

Brako

Digital
Glass Break Detector



Installation Instructions

P/N 4720 Rev 3
Apr 2016 (A5DS)

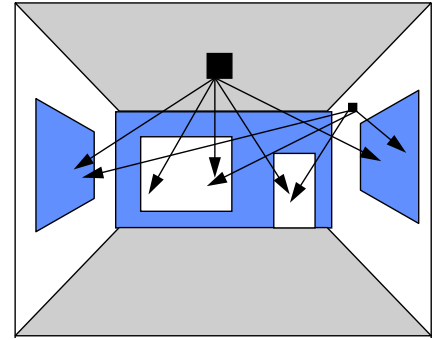
The Brako is false alarms free glass break detector. It catches sounds of breaking glass, which almost produce two sequential signals of different frequencies. The exclusive Brako Phased Frequency detection detects both shock signal and the strong signal of glass breakage creating a "false alarm free" glass break detector.

The Brako not suppose to be on a window, thus providing volume protection and allowing protection of several windows with one Brako detector.

FEATURES

- Shock and/or breakage selectable
- Dual frequencies Analyzer
- Unique signal analysis ignores environmental disturbances
- Memory LED
- ASIC based digital electronics
- Sensitivity adjustment
- New ultra compact design
- Simple setting
- Outstanding detection range and reliability

FIG. 1 - MOUNTING



The Brako offers flexible installation. It can be either ceiling mounted or wall mounted as shown in the above figure1.

Make sure nothing covers the detector; such may block the breaking signals.

MOUNTING LOCATION (See FIG. 1)

- If heavy blinds or curtains cover the glass, you must locate the detector behind the blinds on the window frame or above it; otherwise the blinds might block the sound. Make sure to test the unit thoroughly for proper detection.
- Install the detector in a direct line of sight with the protected glass.
- Do not mount the unit in front of air ducts, or close to bells (measuring 0.5m (or larger) in diameter).
- For a few protected glasses in one room, locate the detector in optimal distance from them to achieve the best detection.

Note: For symmetrical cover of the detection area it is recommended to place the detector on the ceiling.

MOUNTING THE DETECTOR (FIG. 2)

1. Use the small screwdriver (supplied) to push the prong on top of the case to open it.
2. Snap out the detector PCB.
3. Insert the wires through the wiring hole (B)
4. Use the mounting holes (A) to mount the Brako
5. Connect the wires to the terminal. (See Terminal Connections)
6. Reinstall the detector PCB
7. Close the case

JUMPERS (Refers to FIG. 4)

- **JP1** - Shock / Glass selector for detection calibration.
- **JP2** - Memory LED control.
- **JP3** - Reduces the sensitivity of glass sound detection by 50%.

FIG. 2 - THE BACK COVER

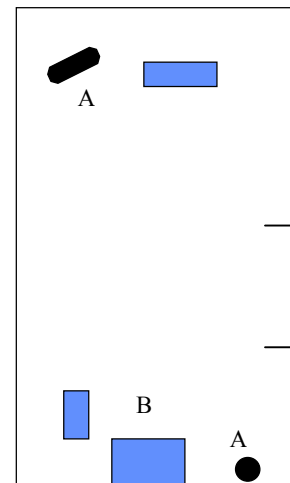
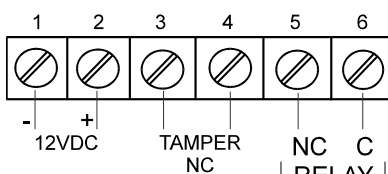


FIG. 3 - TERMINAL BLOCK



TERMINAL BLOCK CONNECTIONS

Terminal 1 - Marked - (-12V)

Connect to negative 12V.

Terminal 2 - Marked + (+12V)

Connect to the positive voltage output of 9-16 Vdc source (usually from the alarm control unit)

Terminals 3 & 4 - Marked TAMPER

If a Tamper function is required connect these terminals to a 24 hour normally closed protective zone in the control unit. If the front cover of the detector is opened, an immediate alarm signal will be sent to the control unit.

Terminals 5 & 6 - Marked RELAY

These are the output relay contacts of the detector. Connect to the control at zone input.

THE CALIBRATION TOOL

The Simulator/Tester & Calibration **Brako TS** (not included) tool is especially designed to check phased frequency glass break detectors.

Since the detector will react to the high frequency breakage sound only when it comes sequentially after a low frequency SHOCK sound, this device is necessary to check the proper operation of the **Brako** without actually breaking the glass.

Manual mode:

In this mode, the Simulator will emit the high frequency sound of breaking glass for "Glass" adjustment.

Automatic mode:

In order to simulate breaking glass, place the Simulator on the surface of the protected glass, and gently hit it with your hand. The Simulator will then emit the sound of breaking glass. Be careful not to break the glass while testing the detector.

It is recommended to use the **Brako TS** simulator for precise testing.

TESTING THE DETECTOR

First use the Simulator in manual mode to simulate the noise of glass breaking. Check that the Yellow LED is on. If it does not light, the sensitivity calibration is necessary (See Sound Calibration).

Carefully strike the glass with your hand or a padded object. If the Green LED does not light, adjust as sensitivity (See Shock Calibration).

Now use the Simulator in automatic mode and check that the red LED lights. If the Red LED is ON, your detector is working properly. Otherwise try adjusting the sound and shock setting until the Red LED lights.

