ELFIPA

AUTOMAZIONE TIRO A VOLO
REALIZZAZIONI ELETTRONICHE

COMPUTERIZED AUTOMATIC SEQUENCER

FOR TRAPSHOOTING MACHINES

DESCRIPTION AND INSTRUCTIONS FOR USE

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TABLE OF CONTENTS

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1.GENERAL DESCRIPTION

The electronic sequencer for trapshooting machines has been realised with the most advanced electronic systems offered by technology; the use of the microprocessor makes the machine simple to be used and reliable.

ARRANGEMENTS IN ADVANCE:

The electronic central unit is completely automatic and it is arranged both for Olympic and Universal Trench, Double Trap, Hunting in different versions, "fintello", skeet, American trap, etc.
On request, personalized hunting ranges are available as well.

PHONOPULL

- Insensitive to external noises (e.g. aeroplanes, etc.), to noises and voices coming from the shooting stations, to close and distant shots (in case of multiple shooting ranges), to noises caused by shutting off the gun and by extracting the cartridge.
- Greater sensibility to the calling voice without any timeout.

MAIN FEATURES

- Possibility to place the shooters (if they are less than six)on the wished position.
- Once the sequence is started, possibility to leave out the shooters who left the station due to unforeseen events and leave the shoot-sequence unchanged for the shooters who are carrying it on.
- Change of sequence with random choice at each start.
- View of the shooters' position on the shooting station and the station ready to throw.
- Retention of the situation in case of interruption (power failure or accidental switching off)
- Memory endurance: over one year
- Timed audible alarm for the zero (steady duration).

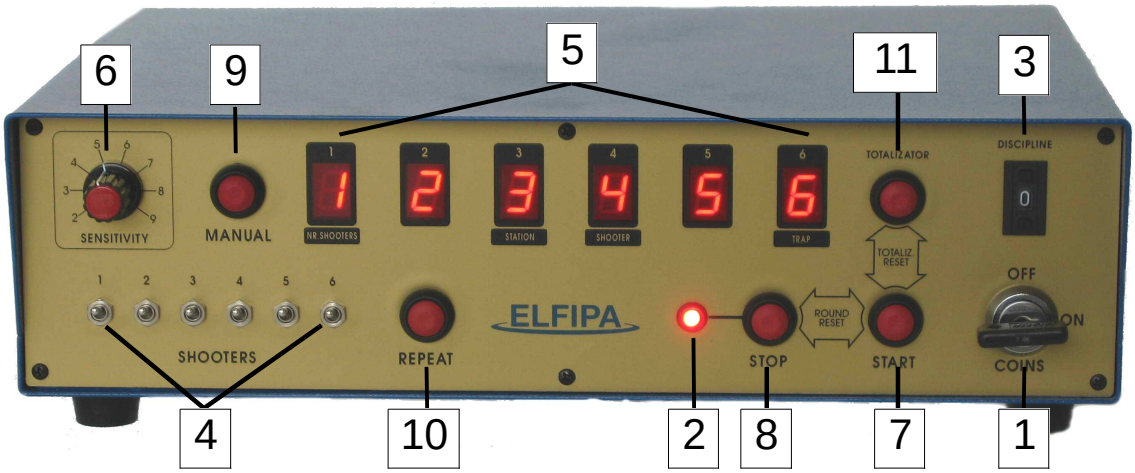
ACCESSORIES

The sequencer is provided with remote control and bel, and it can be used with the following accessories:

- Video Interface or Big Scoreboard, to see the scores and send them to secretariat.
- Mechanical or electronic token machine with smart-cards to automatize the range.
- Control system of the sequencer via radio.
- Machine transmitter for hunting range.
- Automatic switch for microphones to manage the multi-discipline ranges.

2. CONTROLS AND CONNECTIONS

2.1 FRONT PANEL



Picture 1. Front panel

1) **Starting and insertion key of the token machine:**
- It turns the sequencer on and off.
- It enables the use of the token machine; this function must be inserted at the end of the sequence (current sequence) or after a reset (see control no. 7).

2) **Stop led**:
- It switches on when the sequencer is on, in case the sequence is interrupted (by pressing stop on the remote control board), in case of reset of the current sequence (see control n.8) and 10 seconds after the current sequence is finished.

3) **Numbered selector for discipline setting**:
- It enables to set up the different disciplines listed in table 1.
- Each setting must be carried out before the sequence is started.
- ATTENTION! The discipline tables can be changed to suit the new disciplines or after a request of personalization;one by one, an updated table will be provided.
- To change table follow the instructions below:

1- switch off the Sequencer
2- press and keep pressed the button STOP
3- switch on the Sequencer, on the display you can see the inscription “TABLE”, followed by the table number (1-4)
4- press START to change number
5- release the button STOP to end up

Examples of tables:

	Normal discipline setting Display: SE.60.1.1
0	OLYMPIC TRENCH
1	UNIVERSAL COURSE
2	DOUBLE TRAP
3	SKEET Timer 0.2 - 3 sec.
4	SKEET - ISSF 1992 - Timer 0.2 - 3 sec.
5	ABT AMERICAN TRAP (6 shooters)
6	TRAINING SKEET **29 Target** Timer 0.2 - 3 s.
7	SKEET - ISSF 2005 - Timer 0.2 - 3 sec.
8	SKEET - Manual - Timer 0 - 3 sec.
9	Programming through smart-card

Table 1

	DOUBLE TRAP 2017- discipline setting Display: SE.60.1.3
0	Qualification
1	Shoot-Off of Qualification
2	Final 15 Double
3	Final 5+5+5++10 Double
4	Shot-off Final
5	Final 15 Double with auto-stop
6	Final 5+5+5++10 Double with auto-stop
7	Final 10 Double
8	
9	Programming through smart-card

Table 3

4) **Switches for shooters insertion**:

- The insertion of the different shooters in the wished position must be carried out before starting (to insert the shooter set the lever up). Anyway, if the sequence has already started, the shooters, or shooter, excluded at the start can still be inserted if their turn has not been called.
- During the sequence it is possible, in any moment, to exclude the shooters simply by lowering the lever in correspondence to the sequence number of the shooter to be excluded.

