



**DESCRIPTION**

CD 475 offers reliable monitoring against attacks with mechanical tools. The CD 475 is a shock- and vibration detector with 3 separate detection channels: an integration channel / saw channel for weak signals with long duration, a counting channel that senses strong impact on the monitored surface and an explosion channel which senses very strong signals from e.g. an explosion.

CD 475 shares the design with CD 470 but must be connected to analyzer IU 400 for alarm indication since it lacks built-in relay outputs. In the event of an alarm, the power consumption in the detector increases, this is detected by the analyzer IU400 which will indicate the different alarms.

CD 475 polarity independent, just like CD 470.

**FEATURES**

- EN Grade 3 approved vibration detector
- Two wire polarity independent for easy connection
- 3 separate detection channels
- Cover radius up to 3m
- Resistant to interference
- Detailed sensitivity setting
- Suitable for 24 hour monitoring
- Low power consumption
- DAY and NIGHT control of LED

**OPERATING PRINCIPLE**

The CD 475 uses a piezoelectric sensor to monitor the vibration signature of the mounting surface that occurs when it is crushed or cut with tools. The signal has a special signature with a broad spectrum and high amplitude that the electronics detects, then generates a current increase and illuminates the LED. The CD 475 has a built-in self-control and voltage monitoring. Fault is indicated by a flashing LED and a pulsating current increase. The indication is controlled by a DAY and NIGHT function. With 8Vdc on the power input, DAY mode is active and LED lights up at alarm and with pulsating shine in case of failure. At 6Vdc, NIGHT mode is active and LED is switched off in case of alarm or error.

Resetting the detector after alarm can be done in two different ways:

- Disconnect power to the detector
- Switch from DAY to NIGHT mode

**MOUNTING**

1. Loosen the screw for the cover and lift it off.
2. Select the mounting location and mark the mounting holes with the bottom part as a template.
3. Drill with a 2-2.5 mm drill for the two supplied mounting screws.

**NOTE! A clean and smooth mounting surface under the detector provides maximum range.**

**CONNECTIONS**

The detector has 2 screw terminals:

#	Function
1	DC Voltage supply (-) or (+)
2	DC Voltage supply (-) or (+)

## DIP-SWITCH

The DIP switch with 6 switches is used to program the functions of the detector.

DIP	Sensitivity (1 = lowest sensitivity, 8 = highest)							
	1	2	3	4	5	6	7	8
1	OFF	OFF	OFF	OFF	ON	ON	ON	ON
2	OFF	OFF	ON	ON	OFF	OFF	ON	ON
3	OFF	ON	OFF	ON	OFF	ON	OFF	ON

DIP	Counting Channel, Number of hits	
	3	6
4	OFF	ON

DIP	Saw/Integration Channel	
	Integration Channel OFF	Integration Channel ON
5	OFF	ON

DIP	Not Used	
	Not Used	Not Used
6	X	X

## DETECTION RADIUS

The approximate range of different materials is given in the table below. Note, however, that the stated numbers only serve as guide values and are strongly dependent on joints etc. The actual range must be determined in practical tests.

Material	Wood/Glass/ Plywood	Brick*/ Plastering*	Steel/Concrete *
Radius	r = 2 m	r = 1 m	r = 3 m

## COMMISSIONING AND ADJUSTMENT

**NOTE! For detector to show short blink, following procedure must be done within 5 minutes after detector is powered on.**

Commissioning and adjustment is very simple. Connect the CD 475 to the IU 400 and calibrate the quiescent current with the jumper on the IU 400 (see IU 400 manual). The counting channel causes each received pulse to be displayed with a short flash on the CD 475 LED until the number of pulses set is reached (3 or 6), then alarm is indicated. The alarm is indicated on the CD 475 LED and remains until the reset button on the IU 400 is pressed.

1. Set the DIP switch to medium sensitivity, 6 hits and active saw channel. This is done by setting **DIP 1=OFF and DIP 2-5=ON**.
2. Tap next to the detector and check that each tap is registered and that the alarm relay opens after 6 pulses.
3. Now tap relatively strongly with eg. the back of a screwdriver on the most remote point to be protected.
4. If the pulses are not detected (short flash on the LED), incrementally increase the sensitivity with DIP 1-3 as shown in the table until the LED shows the received pulse.
5. If the diode instead shows alarm directly (steady light), reduce the sensitivity incrementally with DIP 1-3 according to the table until the LED shows the received pulse (alarm is reset on IU).
6. Check and adjust all connections. Finally, check that both the alarm output and the tamper switch are received correctly at the control panel.

A fairly common mistake is to set higher sensitivity than required, which results in false alarms. We therefore recommend to not connect the detector in live operation until after a few weeks so that the setting has been verified.

\* When mounting on brick / plaster / concrete, the mounting plate MP550 must be used for correct operation.

## TECHNICAL DATA

Detection radius	Up to 3m
Voltage range across detector in IU loop	8V DC in DAY mode, 6V DC in NIGHT mode
Current consumption quiescent / alarm	2.5 mA / 4.4 mA
Alarm output	Transistor
Alarm indication	LED, DAG/NATT controlled
Day and Night levels on alarm loop	DAY=8 V, NIGHT=6 V on the loop
Alarm time	Latching
Alarm reset	EOL loop voltage across detector below 1 V
Tamper output	Transistor
Low voltage alarm or fault in electronics	<5V indicated by flashing LED
Environmental class (EN50130-5:2011)	II
Operating temperature range	-40°C to +55°C
Operating humidity	max. 95% RH
Housing	White ABS plastic, IP 42
Size [H x D x W]	20 x 23 x 80 mm
Approvals (with analyser unit IU 400)	EN 50131-2-8 Grade 3 (EN-ST-000264), SSF 1014-5 Klasse 3 (20-34), VdS 2480 Klasse B (G121501) INCERT (B-582-1001, only approved as shock detector)

## ORDERING INFORMATION

CD 475	Shock- and vibration detector Grade 3
Connection array 3041.03	Connection array suitable for CD 475
Junction box 4101.02	Junction box suitable for CD 475
Mounting plate MP 550	Mounting plate for CD 475