

ES 400 VIBRATION DETECTOR

Installation instructions

Application

The ES 400 is a selectively sensing piezoelectric sensor that detects and analyzes the vibrations generated by the attempts of an intruder to penetrate the protected area. The highly sophisticated signal processing evaluates the amplitude, frequency and duration of the vibrations generated. The unit can be mounted on any stable surface where an intrusion attempt might occur. However, the following must be taken in to account:

1. The design and construction of the protected surface and its material.
2. The detector location in relation to studs, joints, door/windows hinges etc.
3. Background disturbances that can influence the detector.

Coverage

The typical coverage in various materials is shown in the table below. The ranges are only presented as guidelines, practical tests must always be conducted.

Material	Steel/Wood/Glass	Brick/Plaster	Concrete
Range	r = 3 m	r = 2m	r = 1m

Mounting

1. Loosen the cover screws and remove it.
 2. Select a suitable mounting position.
 3. Use the bottom part as a template and mark the the fixing holes.
 4. Use a 2-2,5 mm drill for the self-tapping screws provided.
- Note!** A clean and even surface under the detector will give the best coverage.

Connection

The detector has 10 screw terminals with wire gaud as shown in figure 1. The figure also shows the position of the programming jumpers. A connection and programming diagram is also fitted inside the cover.

Programming jumpers

The four jumpers are used to programme the operational modes of the detector. The functions are shown in Figure 2. And also inside the cover.

1 and **2** control the number of pulses to activate the alarm relay.

3 controls the alarm relay according to the following:
 A) latched after activation, requiring a remote reset or
 B) automatic reset after 2 seconds.

4 controls the "Test" and the "Day/Night"-functions.

On delivery all 4 jumpers are closed resulting in the following:

- S 1, 2 - Reacts to a single impact (pulse).
 S 3 - The alarm relay is automatically reset after 2 seconds.
 S 4 - in test mode, with the LED indicating an alarm activation.

Remote control

See figures 3 and 4.

Figure 4A shows Day/Night control in the NIGHT position Day/Night control of alarm indication. One extra wire is needed.

1. Day/night control of the LED. Day = 0 V. Night = +12 V. When the system is unset, i.e. switched from Night to day, the LED lights up if the unit has been in alarm mode with the system set.
2. Remote reset occurs when changed from Day to Night mode.

NOTE! Jumper 4 must be open (removed).

Figure 4B. D/N in night position and "First to activate" wired. One extra wire is needed from the control panel and one between all detectors.

This hook-up supports three functions:

1. Alarm memory for first and subsequently activated detectors.
2. Controls the TEST function.
3. Remote reset control.

NOTE! Jumper 4 must be open (removed).

Figure 4C. D/N in night position and "First to activate" indication.

This hook-up supports four functions:

1. Alarm memory for first and subsequently activated detectors.
2. Controls the TEST function.
3. Day/Night control of alarm indication.
3. Remote reset control.

NOTE! Jumper 4 must be open (removed).

Adjustment and setting-up

Adjusting and setting is quite simple. Check that jumper 4 is closed. The LED will then indicate an activation and the alarm relay will reset two seconds after activation. If programmed for multiple pulses, each registered impact will be shown by a short flash, the alarm will result in a longer flash.

1. With jumper 4 closed turn the potentiometer clockwise to the max. position.
2. Tap lightly close to the detector and check that each tap is indicated and that the alarm relay is working properly after the set number of pulses.
3. Turn the potentiometer anti-clockwise to the min. position.
4. Use the test tool at the the most distant point to be protected and gradually increase the sensitivity until the LED indicates a received pulse.
5. Now make all connections permanent. Check that the activation and tamper alarm are received at the control panel.

Technical data:

Supply voltage (nom 12V DC)	8 - 15 V DC
- Max ripple	2 Vp-p (at 12 V)
- Curent consumption (quiesent)	7 mA
- Current consumption (alarm)	11 mA
Alarm output	Reed relay, NC, 33 ohm in series
- Max. load	25V / 100 mA
- Alarm duration	2 seconds
- Low voltage level protection	< 7 V
Alarm indication	LED
Tamper (opening) protection	Micro switch, max. 25V / 100 mA
Control votage	
- for TEST	LOW < 3V, HIGH > 6 V
- for Day/Night	LOW < 3V, HIGH > 6 V
Sensitivity adjustment	Potentiometer
Environmental conditions	
-Temperature (storage/functional)	-20° - +50° C
- Humidity	max.95%RH, DIN class F
- Housing	IP31 IEC
Interference protection - RFI	15V/m, 0,1 - 1 GHz
Dimensions (LxWxH)	91 x 31 x 23 mm
Weight	40 g.
Approval	VdS G 194 502