5) **Display windows**:

- When the sequencer is on, the windows show what follows: for some seconds the word "ELFIPA" appears and then the program version appears, for example "CB.2.23.1".
  The last number on the right shows the number of the Discipline Table, which is being used. This information is useful to know which disciplines can be found in the sequencer.
- The six windows usually display the shooters inserted with their sequence number (from 1 to 6) and their position on the shooting station. If one of them flashes, the shooting station is ready to throw.
- In some displays (e.g. SKEET) on the windows we can see the following informations:

1- number of the shooter inserted (from 1 to 6)
2- switched off
3- ready station
4- shooter on the station and it flashes when it's ready
5- switched off
6- released machine

6) **Microphone sensitivity regulator**:

- It enables to set the best microphone sensitivity
- The regulation must be carried out during the first practical test and essentially depends on the microphones used and the environmental conditions during the use; in most cases, the best results can be obtained by placing the handle between 5 and 6.

7) "**START" button**:

- It starts the new sequence and restarts the interrupted sequence (after a stop from the remote control or a power failure).

8) **"STOP" button:**

- It stops the current sequence (the sequence and position of the shooters are stored into memory), to start again just press the start (7) or the push-button (14).

7+8) **Resetting the current sequence**:

- The reset can be carried out any time and this action is performed on the current sequence. It is obtained by pressing the "START" and "STOP" buttons at the same time.
- In the position "coinbox", this function is deactivated to avoid unwished operations; to reset a sequence in the sequencer started in "COINS", you need to turn the key in "ON" position.

9) **“MANUAL” button:**

- It substitutes the calling (on the current sequence) and causes the release of the machine concerned; it’s used to make some tests or to show the releases.

10) **“REPEAT” button**:

- It enables to return to the last shooting station and restore the shooting repetition in case of broken or irregular clay target.
- Returning to more shooting stations can be carried out by pressing the start (7) or the push-button (14) and then "repeat". This operation can be done as many times as it is necessary.
- When the sequencer is on the “COINS” position, the number of the repetitions is blocked.

To know how many they are, see below:

1 shooter = 3 repetitions
2 shooters = 5 repetitions
3 shooters = 6 repetitions
4 shooters = 7 repetitions
5 shooters = 8 repetitions
6 shooters = 9 repetitions

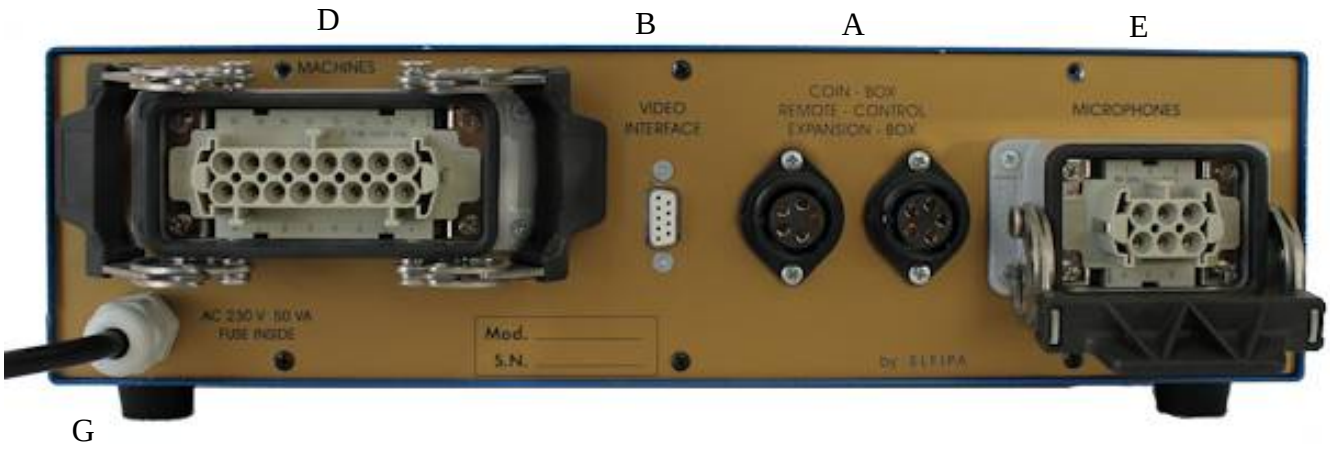
There’s the opportunity to set and remove the block, following the operations below:

1- Switch off the sequencer
2- Press and keep pressed the “REPEAT”
3- Switch on the sequencer in the position “ON”
4- On the display you can see the inscription “bloc oFFb” or “bloc tot” or “bloc.riP”
5- Press “START” to change the block:
   “blo.tot” = blocco on the total
   “blo oFF” = no block
   “blo.riP” = block on te repetitions
6- Release the button REPEAT to end up.

