

FULL-ARM-05

TECHNICAL INFORMATION

1- POWER SUPPLY

Required voltage: 12Vdc (minimum 10Vdc, maximum 16Vdc), or 12Vac (minimum 9Vac, maximum 14Vac).

Consumption: Average 0.2A, maximum 0.5A

Warning: if the Full-Arm-05 is supplied by a transformer or by a feeder connected to the electrical grid, make sure that the supplier has double insulation and that it is protected from short-circuiting.

Also, make sure that the grid supplying electricity has an automatic "circuit breaker" with a maximum threshold of 30 mA.

BATTERY-RUN OPERATION

Any rechargeable lead-acid 12 V battery can be used to run the Full-Arm-05. The higher the battery's ampere-hour capacity, the longer its life expectancy. In the OFF condition, the Full-Arm-05 has a minimum power consumption of 0.02A. If it remains in this condition for many hours, it is advisable to disconnect the battery to avoid unnecessary waste.

Low battery indication: when the voltage supplied by the battery dips below 11V, the numeric display of the hits begins to weaken and then to disappear entirely as the remaining power dwindles to 9V.

As soon as number of hits starts to become less clearly visible, it is necessary to recharge the battery. **It is very important not to let the battery discharge entirely as it will deteriorate.** Once the battery deteriorates, its life decreases noticeably even after the battery itself has been recharged.

Accessories for battery usage:

Art.828 RECHARGEABLE BATTERY 12V/6-7Ah

Provided with connectors for direct connection to the Full-Arm-05 and to the battery charger (Art.829).

The battery provides about 30 hours of operation. The average life of a lead-acid rechargeable battery is 5 years if used correctly. We recommend you to replace the battery when it begins to discharge very quickly.

It is advisable to recharge the battery after each use and at least every 6 months if it is not being used.

Use the appropriate battery charger Art.829.

Art.829-A BATTERY CHARGER 230/13.8V, 500mA

Art.829-B BATTERY CHARGER 115/13.8V, 500mA

Check that the input voltage indicated on the

battery charger corresponds to the voltage supplied by the electricity grid.

The battery charger can also be used to supply power directly to the Full-Arm-05.

Art.856 Power cord with clamps. A useful item if the Full-Arm-05 is to be run on a car battery.

2- FULL-ARM-05 KEYBOARD

The Full-Arm-05 keyboard has eight keys, the functions of which are described below:

ON-OFF key: It switches on and off.

FLEUR.-ÉPÉE-SABRE key: It displays which weapon is being used, on the left-side hit-counter. The three weapons are designated by the following abbreviations:

FL = (FLeuret) Foil

EP = (ÉPée) Epee

SA = (SABre) Sabre

The type of weapon activated is displayed for three seconds. You may change the weapon by pressing the key in question during this three-second period.

VERSION key: It displays for three seconds, on the right side hit-counter, the programme version for the weapon activated. You may change the version by pressing the VERSION key again during this three-second display. Two programmes may be selected for the sabre and two for the épée.

These are :

SA 1 = Sabre 1 = The hit is always signalled, even if it is due to a whip-over contact.

SA 2 = Sabre 2 = According to the F.I.E. rules. The whip-over contact is not signalled.

EP 1 = Epee 1 = According to the F.I.E. rules.

EP 2 = Epee 2 = It signals rapid hits. Useful for signalling several hits in rapid succession during training.

TEMPS RÉARM. key: It displays how much time elapses between hits and rearmament. If the key is pressed again during the display period, the time is changed.

The times that may be selected are 1, 3 and 5 seconds, or manual rearmament, as designated by a dash (-) on the display.

VOLUME SON key: It displays the volume level of the sounds. If the key is pressed again during the

display period, the volume is changed. There are three levels: v1 (low), v2 (medium) and v3 (high).

MINUTES CHRONOM. key: It displays the amount of time set for the match, in minutes. If the key is pressed again during the display period, you can change that figure from 1 to 9. The set figure is the one that is loaded into the chronometer by using the SET key on the remote control.

F1 Key: Non-activated function key.

2^{ème} FONCTION key: It activates the auxiliary function written in red below the keys so prepared. In the ensuing text, these will be described as "secondary" functions.

2^{ème} FONCTION + TEST keys: These keys make it possible to control the correct functioning of all the lights. Furthermore, a short-circuiting between all of the 7 weapon sockets (3+3+piste) will produce a continuous sound indicating that the circuits controlling the weapons are functioning correctly. If the TEST key is pressed again, the lights on the apparatus will change pattern, which is an effective way to attract the attention of the potential buyers of the Full-Arm-05.

To stop the test phase, press the ON-OFF key.

2^{ème} FONCTION + AQUIS.TÉLÉC. keys: These keys make it possible to acquire a new remote control. Once these two keys are pressed in succession, it is necessary to press the TELEC.AQUIS. key on the remote control within no more than 5 seconds.

2^{ème} FONCTION + ÉCHANGE keys: These keys provide the exchange of two point scores and are useful when the fencers change position.

2^{ème} FONCTION + F2 keys: A function not utilised at the moment.

