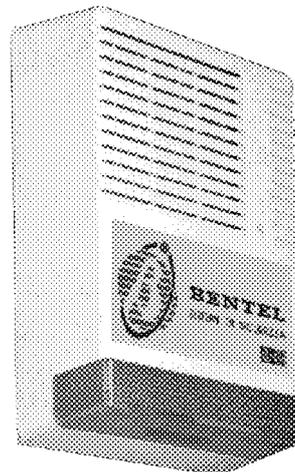


**SELF POWERED SIREN**  
 for external use

# ECHO/24

V4.2 BUF24 0.1 150198



## GENERAL NOTES

- Self powered siren with flash indicator.
- Heavy duty polycarbonate case designed to withstand the most adverse weather conditions.
- Extra protection given by tropicalized metal inner cover.
- Continuous tone with frequency modulation sound emission.
- Exponential horn with high acoustic output.
- Self protection against wire cutting and tamper.
- Alarm timeout adjustment.
- Test circuit for flash indicator inhibition on battery low.
- Easy installation.
- Drills pattern.

## FUNCTIONS

The ECHO siren on alarm condition emits a continuous high intensity sound. It is frequency modulated and the modulation levels (1300 and 2000 Hz) are not random choices, the high notes are particularly bothersome to the hearing, and the low notes manage to cover a vast sound range.

The flash indicator gives a visual signal to locate the alarm zone quickly. If an alarm state continues for over 7 minute (the maximum alarm timeout), the acoustic signal is automatically inhibited whilst the visual alarm signal remains active. Removal or breakage of the bulb in the flashing indicator automatically conveys alarm state to the siren internal circuit. The flashing indicator is inhibited if the battery is not fully charged, in this case the remaining

TECHNICAL FEATURES	
<i>Power supply rated voltage (terminal +N)</i>	27.6 V $\overline{---}$ $\pm 0.4 V$
<i>Current on + N</i>	max. 0.6 A
<i>Appliance rated voltage</i>	24 V $\overline{---}$
<i>Alarm current</i>	1.4 A (max. 2.8 A)
<i>Battery required</i>	6.5 Ah (65x149x93 mm)
<i>Fundamental frequency</i>	1475 Hz
<i>Sound pressure at 3 m</i>	103 dB(A)
<i>Case protection level</i>	IP34
<i>Temperature range</i>	-25 ÷ +55 °C
<i>Size (L x H x W)</i>	180 x 270 x 90 mm
<i>Weight (with battery)</i>	5 Kg

power is utilized to sound the siren.

The siren starts when its power voltage fails on the +N terminal or when -A terminal is shorted to ground. The alarm ceases the moment that the previous conditions are restored (voltage on +N and -A terminal disconnected). The siren is also protected against tampering by two microswitches (fig. 4):

- the first (MS1) is integral with the card and acts when the metal inner cover is removed;
- the second (MS2) is fixed on the wall with the siren, its lever is held in position by the screw utilized in closing the polycarbonate cover. Therefore the tamper circuit is activated whether the siren is taken off the wall or the front cover is tried to open.

These two microswitches send tamper signaling to the siren internal circuit, or to the control panel by the S and S2 terminals.

## CONNECTIONS

The control panel alarm command, may be assigned to the +N terminal or -A, -L terminals. The utilization of the +N terminal is advised, as it is equipped with a wire cutting protection. BENTEL control panels are equipped with a terminal marked +N, which is directly compatible with the +N terminal of the siren. In fact on the +N terminal of BENTEL control panels, when in the alarm free state a 27.6 V voltage is present, which falls when the control panel induces an alarm state. If your control panel is not equipped with such a terminal, it is possible to utilize the free contacts of the alarm relay in simulation, as illustrated in figure 1A. If as alarm command, the utilization of the -A and -L terminals is preferred, this must be connected to the terminal on the control panel which closes to earth in the case of alarm, as illustrated in figure 1B.

In each case, between the +N terminal board and the siren earth a 27.6 V voltage (min. 0.6 A) is required, this serves to keep the internal battery charged. Other connections implemented on the terminal board, depend upon the siren antitamper requirements for the functional method selected.