11) **“TOTAL” button:**

- By pressing this push-button, you can display on the windows (5) the total number of shootings carried out after the last reset of the totalizer.
- To reset the totalizer, it is necessary to press contemporarily the related push-button and the start (7). The reset is not possible if a sequence has already started.

2.2. REAR PANEL



Picture 2. Rear panel

IT IS ADVISABLE TO CONNECT THE DIFFERENT PLUGS WITH THE SEQUENCER OFF TO PREVENT ANY DAMAGE

A) **Connection socket for remote control:**
- this socket must be connected to the remote control supplied with the sequencer.

A) **Connection socket for the coin operated system:**
- the coin operated system is an accessory supplied upon request and enables the automatic control of the shooting range.

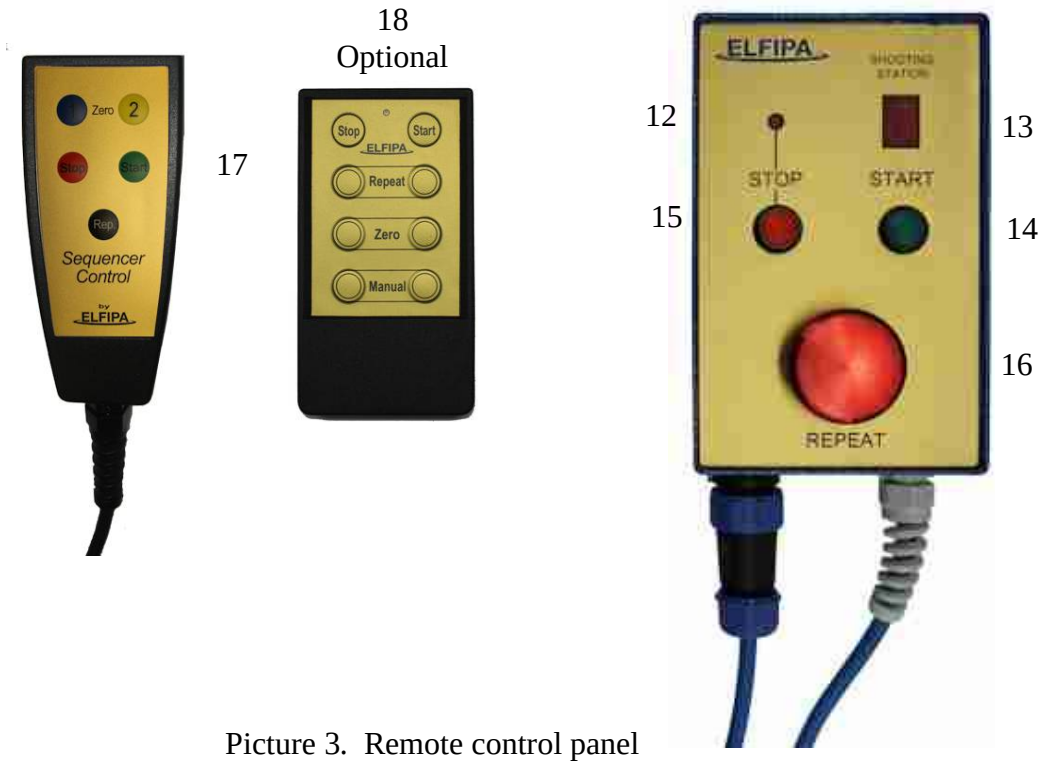
B) **Connection socket for the video interface:**
- the video interface is an accessory provided on request and permits the display of the scores on a monitor and the printing of the score lists on a printer.

D) **Connection to the machines:**
- see chapter about the installation.

E) **Connector for the connection to the microphones**
- see chapter for the installation.

G) **Supply cable for the sequencer:**
- the sequencer is predisposed for suppling with voltage equal to 230 Vac - 50/60 Hz

2.3 REMOTE CONTROL PANEL



Picture 3. Remote control panel

12) **Stop led:**
- It displays the same conditions of function 2.

13) **Display window for the shooting station:**
- The window displays the number of the station ready, if this number flashes, the phonopull is ready to receive the call.
- The letter “F” on the window shows the end of the sequence (sequence and status)

14) **START push-button:**
- It has the same functions of the control (7)

15) **STOP push-button:**
- It stops the current sequence (the sequence and position of the shooters are stored into memory), to start again just press the start (14) or the push-button (7).

16) **REPEAT push-button:**
- It has the same functions of the control (10).

17) **Acoustic signalling push-button:**
- The push-button activates the horn to signal the zero.
- The rings for a constant period of time and does not depend on how long the push-button is pressed.

17) **Remote control Radio (optional)**

- to pair the transmitter with the Remote control:
- press and keep the STOP button (15), after 5 seconds, the central line of display (13) blink; from now on you can register the transmitter.
- using one or more “Radio Transmitter”, that has already been set, press one buttons in the transmitter, in the display a dot lights up, which indicates the recording of the radio control.

- Now you can release the STOP button and system is ready to using the radio.

2.4 SPECIAL FUNCTIONS

Test for machine control:

The test for machine control let release all the machines following a set order.
This function enables an easy and quick checking of the connections when the sequencer is installed; besides, it enables the Referee to check the shooting diagram set before the start of the competition. If the Sequencer is used with less machines (e.g. Universal trap, hunting range or skeet),it’s necessary to select manually the machine, referring to the connection scheme, presented on the last part of this manual.

