ALARMTECH

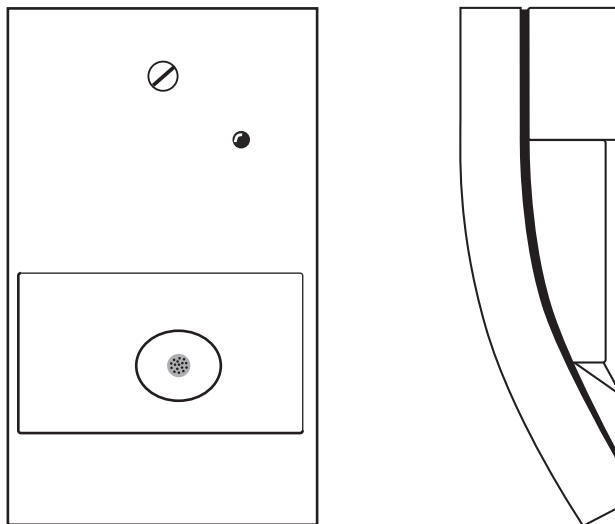# Acoustic Glass Break Detector AD 700

Installation Manual

Features

- Wide supply voltage from 9–15V DC 16 mA
- Day/Night control of LED with memory function
- First up alarm indication
- Remote control of TEST function
- Acoustical test in the field (DRC)
- Form A relay, normally closed
- Selectable range setting, up to 9 m by DIP switches
- Simple to program by DIP switches
- Anti-tamper protection
- Easy to install
- VdS approved

Description

AD 700 is a modern acoustic glass break detector giving an alarm when glass is crossed at intruder attempts through windows, doors and glazed walls.

The detector is based on latest micro controller computer technology and programmed to take a lot of relevant acoustic factors into account: the Digital Room Compensation (DRC). This makes the detector able to differ between a true glass cross and other irrelevant sounds.

The detector is for indoor use and can be mounted either in the ceiling or on a wall opposite to the window being monitored. The coverage area is 165° which means that several windows in a single room can be protected.

The panes should measure at least 30x30 cm and maximum 600x600 cm with a maximum glass thickness of 6,5 mm.

24-hour loop

The AD 700 can be used in a 24-hour loop and will function well in most environments. It is recommended to make tests for a period of 3–4 weeks. However, noisy areas must be avoided like industrial workshops, gyms and similar areas. Under very rare conditions, it may be possible for a combination of random sounds to trigger an alarm.

Select the best place for the detector

The detector must have a clear "line-of-sight" to the protected glass.

At ceiling mount make sure the microphone points towards the pane.

Mount the detector within 9 m from the glass but not closer than 1 m.

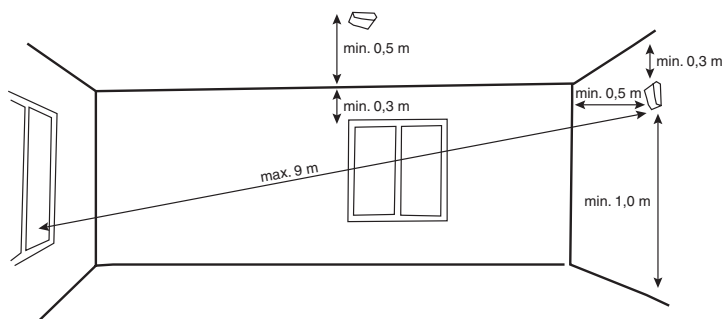At wall mount do not set the detector closer than 30 cm from the ceiling.

Mount the detector minimum 50 cm from the corner.

Avoid mounting the detector close to air vents.

