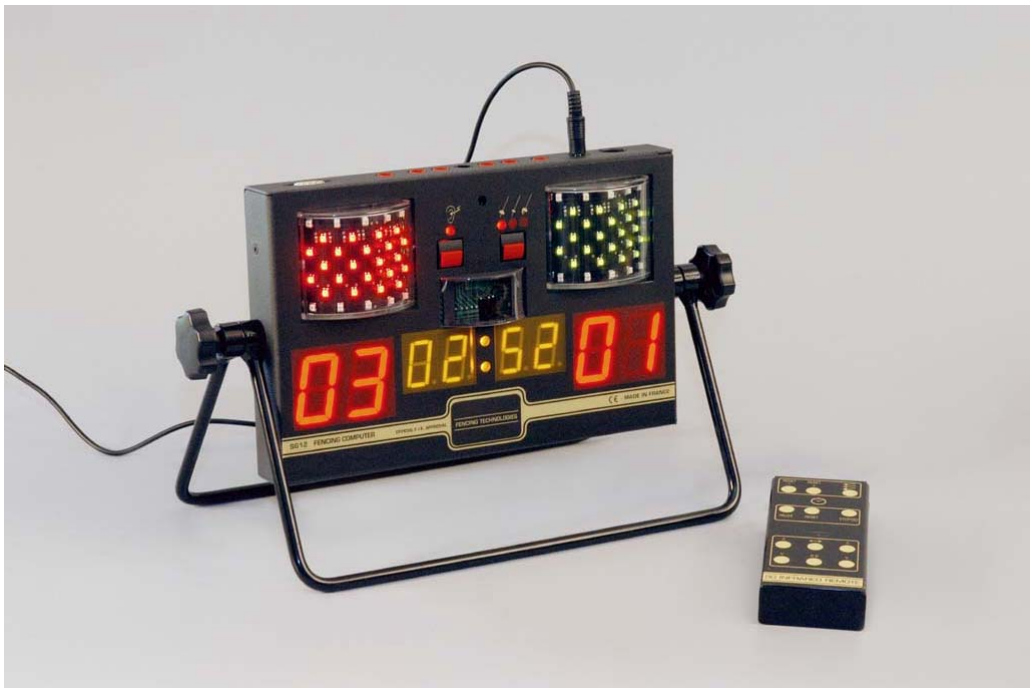
SG12

OWNER'S MANUAL



SG

Introduction

In 1993, Fencing Technologies introduced the SG31. With hindsight, one can say that it made fencing history as the first hit detection and signalling unit of its kind with integrated score, stopwatch, remote control and direct computer communications. Fencing bouts became much easier to follow in top tournaments as spectators were able to visualize results in real time. Additionally, this same information was now displayed on giant repeaters or sent directly to television.

The versatility and many unique features of this machine have since made it a standard for all major fencing tournaments around the world. This has led the F.I.E. to make this type of equipment compulsory in all world cup events. The notoriety of the SG31 has culminated twice after use in the last two Games: the 1996 Atlanta Olympics and the 2000 Sydney Olympics. The SG31 will be used yet again at the 2004 Athens Olympics.

After 10 years of intense use in major international events, the SG31 has grown into a very advanced machine with many unique features. It remains a big machine indispensable for World Cup events but not readily suited for ordinary clubs.

In 2001, Fencing Technologies decided to bring some of the SG31 technology to the average club in the form of a small portable machine. Thus was introduced the new SG12.

The new SG12 now has integrated score, stopwatch, remote control and communications functions. Much smaller than the SG31, it is very simple to use, easy to transport and affordable yet from the SG31 it retains some of the essential features.

DATA SHEET

Fencing functions

- Officially approved F.I.E. three-weapon scoring machine.
- Can be directly reprogrammed on board to latest F.I.E. regulations.
- Antifraud yellow lights.
- Whip-over blockage in the sabre.
- Use of rounded LED matrices for signal lights for maximum vision on the sides.