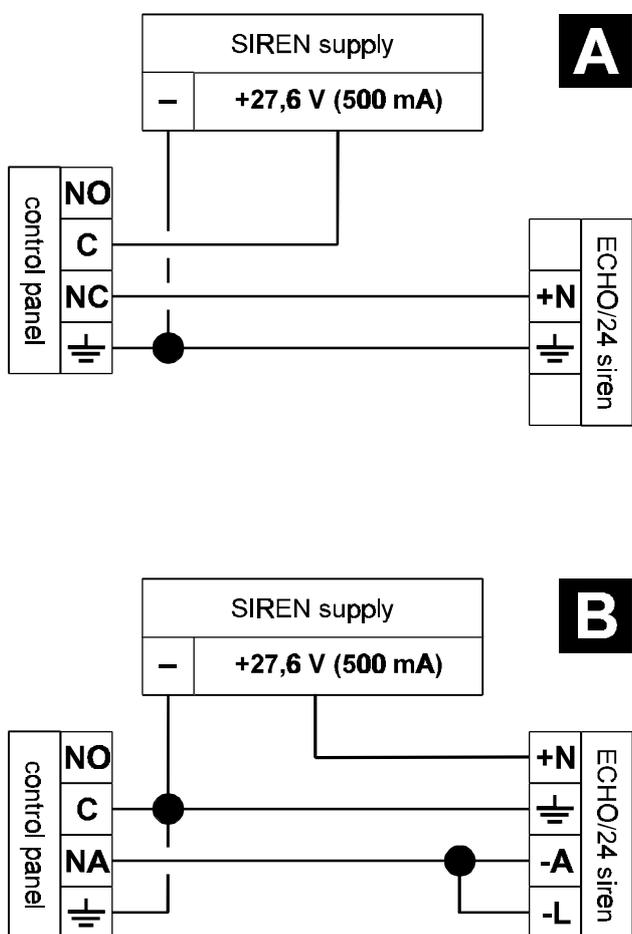


Fig. 1 - Activation modes.

## AUTOMATIC METHOD (FIG. 3A)

This is the functional method set by the manufacturer (connected J1, J3 jumpers). The microswitches are connected to the siren logic and independently of the +N and -A state, induce an alarm in the case of tamper. The alarm ceases 40 seconds after the closure of both microswitches or, at the most, after 7 minutes (maximum alarm time). With this functional method there is no acknowledgement of tamper state by the control panel, therefore there is no signalling on the terminal and no activation of other connected alarm devices (such as the telephone dialler, supplementary siren, etc.).

## NORMAL METHOD 1 (FIG. 3B)

If control panel acknowledgement of tamper state is required removal of the J3 jumper is necessary as well as the closure of the control panel antitamper line on the siren S terminal. In fact this is closed to ground, when in the alarm free state, whilst is disconnected when one of the microswitches is opened (fig. 2A). In this case the alarm timeout is at the most 7 minutes (max. alarm time), or less (timeout set on the control panel).

## NORMAL METHOD 2 (FIG. 3C)

If control panel acknowledgement of tamper state is required but the control panel antitamper line closes on a device that is not the siren (e.g. our electronic key), it is necessary to deactivate both jumpers J1 and J3, present on the card. In this way the antitamper microswitches are no longer connected to the siren ground (fig. 2B), therefore connect terminal S and S2 to the control panel antitamper line. The alarm timeout is that set on the control panel and 7 minutes is the absolute maximum.

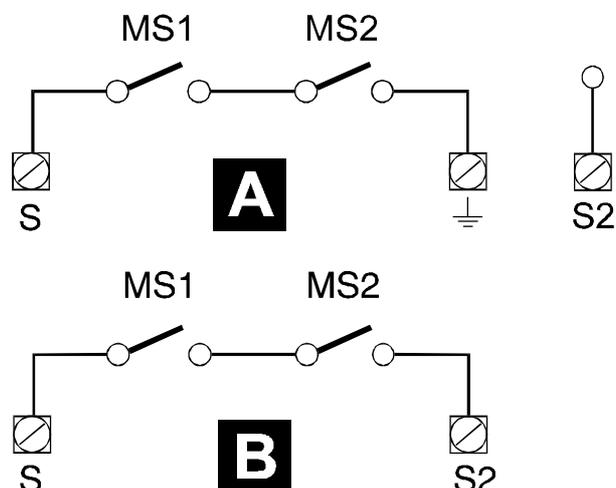


Fig. 2 - Antitamper microswitches diagrams.