Avoid placing the detector closer than 30 cm to edges, openings and large objects that can reflect the sound.
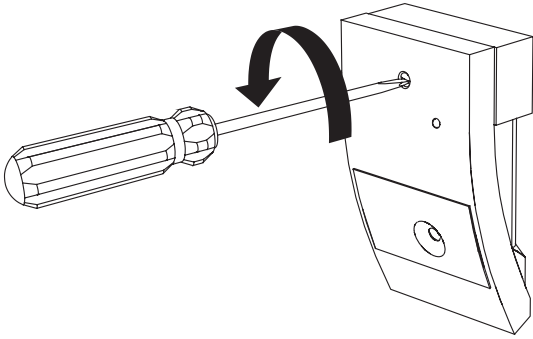
Range in metres
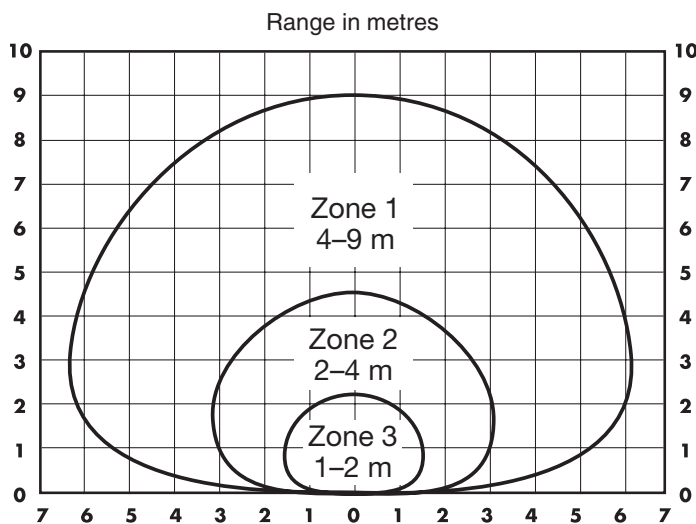
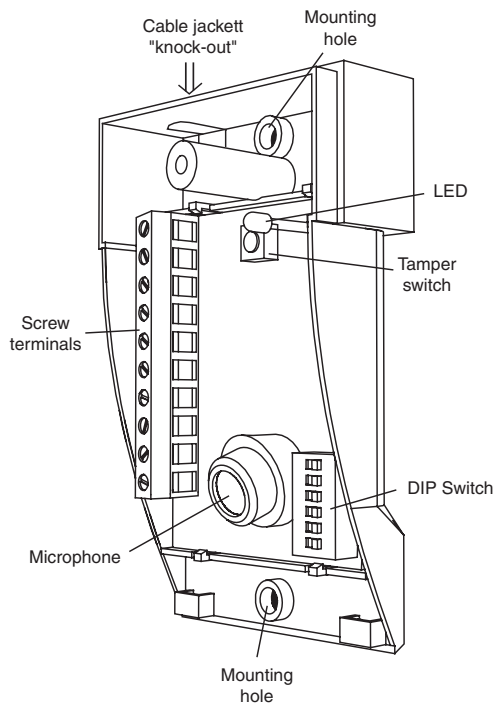Coverage area in the acoustic room Zone 1–3.

Location for wall or ceiling mount.

Installing the detector

1. Choose the best mounting position on the wall or ceiling.

2. Loose the cover screw and remove the cover.

3. Use the bottom part as a template and mark the place of the holes of with a pen.
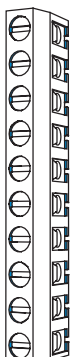

4. Use a 2,5 mm drill for the self-tapping screws provided. If necessary use wall anchors.

**5.** If necessary cut out the marked "knock out hole" on the back of the base with a pair of tongs.

6. Pull the wiring cable through the knock out hole in the bottom plate.

7. Connect the wires to the screw terminals.

10	Sp	Spare terminal connection
9	Sab	Tamper switch output
8	Sab	Tamper switch output
7	Sp	Spare terminal
6	NC	Relay output normally closed in quiescent state
5	C	Relay output connector
4	D/N	Day and Night control of LED
3	AIS	Alarm Information System
2	+	Plus 9 to 15 VDC
1	−	Ground

8. Use the cable strap provided to fix the wiring cable to the detector.
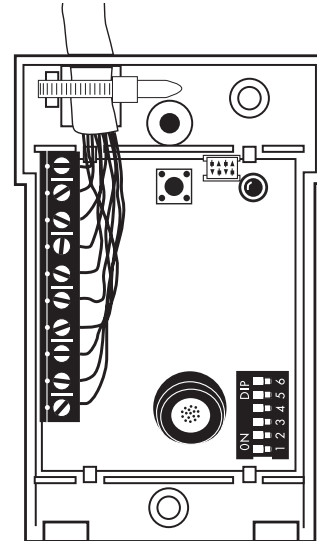
9. Fix the detector firmly to the base with the enclosed screws.
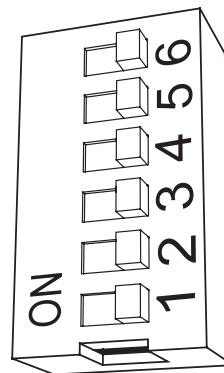
6	Audio test	ON		OFF
		1–2 m	2–4 m	4–9 m
5	Range setting	OFF	OFF	ON
4	Range setting	ON	OFF	OFF
3	D/N polarity	D=high		D=low
2	LED mode	AIS		Monitor
1	Relay mode	Latch		Auto

