PROTECT
Security Systems

Protect 375
Installation and
instructions

Version 5.3 - EN

Read this instruction booklet carefully before using your new Protect Mist Generator System

Thank you for choosing a Protect Mist Generator System - an excellent addition to your other security measures. If your alarm system is activated, your Protect System will fill the room with a very dense fog, making it impossible for an intruder to orientate themselves. If you are going to use your Protect Mist Generator System, it is important that you:

1. .....inform the local emergency services

You must inform the local (government) services that you have started using a fog generator. Complete the attached information form and send copies to the fire brigade, police and local central control room.

2. ....informs employees, cleaners, etc

It is very important that all persons who have access to the building receive comprehensive information about your Protect fog generator. This prevents mistakes and incorrect use of the system. The system must be installed by qualified personnel. These installers are able to give you the correct instructions and advice.

3. ..... you send your warranty certificate.

Your Protect Mist Generator System comes with a number of warranty provisions, which are detailed on page 10 of this manual. Read these conditions carefully and sign the enclosed warranty certificate. Make a copy of this certificate and send it to Protect A/S, Axel Kiers Vej 2, 8270 Hojbjerg, Denmark or the Dutch importer AVD Security BV, San Franciscostraat 126 – 128 1175 RE Lijnden. (fax 020 497 4701). In order to exercise your right to warranty, you must have submitted the signed certificate.

4. ....you apply warning stickers.

Two self-adhesive stickers are included. You must place this in such a way that it is clear that you have a fog generator installed. In any case, place a sticker at the main entrance. Place the other in a place accessible to everyone, so that your staff is aware of the installed system. The stickers are self-adhesive on both sides and can therefore also be attached to a window.

Additional information

To do this, visit the manufacturer's websitewww.protect.dk , or from the importer www.avdsecurity.nl

Testing the system

After the system has been correctly mounted – both electrically and mechanically – and the fluid cartridge has been installed, you should test the system.

Switch on the mains voltage.

It now takes approximately 10-12 minutes for the system to be fully operational (warm-up time).

NB: If dip switch 10 is ON, there must be a 12 Volt signal present on terminals 18 and 19, 20 and 21 and 10 and 11. Otherwise the machine will start operating immediately after the green LED LD4 lights up. If dip switch 10 is set to OFF, there may not be a 12 V signal on terminals 18 and 19, 20 and 21 and 10 and 11.

When the mains power is on, the red LED LD1 will illuminate constantly to indicate that the device is heating up. The green LED LD6 will light up to indicate that the 24VAC power supply is functioning correctly.
After 10 – 12 minutes, the green LED LD4 will light up to indicate that the working temperature has been reached. The fog generator is now fully operational.

Occasionally the red LED will light up to indicate that the heating element is adjusting the temperature.

Testing the batteries

To test battery operation, switch off the mains power after the device is fully operational. The batteries are delivered fully charged.

If the mains power is switched off, the device will audibly (beep signal) and visually (LED LD6) indicate that the mains power has failed.

The temperature control will remain active - visible from the flashing red LED. However, heat is no longer generated. The red LED will burn continuously at a certain point, indicating that the temperature of the heating element is decreasing.

Reconnect the mains voltage, the fault LED will now go out when you press the 'Reset' button on the control board (see page 18)

We advise you to link the fault outputs to an input for technical alarm on your burglar alarm control panel. This ensures constant monitoring of the functioning of the device by the control room. In this way, faults are identified at an early stage. Although there is a warning signal and a light signal, there is a chance that a malfunction is not detected in time, resulting in the device not functioning correctly at critical moments.

Connection to fire alarm control panel.

The fog generator can be connected to a fire alarm control panel. In the event of fire, this prevents unnecessary activation. Terminals 16 and 17 can be used to connect a 12 V DC N/O signal from the fire alarm control panel. If a fire alarm is given, the fog generator will be disconnected for the duration of the activation of this input.

If the building is equipped with a fire alarm system, it is necessary to connect a verification sensor to the fire alarm system, because ionization and photo detectors can be activated by the fog generator. In case the fire detection zone and the area in which the fog generator is placed overlap, you should use flame detectors, CO_2 detectors or thermodifferential detectors.

NEVER CONNECT THE SYSTEM IN SUCH A WAY THAT YOU TURN OFF THE FIRE CONTROL UNIT WHEN THE FOG GENERATOR IS ACTIVATED

Testing the installation

Test signals

The fog generator must be fully operational before the test can be performed.

The primary signal (terminals 18 and 19) and the secondary signal - if present - (terminals 20 and 21) can be tested by activating the alarm system or by disconnecting the cable from the terminal. This action activates the fog generator.