Integrated stopwatch and round

- Presetting of count-down time from 0 to 99 minutes (count-down time is memorized even when machine is turned off).
- Blocking of hit detection when stopwatch time has reached: 00 :00.
- The stopwatch is halted automatically as soon as a hit has been recorded.
- One minute pause through remote control.

Integrated scoring

- Scoring of up to 99 hits can be displayed on both sides.

Two types of remote control are available for the SG12 (the machine is delivered by default with a simple infrared remote control but the more sophisticated SG31 remote will work also function with the SG12).

Simple infrared remote control

- Driven by 3 AAA type batteries.
- Control of main functions of stopwatch and score.
- Control of general functions (choice of weapon).
- Each remote has a unique address that can be communicated to the SG12. Once this is done, the SG12 will only operate with this unique remote. For more details, consult section devoted to remote control.

SG31 mixed remote control (must be ordered separately)

- Mixed transmissions : wire and infrared.
- Driven by rechargeable Lithium Ion accumulator.
- Remote control is rechargeable directly on special slot.
- Control of stopwatch, score, cards and priority.
- Control of general functions (choice of weapon, manual reset).
- Each remote has a unique address that is sent to the SG12 when it is recharging on the machine. Thereafter, the SG12 will only operate with this unique remote.

Communications

- 1 RS422 connector for general purpose computer communications.
- 1 special connector for charging and communicating with remote control.
- The SG12 can operate in slave mode and repeat signals from a master machine.

Family of peripherals

- 2 DIN plugs for connection to external repeaters.

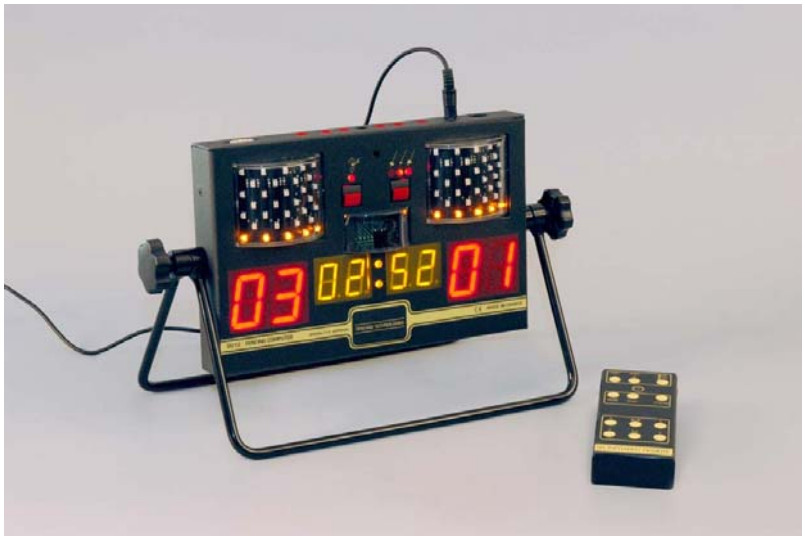
GENERAL PRESENTATION

Lights:

The lights are implemented through a novel use of a rounded flexible LED matrix. This affords maximum visibility especially when looking at the machine from the sides of the strip.

The LEDs are bicolor LEDs. They can signal a either a valid hit or a non valid hit.

The lights used in the saber to indicate equipment malfunction are located on the last line of the LED matrix.



The lights used to indicate a short between the fencer's vest and his weapon in the foil and saber (antifraud lights) are located on the top line of the matrix.

Connectors:

Connectors are located on top of the machine and are duplicated at the bottom. This allows for use of the machine in all possible configurations whether on a table or on the wall.

Top Connectors (looking from the back of the machine from left to right):

- DIN plug for connection to external lamp repeaters.
- Power plug.
- Fencing connectors.
- Male DB9 charging plug: used for charging the SG31 remote control (for more information, consult the section devoted to the remote control).

Bottom Connectors (facing the machine and from left to right):

- Female DB9 RS422 connectors for general purpose computer communications to peripherals or wire remote control.
- Fencing connectors.
- DIN plug for connection to external lamp repeaters.

