

- do not install the receiving unit inside metal casings that could affect its operation;
- ensure that there are no obstacles that could affect transmission between transmitting and receiving units: where any obstacles cannot be eliminated, use the optional external antenna (special kit available) to ensure proper radio communication;
- use cables with suitable cross-section area for wiring connections;
- be sure to connect power supply to the proper terminal;
- check for proper operation after installation.

2.9 WARRANTY



The ELCA Radio Remote Control System MITO is covered by a 24-month warranty starting from date of purchase as evidenced by the way bill, that must also state the serial number of the Radio Remote Control System.

Warranty covers defects of manufacture of the radio remote control system and its components, when such defects have been determined to exist at ELCA's sole discretion.

User shall arrange the delivery to / collection from ELCA authorised service centres and defective parts shall be replaced at no additional charge.

In the event of on-site servicing/repair, travel and personnel expenses shall be charged to the user, whereas the replacement of any defective parts shall be free of charge.

Servicing/repair by unauthorised persons, improper use or improper installation shall make the warranty null and void.

Warranty does not cover transport damage or loss.

ELCA shall not be held liable for damage to property or persons.

ELCA shall not be liable for machine down time, and it is the user's responsibility to provide manual or wire control for each machine.

Any disputes shall be submitted to the Court of Vicenza, Italy.

2.10 DISPOSAL INFORMATION



The radio remote control must be delivered to separate collection at end of life.

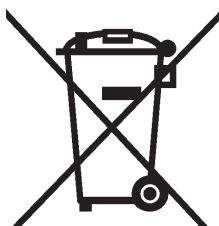
DISPOSAL OF BATTERIES, Directive 2006/66/EC and subsequent amendments.

Batteries may release toxic substances harmful to humans, animals and plants and contaminate the environment. They should be not disposed of with municipal solid waste but delivered to authorised collection centres for battery recycling and treatment.

Users' contribution to collect and recycle batteries is critical to minimising the potential impact of the contaminants used in these components on the environment and human health.

The European Union has set up different battery collection and recycling systems. For information on the method adopted in your area, contact your local authorities.

The crossed-out wheeled bin symbol on the batteries means that batteries must be disposed of separately from household waste in compliance with Directive 2006/66/EC and subsequent amendments and with local regulations.



