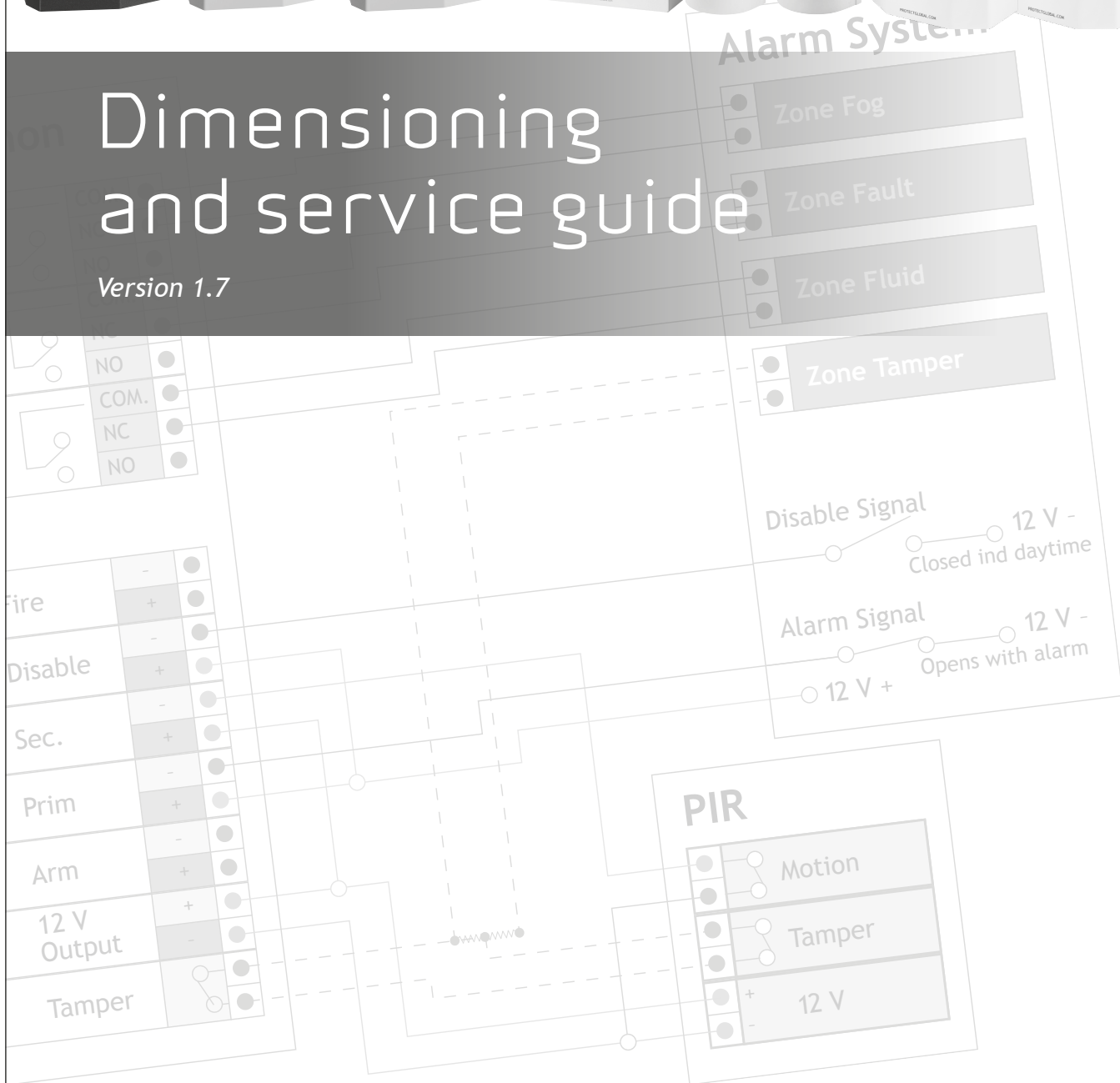




Dimensioning and service guide

Version 1.7



SECURED IN SECONDS

DIMENSIONING - CHECKLIST

Dimensioning, Specification and Positioning - CHECKLIST

- What must be secured - which valuables? ✓
- Where are the valuables to be secured? ✓
- The design of the room/rooms ✓
- Full coverage ✓
- Point/partial protection? ✓
- The intruders expected actions ✓
- Critical seconds/primary and secondary area ✓
- Fog deployment time in seconds ✓
- Position - Ceiling Mounting - Wall Mounting ✓
- Amount of fog needed ✓
- Choice of machine/machines ✓
- Activation type/types ✓

HEATING TIME

REMEMBER!

Heating time =
Time without coverage.