THE REMOTE CONTROL

THE SG12 REMOTE CONTROL

The infrared remote control delivered with the SG12 is a simple infrared remote control. It is powered up by **3 AAA type batteries**.

Each remote control has unique address. The SG12 must know the address of the remote control in order for the remote to be active.

HOW TO SET THE REMOTE CONTROL ADDRESS

Press the two front panel switches simultaneously (the weapon selection button and the sound button) and leave these 2 buttons pressed. The score is turned off and the stopwatch either displays nothing or the address of the remote control currently active with the machine.

In order to set the remote control address, press any button on the remote while the two front panel buttons are pressed. The new remote control address will then be displayed. Release the two front panel switches. The remote is now fit to operate with the SG12.

Remote control buttons

General purpose buttons:

- **Weapon selection button:**

Used to change weapons: epee->foil->sabre.

Stopwatch buttons:

- **Stop/go:**

Activating this button will start or halt the stopwatch depending on the current state of the stopwatch.

- **Reset:**

Activating this button will reset the stopwatch to its initial count-down value.

- **Pause:**

Activating this button will cause the stopwatch to reset to 1 minute and count down from there. During the one minute pause (typically used between rounds), the weapon may be tested without halting the stopwatch.

- **Reset ∧:**

Resets the stopwatch and increments the reset value by one minute.

- **Reset ∨:**

This button does the same thing as the previous button but in the opposite direction.

<u>Score buttons:</u>

- **Left score∧ :**

This button increments the left score by one unit.

- **Left score∨ :**

This button will do the same thing as the previous one but in the opposite direction.

- **Right score∧ and Right score∨ :**

These buttons are akin to the previous one but for the right side this time.

- ↔:

This is the score swap button. This is typically used if fencers decide to change sides and is most often used in the team event where the two teams may have to change sides depending on whether the fencers are right or left handed.

- **0:0:**

This button is used to reset the score.

Changing batteries

Gently open the box by sliding the top side with respect to the bottom side. The batteries used are 3 ordinary AA 1.5V batteries.

THE SG31 REMOTE

The SG31 remote will also work with the SG12. This remote has many functions that are not all active with the SG12.

The SG31 comes with a sophisticated **rechargeable mixed remote control with infrared and cable capabilities**. There are instances, as in top tournaments, where infrared transmission is not enough and the use of a secure cable connection indispensable.

Charging the remote:

For wireless communications, the remote needs to be charged. There are 2 ways of charging the remote. You may use the slot devoted to this purpose or connect the remote to the machine through a special charging communications cable**. When turned on, the CHARGE LED will indicate that the remote is fully charged**. Complete charge time takes about 2 to 3 hours. In order to get optimal performance, we recommend that the remote be fully charged before use.

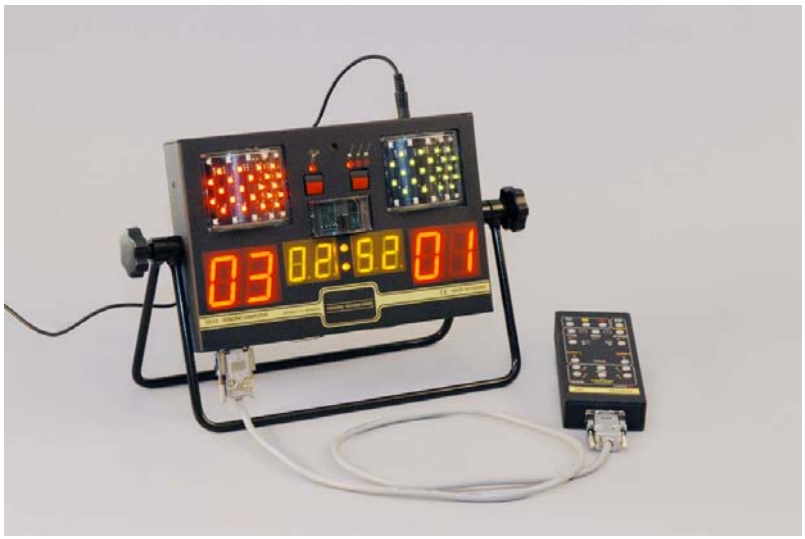
Infrared communications:

Each remote control is endowed with a unique address. Whenever the remote is connected to the SG12 either through the charge slot or through the communications cable, it will exchange its address with the central machine.

