

Datasheet and installation instruction

VD 500

DESCRIPTION

The VD500 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 VD500 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 VD500 verify uniformity of the surface it is to rest on and make sure it is properly fixed. Special mounting plate **MP500** 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 **WH500** whose internal heater maintains sufficiently high air temperature around the detector thereby keeping the humidity below the critical point.

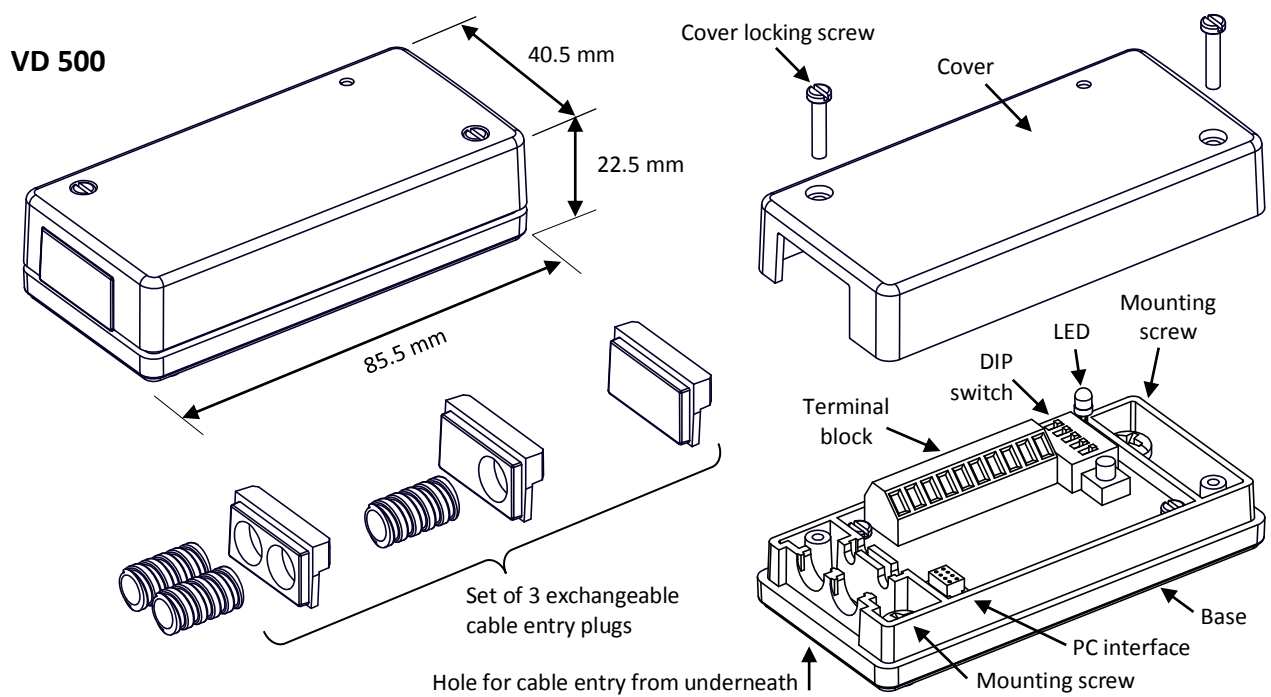
The VD500 seismic detector includes LED alarm condition indicator, temperature alarm detection, anti-tamper protection and built-in self-test generator with remote test input. The light grey detector housing is useful for installations in severe environments.

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 self-test generator
- Remote self-test triggering input
- Alarm relay triggering mode programmable: latched or auto-reset
- Built-in LED as alarm indicator, output for external LED
- Anti-tamper protection
- Pry-off detection
- Temperature alarm detection
- 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 (pending)

VERSION

Version PN	Description
VD500-r5	Detector version with built-in application specific settings an user programmable mode



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. The ranges are only presented as guidelines, practical tests must always be conducted.

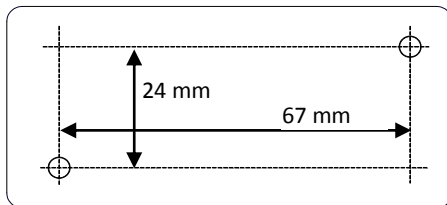
Surface	Steel	Concrete (*)	Brickwork (*)	Wood
Radius	r=5m	r=5m	r=4m	r=3m

* – with **MP500** 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 patern):



CONNECTION OF DETECTOR

Detector has 10 position terminal block:

Pos.	Marking	Signal
1	(-)	Common ground
2	(+)	Supply voltage +12V nom.
3	LED	External LED output, OC output w. 1k in series
4	TEST	Self-test triggering input, active high
5	C	Alarm switch
6	NC	
7	Sp	Spare
8	Sab	Tamper switch, detection of cover and detector removal
9	Sab	
10	Sp	Spare

CONNECTION TO PC

Detector VD500 is equipped with PC interface terminal. Communication can be achieved with the help of additional interface unit **USBlink** 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. Internal detector settings can be programmed in user programmable mode.

PROGRAMMING DIP-SWITCH

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

1. Sensitivity – one of four predefined ranges
2. Counter – number of pulses to activate alarm (1 to 4)
3. Operational modes of LED and alarm relay:
 - a. Autoreset – automatic reset after 2s
 - b. Latch – reset by power off

Position	Parameter/DIP-switch setting			
	Low	Mid (-)	Mid (+)	High
1	OFF	OFF	ON	ON
2	OFF	ON	OFF	ON
Applica-tion	Safes and walls	Depository safes	ATM	User programmable
3	OFF	OFF	ON	ON
4	OFF	ON	OFF	ON
Mode	Autoreset (2s)		Latch	
5	OFF		ON	

On delivery all five DIP switch positions set to OFF

ADJUSTMENT AND SETTING-UP

Adjustment and setting is quite simple. Check if detector mode is set to autoreset (DIP switch pos. 5=OFF). The LED will then indicate activation and the alarm relay will reset for two seconds. If programmed for multiple pulses, 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 and the alarm relay is working properly after the set number of pulses.
3. Set-up the lowest sensitivity (1=OFF, 2=OFF).
4. Use the tool at the most distant point to be protected and increase the sensitivity until the LED indicates a receive pulse.

TECHNICAL DATA

Supply parameters

Supply voltage	8 – 15 Vdc (nom. 12 Vdc)
Max ripple	2 Vpp (@ 12Vdc)
Current draw (standby)	7.5 mA @ 12Vdc
Current draw (alarm)	10 mA @ 12Vdc

Alarm signalization

Alarm output	relay, NC, res. < 30 Ω
Alarm response time	2s in automatic reset mode
Relay contact rating	35V/100mA
Low voltage alarm	7.5 Vdc
Temperature alarm	98 °C (±5 °C)

Tamper signalization

Tamper protection	micro-switch, NC
Switch contact rating	35V/50mA
Detected events	case removal, detector removal (pry-off)

Dimensions [HxDxW]

Environmental conditions

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 50130-4, EN 50130-5 class III