max. 3 W; 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.
14= NEGATIVE, 15= POSITIVE.

16 - 17   *(2nd 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.

18 - 19   *(Antenna)* 433,92 MHz built-in RX ANTENNA input.
18= EARTH, 19= SIGNAL.

20 - 21   MOTOR supply output 18 Vdc, max. 50 W.
20= NEGATIVE, 21= POSITIVE.

M5   quick coupling for ENCODER connection.
Blue= 0 Vdc (GND), brown= 5 Vdc (+5V), white= ENCODER SIGNAL (ENC).

22 - 23   BATTERY 12V - 7,2Ah input.

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_ bring the gate to approx. 1 m from the closing travel limit;
2_ set dip-switch no. 10 to ON;
3_ operate the automation using one of the following inputs: A/C or radio control
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. 10 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, wait for the DL3 led to be fixedly on, then set dip-switch no.10 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.   Deceleration adjustment: from 50 to 120 cm before the limit switch;

⚠️ **Note: the automation must perform a complete opening and closing manoeuvre before setting the deceleration.**

FR.   Obstacle detection sensitivity 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.*

T.C.A.   Automatic Closing time adjustment: from about 3 to 255 seconds (see dip-switch no. 1);

Dip switch
1 **on:** after opening, the gate automatically closes when the delay set on the T.C.A. trimmer expires.
off: automatic closing disabled.
2 **on:** with automatic closing enabled, a sequence of open/close commands causes the gate to OPEN-CLOSE-OPEN-CLOSE etc (see also dip switch 4).
off: in the same conditions, the same command sequence causes the gate to OPEN-STOP-CLOSE-STOP-OPEN-STOP (step-by-step).
3 **on:** during opening, the photocell cuts in to stop 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 **on:** the open-close pushbutton reverses the direction of movement of the gate even while it is opening.
off: NO-REVERSE function activated; the gate ignores the closure commands during opening and reversal of movement occurs only during closure;

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5 **on:** the pre-flashing function enabled.
  off: the pre-flashing function disabled.
6 **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 - 8 2nd RADIO CHANNEL operation (terminals no. 16 - 17)

Dip 7	Dip 8	Function
OFF	**OFF**	*Gate contact open:* 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**	*Bistable function active:* the radio control impulse causes the contact to activate and remain active until the subsequent impulse.
ON	**OFF**	*Monostable function active for 2 sec.:* the radio control impulse causes the contact to activate and remain active for 2 sec.
ON	**ON**	*Monostable function active for 180 sec.:* the radio control impulse causes the contact to activate and remain active for 180 sec.

9 **on:** RESISTIVE SENSITIVE EDGE (terminal no. 1);
  off: FIXED EDGE (NC contact – terminal no. 1);
10 **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.

K125M 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 11.3 Vdc;
  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;
  Check wiring, check encoder through TEST-ENCODER (optional), verify that the motor turns freely if powered directly by the 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.
- 8 flashes: no motor signal.
  check wiring, check that the motor rotates freely when powered directly by battery, check fuse F2.

Multiple errors are signalled by a 2-second pause between signals. Errors will continue to be signalled until a complete opening and closing manoeuvre is executed.
If the safety devices are activated 5 consecutive times during the same opening or closing manoeuvre, the control unit will switch to slow-down mode as it searches for the closing travel limit. To reset, the gate must execute a complete opening and closing cycle, otherwise the travel limit search phase will start again each time the safety devices are activated.

BATTERY CHARGER BOARD (INTEGRATED)
If the battery is connected the automation will operate in any case if there is no mains power supply.
If the voltage drops below 11.3 Vdc, the automation ceases to operate (the control unit remains fed); whereas, when the voltage drops below 10.2 Vdc, the card completely disconnects the battery (the control panel is no longer fed).

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 150 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 PROG 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.

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.

⚠️ **The gate remains open as long as the Op/Cl input continues to be activated.**

"Open only" function: setting dip 1 to ON and dip 4 to OFF, 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 (terminals 16 - 17) will act as a no-voltage contact which indicates when the gate is open. This function can be used to connect "ZONE LIGHTING" or as a gate open signal.