Whenever the remote is disconnected or reconnected to the machine, it automatically switches from infrared communications to cable communications and vice versa.

Cable communications:

This is done through the use of a special cable, provided by Fencing Technologies, and connected to the bottom DB9 connector of the machine.



General principles:

Each button on the remote control may have up to three different functions.

The main function is indicated by a white text or drawing, the second function is in yellow while the third (if there is one) is in red.

At the top of the remote are 3 MODE buttons: a green rectangle, a yellow rectangle and a red rectangle. In order to activate the yellow function of a button, the yellow mode button must be pressed simultaneously. In order to activate the red function of a button, the red mode button must be pressed simultaneously.

SG31 remote control buttons that are active with the SG12

General purpose buttons:

Priority button:
When activated, the lights on the SG31 are toggled for about 5 seconds before selecting a side.
Weapon selection button:
Used to change weapons: epee->foil->sabre.

Stopwatch and round buttons:

Stop/go:

- Activating this button will start or halt the stopwatch depending on the current state of the stopwatch. This is the only button that can never be locked.
- The yellow function of this button selects the sabre as the current weapon.

Reset:

- Activating this button will reset the stopwatch to its initial value.
- The yellow function of this button selects the foil as the current weapon.

Pause:

- Activating this button will cause the stopwatch to reset to 1 minute and count down from there. During the one minute pause (typically used between rounds), the weapon may be tested without affecting score even if the automatic score option has been selected.
- The yellow function of this button selects the epee as the current weapon.
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Round increment:

- Activating this button will do nothing as the SG12 does not display round.
- The yellow function of this button: CLOCK∧ is used to halt the stopwatch and increment its value by one second. This function is used to set the stopwatch at a precise intermediate value. This could typically be used in a time sensitive event like Modern Pentathlon if the stopwatch has been running unduly for example.
- The red function RESET∧ is used to reset the stopwatch and increment the reset value by one minute.

Round decrement:
This button does the same thing as the previous button but in the opposite direction.

Score buttons:

Left score∧ :
This button increments the left score by one unit.
None of the card functions on the remote are active as the cards are not displayed on the SG12.

Left score∨ :
This button will do the same thing as the previous one but in the opposite direction.

Right score∧ and Right score∨ :
These buttons are akin to the previous one but for the right side this time.

↔:
This is the score swap button. This is typically used if fencers decide to change sides or used in the team event where the two teams may have to change sides depending on whether the fencers are right or left handed.

0:0:
This button is used to reset the score.

COMMUNICATIONS

The SG12 is an “open” machine designed to communicate with other machines and peripherals.

RS422 connector:

The bottom RS422 connector can be used to send or receive computer data. The SG12 sends data through the RS422 connector continually. This data reflects the current state of the machine (stopwatch, score and lights).

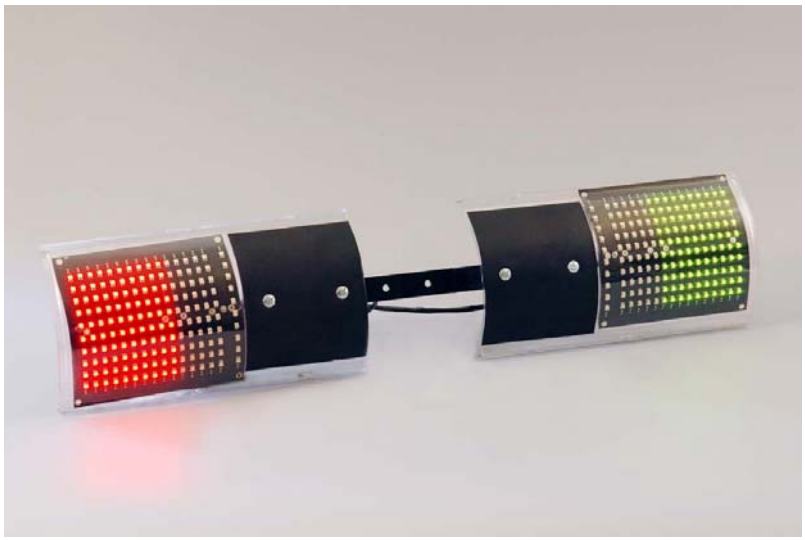
Fencing Technologies can provide **special MASTER-SLAVE cables**. These cables can connect the machine from one bottom connector to another bottom connector or one bottom connector to a top connector. **These cables are designed to transmit data only in one direction**. When an SG12 receives data from another SG12 it slips automatically into slave mode. The SG12 becomes a dumb machine that no longer operates as a fencing machine. The remote is no longer operational on a slave machine and the front panel switches are disabled. A slave SG12 only does one thing: read computer data coming from the master SG12 in order to display this information. When the SG12 no longer receives data (the cable has been unplugged for example) it automatically reverts to master mode.