Test insertion:
- turn off the sequencer with the key (1)
- exclude all shooters by lowering the corresponding 6 levers (4)
- turn on the sequencer with the key (1).

Once these operations have been carried out, the test is inserted; the release, in the set order, of all the machines can be obtained by carrying out the necessary calls from the third station or by pressing repeatedly the manual release push-button (9).
The machine, which is ready to release, is displayed each time on the windows (5). It is possible to select the desired machine, ready to release, by using the START (7) or (4) and REPEAT buttons (10).
If the sequencer is set for Universal course, the above test enables the release from the 5 central machines only.

To finish the test:
- turn off the sequencer with the key
- insert at least one shooter using the switches (4)
- turn on the sequencer again.

Non-resettable totalizer:

- Apart from the already described function, the push-button (11) enables the display of a non-resettable, progressive totalizer, which can be very useful for periodical controls, any moment, when checking on the balance, consumption, etc. are required.

To see it, follow the instructions below:

- switch off the totalizer with the key
- press the TOTAL button (11) and keep it pressed to switch on the sequencer; in this way the total number of executed releases will be shown on the windows (5). After releasing the button, it will work as usual as partial totalizer.

3. INSTALLATION

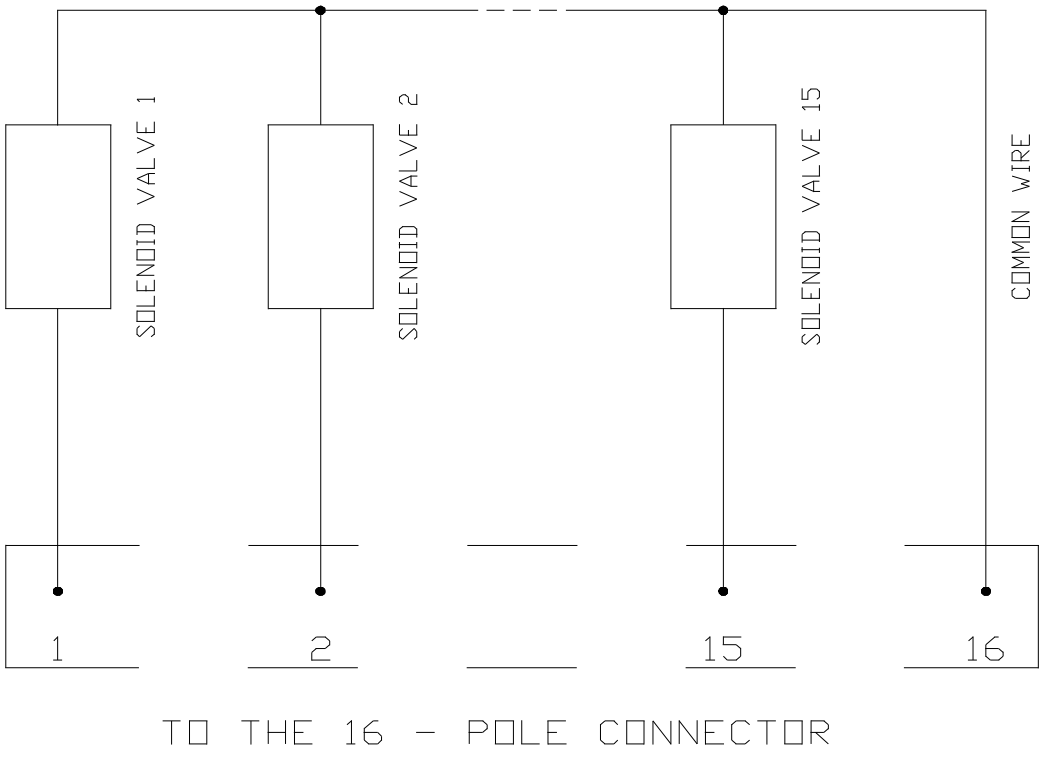
WARNING! The electrical installation must be supplied with the earth plate to guarantee immunity to electrical disturbances and for safety against current losses.

It is advisable that the connection cables of the microphones are as short as possible and their path independent from the other cables (network, etc...).