- PROTECT 800i C = 10-15 min.
- PROTECT 1500i C = 15-25 min.
- PROTECT 600i = 10-15 min.
- PROTECT 1100i = 15-25 min.
- PROTECT 2200i = 30-45 min.
- PROTECT FOQUS = 7 min.
- PROTECT QUMULUS = 8-10 min.
- PROTECT Xtratus = 8 min.
- PROTECT Xtratus Flex = 8 min.

If the heating time is considered too long, it is recommended to keep the machine constantly heated.

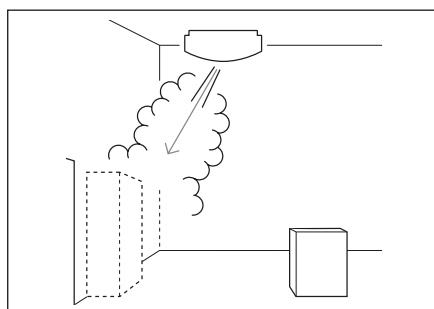
REHEATING TIME

REMEMBER!

Reheating time after deployment of fog - for full capacity.

- PROTECT 800i C = 0-5 min.
- PROTECT 1500i C = 0-8 min.
- PROTECT 600i = 0-5 min.
- PROTECT 1100i = 0-8 min.
- PROTECT 2200i = 0-14 min.
- PROTECT FOQUS = 0,5-3 min.
- PROTECT QUMULUS = 0-5 min.
- PROTECT Xtratus = 0-5 min.
- PROTECT Xtratus Flex = 0-5 min.

POINT PROTECTION

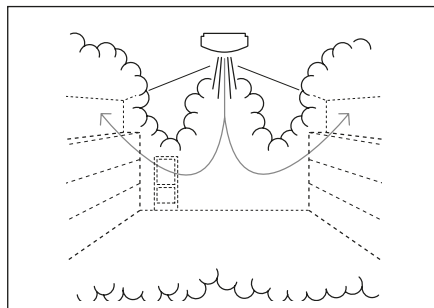


Point protection in shop



Point protection in warehouse

FULL PROTECTION

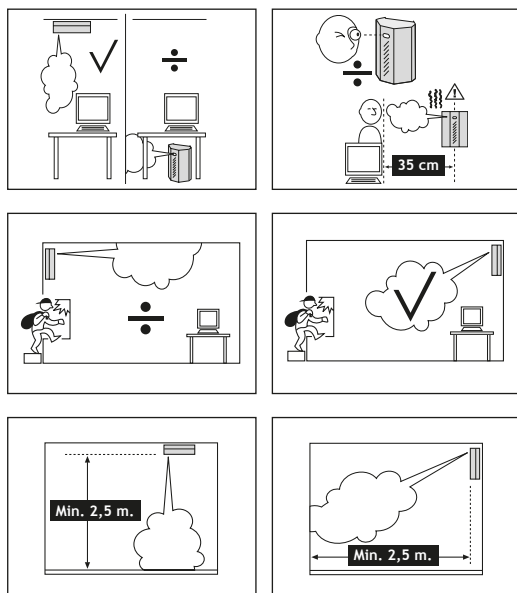


Full protection in shop

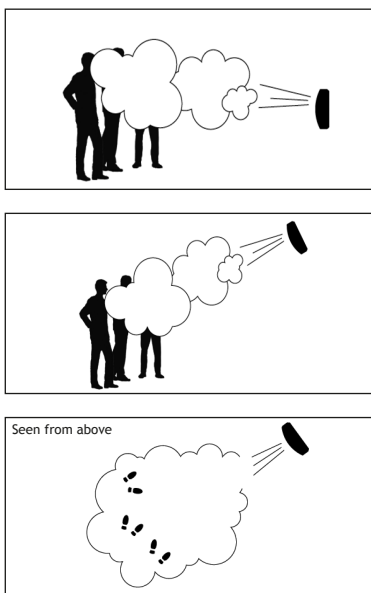


Full protection in shop

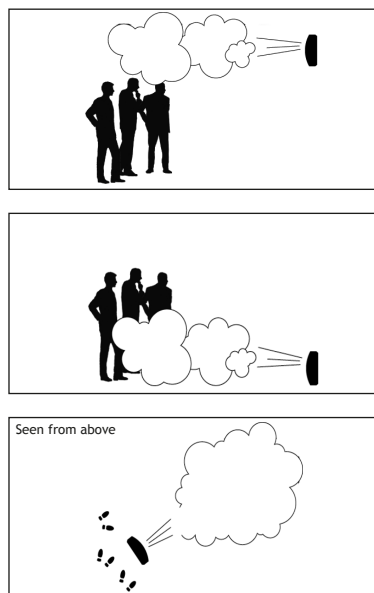
INSTALLATIONS RECOMMENDATION



GOOD INSTALLATION/DEMO



BAD INSTALLATION/DEMO



DIMENSIONING EXAMPLES

In general:

The fog output from the PROTECT Fog Cannons, are defined by the so called "Industrial standard", meaning that the visibility in the released fog, is app. 1,5m after 60 seconds. Meaning that a Protect 600i running for 60 seconds, will produce 700 m³ fog. Released in a room of 700 m³, this will give a visibility of 1,5m.