The SG12 can also be daisy chained which means that a machine in slave mode will echo received data. Thus with the appropriate cables, provided by Fencing Technologies, one master machine can control several slaves in succession.

PERIPHERALS

External Lamp Repeaters:

Fencing Technologies provides several models of LED repeaters. They are distinguished according to the number of LEDS or their density. For more information, consult us.



GUARANTEE

The SG12 is guaranteed, parts and labour, for one year, from date of purchase, attested by invoice. **Transport costs are always charged to the customer even if the machine is under warranty**.

"Long term" guarantee

At the expiration of the guarantee period, the user may subscribe, if he so wishes, to an annual maintenance contract for a period of two years and for a modest price.

After sales service: change in F.I.E. norms

This scoring apparatus may be reprogrammed by the manufacturer to meet any modifications in F.I.E. rules. The machine comes with a 2 year reprogramming guarantee.

N.B. The guarantee does not cover the following incidents due to faulty use of the machine:

- repair work performed by anyone non-accredited by the manufacturer
- dropping and breaking of case
- malfunction caused by plugging the apparatus into a power supply other than the one provided by the manufacturer
- plugging the apparatus into a defective electric network.
- guarantee doesn't cover the power supply that we do not manufacture. If this power supply should becomes faulty, purchase a new power supply will become mandatory.

In all cases, please call us first before shipping machine back to:

Precautions in use

The machine must be used exclusively with the power supply delivered by the manufacturer.

THE POWER SUPPLY IS THE ONLY ITEM NOT UNDER WARRANTY.

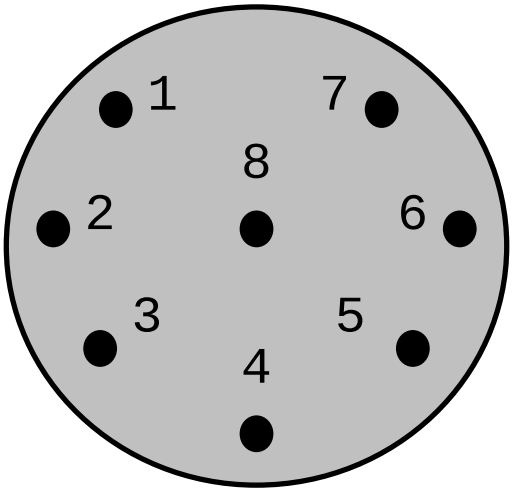
Annex 1

D.I.N. CONNECTOR TO EXTERNAL LAMPS

Although the D.I.N. pins are **protected against short circuits**, it is not advised to prolong connections with faulty cables or with inappropriate external lamps as this may damage the machine.

We can supply proper cables, external lamps or adaptors for connection to the equipment of other manufacturers.

Back view of the D.I.N. plug



1. **Yellow lamp on red side (left)**
2. **White lamp on red side (left)**
3. **Red lamp (left)**
4. **12V**
5. **Green (right)**
6. **White lamp on green side (right)**
7. **Yellow lamp on green side (right)**
8. **Sound**