3. PROGRAMMABLE FUNCTIONS

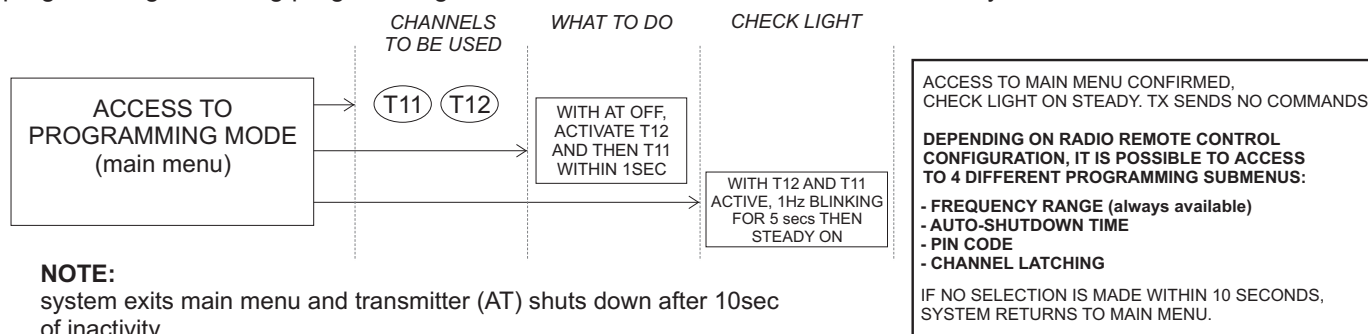
3.1 ACCESS TO PROGRAMMING MODE



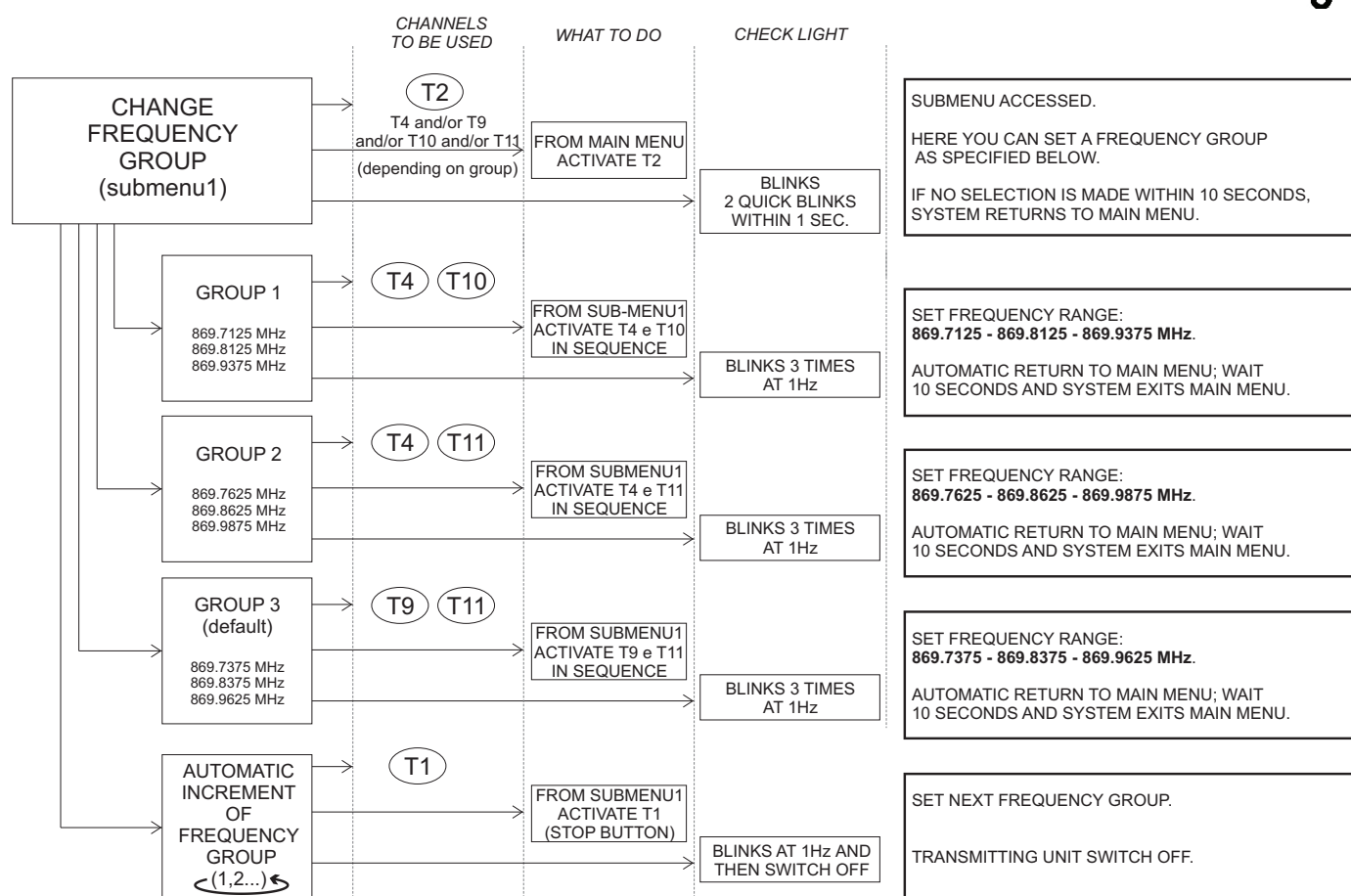
Outlined below are certain programmable functions that can be set by the user **ONLY** in certain versions. Only the frequency range programming is always available.

WARNING!

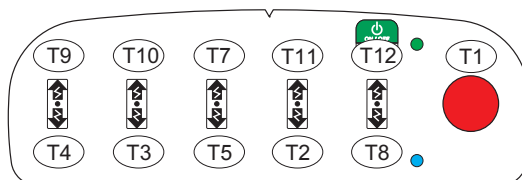
Be careful when programming functions other than the original ones in customised radio remote controls or units that are already installed on a machine, as the new functions might lead to abnormal operation of the machine. We advise against programming or making programming tests on radio remote controls that are already installed on a machine.