The standard EN 50131-8, require the visibility, after 60 seconds, to be 1 meter.

We recommend, to achieve 1 meter visibility, to have the measured room's volume multiplied by 2.

Example: a room of 12 x 9 x 3 meter, equal to 108m² and 324m³. Twice the volume is 648 m³.

In this case the model 600i will be suitable, making 700 m³ in 60 sec.

The calculations are only indicative. You need to make a full-scale test to ensure that your dimensioning are correct, and to make sure that the coverage is satisfying.

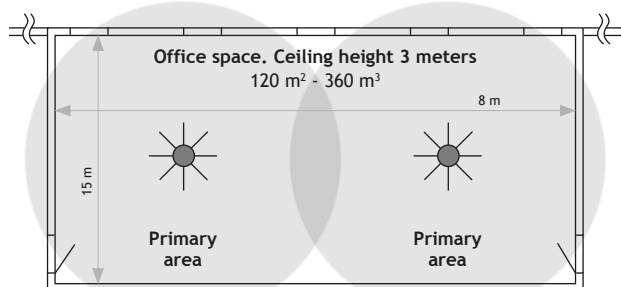
WARNING: Be careful of escape routes and emergency exits!

When placing a Fog Cannon you shall always be careful that the escape routes are not blocked by the fog.

Stairways and corridors could be part of the escape routes. The Fog cannon shall never be installed so that a trap is made.

The Fog Cannon should always be installed so that the fog is firing into the expected path of the burglar, so that the burglar is forced back and out.

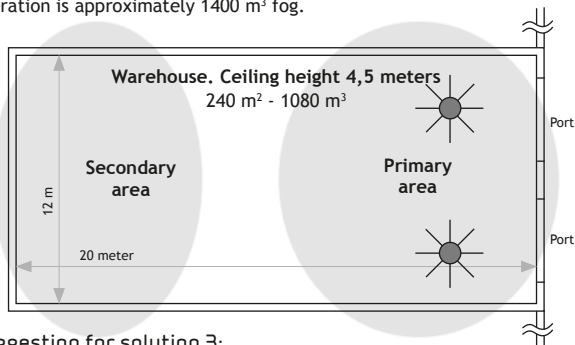
EXAMPLES



Suggestion for solution 1:

Total protection: 2 x Model 600i installed on the ceiling. Either turbo function 30 seconds or normal 60 seconds setting. A wish of visibility under 1 meter and fast deployment because of possibility of quick robbery of Computer equipment.

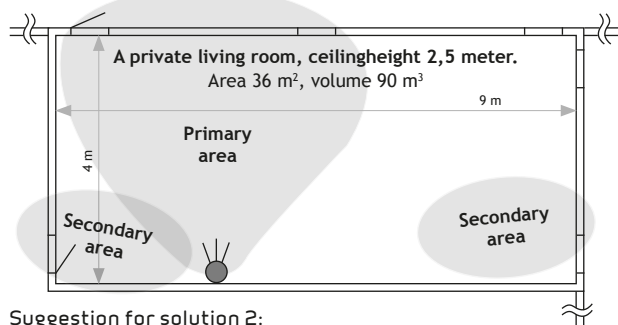
Need: 1 M visibility: 720 m³ fog. 1/2 M visibility: 1440 m³ fog. 60 seconds operation is approximately 1400 m³ fog.



Suggestion for solution 3:

Point protection/Total protection: 2 x model 1100i, installed on the ceiling. 60 seconds setting. Primary coverage around the gates, secondary coverage in the back of the warehouse. (Alternative placement could be 3 meters up on the wall with a 30 degree nozzle. Advantage: Easier installation and service. Disadvantage: A Risk of the fog cannons being placed behind pallets)

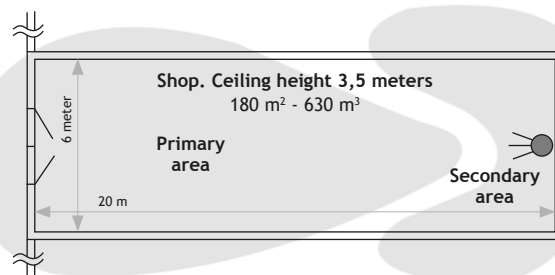
Need: 1,5 M visibility: 1080 m³ fog. 1 m visibility: 2160 m³ fog. 1/2 M visibility: 4320 m³ fog. 60 seconds operation is approximately 2600 m³ fog.



Suggestion for solution 2:

Total protection: 1 QUMULUS. No Nozzle. Effort 400 m³ in 60 seconds. Firing time 60 seconds. Visibility under 1 M.