If the signals are used to disconnect the pump and/or heating element, you can test this by activating the relevant signals. When the heating element is disconnected, the red LED LD1 will go out. When the pump is disconnected, you can no longer activate it.

We strongly recommend that you thoroughly test all components of the alarm system. You can do this by disconnecting the alarm system. If this creates an alarm situation, you must of course alert the authorities involved.

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CE

How your Protect Mist Generator System works

Your Protect Mist Generator System comes into operation as soon as your burglar alarm system is activated. The Protect system fills your secured space with a thick fog to make attempted burglary as difficult as possible.
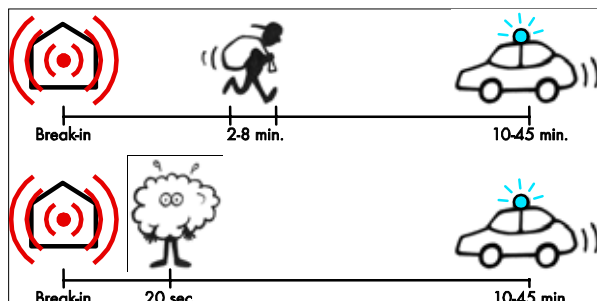
The process - step by step

The Protect system produces continuous mist for 60-70 seconds, then stops for 10-15 seconds and restarts for 10 seconds, then pauses for 10-15 seconds and restarts etc. (page 19)

This process continues until the selected period expires, the fluid cartridge is empty and/or the system is manually stopped. A full cartridge produces fog for approximately 15 minutes. See the table on page 20 for an indication of the effective time.

The system produces approximately 375 m3 of fog during the first minute, after which another 150 m3 of fog is generated per minute.

The fog remains in the room for about an hour, but 20 minutes of ventilation is sufficient to clear the air again. **It is important that you ventilate the room(s) within one hour after the alarm.**

Other connections

Connection tamper function
The system is equipped with potential-free contacts, which are activated (opened) when the fog generator cover panels are removed. If desired, these contacts can be used to connect to the tamper circuit of your security control panel.

Emergency power supply
The system is equipped with a battery backup function that guarantees normal operation of the pump and control electronics in the event of a mains voltage interruption. The battery has sufficient capacity to generate fog for one minute, provided the system is activated within 30 minutes from the moment of mains power interruption.

In emergency operation, the system will use the stored heat from the heating element. If the mains voltage fails, the heating element will slowly lose the stored heat. After 30 minutes the system has lost so much heat that the emergency power supply is not sufficient to operate the system. The batteries are quickly recharged when the mains voltage returns.

In the event of a mains voltage interruption, the fog generator will immediately send a signal to the security center. The error is also indicated visually.

Monitor error connection – must always be made
The system has a built-in fault monitor, which tests the system for errors in the heating element, the heating sensor, the liquid level or the passage of a set time. If an error is detected in one of these functions, an internal alarm will be generated (beep signal). At the same time, one of the two alarm relays is activated.

The detected error is indicated by one of the 7 LEDs on the control board.

The seven LEDs:

2   System error. Lights up for a general error.
7   Battery failure. flashing.
6   Mains voltage failure. flashing
5   Temperature error. Flashes if there is a fault in the heating element.
4   Company. Lights up when the system is ready for use.
1   Heat up. Lights up during warm-up.
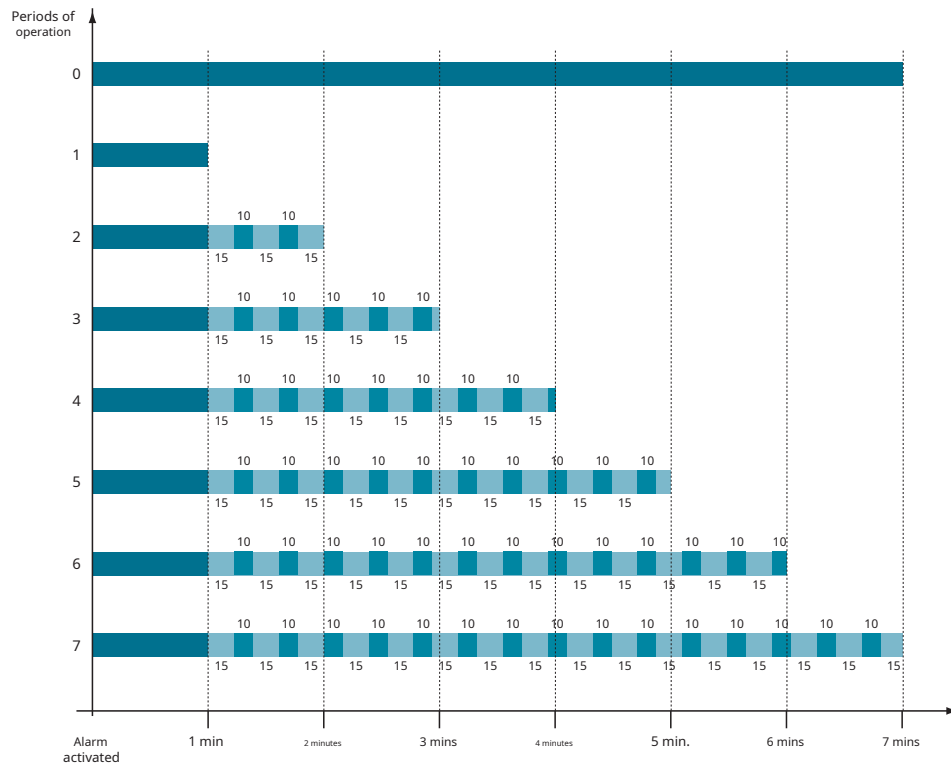3   Liquid. Flashes when the fluid cartridge is less than 1/3 full.