3.2 FREQUENCY RANGE PROGRAMMING

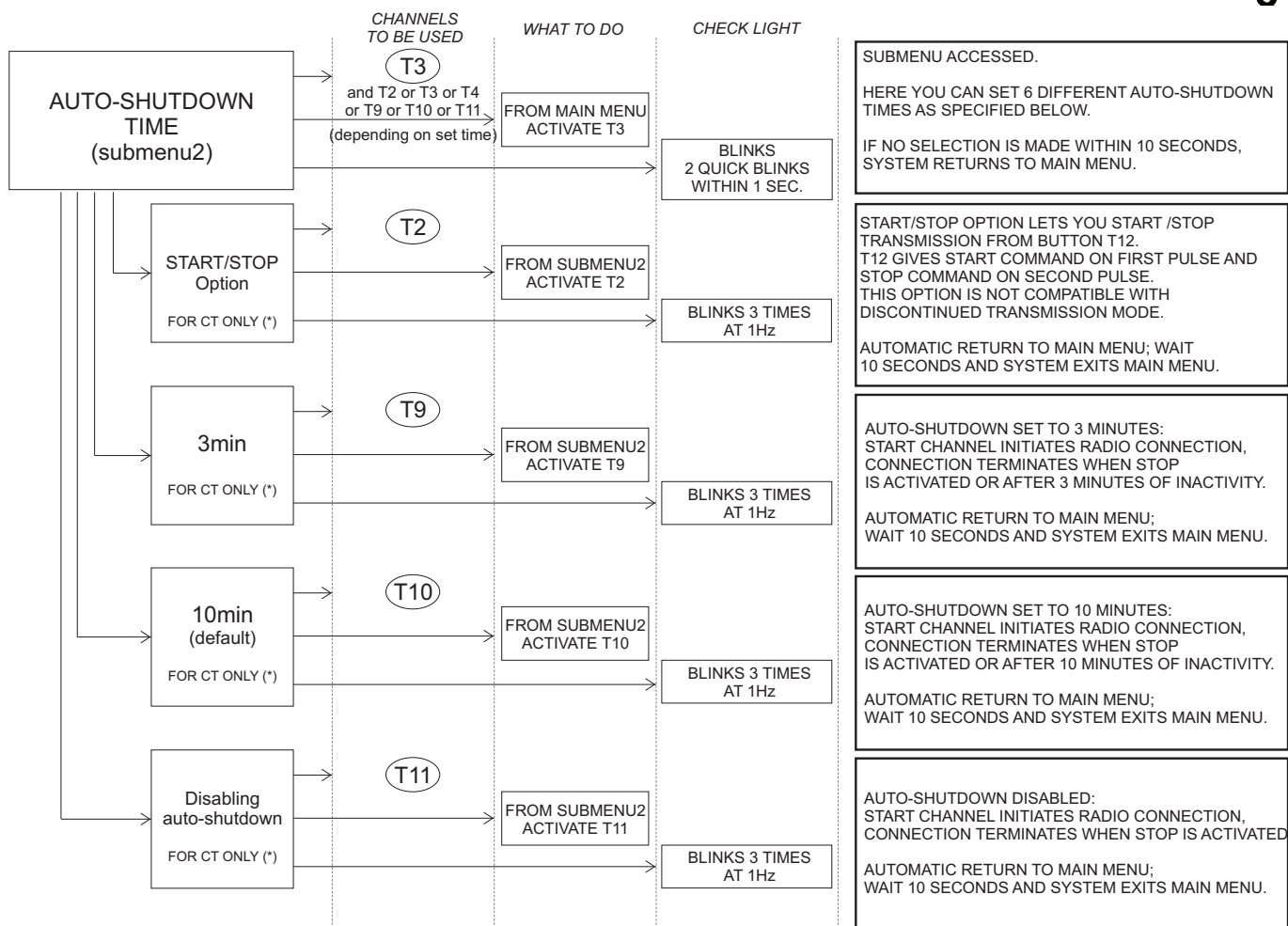


LAYOUT COMMAND



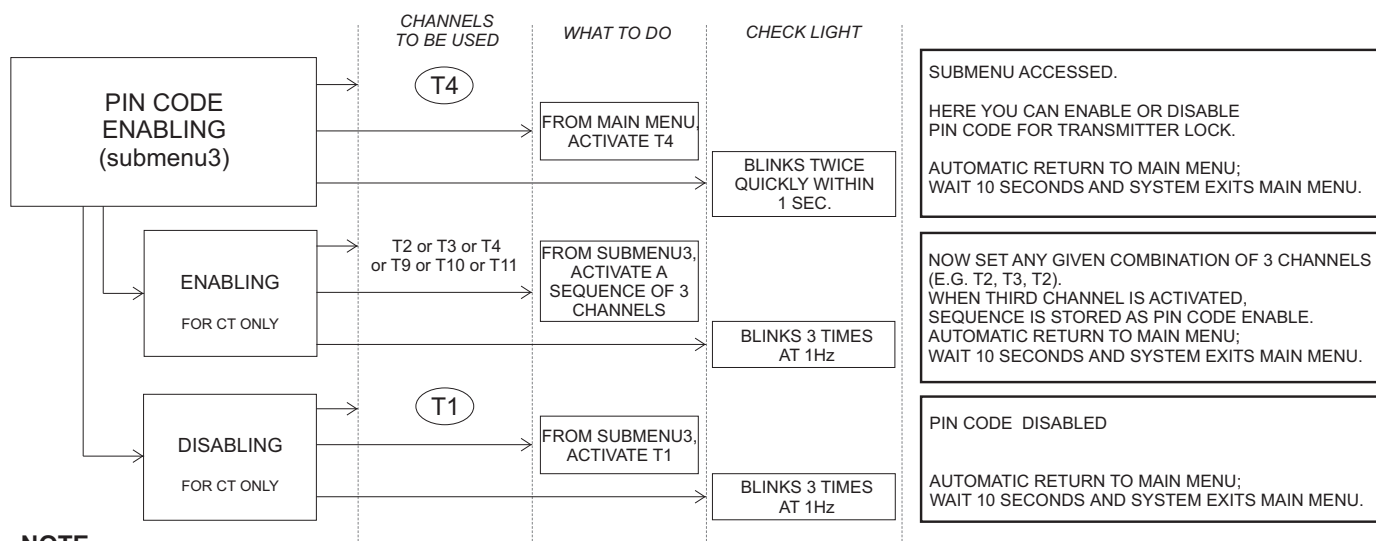


3.3 AUTO-SHUTDOWN TIME PROGRAMMING


NOTE:

 (*) **Continuous** Transmission (CT)

