

## PHYSICAL CHARACTERISTICS

- ❑ dimensions (L)x(W)x(H): 295 x 200 x 100mm = 11.6 x 7.8 x 3.9 "
- ❑ weight: approx. 2.7 kg (without battery).
- ❑ casing designed for anti-foam protection

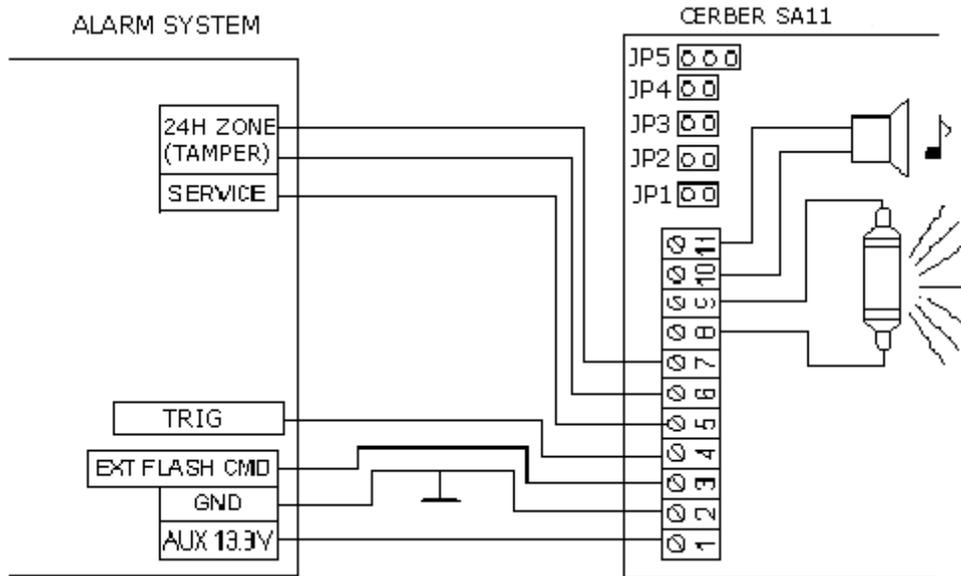


Figure 2- Self-powered outdoor siren connections to the alarm system

### IMPORTANT:

In order to modify siren hardware (changing connections, performing service, modifying jumper settings, etc.), it is mandatory for the SERV input to be connected to ground.

## SA-11. An innovative security product of Romano Electro Int'l SA



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## SA-11 Self-powered Outdoor siren with flash light

## USER'S MANUAL

### DESCRIPTION

SA-11 is a self-powered optical-acoustic warning unit for outdoors, comprising an electronic siren and flashing light with a rechargeable battery backup. The embedded system is built around a RISC microcontroller that controls all its functions, performs self-tests and permanently checks connections with the alarm system. The siren is triggered either by an external trigger with selectable polarity or by interruption of the supply voltage. It features an independent external flash control input and a service input to disable functioning during installation, service, etc. The microcontroller also monitors the backup battery charging.

SA-11 is protected by double casing: weather resistant plastic on the outside and a metal cover on the inside. A built-in tamper switch enables the system to recognize removing the cover off the unit or removing the siren off the wall. SA11 is equipped with a magneto-dynamic horn siren.

### SPECIFICATIONS

Supply voltage:	13.8 – 15 VDC (from the alarm system)
Current consumption:	standby: 15 mA – 350 mA (depending on the battery status) flash: 1.5 A (from the battery only) siren: 1.8 A (from the battery only)
Backup battery:	12 V, 4 Ah or 7 Ah (not included)

### CONNECTORS AND WIRING (see also Figure 2)

There are 11 connectors on the printed circuit board, numbered as in Figure 1:

- 1 SUPPLY VOLTAGE – 13.8 – 15 V DC (from the alarm system)
- 2 GROUND – electrical ground
- 3 FLASH – external flash control signal, input active by grounding
- 4 TRIGGER – input for the external trigger
- 5 SERVICE – active low service input used to disable functioning during installation
- 6,7 TAMPER – tamper switch input; connect these to the 24h zone input of the alarm system
- 8,9 LAMP-, LAMP+ – connect these internally to the flash
- 10,11 HORN – connect these internally to the horn siren