The process step-by-step

The system generates fog continuously for 60-70 seconds, then stops for about 10-15 seconds and restarts. The active period of 10 seconds alternates with pauses of 10-15 seconds

The activation duration
(See page 19)

0:    Active as long as the primary, secondary and arming signals are active (up to a maximum of 15 minutes).

1:    60 seconds continuously.

2:    60 seconds, continuous. 15 second break. 10 seconds of fog, etc. for a TOTAL of 2 minutes

3-6: ......

7:    60 seconds continuous followed by 6-minute interval – a TOTAL 7 minutes.

To start

If the fog generator has been installed by a qualified installer, you must instruct the following persons in the operation and use of the system:

- Employees
- Cleaner
- Other personnel who have the authority to enter your building and have access to alarm codes, etc
- The fire brigade, the police and the control room (see page 2)
- Your PAC and/or your security/surveillance company.

Also ask for a brief description of the different messages that your fog generator can send to the control room.

Sabotage:

Tamper switches are present in the system. These are connected in series and will break the tamper circuit if one of the panels is removed. The connections are secured to the 2-pin connector.

If the system is equipped with a battery backup, the system will continue to function normally after a mains power failure. The heating element uses the heat stored in the metal and will therefore produce enough mist for about half an hour after the mains power has gone out. If the mains power fails, this will be indicated by a beep for 5 minutes. The 'System fault' relay will also activate and remain active until the machine is reset.

If you want to protect the cable against tampering, it is best to choose a break signal, so that wire breakage is also signaled. You set this with dip switch 10. More information on page 18

The discharge opening is susceptible to sabotage. The pressure at the discharge opening is 12 bar. This of course largely prevents the possibilities of sabotage. On the other hand, if the tube itself is tampered with, there is a possibility that no mist will be produced. Always install the system out of reach of possible saboteurs.

Practice shows that placement outside normal range is sufficient to prevent sabotage.

In case of an alarm

1. Burglary alarm

If the alarm is activated by a burglar, the fog generator can be turned off via your security center. To make this possible, the HEAT DISABLE signal must be connected during installation. (see page 17

Remember to ventilate the room within one hour.

After the fog generator has started operating, you must ventilate the room within one hour to prevent the fog from condensing.**Protect accepts no liability for damage caused by condensed mist liquid.**

It is very important that you check the fluid level in the cartridge and replace the cartridge if necessary.

2. Liquid level alarm

If no liquid cartridge is inserted, or the level in the cartridge is 1/3 of the maximum, you will hear a beep and LED 3 will light up. These indications disappear after installation of a new cartridge.

Setting and controlling the activation duration

The activation duration determines the maximum operating time during which the system generates fog. Once the activation duration has been selected, the fog generator will activate as soon as the status of the primary or secondary triggers changes.

Once the selected activation duration has expired, the fog generator will not activate again, even with active primary or secondary trigger signals.

To reactivate the fog generator, the status of the primary and secondary signals must change again. Activating the HEAT DISABLE terminal ends the activation time. This terminal becomes active when the alarm system is disarmed.