3.4 PIN CODE PROGRAMMING

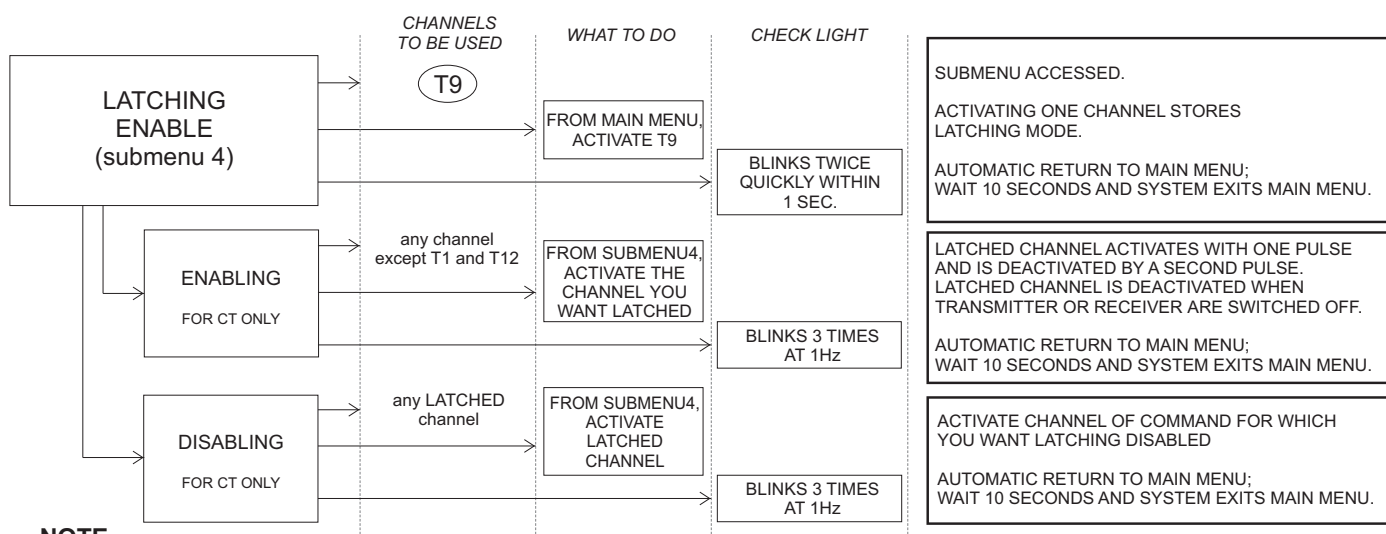

NOTE

- This function may only be programmed in continuous trasmission mode (CT);
- no default pin code is set at the factory;
- if you forget the pin code unlock sequence, you will need to programme a new sequence or disable pin code lock before you can use the transmitter.

EXAMPLE: pin code lock setting T9-T10-T11




3.5 LATCHED CONTROL PROGRAMMING



NOTE

- Latching can be programmed for any command except Start(T12) and Stop(T1);
- latching may only be set in continuous trasmission mode (CT);
- on standard radio remote controls, no channel is set to latching mode at the factory; latching must be enabled by user.

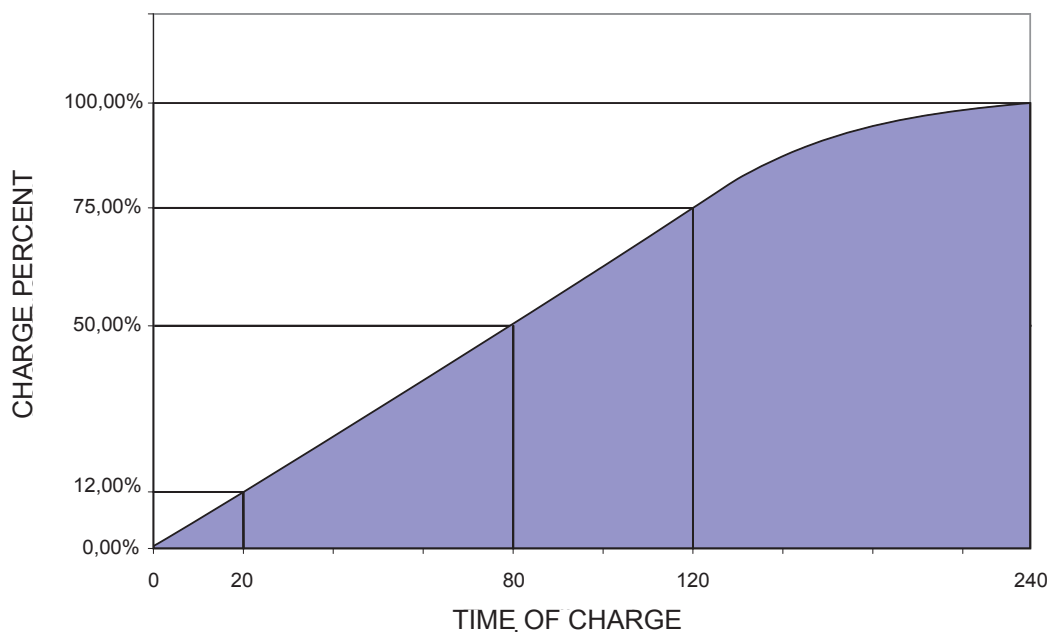
4. BATTERY CHARGER

4.1 OPERATING INSTRUCTION



To obtain maximum performance in terms of charging capacity and useful life of the battery, charging must be carried out in an environment where the temperature is between 0° C and 40° C.

Check that the poles of the electrical connections are clean and dry before connecting the charging system.



Indicator lights:

When connecting the charging system the Blue light on the transmitter (CHARGE) will light to indicate that charging has began.

When the battery is fully charged the Blue light on the transmitter (CHARGE) turns off.

The full charging process lasts about 4 hours.

The charging process for the lithium polymer batteries allows to obtain a quick charge in the initial charging phase. The graph below shows that 75% of the useful loads are obtained in two hours of charging, equivalent to about 37 hours of run time.

Even a charge of just 20 minutes can ensure approximately 6 hours of run time.

NOTE 1:

Under conditions of high temperature (greater than 45 ° C) or low (below 0 ° C) the Blue CHARGE LED is off, charging is interrupted to protect the battery due to exceeding temperature limits. The charging process is resumed as soon as temperature is back within the allowed range.

NOTE 2:

It is advisable to always keep the batteries fully charged to be able to ensure full effectiveness. Avoid leaving the batteries discharged for long periods. Charge the batteries at least once a year.