433.92 MHz BUILT-IN RADIO RECEIVER
The radio receiver can learn up to a maximum of 30 dip-switches (TXD2, TXD4, BUG2, BUG4, SLIM, SLIM-C) or rolling codes (BUG2R, BUG4R, SLIM-R) which can be set on the two channels as required.
The first channel directly commands the control board for opening the automatic device; the second channel commands a relay for a N.O. no-voltage output contact (terminals 16 - 17, max. 24 Vac, 1 A). The learning mode (dip-switch or rolling code) is determined by the first radio control device and remains unchanged until all the codes have been cancelled.

LEARNING SYSTEM FOR RADIO CONTROL DEVICES
CH1 = OPEN/CLOSE
CH2 = 2nd channel
1_ press button CH1 briefly to associate a radio control device with the OPEN/CLOSE function;
2_ LED DL3 turns off to indicate that the code learning mode has been activated (if no code is entered within 10 seconds, the board exits the programming mode);
3_ press the button of the relative radio control device;

4_ LED DL3 turns on again to indicate that the code has been memorised (if this does not happen, wait 10 seconds and start again from point 1);

5_ to memorise codes to other radio control devices, repeat the procedure 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 CH2 instead of CH1;

7_ to exit the learning mode without memorising a code, press button CH1 or CH2 briefly.

⚠️ **If the maximum number of radio controls is reached (30), the LED DL3 will begin to flash rapidly for about 3 seconds but without performing memorisation.**

REMOTE PROGRAMMING BY MEANS OF SLIM-R and BUG-R

It is also possible to carry out the remote self-learning of the new version of transmitters SLIM-R and BUG-R, that is without pressing the receiver's programming buttons.

It will be sufficient to have an already programmed transmitter in the receiver in order to start the procedure of remote programming of the new transmitters, programmed by means of TAUPROG.

Activation of self-learning mode of the control unit and memorisation of the new radio control.

1. On the "old" previously memorised and functional SLIM-R or BUG-R radio control, press and hold the key of channel 1

2. Press the key for channel 2 three times.

3. Release the keys. The radio control led starts flashing to indicate that the self-learning mode is enabled.

4. Press the key of the channel to be memorised.

5. At this point the control unit confirms changeover to programming mode by activating the flashing light.

6. Press the radio control key to be memorised again. If programming is successful the flashing light on the control unit turns off and the new radio control is ready to use.

CANCELLING CODES FROM RADIO CONTROL DEVICES

1_ keep button CH1 pressed for 3 seconds in order to cancel all the associated radio control devices;

2_ LED DL3 flashes slowly to indicate that the cancellation mode has been activated;

3_ press button CH1 again for 3 seconds;

4_ LED DL3 turns off for approx. 3 seconds and then remains steady to indicate that the code has been cancelled;

5_ repeat the procedure from point 1 using button CH2 to cancel all the associated radio control devices;

6_ to exit the learning mode without memorising a code, press button CH1 or CH2 briefly.

⚠️ **ATTENTION: TO memorise a code on a new type of remote control unit (e.g.: from dip-switch to rolling code or viceversa) both channels must be cancelled.**