Understanding the DIP Switches

DIP1 Relay mode ON means the LED will Latch and be permanently on in alarm.Relay mode OFF means the LED will be Auto reset after 2 seconds in Alarm.

DIP2 LED mode ON means AIS (Alarm Information System) is on. This is used for first up alarm indication when the detector is connected in series. LED mode OFF means Monitor and the relay will follow the alarm relay.

DIP3 D/N polarity mode ON means D=High means current is high during day time.
D/N polarity mode OFF means D=Low means current is low during the day time.

		1–2 m	2–4 m	4–9 m
DIP4	Range setting	ON	OFF	OFF
DIP5	Range setting	OFF	OFF	ON

DIP6 Audio test mode ON means "handclap" test on. Audio test mode OFF means "handclap" test off.

10. Set the desired range, i.e. the detector sensitivity setting by using the DIP switch no 4 and 5.

4–9 m
Zone 1

2–4 m
Zone 2

1–2 m
Zone 3
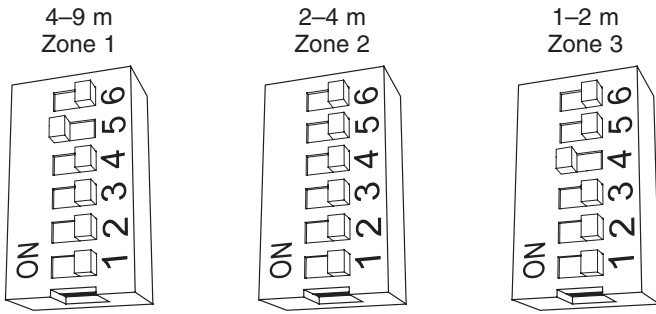
11. Put the cover on and make sure it hooks properly into the base of the detector. Fasten the cover screw properly.
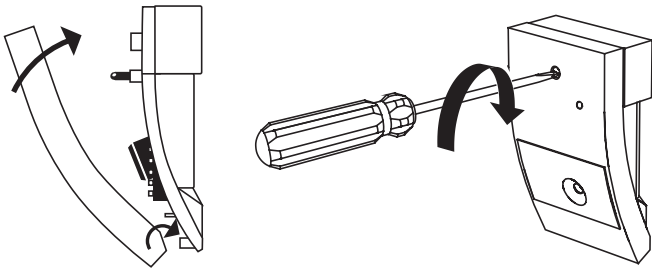
12. Apply power - LED will now indicate your range setting by blinking 1-3 times.

13. By a simple hand-clap test you can check that the microphone and electronic circuit works properly. Just Set DIP6 Audio test mode into ON state, clap your hands close to the detector and the LED will flash. *Note:* This is no indication of the sensitivity of the detector.

14. Use ADT 700 to test and calibrate the detector for optimal capability .
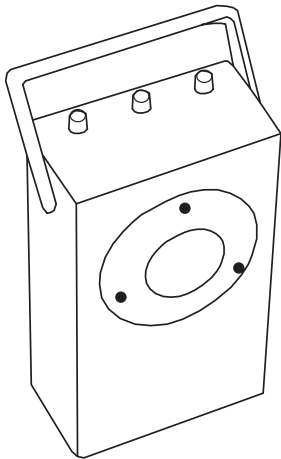
ADT 700 Tester and Calibration unit

Testing and calibrating

ADT 700 tester is a specially developed tool for calibrating and adjusting the detector AD 700 for optimal function in the acoustic room – the DRC Digital Room Compensation procedure.

When testing the detector settings you do not need to open it again as the tester will communicate with the detector acoustically.

Never test the AD 700 with open lid. Make sure the lid is fastened properly.

Caution: Do not use the ADT 700 tester in proximity to your ears as the tester produces loud noises.