5. TROUBLESHOOTING



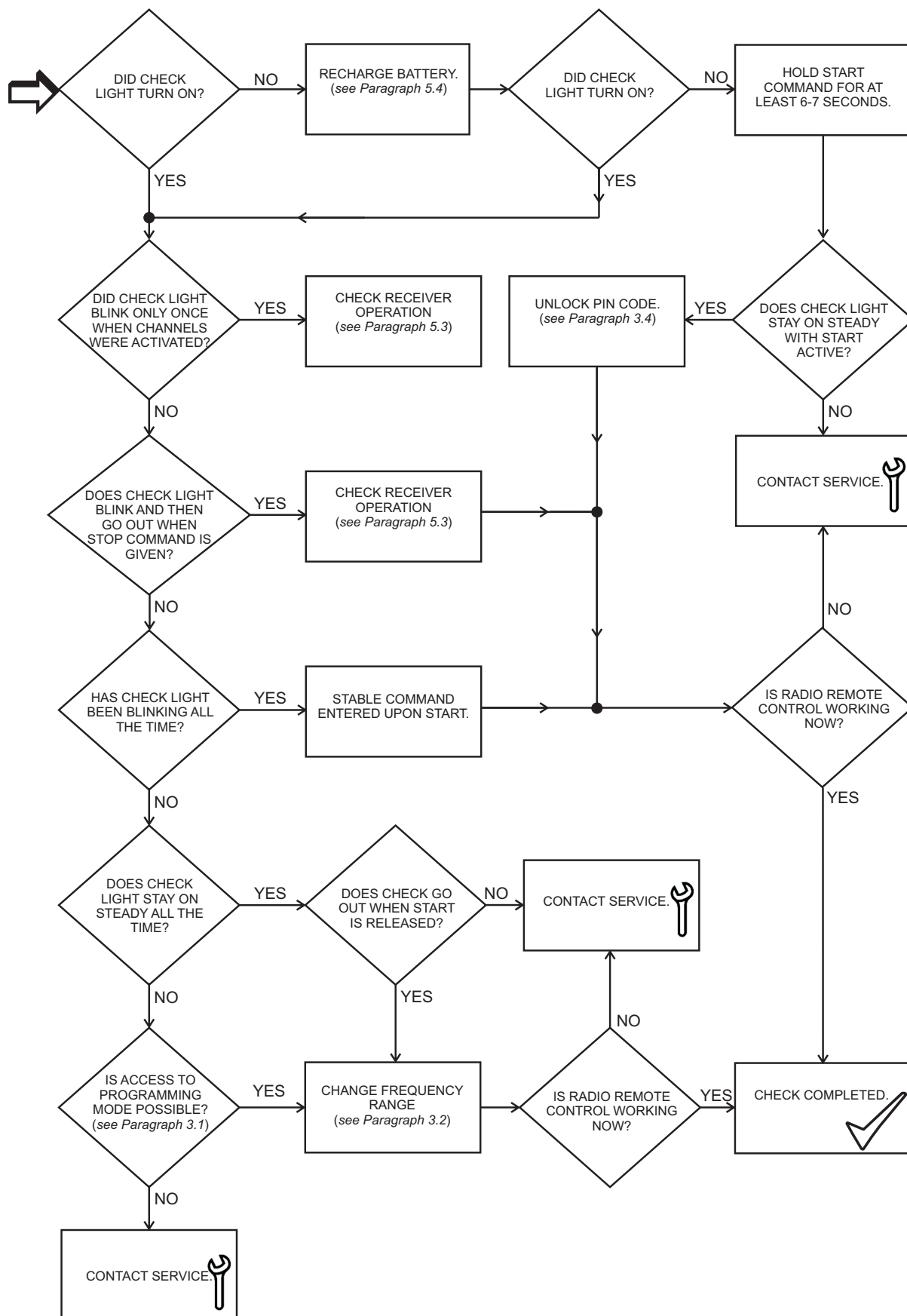
5.1 TYPE OF TROUBLE

TROUBLE	POSSIBLE CAUSE	SUGGESTED REMEDY
RADIO CONNECTION FAILURE: In continuous transmission mode, pressing Start does not activate radio connection. (Check light off) In discontinuous transmission mode operating any control will not cause Check light to blink or activate any command.	BATTERY FLAT	Recharge the batteries (see Par. 5.4)
	TRANSMITTER - RECEIVER NOT MATCHED	Access code storage procedure (see Paragraph 2.6). For new systems, ensure serial numbers are correct.
	SYSTEM OUTSIDE OPERATING RANGE	Ensure that operating distance is within the allowed range (see Chap. 6) and that system has been installed correctly (see Paragraph 2.8)
	SYSTEM IMPROPERLY INSTALLED	Check system for proper installation (receiving unit position, metal obstacles,...) (see Paragraph 2.8)
	RECEIVER OFF OR NOT WORKING	Receiver shutdown will cause the transmitter to switch off as well. Power on the receiver (see Paragraph 5.3)
	PIN CODE ACTIVE	Unlock the PIN CODE (see Paragraph 3.4)
	USEFUL FREQUENCIES DISTURBED	Ensure there are no other similar systems or sources of noise such as radio bridges or transmitters. Check light on steady with Start command maintained after 1 or 2 seconds. (see Paragraph 5.2)
	For any causes other than those listed above	(see Paragraph 5.2)
REPEATED RADIO CONNECTION FAILURES. In continuous transmission mode, the transmitter shuts down and radio connection can only be restored using the Start command. In discontinuous transmission mode, the transmitter shuts down before auto-shutdown kicks in.	FREQUENCIES DISTURBED	Change frequency (see Paragraph 3.2)
	RECEIVER OFF	Receiver shutdown will cause the transmitter to switch off as well.
	BATTERIES FLAT	Check battery charge level (see Par. 5.4)
	EXTERNAL ANTENNA (if fitted)	Check for correct position and connection.
	SYSTEM IMPROPERLY INSTALLED	Check system for proper installation (receiving unit position, metal obstacles,...). (see Paragraph 2.9)
	For any causes other than those listed above	(see Paragraph 5.2)
ONE OR MORE CONTROLS FAIL TO ACTUATE THE CORRESPONDING MOVEMENT.	DAMAGED FUSE	Check the fuse inside the receiving unit
	COMMAND TRANSMISSION FAILED	Ensure that the receiver light corresponding to the command actuated from the transmitter turns on. (see Paragraph 5.3)
	WRONG WIRING CONNECTION	Check wiring in receiving unit.