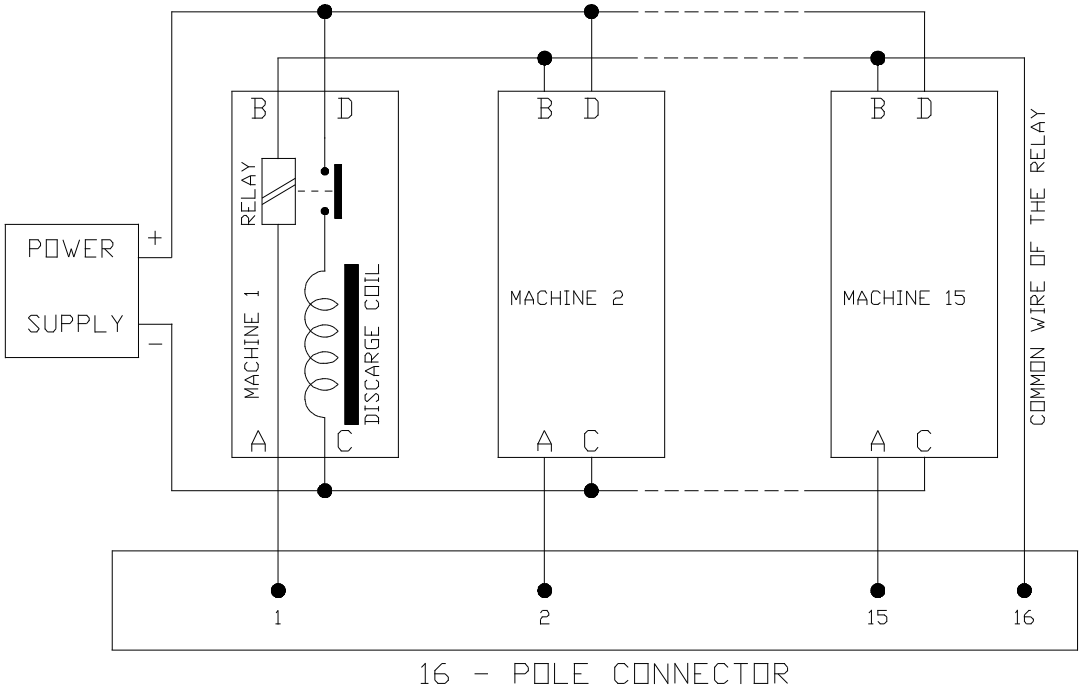
3.1 MACHINE CONNECTIONS:

The sequencer sends an imput to the machines, which usually lasts 150 milliseconds. This time can be modified to adapt to different types of machines; for example, the machine for the hunting sporting without any coil needs an imput of 500-600 milliseconds.
To set this time, follow the operations below :
1- Switch off the Sequencer
2- Press and keep pressed the button MANUAL
3- Switch on the Sequencer in the position ON.
On the display the time of release appears in mS.
4- Press START to lenghten the release time
Press STOP to reduce the release time
5- Release the button MANUAL to end up.

The sequencer is supplied with arrangements in advance to control the solenoid valves (see picture 3) or the 12Vdc relay (see picture 4).

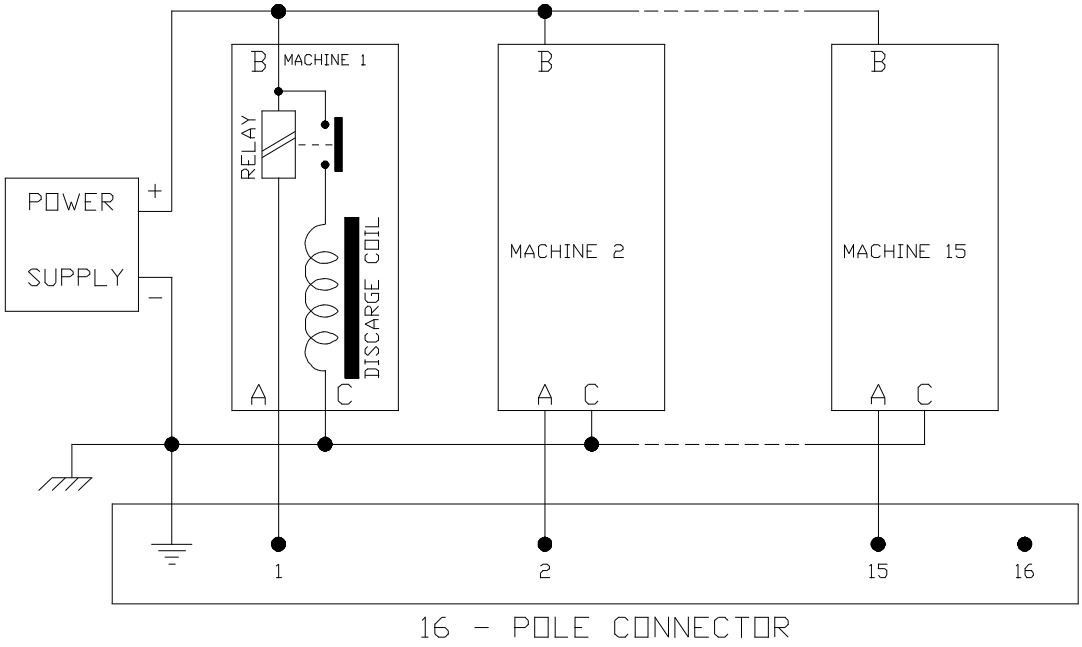


Picutre 4. Machine connection diagram



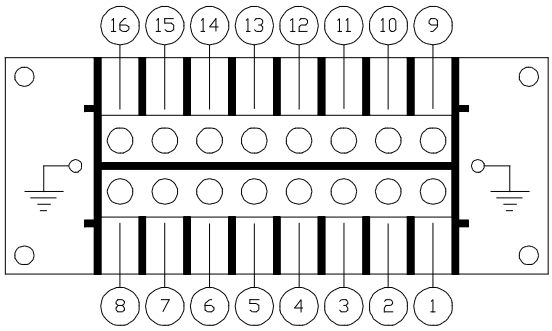
Picture 5. Machine connection diagram

As it is shown in picture 5, the common wire of the relay coils is independent from the power supply. It is always advisable to adopt this solution also if the sequencer is installed on already existing equipment, after proper configuration of the system.
Anyway, if the relay coils of already existing installations are separated from the contacts or if it is impossible to connect the common wire of the relay coils to the sequencer, you must arrange the installation according to the diagram on Picture 6.
In this way, the sequencer does not supply voltage for the activation of the relay, but operates as switch using the same power supply.