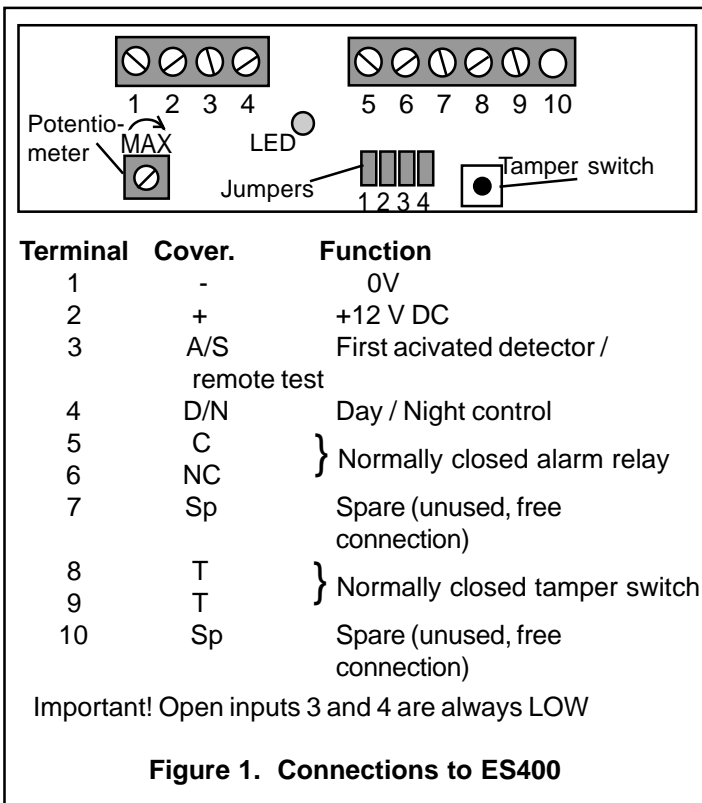


Figure 1. Connections to ES40

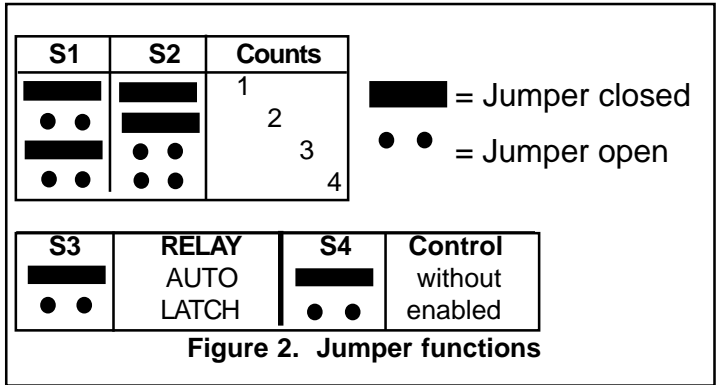


Figure 2. Jumper functions

Operating modes				
	Control		Memory Function test	LED
	Day/Night	Test		
a)	Night	Off	Memory empty	
b)	Day	Off	Alarm in memory alarm/first to activate following activations	
c)		On	Walk test (2 sec.)	
d)	D ↓ N	On or Off	The memory and relay are reset	

Extinguished Flashing Alight

Figure 3. Remote control functions

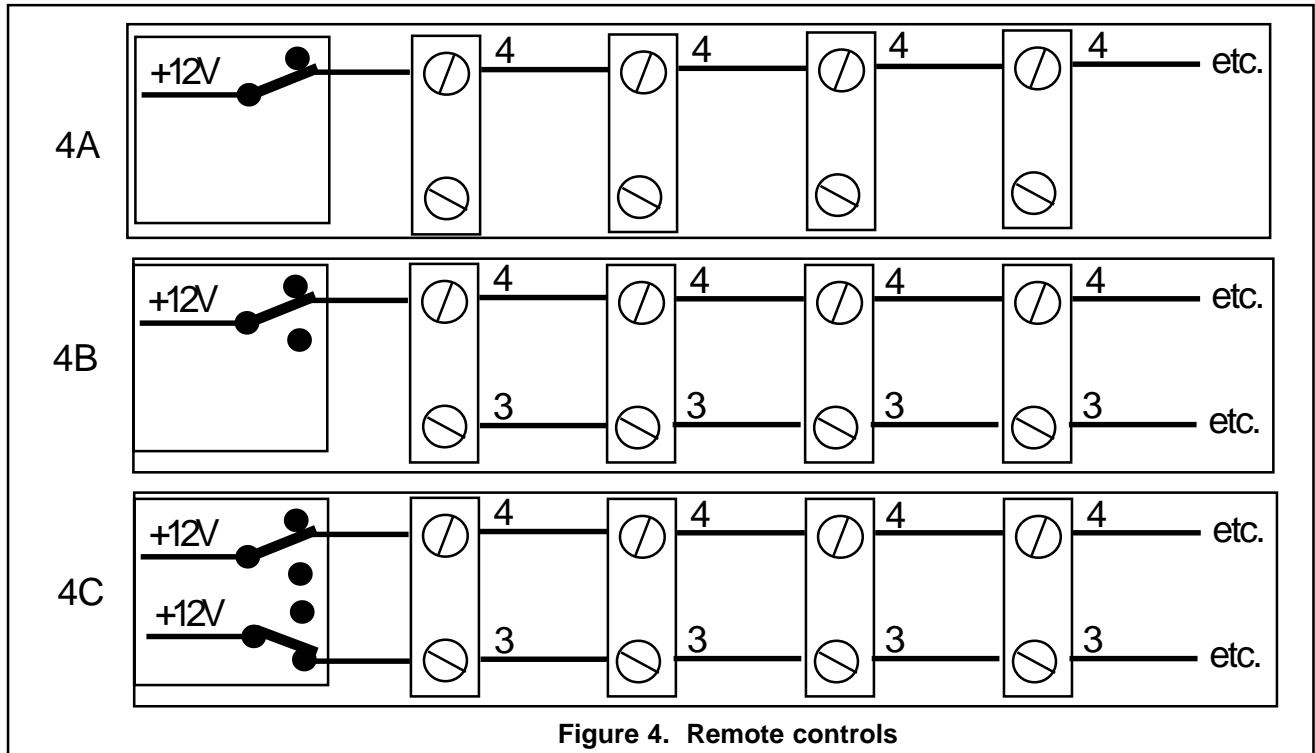


Figure 4. Remote controls