There is a dip switch with 10 adjustment switches on the control board (see also page 20)
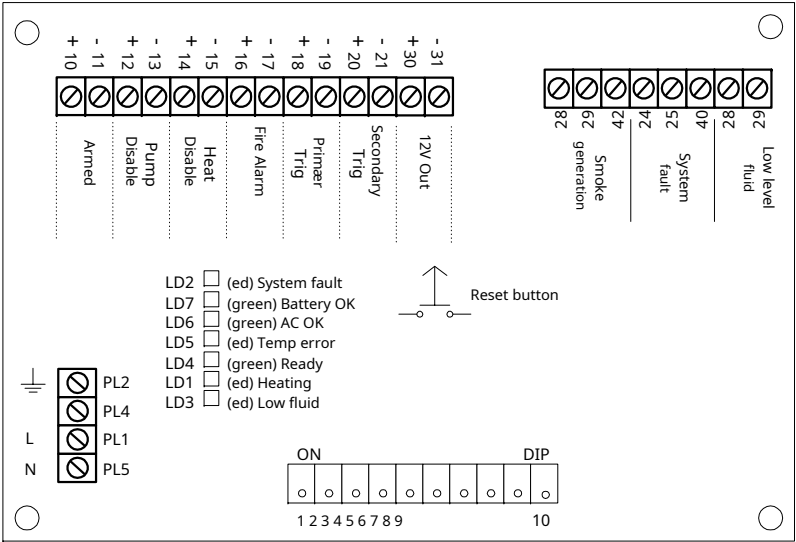
Dip switch 10 can be used to switch the signal from NC (break) to NO (make).

When dip switch 10 is set to OFF, all three signals (ON, Primary Trigger, Secondary Trigger) are NO (make) signals. This means that there is **all** inputs must be 12 Volts to activate the fog generator

When dip switch 10 is ON, all three signals (ON, Primary Trigger, Secondary Trigger) are NC (break) signals. This means that the 12 Volts that are normally present on all these inputs must be interrupted.

IN INSTALLATIONS CONSISTING OF MULTIPLE SYSTEMS, THE INTERNAL WORKS AND THE +12 VOLT TERMINAL MUST NEVER BE CONNECTED.USAGE**ALWAYS**THE 12 v TERMINAL OF AN EXTERNAL POWER SOURCE FOR THE PRIMARY AND SECONDARY TRIGGERS AND FOR THE "BYPASSING" SIGNALS. THE INTERNAL POWER SUPPLY MUST NOT BE EXPOSED TO A CONSUMPTION OF MORE THAN 50 mA. DO NOT CONNECT THE INTERNAL POWER SUPPLY TO EXTERNAL POWER SOURCES. THE 'EARTHING' OF DIFFERENT SYSTEMS USING THE INTERNAL 12 VOLT SUPPLY EARTH IS ALSO NOT ALLOWED.

Control board

In case of an error message

Monitoring error

The system has a built-in error monitor, which tests the system for errors in the heating element, the heating sensor, the liquid level, or the passage of a set time. In the event of an error in one of these functions, a beep will sound. Error type 'low liquid level' and 'general error' will also be reported via a relay contact. You can then also send this signal to your control room.
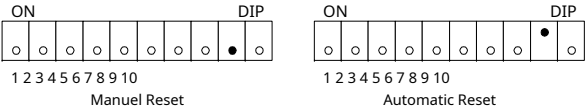
The detected error will be indicated by one of the seven LEDs on the PCB.

The seven LEDs:

2	System error. Lights up when a general error is reported. Battery
7	failure. (flashing)
6	Mains voltage (flashing)
5	Temperature. (flashing)
4	In operation. Lights up when the system is ready for use. Heat
1	up. Lights up during warm-up.
3	Liquid. Flashes when the cartridge is less than 1/3 full.

Reset after error messages

Simple error messages, such as mains voltage, battery and fire alarm, are automatically reset by setting Dipswitch 9 to ON. Critical errors such as heating, pump and other messages may only be reset using the internal reset switch. This has been done because some error messages are critical to the operation of the system and the intervention of the installer is necessary, in accordance with the applicable guidelines. An error indication is reset by pressing the reset button in the middle of the control board (see page 18) for 4 seconds.

Operation change Relay system error

Setting DIP switch 1 to ON changes the operation of the system error relay. Terminals 25 and 40 now change function, i.e. NC becomes NO and NO becomes NC. This option works from serial number 55170, for a higher safety level of the installation.

Always use this option!

Shutdown instructions

Protect recommends using your security system to arm/disarm the system. This ensures you of optimal functionality. In this case, the installer must connect the HEAT DIABLE signal.

How to disable

If your alarm system is off, you can also switch off the heating and the pump of your fog generator. By switching off the heating element you also save on energy consumption.

* Disabling the heating element, HEAT DISABLE, terminals 14 and 15

This signal turns off the heating element, saving you energy when your security system is off. When you turn on your intrusion system, it will take approximately 10-12 minutes for the fog generator to fully warm up. The signal consists of an external 12 VDC N/O.