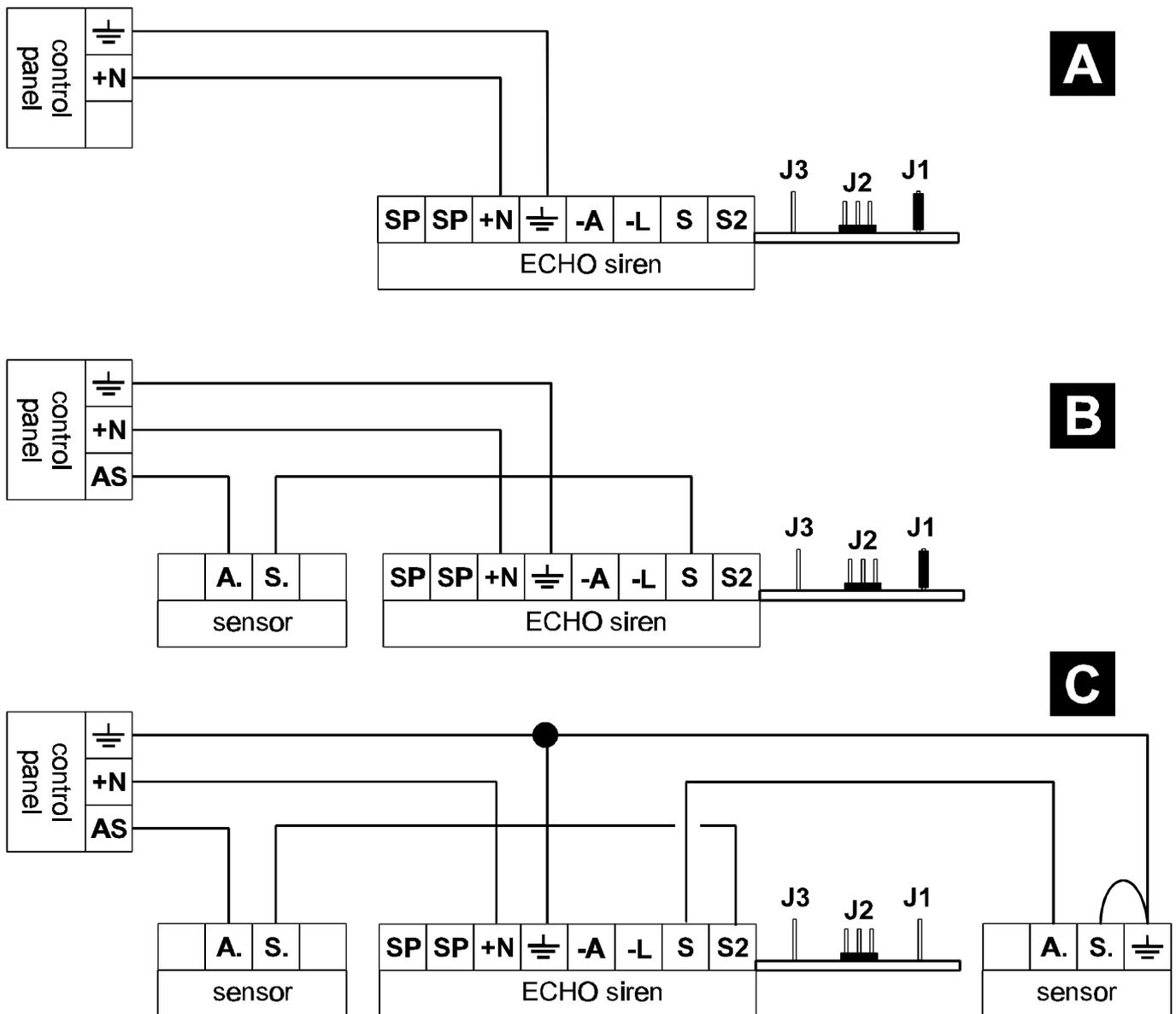


Fig. 3 - Antitamper terminals connection according to the chosen mode of functioning.

TERMINAL BOARD DESCRIPTION	
<b>AP</b>	Exponential horn terminals are connected to these terminal board.
$\perp$	Power negative terminal and internal circuit ground.
<b>+N</b>	Power positive terminal. 13.8 V voltage is applied to this terminal which keeps the siren battery undercharge. If for any reason (wire cutting or alarm) this voltage fails the siren is automatically activated.
<b>-A</b>	This terminal may be utilized as an alternative to the +N terminal for alarm activation: the siren is activated if the -A is groundend.
<b>-L</b>	This terminal may be utilized as an alternative to the +N terminal for alarm activation: the flash is activated if the -L is groundend.
<b>S - S2</b>	In the normal functional method the antitamper microswitches MS1 and MS2, are placed in series between these terminal board (see fig. 2B). For the automatic functional method the S2 terminal remains disconnected whilst on the S terminal is groundend until one of the two antitamper microswitches opens (see fig. 2A).