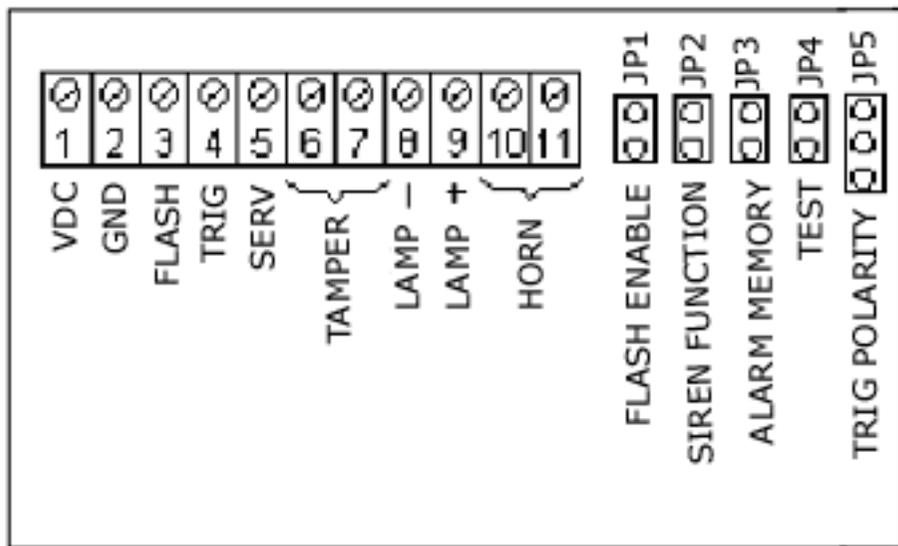


Figure 1 Connectors and jumpers on the printed circuit board

## OPTIONAL FUNCTIONS (JUMPER SETTINGS)

There are 5 jumpers on the printed circuit board, numbered as in *Figure 1*, to select optional siren functions as follows:

### JP1 – FLASH ENABLE

Leaving JP1 installed allows external flash control through the EXT FLASH CMD input. In this case the lamp will produce flashes during the active level of this signal. Removing JP1 results in internal control of the flash only, while the EXT FLASH CMD input can be used for resetting the alarm memory.

### JP2 – SIREN FUNCTION

Leaving JP2 installed allows simplified 2 wire connection of the siren (SUPPLY VOLTAGE and GROUND). This way, the siren is triggered by a drop in the supply voltage and remains in the alarm mode until the supply voltage is restored (or until a *discharged battery* threshold is reached to protect the charging circuit). If JP2 is removed, the system works on full connection. In this case:

- if the alarm is triggered by a drop in the supply voltage, the siren enters the alarm mode for 5 minutes. If the supply voltage has not been restored after the 5 minutes passed, the siren will only follow the TRIG input. A new 5-minute alarm will be generated only in case of supply voltage restoration and its subsequent loss;
- if an external loop unbalancing occurs, the siren remains in the alarm mode as long as the loop stays unbalanced (or until a *discharged battery* threshold is reached, to protect the charging circuit). If during this period a drop in the supply voltage also occurs, the siren re-enters the stand-by mode after 5 minutes, even in the condition in which the supply voltage was not restored.

### JP3 – ALARM MEMORY

Leaving JP3 installed activates the alarm memory function. In this situation, any event that has generated an alarm longer than 50 sec. is signaled by two successive, short flashes occurring approximately every 17 sec., until reset. Resetting the alarm memory can be performed either by an alarm shorter than 50 sec., or by an active edge on the EXT FLASH CMD input. Removing jumper JP3 disables the alarm memory option.

### JP4 – TEST

The existence of this jumper determines the flash periodical signal of the system status. Its absence will not disable the auto-testing but inhibits the flash signal.

### JP5 – TRIG POLARITY

This 2-position jumper selects the active polarity of the external trigger signal accordingly:



## SYSTEM FUNCTIONING

Upon powering as well as when exiting the SERVICE mode, the system will test and memorize the status of configuration jumpers.

If any of the following conditions are not satisfied when powering, the system will periodically signal by low intensity acoustical signals about every 17 seconds:

- the battery is properly installed
- positive voltage of 13.8 – 14.6 V DC is present on the SUPPLY VOLTAGE input
- the TRIG input is not enabled.

When all the above conditions have been satisfied, 4 low frequency acoustic signals followed by a flash will signal entering the normal functioning mode.

The above tests are periodically repeated, every 17 or 35 seconds, according to the alarm memory. The result of this test determines the flash signaling mode of the siren status, which is:

- a flash about every 35 seconds in case of system normal functioning and there is no alarm memory
- 2 flashes every 17 seconds in case one of the above conditions is not satisfied and there is alarm memory
- 3 flashes every 17 seconds if the system is normally functioning and there is alarm memory.

If one of the conditions is not satisfied and there is no alarm memory either, the flash signal will be absent. The same will happen if jumper JP4 is not connected and there is no alarm memory irrespective of the system status.

In case jumper JP3 is not connected, the alarm memory will not be signaled either.

While functioning, alarm included, the system is monitoring the battery existence. If it is disconnected, the system will signal an abnormal status (low-intensity acoustical signals every 17 seconds), awaiting all conditions to be satisfied, like in the case of powering the system.

The charging status of the battery is also permanently monitored, the system keeping it between 13.8 and 12.5V. If the system detects battery discharged under a minimum limit (going beyond that limit destroys the battery) during an alarm or while flash lighting up upon external command, the great power consumers (horn, flash). For 18 minutes the system will only charge the battery.

Note: these 18 minutes are real charging time, so they are counted only if there is external power supply. All this time the flash signal of the alarm status and memory is inhibited.

The system is provided with a quick 3.15A fuse to protect against battery reverse connection.

**In case the system will not enter the normal functioning mode after the supply voltage and the battery was connected, check the fuse status.**

Warning: In case of burnt fuse, it will be replaced only with a similar 3.15A one with quick action.