Picture 6. Electrical diagram of the machine connection

N.B.: In case the diagram of Picture 6. is to be used, it is mandatory to connect the negative pole of the power supply to the earth terminal of the 16-pole connector represented on picture 7.

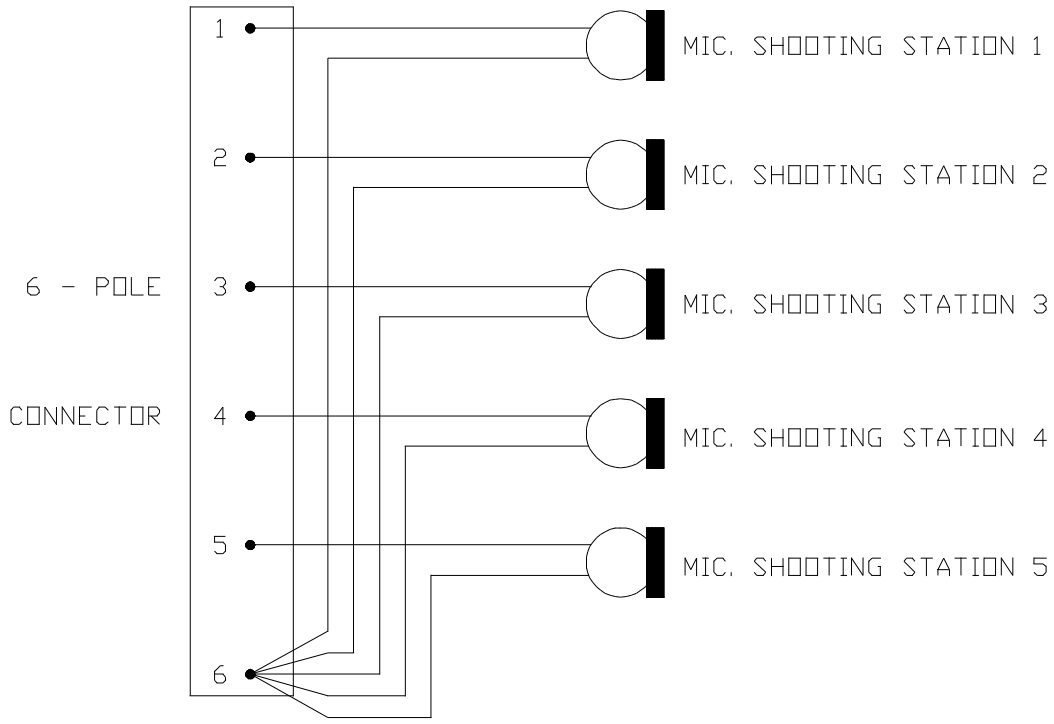


Picture 7.

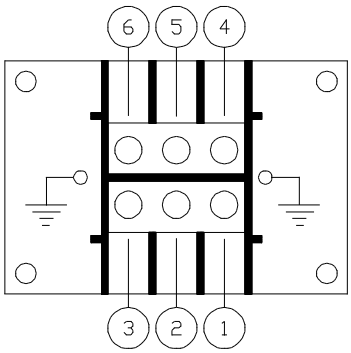
Representation of the 16-pole connector (side of the terminals) for the connection to the machines.

3.2 MICROPHONE CONNECTIONS:

5 microphones must be connected to the 6-pole connector according to the diagram of picture 8.



Picture 8. Electrical diagram for microphone connection



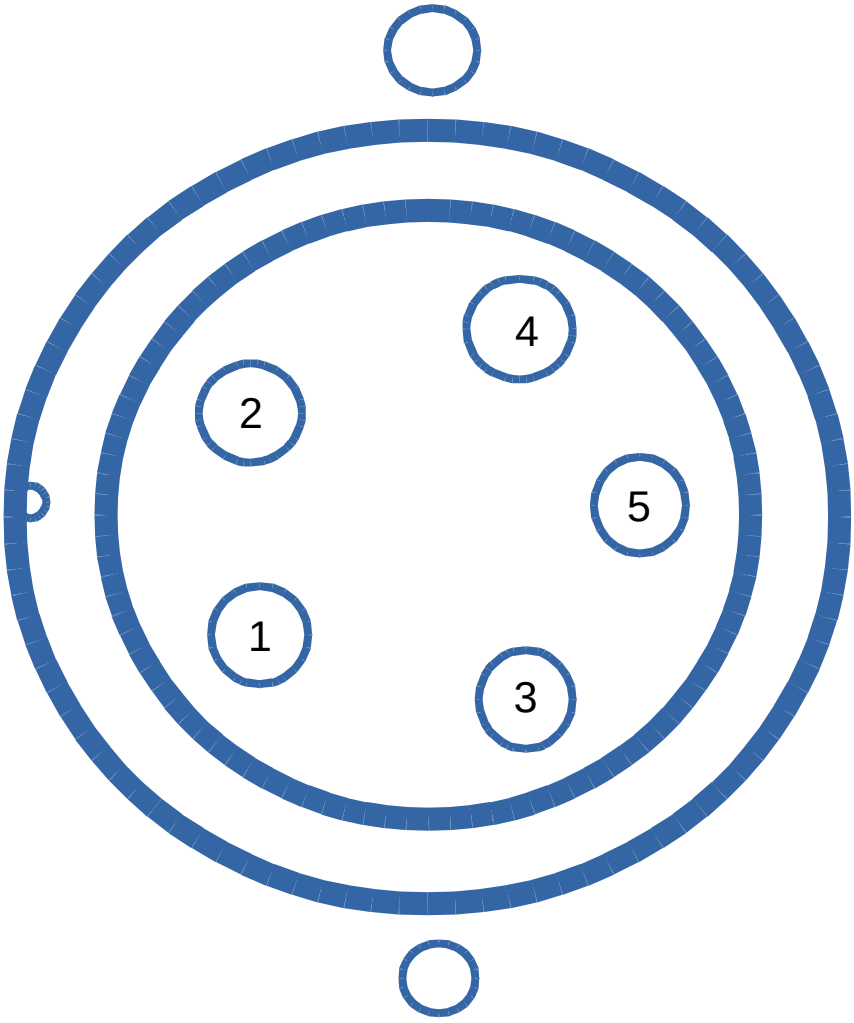
Picture 9.