GLASS BREAK ADJUSTMENT

To adjust the glass break setting (increase or decrease sensitivity) place the jumper JP1 according to the GLASS marking (connecting the middle pin with the upper pin) - (See Fig. 4) Green LED is constantly ON.

Now you can adjust the sensitivity by rotating the upper potentiometer (marked as Glass CAL. - see Fig. 4).

Operate the Sound Break Simulator and rotate the potentiometer clock-wise to increase sensitivity, and opposite to decrease sensitivity until the Yellow and Red LED's are illuminating for each glass break sound. Remember that rotating the potentiometer will have no effect upon the settings if the middle pin of JP1 is not connected to the left pin.

Note

- When the jumper is set for **GLASS** adjustment, only the high frequency sound of breaking glass is detected.

FINAL TESTING

- Make sure to disconnect Jumper JP1. When the jumper is disconnected, the detector will detect both shock and sound frequencies.

When JP1 is disconnected the Brako trigs alarm if the shock detected first than the glass break.

- To ensure maximum protection against false alarms, activate any device in the area, which might automatically cycle pumps, generators, heating or air conditioning units, etc. If the cycling devices trigger an alarm, mount the unit in a different location.

TECHNICAL SPECIFICATIONS

Power Input	9 - 16 V DC
Current Consumption	Standby: 22mA at 12 Vdc Active: 25 mA at 12 Vdc
Detection Range	10m (33ft), Adjustable
Dimensions	93mm x 55mm x 24mm
Mounting	Ceiling or Wall
Alarm Output Relay	N.C. 50mA / 24Vdc with 27 Ohm in line resistor
Tamper Switch	N.C. 50mA 24Vdc with 10 Ohm in line resistor
Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Operating Humidity	90% max relative humidity non condensing
Storage Temperature	-30°C to 70°C (-22°F to 158°F)
Sensor	Condenser Microphone
RFI Protection	30V/m 10 -1000MHZ
EMI Protection	50,000V electrical Interference from lightning

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SHOCK ADJUSTMENT

To adjust the shock setting (increase or decrease sensitivity) place the jumper JP1 according the SHOCK marking (connecting the middle pin with the lower pin) - (See Fig. 4) Yellow LED is constantly ON.

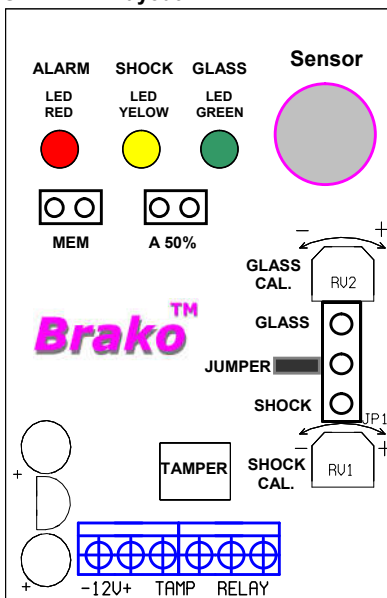
Now you can adjust the sensitivity by rotating the lower potentiometer (marked as SHOCK CAL. - see Fig. 4).

Hit gently on the protected glass and rotate the potentiometer clock-wise to increase sensitivity, and opposite to decrease sensitivity until the Green and Red LED's are illuminating for each hit.

Remember that rotating the potentiometer will have no effect upon the settings if the middle pin of JP1 is not connected to the right pin.

Note

- When the jumper is set for **SHOCK** adjustment, only the low frequency of the shock signal prior to glass breakage is detected.

FIG. 4 - PCB Layout**AV-GAD LIMITED WARRANTY**

(Av-Gad) warrants this product to be free from defects in materials and workmanship under normal use and service for a period of one year from the last day of the week and year whose numbers are printed on the printed circuit board inside this product. Av-Gad's obligation is limited to repairing or replacing this product, at its option, free of charge for materials or labor, if it is proved to be defective in materials or workmanship under normal use and service. Av-Gad shall have no obligation under this Limited Warranty or otherwise if the product is altered or improperly repaired or serviced by anyone other than Av-Gad.

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THE MEMORY FUNCTION

The alarm memory function allows the identification of an alerting detector out of multiple detectors connected to one (or the same) zone of the control panel.

To enable this function, set ON jumper JP2 (connected on both pins - See Fig. 4).

In case of an alarm, the Red LED will stay ON until memory function is reset.

To reset the memory function, switch OFF (disconnect) the voltage wire (+12V) from the Terminal Block for minimum 15 seconds then switch on (reconnect) voltage wire (+12V).

(The control panel key ON/OFF can be used for this application if it controls the voltage (+12V).

SENSITIVITY SETTING

For some installations you may find that Brako is too sensitive. Use jumper JP3 to decrease sensitivity to 50%.

JP3 **OPEN** - 100% sensitivity

JP3 **CONNECTED** - 50% sensitivity

WIRE SIZE REQUIREMENTS

Use #22 AWG (0.5mm) diameter or larger wires. Use the following table to determine required wire gauge (diameter) and length of wire between the detector and the control panel.

Wire Length	m	200	300	400	800
Wire Diameter	mm	.5	.75	1.0	1.5
Wire Length	ft	800	1200	2000	3400
Wire Gauge	#	22	20	18	16

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Warning: Test this product at least once a week