* Switching off the pump, PUMP DISABLE, terminals 12 and 13

This signal interrupts the circuit to the pump and is intended as additional safety against unintentional activation when the alarm system is disabled. The signal here is again an external 12 VDC N/O.

Service and maintenance

Test your system at least once a year.
Protect recommends at least one test of the fog generator system per year.

We recommend that you follow the test instructions on page 22 – see Testing and Test Signals.

The fluid consists of water and glycol. If left in the cartridge for a long time, the fluid may become 'foggy'. If this is the case, the cartridge must be replaced. If you use a battery backup, you must replace the batteries every two years.

Electrical connections

Feed a mains power cable and the signal cable through the grommet hole in the bottom of the system. The mains connection must be protected against tampering and - if possible - equipped with a key switch to prevent unnecessary activation.

Note – Connection of the HEAT DISABLE signal

If the fog generator is activated, intentionally or accidentally, the system can only be deactivated with the HEAT DISABLE function.

Protect strongly recommends connecting the HEAT DISABLE signal to your security panel. In this way, the system is operated when your alarm is switched on and off

Power-on and primary and secondary signals

3 signals must be present before the fog generator comes into operation.

First of all, the "Arm" input must be active to indicate that the system may be activated. This signal is optional and in some cases can be connected directly to the internal power supply. Whether this signal is used actively or passively depends on the rest of the alarm installation and local regulations.

Secondly, a primary trigger (terminal 18-19) must be present to indicate that the alarm system has been activated (burglary signaling).
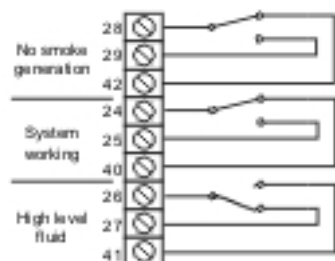
Thirdly, the verification signal (the secondary signal) (terminal 20-21) must be active, to indicate that the secured zone has actually been entered. This signal is normally generated by a PIR in the same location as the fog generator. This PIR normally operates independently of the alarm system and is used solely as a verification signal for the fog generator. Of course, you can also use other detection equipment (glass break detectors, door contacts, pressure mats, etc.) for this

All trigger signals must be 12 VDC and must be obtained from external power supplies. You usually use the power supply of the alarm center for this.

The PIR verification power supply and wired internal signals may be taken from the fog generator (terminal 31-32), provided you respect the maximum power consumption this output can supply
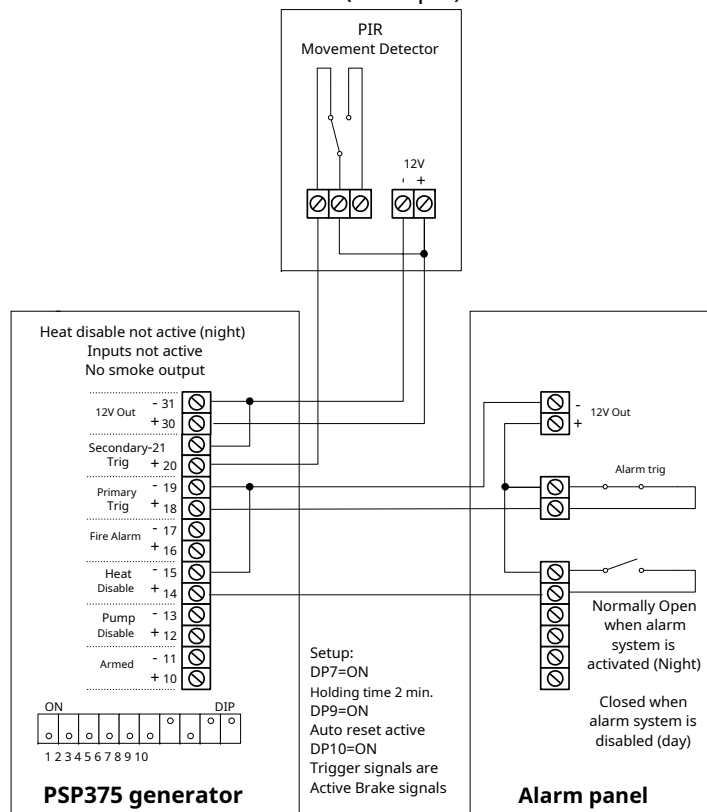
Replacing the fluid
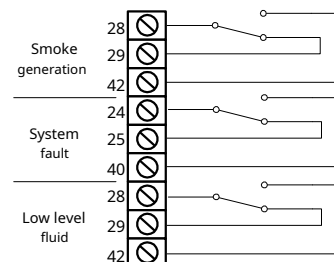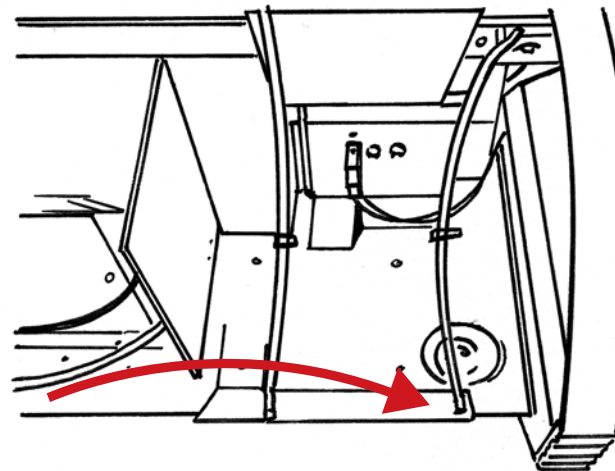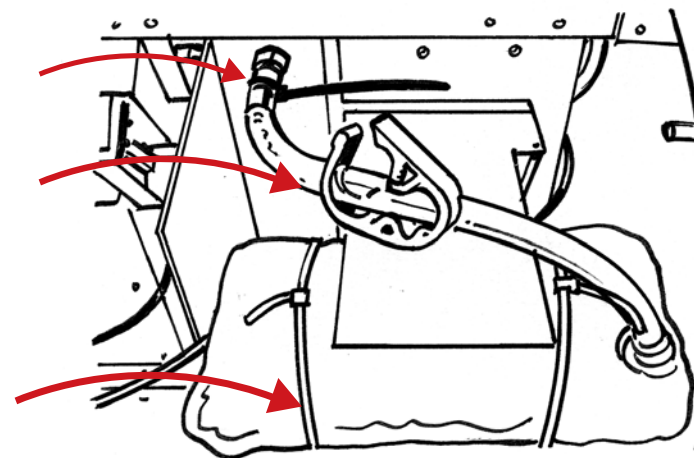