5.2 FUNCTIONAL TESTING OF TRANSMITTING UNIT

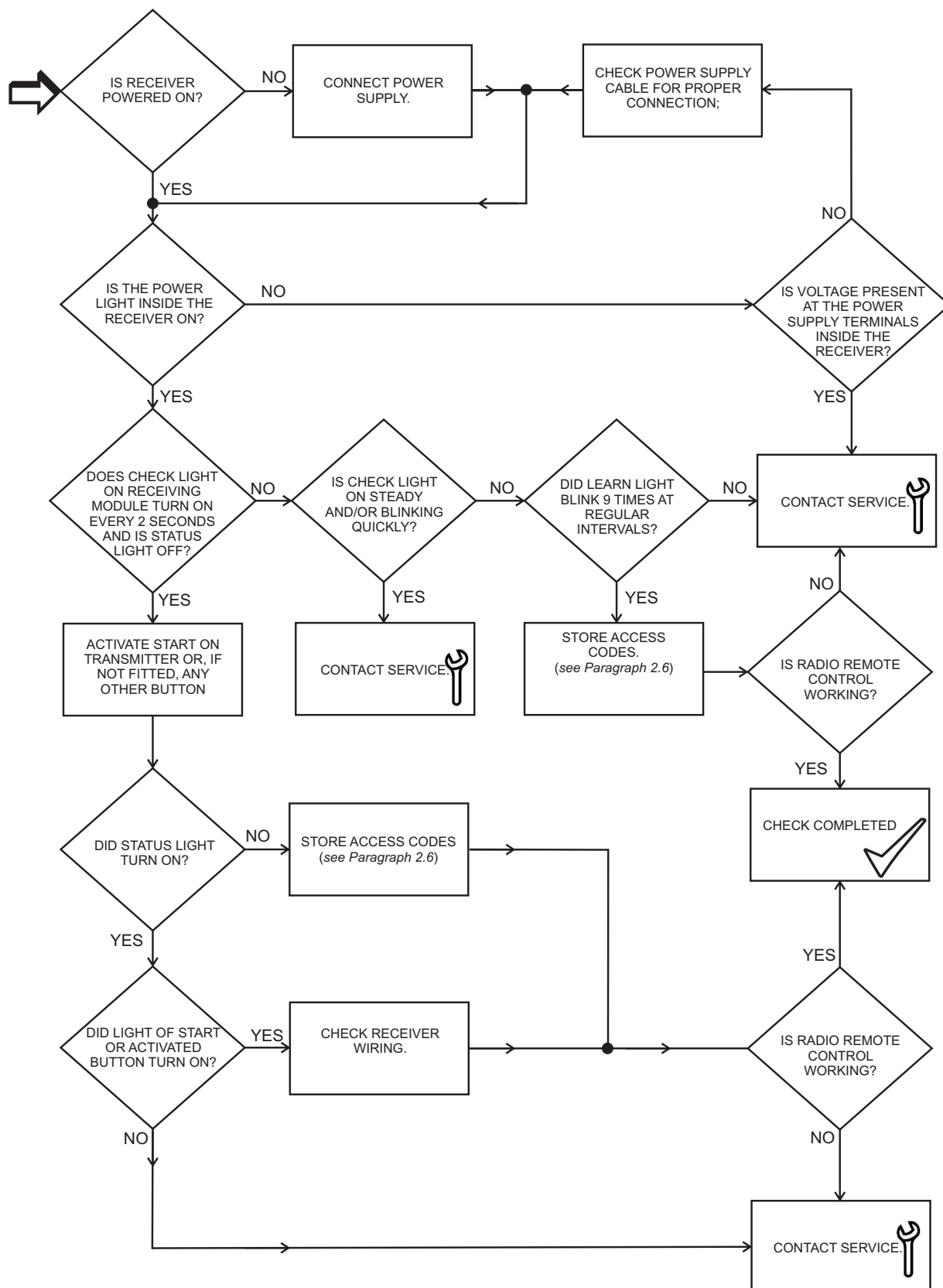
Follow the diagram below (starting from the top left corner) to solve or identify the problem.





