Datasheet and installation instruction AFZ0003

DESCRIPTION

The VD 500 seismic detector mounts on steel and concrete surfaces providing reliable protection of the high risk objects such as safes, strongboxes, depository safes, ATM, filing or armoury cabinets, concrete walls etc. The VD 500 gives indication of any penetration attempt by means of explosives or tools such as drills, disc-cutters, grinding machines and thermal tools. The detector provides protection thanks to 3 separate detection channels:

- Integrating channel - detects low amplitude high frequency signals of long duration.
- Counting channel – detects events of middle values of energy.
- Explosion detection channel - detects very high amplitude and short duration signals. Out of all the 3 channels this channel has the highest priority.

The sensitivity is adjusted in digital way by means of pre-programmed DIP-switch.

When mounting the VD 500 verify uniformity of the surface it is to rest on and make sure it is properly fixed. Special mounting plate **MP 500** along with additional bolt and a dowel facilitates mounting of the detector on concrete and brick walls.

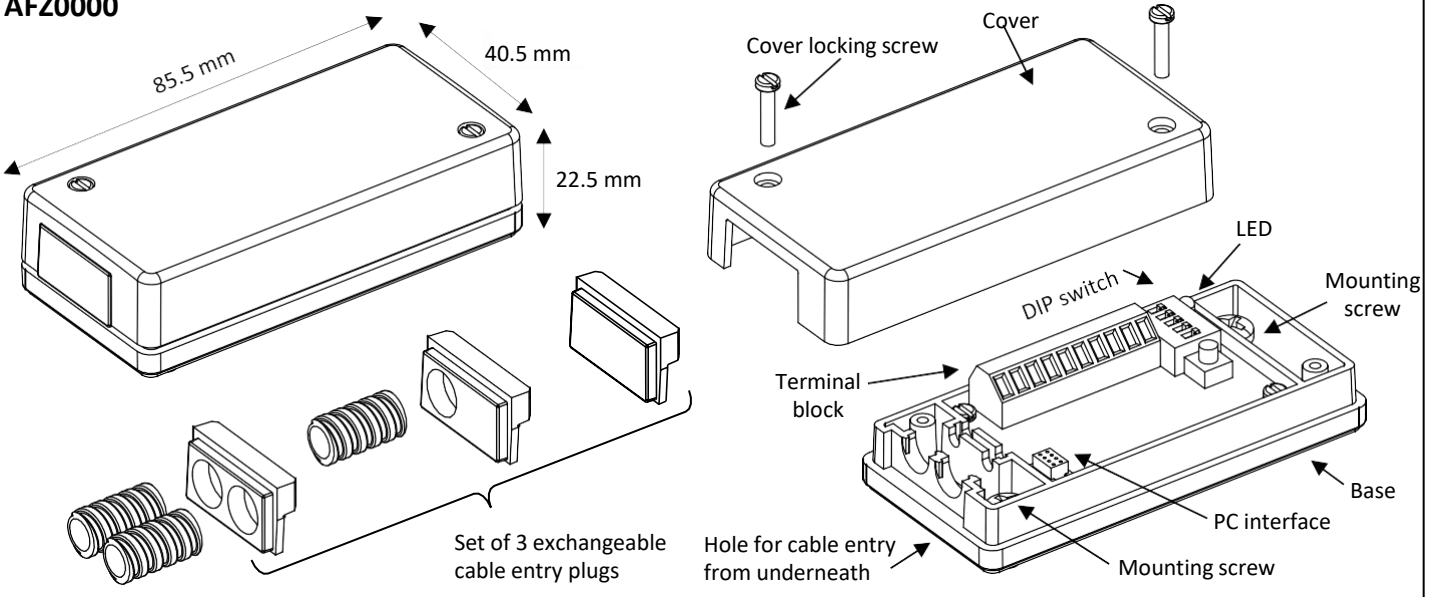
For outdoor mounting locations with likely severe weather conditions or for installations in cold rooms, the detector should be enclosed in the **WH 500** whose internal heater maintains sufficiently high air temperature around the detector thereby keeping the humidity below the critical point.