3- REMOTE CONTROL KEYBOARD

The functions carried out by the 18 keyboard keys are described below.

TELEC.AQUIS. key: It enables the Full-Arm-05 to acquire the code number of the remote control in order to recognise it later. The remote control supplied with the Full-Arm-05 is already enabled, so acquisition becomes necessary only when the remote control is changed. In order for the new remote control to be recognised, the *2^{ème} FONCTION + AQUIS.TÉLÉC.* keys must be pressed in succession on the Full-Arm-05 keyboard and then, within no more than 5 seconds, the *TELEC.AQUIS.* key on the remote control must be pressed (see Chapter 2- Full-Arm-05 KEYBOARD).

SET key: It loads the length of the match on the chronometer in minutes (programmed with the *MINUTES CHRONOM.* key of the Full-Arm-05 keyboard). In order for this to occur, the chronometer must not be in the process of counting.

START-STOP key: It starts and stops the chronometer.

MISE A ZERO, [+] and **[-]** red keys: They respectively zero out, increase and decrease the score.

RÉARM. key: It causes rearmament.

MATCH COUNT key: It increases the number of matches. Since there is a 3-match limit, 1, 2 or 3 lights are displayed.

CART. JAUNE keys (right and left): They assign and remove the "yellow card" penalty.

CART. ROUGE keys (right and left): They assign the "red card" penalty, which causes a point to be assigned to the adversary.

P. MAN. key (Manual priority): It assigns and removes the priority.

P. CAS. key (Random priority): It randomly assigns priority. Pressing the key again removes the priority.

BLOCK key: It is not utilised at the moment.

4 - REMOTE CONTROL OPERATIONS

The remote control runs on a 9V alkaline battery. It transmits approximately 150.000 commands.

To replace the battery, the two screws on the rear side must be removed. Alkaline batteries are recommended because their life is about 4 times longer than the carbon-zinc cell. Correct functioning of the remote control is shown by a red light on it, while correct reception is indicated by a illuminated yellow light (*TÉLÉCOM.RÉCEPT.*) on the Full-Arm-05. Note that if the signal received comes from another remote control, the yellow light will be weaker.

The remote control operates by using infrared rays, so it is important to point it directly at the Full-Arm-05 (similar to a television remote control). Every remote control has a unique, unalterable and inaccessible transmission code and every Full-Arm-05 can be programmed to recognise any remote control, but only one at a time. Thanks to these features, two remote controls can never control the same apparatus. Furthermore, there is no limit to the number of apparatus that can be connected in the same fencing arena. The remote control supplied with the Full-Arm-05 is already prepared, so acquisition is necessary only when the remote control is changed.

For the aforementioned acquisition procedure, see the two preceding chapters.

5- FULL-ARM-05 OPERATIONS

Please read Chapter 2- FULL-ARM-05 KEYBOARD and Chapter 3- REMOTE CONTROL KEYBOARD, where all the functions of the keys are described.

Two PANEL-02 (Art.835) panel repeaters or LIGHTS-REPEATERS (Art.894) can be connected to the 2 Data-Line sockets, located on the back of the Full-Arm-05.

An inexpensive connector doubler (Art.880), useful

for doubling a Data-Line output, is also available. To prevent the annoying continuous noise that occurs in the sabre and the foil when the fencers are not connected, the programme inhibits the sound after a set period of time from when both

weapons have been disconnected. Also the white lights are switched off to limit consumption. As soon as a weapon is connected, the signals appear again.

FULL-ARM-05 ACCESSORIES

For the various accessory articles available for running the Full-Arm-05, such as transformers, batteries and battery chargers, see Chapter 1-POWER SUPPLY.

Art.852 BOX-04 Carrying case.

In addition to the Full-Arm-05, this case can also house other accessories, such as the battery (Art.828), the battery charger (Art.829) and the 1m high table-top stand (Art.873).

Art.873 1m high table-top stand.

Useful for positioning the Full-Arm-05 above the level of the fencers. When disassembled into two pieces, this stand can be inserted into the carrying case Art.852 BOX-04. A clamp is provided for anchoring the stand to the table as well as 1.2m extension cord, if the power cord must be lengthened.

Art.880 DATA-LINE Doubler. If it is necessary to connect more than 2 repeaters, this inexpensive accessory connector can double a single Data-Line output.

Art.835 PANEL-02 Repeater panel

The PANEL-02 is useful for long-distance display of all the information present on the FULL-ARM-05, but in a larger-size.

Required voltage: 12Vdc (minimum 10Vdc, maximum 16Vdc), or 12 Vac (minimum 10Vac, maximum 13Vac).

The power is supplied without the need to observe the polarity.

Current consumption: 0.9A with the lights off, maximum 4.5A. Consumption of the white lights is reduced to one-third just 30 seconds after they are switched on, while still ensuring their 180° visibility.

The PANEL-02 comes complete with a power cord with clamps (Art.856) for hooking up to a car battery and with a connector for the possible self-help construction of a custom-designed cord.