Digital Room Compensation procedure

Prepare the acoustic detector for DRC by following steps:

The DIP switches inside the detector should be set as follows before testing.

1. DIP2 LED shall be in Monitor mode (OFF state).

2. DIP3 D/N shall be in D=Low mode (OFF state) or if AIS is applied (TEST ENABLE).

3. Press the START button of the ADT 700 tester to put the power on. Green LED will light.

4. Hold the tester 0,7 to max 1,5 m from the detector and aim the speaker at it.
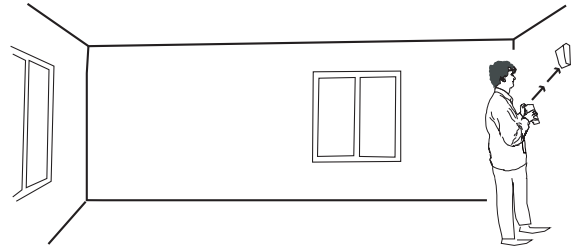
5. Press the START button once more to initiate the DRC mode. The LED on the detector will start to flicker.

6. Go to the furthest distance (9 m) of the glass to be protected and aim the speaker at the detector.
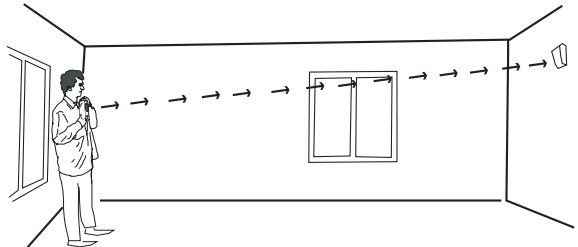

7. Press the DRC button to send a DRC signal out. Make this 2–10 times from different angles of the protection area for optimal capability.

The LED will flash confirming it has received the signal. The LED will then start to blink and flicker.

The DRC range calculated by the detector will be displayed as a number of pulses from 1 to 3.

In case of too weak or too strong signals outside the compensation range (means that the detector is placed too close or too far from the object to be protected), the detector will then not show DRC range.

8. Press the STOP button from a distance of 0,7 to max 1,5 m from the detector to terminate the DRC procedure.
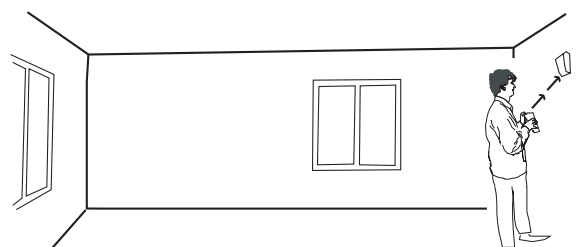
If DRC range measured by the detector is different from actual DIPswitch settings; then the LED will continue to blink from 1–3 times showing the correct range number to be set in the detector.

The LED blinks 1 time: set to Zone 1 (4-9 m).

The LED blinks 2 times: set to Zone 2 (2-4 m).

The LED blinks 3 times: set to Zone 3 (1-2 m).

Protecting several windows by one detector

AD 700 can protect several windows in one room if the windows are within the coverage area.

Make independent DRC test for each window to be protected.

Follow the procedure above for each window.

The detector shall be **set to the lowest Zone number** that is the longest range from the detector.

Timeout

Both the AD 700 detector and ADT 700 tester are equipped with a timeout feature.

The AD 700 will stop the DRC mode and the ADT 700 will switch off power if no activity has happened within 4 minutes.

Understanding the LED
when the detector is in operation

LED	Status of the detector
Permanently on	In Alarm; if Relay mode is in Latch
Flashes 1-3 times when powered ON	Indication of range setting
Flashes when clapping your hands	Audio test on
Flashes slowly for 2 sec	Low supply voltage

Understanding the LED
when testing the detector

LED	Status of the detector
Flickers	In test mode
Flickers and blinks	In calibration mode
Flashes 1,5 sec	Confirms received signal
Blinks slowly 1 time each 2,5 sec after calibration	Set range setting to Zone 1 (4-9 m)
Blinks slowly 2 times each 2,5 sec after calibration	Set range settings to Zone 2 (2-4 m)
Blinks slowly 3 times each 2,5 sec after calibration	Set range settings to Zone 3 (1-2 m)

Troubleshooting

Detector does not respond
- Check the supply voltage and polarity

LED permanently on
- Switch off the detector for a short period
- Check if LED is in latching mode and if low supply voltage

No alarm
- Check the alarm wiring
- Check the alarm loop wiring

Using the AIS System on terminal 3 and 4

The Alarm Information System, AIS enables you to remote-control the alarm indication of the detectors. You can also remotely reset the detectors and remote-control the testing function and see which of the detectors that was first giving alarm.