1: Attach the two strips into the two holes
2: Place the cartridge under the metal sensor as shown in the drawing. 3: Tighten the strips (not too tight).

4: Attach the black strip to the tube and tighten the strip. 5: Open the safety clamp.
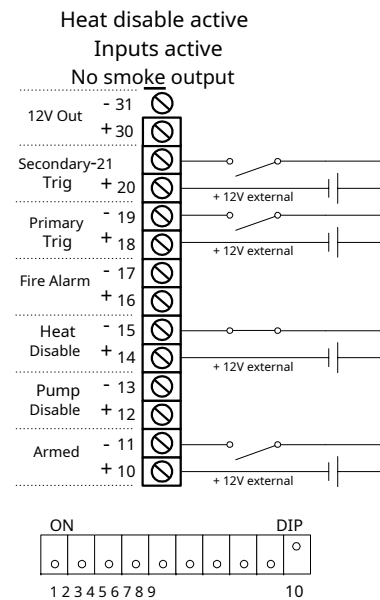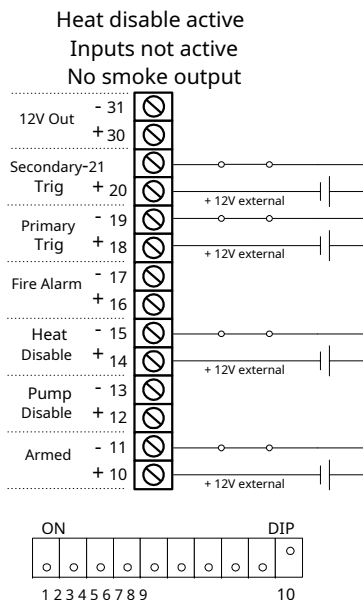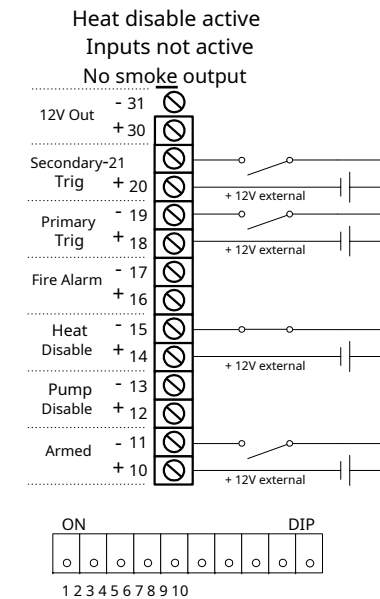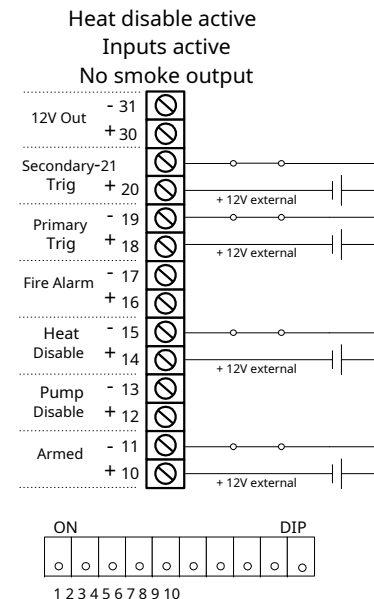
Warranty