Representation of the 6-pole connector (side of the terminals) for the connection to the microphones.

3.3 ACCESSORIES CONNECTIONS:

if you need to make an extension or change the length of the cable of an accessory (remote control, coin mechanism, machine expansion, etc.), connected to the socket (A) on the rear panel, follow these instructions:

- Pin 1: serial signal (TTL) – normal Blu
- Pin 2: Pover +12Vdc 1A (Electronic Fused) – normal Brown
- Pin 3: common (ground) – normal Green/Yellow
- Pin 4: used on old accessories
- Pin 5: used on old accessories

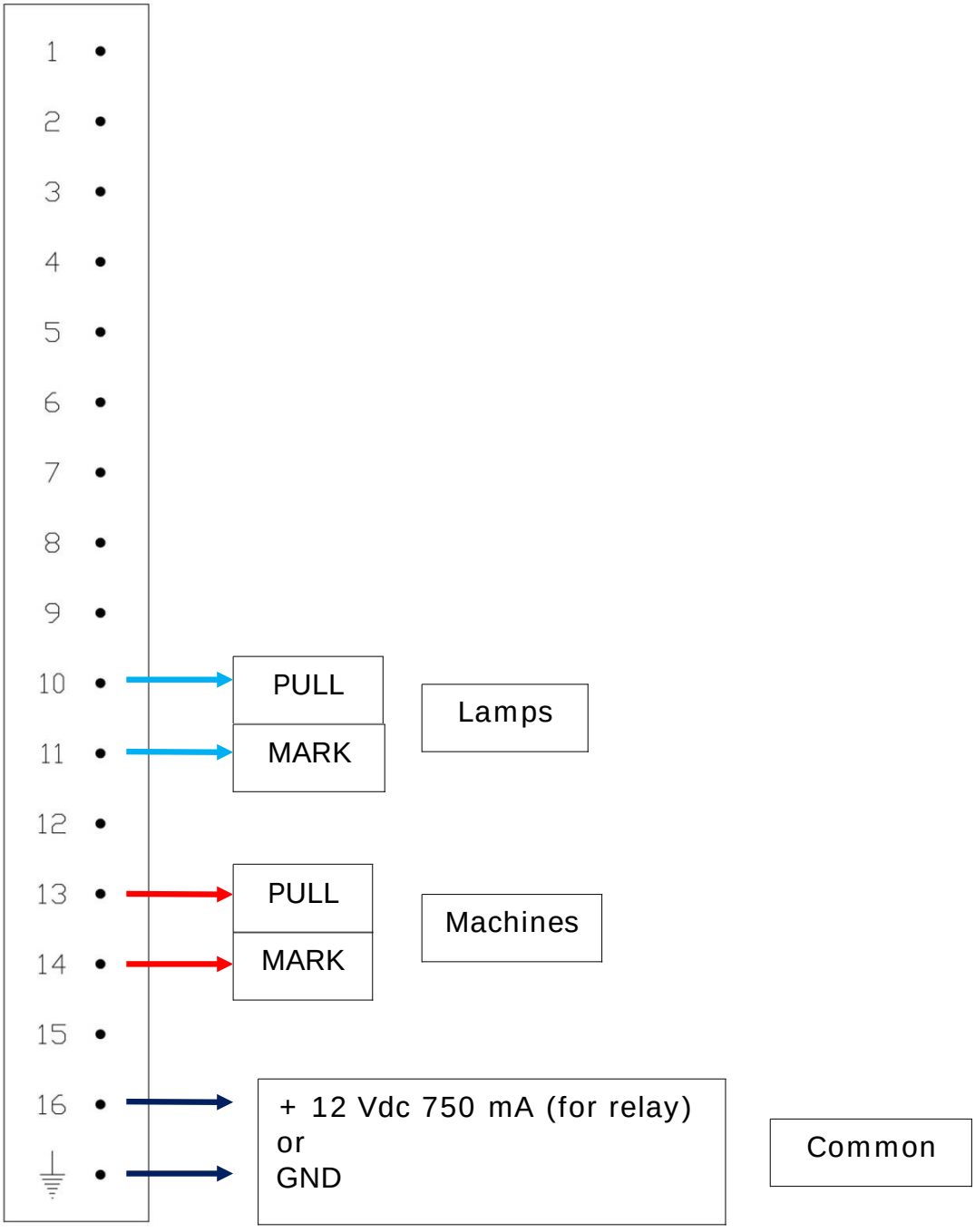


Female, external side

4. DIAGRAMS FOR THE SKEET CONNECTION

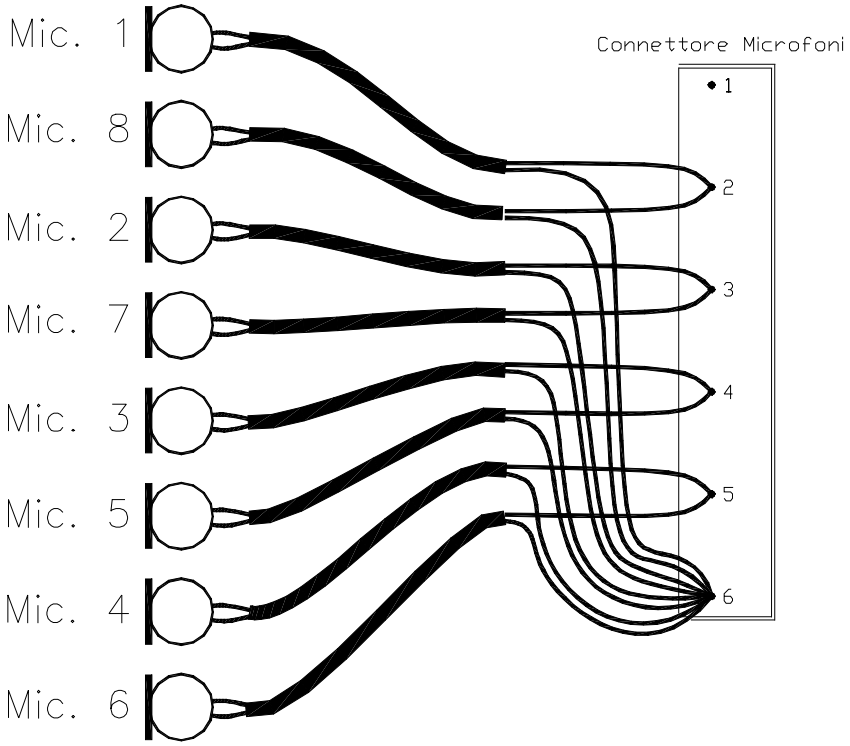
4.1 MACHINES CONNECTION FOR THE SKEET

The skeet machines and lamps must be connected to the 16-poles connector according to picture 7. For the lamps 230 V it is necessary to use the isolation relay. If the installation is made in multi-discipline range, it should be better to have “AUTOMATIC EXCHANGE BOX”, which is available in different versions according to the configuration of the range.
To connect the common wire, see the previous connection schemes.