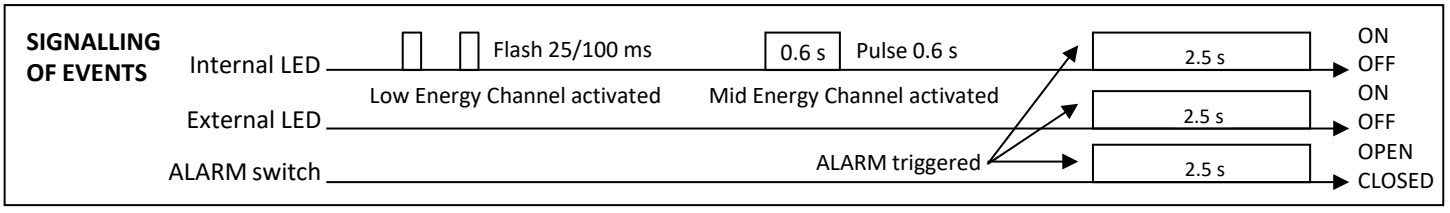
The VD 500 seismic detector includes LED alarm condition indicator, temperature alarm detection, anti-tamper protection and built-in self-test generator with remote test input. The light grey detector housing is useful for installations in severe environments.

FEATURES

- Miniature, low-profile detector for application with limited space
- 24-hour surveillance of vaults, safes, night deposits, ATMs, strong room doors and walls, etc.
- Advanced DSP system based on a microcontroller
- Noise filtering system providing high immunity to environmental noise
- Detection of momentary high amplitude shock waves
- Programmable level of mid-energy attacks
- Quick sensitivity adjustment using a DIP switch
- Built-in settings for protection of ATMs and depository safes
- User programmable mode
- Built-in LED as alarm indicator
- Built-in self-test generator
- Remote self-test triggering input TEST with double function:
  - Self-test trigger (Low->High)
  - Alarm reset (High->Low)
- Alarm relay triggering mode programmable: latched or auto-reset
- Output line for external LED
- Anti-tamper protection
- Pry-off detection
- Temperature alarm at 75ºC and Rate of Rise 6 ºC /min
- Wide range of supply voltage – from 8 to 30 V
- Low-voltage indication
- Built-in events log (“black-box”)
- Built-in PC interface for monitoring software CVDlink
- Approved by VdS, Techom and other European certification bureaus

AFZ0000





APPLICATION

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 relations to studs, joints, door/window hinges etc.
3. Background disturbances that can influence the detector.

COVERAGE

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

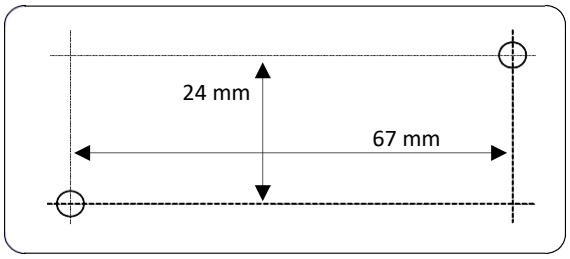
Surface material	Steel	Concrete (*)	Brick (*)
Radius	5 m	5 m	4 m

* – with **MP 500** mounting set

MOUNTING

1. Loosen the cover screws and remove cover
2. Select a suitable mounting position
3. Use the bottom part as a template and mark the fixing holes
4. Use a proper drill and thread for:
   a. Steel: M4 screws
   b. Concrete and brickwork: use MP500 and M4 screws
   c. Wood: self-tapping screws

Placement of detector mounting screws (drill pattern):



CONNECTION OF DETECTOR

Detector has 10 position terminal block:

Pos.	Marking	Signal
1	(-)	Common ground
2	(+)	Supply voltage +8 … +30 V
3	LED	External LED output, OC output w. 1k in series
4	TEST	Self-test trigger (Lo->Hi), Reset (Hi->Lo)
5	C	Alarm switch
6	NC	
7	Spare	Spare
8	Open case	Tamper switch, detection of cover and detector removal
9	Pry-off	
10	Spare	Spare

FUNCTIONALITY OF TEST INPUT LINE

Input TEST controls 2 functions:

- Start of self-test (Low - > High)
- Reset of detector (High -> Low)

During self-test detector activates built-in transducer stimulating vibration sensor. Detector will respond to this stimulation generating ALARM signal – ALARM switch is open and LED is lit signalling alarm.