MALFUNCTIONS: POSSIBLE CAUSES AND SOLUTION

1_ The automation does not start
   a_ Check there is 230Vac 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 FR trimmer to the limit;
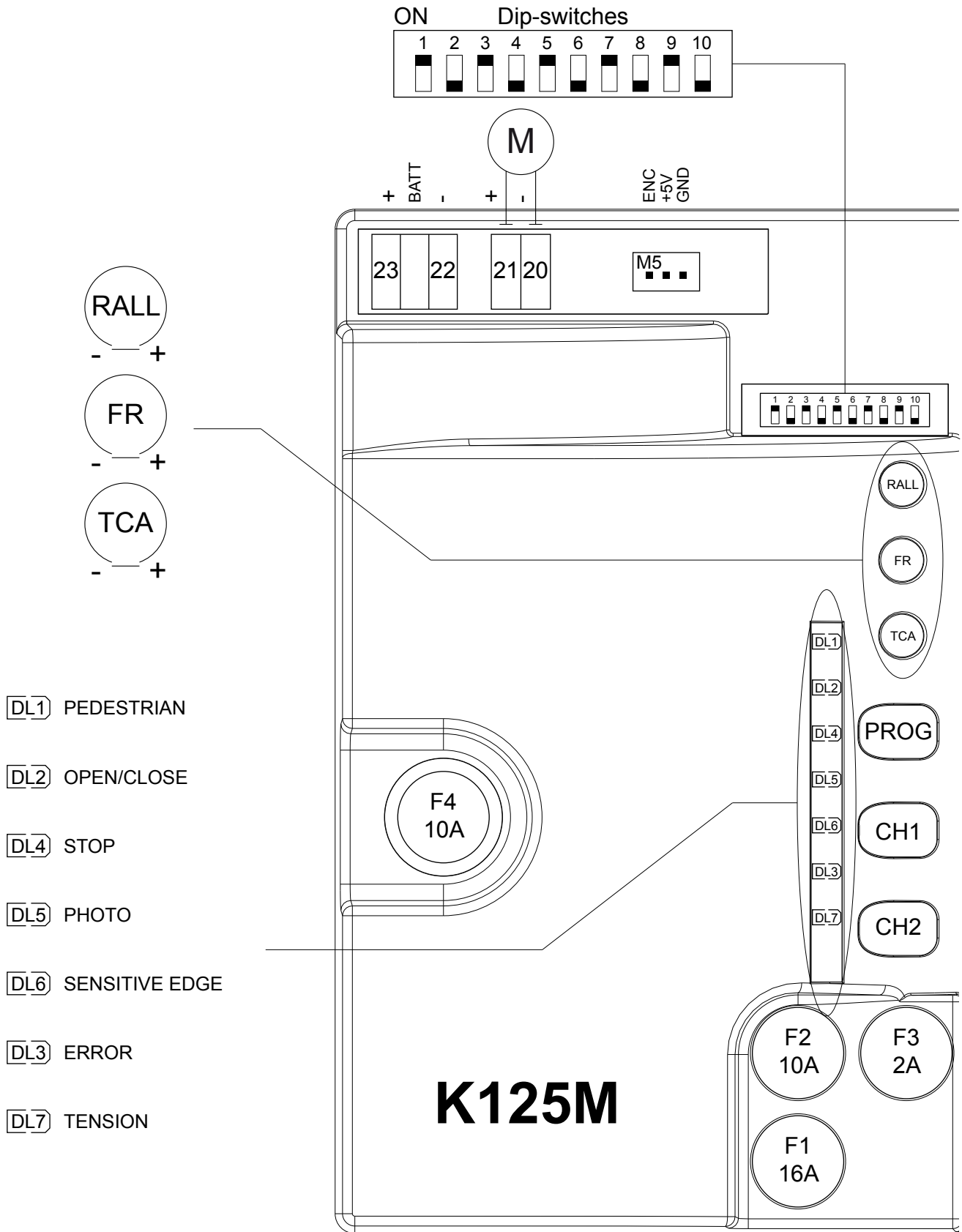   e_ Check that the fuses are intact with the multimeter.

2_ 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.

3_ The gate opens the wrong way
   Invert the motor connections on the terminal block (terminals 20 - 21).

ON   Dip-switches

1 2 3 4 5 6 7 8 9 10

M

BATT   ENC +5V GND

+   -   +   -

| 23 | 22 | 21 | 20 | M5 |

RALL

- +

FR

- +

TCA

- +

1 2 3 4 5 6 7 8 9 10

RALL

FR

TCA

DL1   PEDESTRIAN

DL2   OPEN/CLOSE

DL4   STOP

DL5   PHOTO

DL6   SENSITIVE EDGE

DL3   ERROR

DL7   TENSION

DL1
DL2
DL4
DL5
DL6
DL3
DL7

PROG

CH1

CH2

F4
10A

F2
10A

F3
2A

F1
16A

K125M

Antenna

19	
18	
17	→ 2nd radio channel
16	

Gate open
warning light
max. 3W

⊗ Flashing
light
18 Vdc
max. 20W

TX   RX

Photocells

1 2   1 2 3 4 5

15	+
14	-
13	+
12	-
11	+ Photocell TX
10	-
9	+ 12V
8	- 0V
7	Pedestrian
6	Open/Close
5	Stop
4	Common
3	Common
2	Photocell
1	Fixed safety edge

~ FS1

TRASF

~ FS2