General conditions

Protect guarantees that the Protect Mist Generator System is free from errors and defects and that it has been manufactured and assembled correctly. The system is covered by the following warranties:
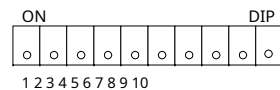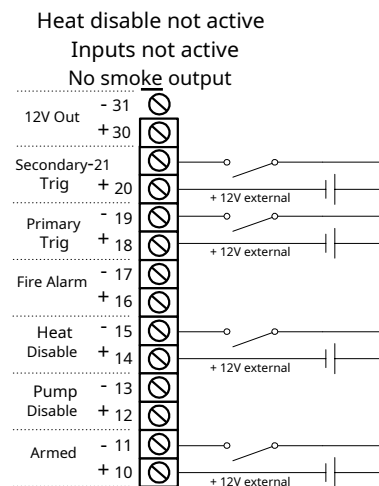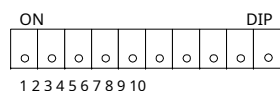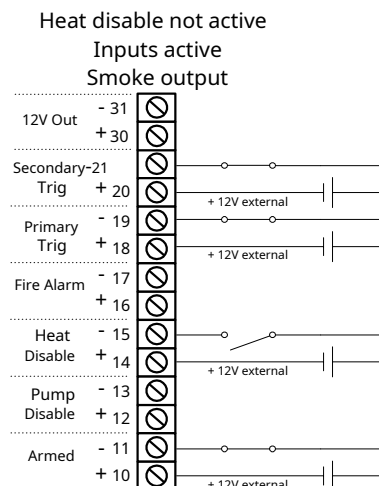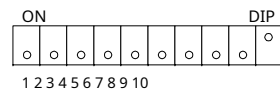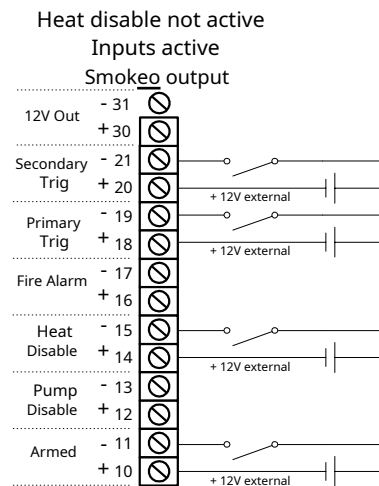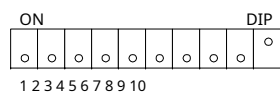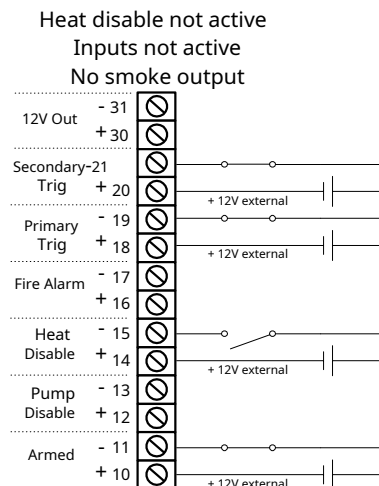
- 24 months return guarantee (free spare parts and no calculation of internal labor at Protect A/S regarding the repair and/or replacement of defective parts.

- The warranty period is counted from the day the product was sold by a dealer to an end user. The warranty is provided on condition of a completed warranty certificate, which must be returned to Protect A/S. The serial number and dealer information must be entered correctly. (see page 2)

- During the warranty period, Protect A/S will, at its option, repair or replace a product with either new or replacement parts. A Protect service provider will carry out the work on behalf of Protect. If repeated attempts by Protect to repair a defective device are unsuccessful, Protect will either replace the device or refund the purchase price, at Protect A/S's discretion. All parts used remain the property of Protect A/S.

This warranty does not cover the following items:

1) Consumables. (such as the liquid cartridge)

2) Errors and defects arise from normal use (wear and tear);

3) Errors and defects (intentionally or accidentally) arise because the device is used in a manner other than described in this manual.