## INSTALLATION

It is necessary to fit the ECHO siren to an even wall or a wall free from hollows or excessive protrusions, so as not to compromise the anti-tamper mechanism.

To facilitate system installation, a fitting pattern is included in the package as are also the adequate wall hooks for the correct positioning of the appliance, there are five holes on the fitting pattern corresponding to the fitting points on the back of the siren. The siren is fitted to holes **F1**, **F2**, **F3** and **F4**, whilst to **F5** is fitted the **S** bracket (see fig. 4).

Pay attention, this last screw must not be tightened too much so as to avoid breaking the two tongues on **A** (see fig. 4).

Once the siren is fitted it is possible to implement **M** terminal board connection and then battery connection, once positioned on the appropriate bracket **MP** (fig. 4): the flashing indicator is enabled. Fit the siren innercover and cover and await flashing indicator disactivation (approx. 45 secs). At this point the siren is running and ready for testing.

## POSSIBLE MALFUNCTIONS

If the flashing indicator does not function when the battery is connected, it may indicate that the battery is discharged. To verify battery state close the cover, wait approximately 45 seconds and induce alarm. If the siren activates, even at low acoustic level but the flashing indicator does not function, the battery is discharged: it can then be recharged in several hours by the +N terminal.

If when the battery is connected, covers closed and the 45 seconds passed, the flashing indicator does not cease to function, control that both microswitches are totally closed and that the adequate voltage is present (27.6 V on +N, -A and -L disconnected) on the alarm terminal board.

*N.B. The technical specifications of the product are subject to change without notice*

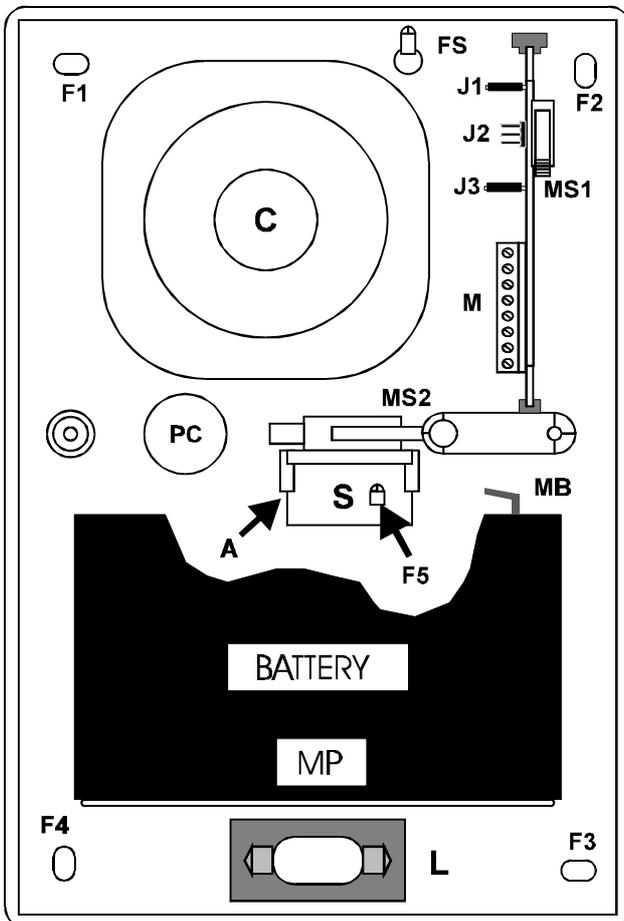


Fig. 4 - Identification of the parts.

### IDENTIFICATION OF THE PARTS

<b>F1-F2-F3-F4</b>	<i>Fixing holes.</i>
<b>F5</b>	<i>Supplementary hole.</i>
<b>FS</b>	<i>Braket fixing hole.</i>
<b>PC</b>	<i>Cable passage.</i>
<b>L</b>	<i>Flashing light.</i>
<b>MP</b>	<i>Battery support.</i>
<b>S</b>	<i>Microswitch braket.</i>
<b>A</b>	<i>Tongues.</i>
<b>C</b>	<i>Exponential horn.</i>
<b>MS1-MS2</b>	<i>Antitamper microswitches.</i>
<b>M</b>	<i>Terminal board.</i>
<b>CMS</b>	<i>MS2 connection.</i>
<b>J2-J3</b>	<i>Jumpers.</i>
<b>CL</b>	<i>Flashing light connection.</i>
<b>MB</b>	<i>Battery terminal board.</i>

**+ The technical specifications of the product are subject to change without notice.**