TEST line state	Action
Low -> High	Start of Self-Test procedure (simulation of attack)
High -> Low	ALARM reset

CONNECTION OF EXTERNAL LED

The output for External LED can be used for external indication. It is an open collector output with 1Kohm in series and can drive a load of max 100 mA.

PROGRAMMING DIP-SWITCH

One 5-position DIP switch is used to program the following detector functions:

1. Sensitivity – one of four predefined ranges
2. Application settings (1 to 4)
3. Operational modes of LED and alarm relay:
   a. Auto reset – automatic reset after 2.5 s
   b. Latch – reset by power off/on or TEST line

Position	**Parameter/DIP-switch setting**			
Sensitivity	**Very Low**	**Low**	**Standard**	**High**
1	OFF	OFF	ON	ON
2	OFF	ON	OFF	ON
Application	**Safes/ Metal**	**Walls/Concrete/Bricks**	**ATM**	**User programmable**
3	OFF	OFF	ON	ON
4	OFF	ON	OFF	ON
Mode	**Auto reset (2.5 s)**		**Latch**	
5	OFF		ON	

On delivery all five DIP switch positions set to OFF.

ADJUSTMENT AND SETTING-UP

Adjustment and setting is quite simple. Select the application with DIP switch 3 and 4. Check if detector mode is set to auto reset (DIP switch pos. 5=off). The LED will indicate activation and the alarm relay will reset for two seconds. Each registered impact will be shown by a short flash, the alarm will result in a longer flash.

1. Set-up the highest sensitivity (1=ON, 2=ON).
2. Tap lightly close to the detector and check if each tap is indicated properly.
3. Set-up the lowest sensitivity (1=OFF, 2=OFF).
4. Use the test tool GVT 5000 or tap with a screwdriver at the most distant point to be protected and increase the sensitivity until the LED indicates a received pulse.

CONNECTION TO PC

Detector AFZ0000 is equipped with PC interface terminal. Communication can be achieved with the help of additional interface unit **CVDlink** providing also supply of detector from voltage available in USB port. Visualization of detector state, signal and event recording and access to internal detector logger (black-box) is possible with the help of **CVDlink** software.

Notice: *Internal detector settings can be programmed in user programmable mode by the operator. This kind of parameterization is not included in the approval and shall not be used in the approved version*.

TECHNICAL DATA

Supply voltage	8 – 30 V, DC
Stabilization time	5 s after power on
Max ripple	2 Vpp (@ 12 V)
Current draw (standby)	7.5 mA @ 12 V / 4.6 mA @ 24 V
Current draw (alarm)	8,4 mA @ 12 V / 5.1 mA @ 24 V
TEST Low/High input	0 – 1 V (default state) / 3 – 30 V
Alarm output	relay, NC, res. < 30 Ω
Alarm response time	2.5 s in automatic reset mode
Relay contact rating	35 V/100 mA
Low voltage alarm	< 7.5 V
Temperature alarm	75 °C and rate of rise at 6 °C/min
Tamper protection	micro-switch, NC
Switch contact rating	35 V/50 mA
Detected events	case removal, detector removal (pry-off)
Dimensions [HxDxW]	22.5 x 40.5 x 85.5 mm
Operating temperature	from -40 °C to +70 °C
Storing temperature	from -50 °C to +70 °C
Humidity	max. 95 % RH
Housing protection cat.	IP 43, IK07
Conformity:	CE, RoHS, WEEE, EN 50130-5 class IIIA