5.3 FUNCTIONAL TESTING OF RECEIVING UNIT

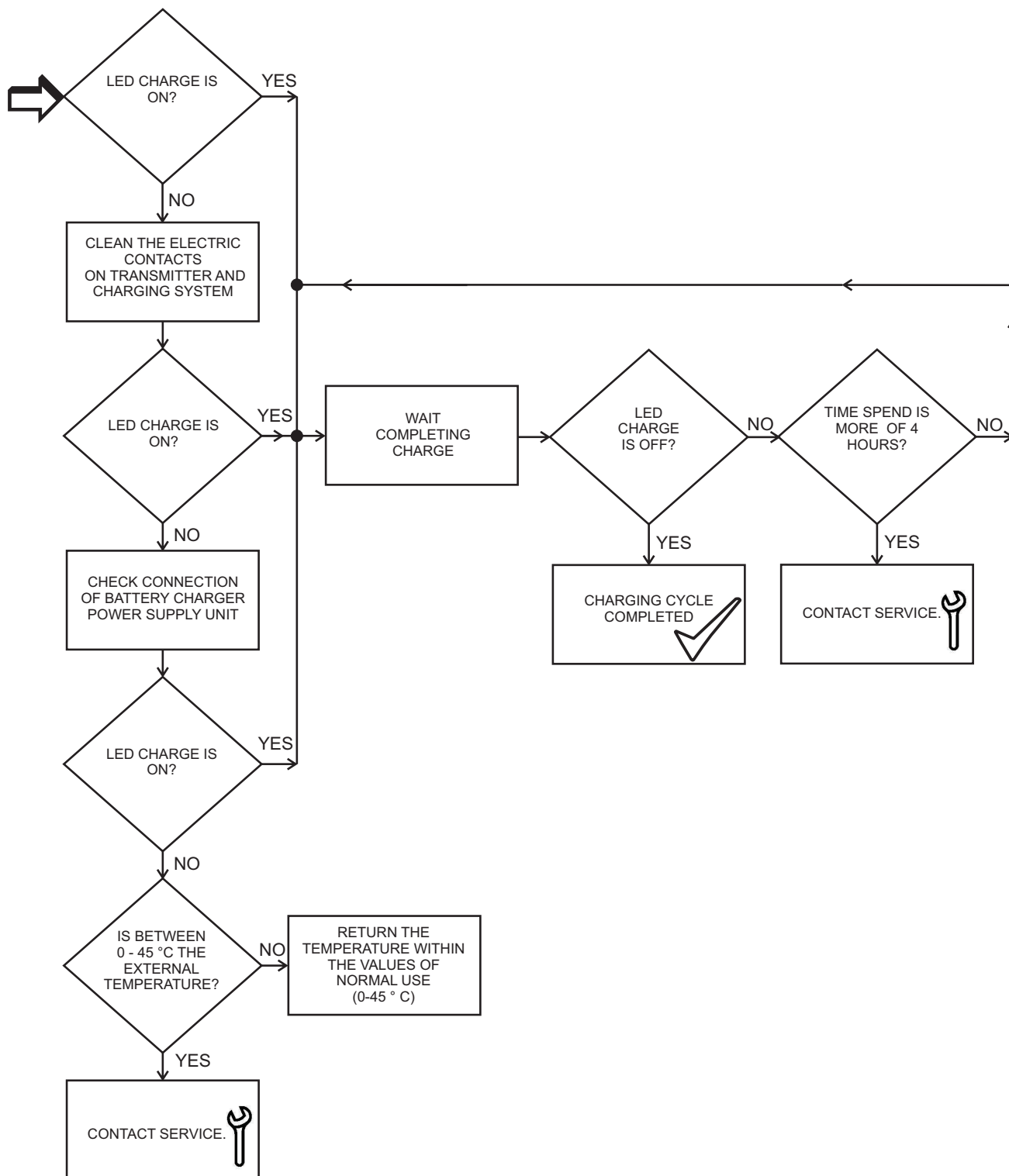
Follow the diagram below (starting from the top left corner) to solve or identify the problem.





5.4 FUNCTIONAL TESTING OF CHARGING CYCLE

Follow the diagram below (starting from the top left corner) to solve or identify the problem.



6. TECHNICAL FEATURES

6.1 GENERAL



Manufacturer	ELCA S.r.l.
Radio Remote Control System type	MITO
Working frequency.....	920.000 - 921.150 MHz
Modulation type	GFSK
Hamming distance.....	≥10
Working temperature	from -20 °C to +55 °C
Storage and transportation temperature.....	from -20 °C to +55 °C
Operating range.....	150 m
Time to passive STOP.....	< 1 s

6.2 FEATURES OF TRANSMITTING UNIT



Model.....	AT MITO-VETTA-915
Transmitter/coder radio module.....	SWE-U
Antenna	incorporated
Power supply.....	Lithium polymer battery pack 3,7 V 1100 mAh
Current draw.....	< 25 mA
Absorbed power	< 0,1 W
Transmitted power.....	meets FCC requirements
Low battery warning voltage.....	3,4 V
Shutdown voltage.....	3,0 V
Operation time with charged battery at 20 °C	approximately 50 hours
Low battery warning time before shutdown	approximately 10 minutes
Protection degree	IP65
Dimensions.....	170x74x81 mm
Weight	400 g

6.3 FEATURES OF RECEIVING UNIT

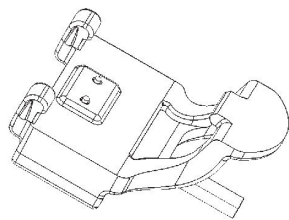


Model.....	AR MITO-MINI-915
Transmitter/coder radio module.....	SWE-U
Antenna	Incorporated or dedicated external
Power supply	9-30 V==
.....	12-24 V~ 50/60Hz
Consumption	< 5 W
Relay outputs with NO contacts	max 10 commands
Maximum contact voltage.....	230 V~
Fuse on Stop relay	F1= T 6.3A L 250V
Maximum output current.....	10 A in AC1, 10 A in DC1 a 30V
Protection degree	IP67
Dimensions	165x107x50 mm
Weight	450 g

WARNING: In case on the relay contacts you use dangerous voltages, higher than 42.4 Volt AC or higher than 60 Volt DC, you need to consider also power supply circuit as connected to dangerous voltages. In this case it is necessary to provide a power circuit dedicated to the feeding of the receiver with suitable connections as regards the existing dangerous voltage.