A. Remote control of Day/Night function
- Set DIP2=ON (AIS mode)
- The polarity of Day is set by DIP3

In Day the LED indicates the Alarm and all the different functions when testing the detector. In Night there is no indication at all on the LED. In Night the alarm will be stored in a memory and shown when switching to Day.

By connecting several detectors to terminal 4 the LED can be remotely controlled from the control unit. All detectors are reset when the signal goes from Day to Night.

The connection shall be as shown below.
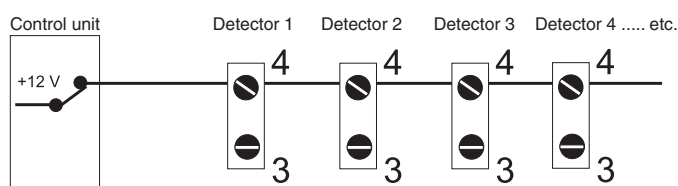
B. First up alarm indication
- Set DIP2=ON (AIS mode)
- The polarity of Day is set by DIP3

To know which detector first was giving alarm you have to connect all terminals 3 as in figure below.
- LED will flash on the detector that first was alarming.
- LED will lit firmly on the other detectors which have given an alarm.

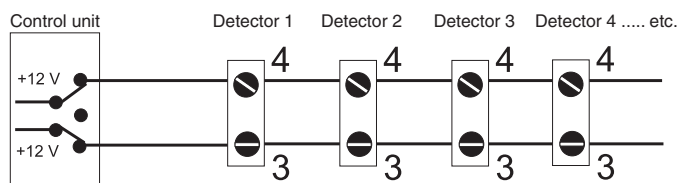Besides you also have the Day/Night control of the LED and Reset function.
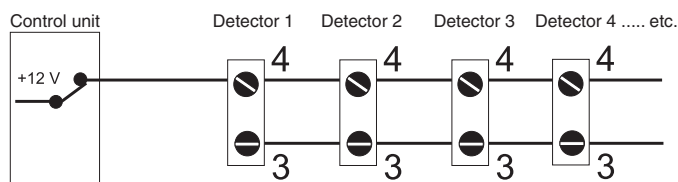
When switching from Night to Day the LED on the detectors will indicate. When switching from Day to Night all detectors are reset.

A+B Complete function
- Set DIP2=ON (AIS mode)
- The polarity of Day is set by DIP3

With this configuration you can remote-control from the control unit all the functions mentioned above and also the testing function.
- Alarm-memory for the first alarm-giving detector when switching from Night to Day.
- Remote controlled test function by 9-12 V on input 3.
- Remote controlled reset by switching from Day to Night.
- Remote-control of LED indication. LED will only indicate when switching from Night to Day and when the test function is selected.

Technical data AD 700

Supply voltage	9-15V DC
- Voltage monitoring	Alarm at <7 V+/- 0,5V
Current consumption at 12V	
- Quiescent	16 mA
- Alarm state	14 mA
Alarm relay Normally Closed	500 mA/max 100V DC/R<40 ohm
Tamper contact rating	50 mA/max 50V DC
Coverage	
- Max range	9 m radius/165°
- Range setting	Zone 3 = 1-2 m
	Zone 2 = 2-4 m
	Zone 1 = 4-9 m
- Size of glass to be protected	min 30x30 cm, max 6x6 m
- Max thickness of glass	6,5 mm
- Approved glass	Standard window glass (float glass)

Volume of protected room	min 20 m^3, max 250 m^3
Operating temperature	-10° to +55° C
Humidity (DIN 40040)	<90% r.h. (class F)
Housing protection category	IP31
Approvals	
VdS Klasse B	G104512
Techom	Pending
INCERT	Pending

National approval conditions relating to the use of the detector must be followed!

Alarmtech reserves the right to change specifications without prior notice.

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