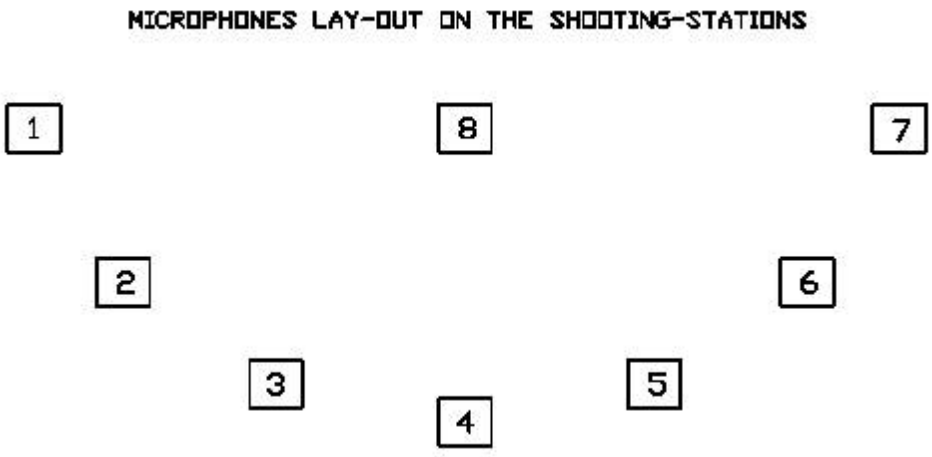


Picture 10

4.3 CONNECTION OF SKEET MICROPHONES



Picture 12.



Picture 13.

5. TECHNICAL CHARACTERISTICS

POWER SUPPLY . . . . . 230 Vac ± 10%

NETWORK FREQUENCY . . . . . 50/60 Hz ± 10%

ABSORBED POWER . . . . . 50 W MAX.

CURRENT SUPPLY TO THE MACHINES and ACCESORIES . . . . 2 A MAX.

OPERATING TEMPERATURE . . . . . 0°C - +40°C

MICROPHONE IMPEDANCE . . . . . 16 Ohm - 600 Ohm

ELECTRONIC PROTECTION AGAINST SHORT-CIRCUITS AND OVER-LOADS AT THE OUTPUT OF THE MACHINES

DIMENSIONS . . . . . 95 X 270 X 355 mm

WEIGHT . . . . . ABOUT 5.6 kg.

SUPPLIED ACCESSORIES:

REMOTE CONTROL AND CONNECTION EXTENSION of 15 mt.

WARRANTY

The electronic sequencer for trapshooting machines is guaranteed for a period of 12 months after date of delivery. The present warranty covers manufacturing problems or problems related to the materials used.

For any revision to be carried out under guarantee, the system must be sent to our premises.

The warranty is to be considered declined when the system turns out to be tampered.

WARNING:

ELFIPA s.n.c. reserves the right to amend the described product and the specifications without prior notice.