In case of dangerous voltages inside the receiver, it is not allowed to use the external antenna.

6.4 CHARGING SYSTEM FEATURES

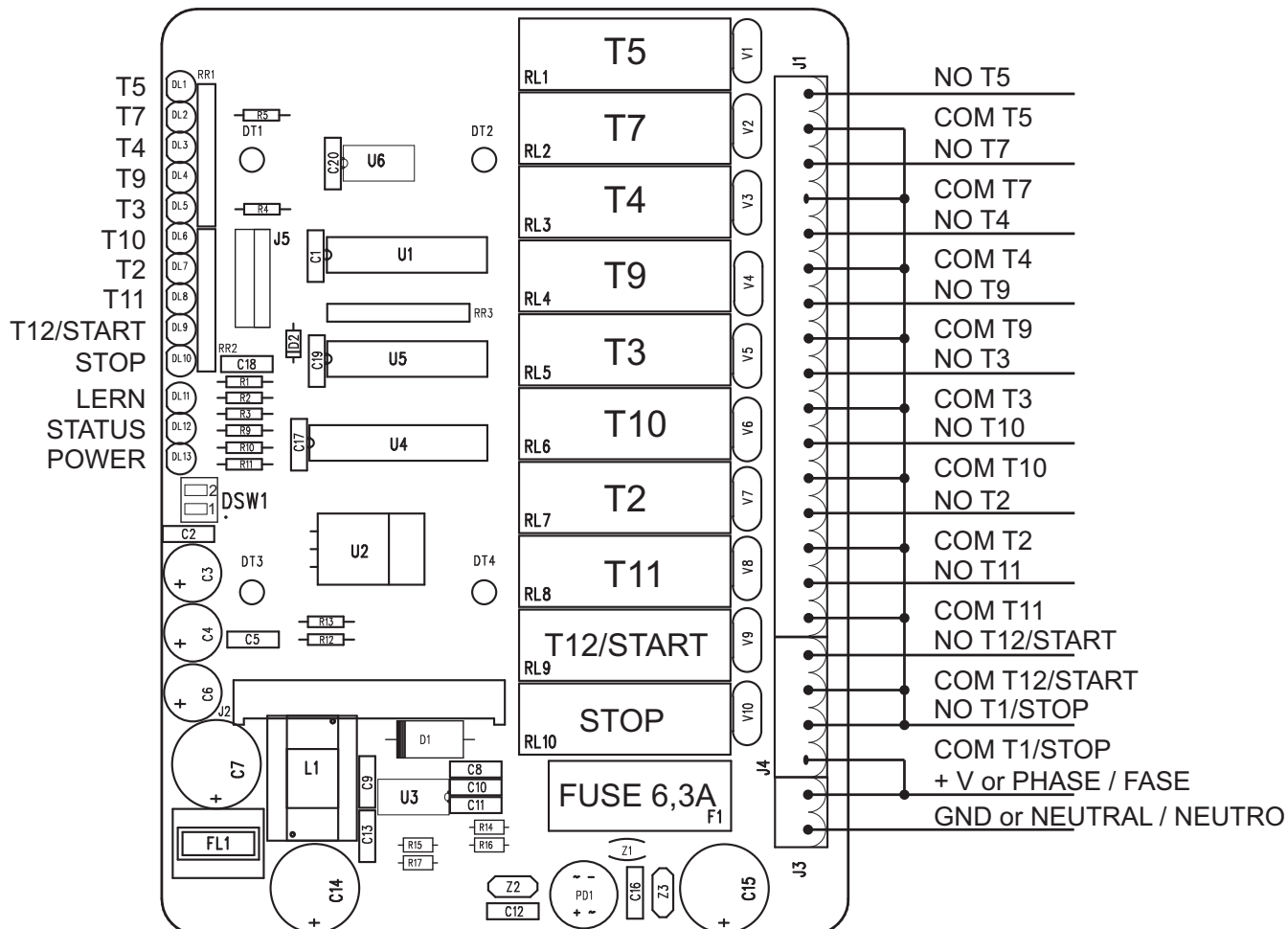


Power supply	100 - 240 V ~ 50/60 Hz
Rated power	0,2 A
Rated output voltage	5 V =
Rated output current.....	1 A
Full-charge time.....	circa 4 ore
Charging time for 2 hours autonomy	approximately 20 minutes
Working temperature	from -20 °C to +55 °C
Protection degreee	IP40
Model plug.....	Type A (NEMA 1-15)or Eurospina Type C (CEE 7/16)
Cable length	2 meter
Weight	100 g



ANNEX A

MOTHER CARD LAYOUT 10 RELAYS LAYOUT SCHEDA BASE 10 RELE'



Relay T12/START is activated pressing T8 (Alarm) on the transmitter.

Il relè T12/START si attiva alla pressione di T8 (Allarme) sul trasmettitore.