If the PANEL-02 is run on the main supply, the following articles are available:

-- For the 230 V power supply:

Art.854-A Transformer 230/12V 3,4A

-- For the 115V power supply:

Art.854-B Transformer 115/12V 3,4A

The PANEL-02 comes complete with two extension

cables, one 2.5m and the other 15m in length, for connection to the Full-Arm-05 by using the corresponding Data-Line sockets. If necessary, extension cables up to 100m in length are also available.

The possibility of connecting more panels to the same apparatus offers the advantage of easily locating the display boards close to the public, or of creating double-sided panels by placing them back-to-back. In this latter case, a special commutator switch located on the back (DISPLAY: INVERTED-NORMAL) makes it possible to invert the displays so that they are identical from the same side, including the red and green lights.

Also supplied with the PANEL-02 are two special stands, one high and one low, which can be placed on a table. When using the high support, make sure that it is firmly fastened to the table by the two clamps provided with PANEL-02.

For transport, use of the special carrying case, Art.850 BOX-01 is recommended. This item is not included with PANEL-02.

Art.894 LIGHTS REPEATER

Power supply: there are 3 versions.

- Art. 894-A: for 230 V power supply, 6VA max.

- Art. 894-B: for 115 V power supply, 6VA max.

- Art. 894-C: for 12 V power supply, 400mA max.

The Lights Repeater enables long-distance repetition of the two white lights and the red and green light. All the lights are formed by units of high-efficiency LED's, thereby providing low energy consumption and almost unlimited life. To make the product especially economical, its standard version uses yellow LED's to signal the white lights.

The Lights Repeater is designed to be easily fitted to the wall and it is ideal for using on fixed systems when attached to the ends of the piste visible to the fencers.

INSTALLATION of the Lights-Repeater 230V (Art.894-A) and Lights-Repeater 115V (Art.894-B): These two versions are supplied with a power cord and plug. Insert the telephone plug into the DATA-LINE socket. Fix the Lights Repeater to the wall by using the two front holes and the two screws supplied.

INSTALLATION of the Lights-Repeater 12V (Art.894-C):

Unscrew the rear screws and remove the plastic backing. Connect the Lights-Repeater to the 12V power supply by using the internal terminal block. Reposition the plastic backing while running the power cord through the special slot at the bottom left. Screw the screws back into the rear section. Insert the telephone plug into the DATA-LINE socket. Fix the Lights-Repeater onto the wall by using the two front holes and the two screws supplied.

All the Lights-Repeater versions come with a 30m telephone cable for connection to the FULL-ARM-05 via the DATA-LINE sockets. This cable can be easily extended to a length of 100m by requesting the appropriate extension cables. Otherwise, it is possible to cut the cable and lengthen it with two wires, connecting one wire to the two central wires and the

second one to the two lateral wires (the cable has 4 wires).

A red light, placed near the DATA-LINE socket, indicates the status of the connection with the FULL-ARM-05:

Light continuously on: connection is correct.

Light flashing: incorrect connection or FULL-ARM-05 switched off.

Light off: Lights Repeater lacks power or is malfunctioning.

WARRANTY

The warranty is valid for two years from the date of purchase document and includes free repairs for materials and construction defects.

It does not cover shipping costs.

The batteries are not included in the warranty.

ARTICLE CODE NUMBERS, measurements and weights:

Page 3 shows some photographs of the following articles :

		Length (cm)	Height (cm)	Depth (cm)	Weight (Kg)
Art. 831	FULL-ARM-05 (remote control included)	56	22,5	8,5	1,9
Art. 827-A	ADAPTER 230/12V 500mA	5	7,5	4,5	0,4
Art. 827-B	ADAPTER 115/12V 500mA	5	7,5	4,5	0,4
Art. 828	RECHARGEABLE BATTERY 12V 6-7A/h	15,5	12	6,5	2,9
Art. 829-A	BATTERY CHARGER 230V/13,8Vdc for the battery art.828	9	5	5,5	0,5
Art. 829-B	BATTERY CHARGER 115V/13,8Vdc for the battery art.828	9	9	5,5	0,5
Art. 852	BOX-04 Carrying case for the FULL-ARM-05	60	40	11,5	2,3
Art. 873	1m high table-top stand	4	104	2	1,1
Art. 880	Doubler of the Data-Line signal	2,2	3,5	2	0,1
Art. 856	Power cord with clamps for connection to a car battery.....		350		0,4
Art. 840	TELE-FULL-ARM Additional remote control for Full-Arm-05.....	4,8	11	1,2	0,17
Art. 835	PANEL-02 Repeater panel	84,5	40,5	7	9,5
	with high and low stand				5,3
Art. 854-A	TRANSFORMER 230/12V 3,4A for Panel-02	13	7	9	1,2
Art. 854-B	TRANSFORMER 115/12V 3,4A for Panel-02	13	7	9	1,2
Art. 850	BOX-01 Carrying case for Panel-02 and stands.	126	52	14	9,5
Art. 894-A	LIGHTS REPEATER 230V For 230V power supply	56	19,5	4	1,2
Art. 894-B	LIGHTS REPEATER 115V For 115V power supply	56	19,5	4	1,2
Art. 894-C	LIGHTS REPEATER 12V For 12V power supply	56	19,5	4	1