4) Errors and defects (conscious or unconscious), due to the use of parts not manufactured by Protect, and service performed by installers not authorized by Protect.

5) Errors and defects are caused by the use of fluids other than those manufactured by Protect.

Apart from the above conditions, Protect A/S also excludes in advance any claim and legal proceedings. This of course does not exclude the normal legal rights of the user vis-à-vis the supplier. Consequential damage is expressly excluded by Protect A/S, as well as any damage caused by the liquid.

Heat disable active / Inputs active / No smoke output

Heat disable active / Inputs not active / No smoke output

Heat disable active / Inputs not active / No smoke output

Heat disable active / Inputs active / No smoke output

Heat disable not active
Inputs not active
No smoke output

Heat disable not active
Inputs active
Smokeo output

Heat disable not active
Inputs active
Smoke output

Heat disable not active
Inputs not active
No smoke output

Specification of warranty and service periods

Return guarantee

The return guarantee with free spare parts and no calculation of Protect A/S working hours applies:

  1) in the country where the product was purchased

  2) in the European Union (EU) or EFTA if the product was purchased in one of the member states of this organization

To carry out work under this warranty, the product must be sent to Protect, together with the warranty certificate and at the sender's expense and risk.

accessories

Accessories and spare parts are normally covered by a 12-month warranty period for the spare parts used and no calculation of hours worked. Accessories and spare parts connected to a Protect product are generally covered by:

  1) Our own 12-month return guarantee including free spare parts and no calculation of internal labor hours.

  2) The remaining service period for the product to which these parts are attached and any other warranties for the product.
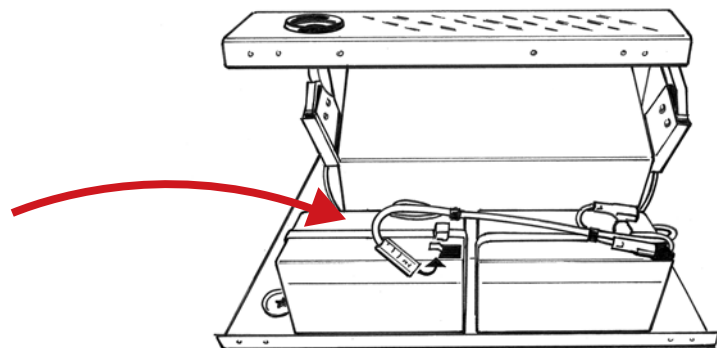
Installation

The installation instruction must be followed to the letter to ensure proper installation and testing of the system.

The installation instructions cover five areas:

The battery is not connected during transport.

This wire must NOT be connected until the mains voltage and control signals are connected.

Positioning the system

Positioning the system is important, both for the intended operation and from the point of view of preventing tampering.
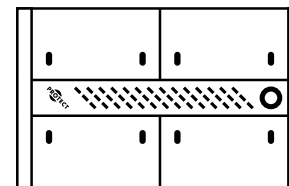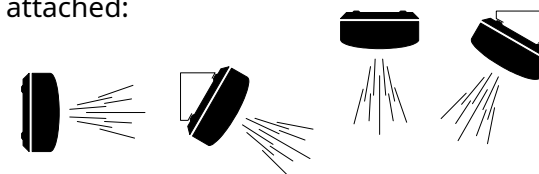
Direct the exhaust opening towards the area to be protected, preferably in the direction of the possible burglary. Effective coverage can be obtained by allowing the fog to come into contact with the floor, wall or other solid obstacle, as this creates turbulence, which causes effective dispersion.

The area (m2) that the fog generator covers depends on the expected time between registration of an intrusion and reaching the secured area.

The longer the time, the larger the covered area that will be filled with fog. Because most burglaries are done very quickly, Protect recommends the use of one fog generator for a maximum of 80 m2.

The fog generator can be attached:

1) flat against a wall
2) at an angle
3) directly against the ceiling

For horizontal wall mounting, we recommend that you position the device so that the outflow opening is on the right, to facilitate changing the fluid cartridge. When mounting vertically, always with the opening at the top.

Do not mount the fog generator in such a way that you create a 'trap' or that you block (emergency) exits. The fog generator immediately deters most burglars so much that they immediately run away. It is therefore important that at least one exit remains visible through the fog. See the demo at www.protect.dk

When installing the system, also take into account any nuisance to others (neighbors). Don't forget to stick the supplied stickers at the entrances of a building or room

We will be happy to advise you on placement and installation.
Send your drawing of the areas to be monitored – with an indication of doors and windows etc.