Need: 1 M visibility: 180 m³ fog. 1/2 M visibility: 360 m³ fog. 60 seconds operation is approximately 400 m³ fog.

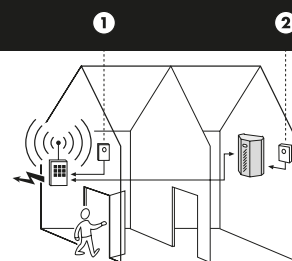
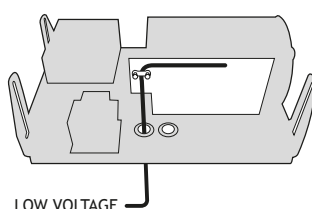
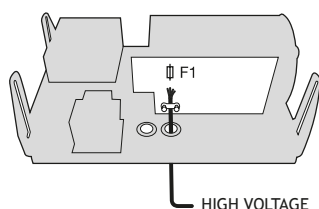


Suggestion for solution 4:

Total protection: 1 Model 1100i wall installed on the wall, 30 degree nozzle, 60 seconds fire time. Primary coverage is in the front of the shop, secondary at the back of the shop. The fog will move like piston through the shop. (Alternative 1 x model 2200i, same conditions but with a 30 seconds fire time. Advantage: faster coverage, less risk of "man trap".)

Need: 1 M visibility: 1260 m³ fog. 1/2 M visibility: 2520 m³ fog. 60 seconds operation is approximately 1300 m³ fog.

OTHERS



PROTECT 800iC™

SPECIFICATIONS:

Performance (fog generation), examples:	20 sec.: 350 m ³ 40 sec.: 700 m ³ 60 sec.: 850 m ³ 60 sec. + 1 min. pulse: 1000 m ³ 60 sec. + 5 min. pulse: 1275 m ³ 60 sec. + 10 min. pulse: 1900 m ³
Fog generation settings:	Can be timed at 3 intervals from 350-850 m ³
Total capacity (full fluid container):	Approx. 4800 m ³
Fluid container:	1.1 litres
Electronic fluid measurement:	Yes
Number of 60-sec. shots in one container:	6
Pulse function:	Yes, able to shoot several times
Mains connection:	230 V, 50 Hz
Power consumption:	1050 W
Standby consumption after heating up:	40 W (on average)
Standby consumption when heat is disabled:	5-10 W
Heating time from cold:	10-15 min.
Re-heating time after fog discharge:	0-5 min.
Operating temperature (min./max.):	5/80° C.
Input:	5 signals (+2)
Output:	3 signals (+2)
Control settings for fog time, signals and heating:	On/off DIP switches
Battery backup (2 x 12 V, 1.2 Ah):	Backup of electronics and pump
Power backup after power failure:	Up to 3 hours
Built-in automatic battery testing:	Yes
Signals/Indications:	Optical, audible and electrical
Status indicator on PCB:	Yes
External status indicator:	Yes, red/yellow/green LED
Data log memory:	Possible with IntelliSuite
Dimensions (mm):	L: 650, W: 150, H: 190
Installation weight:	13.5 kg
Nozzles (the standard nozzle is adjustable):	Max 30 degrees
Available in the following colours:	White

White - Item no.: 90030800



CONSUMER GOODS

90020212 XTRA® Fog fluid 1,1 l
SPP1060 Battery 12V - 1,2Ah

TYPICAL
SPARE PARTS

SPP1075-0000 Thermo Sensor
SPP800i-0000 PCB

DISPLAY EXPLANATION

	DISPLAY
H	Heating. The system is in the heating phase and has not reached operating temperature.
r	The system has reached normal operating temperature and is ready to produce fog.
d	"Disable" input activated and system blocked, as the alarm is not connected (heating has not been disconnected).
Hd	"Heat Disable". "Disable" input activated and system blocked, as the alarm is not connected. Heating is also disconnected, as dipswitch 1 is in the ON position.
bt	"Blocking timer active". System blocked from fog triggering internally (timer-controlled). This occurs after the fog has been triggered or in connection with system start-up after loss of mains voltage.
A	"ARM" input activated.
P	"Primary Trig" input activated.
S	"Secondary Trig" input activated.
bAt	A battery is (or has been) mounted.
C	The battery is currently being charged.
E1	Mains voltage failure.
E2	Low fluid level.
E3	Fire alarm input activated.
E4	Low battery voltage.
E5	Failed attempts to charge the battery for 24 hours.
E6	Battery failed load test.
E7	PCB temperature too high.
E8	PCB temperature too low.
E9	Thermo-sensor temperature too high (or connection lost).
E10	Thermo-sensor temperature too low (after preliminary heating).
E12	Pump timeout. The pump has been running for too long. Lack of fluid, etc.
E13	External 12 supply shut down due to overload.
E14	Error in "load test circuit".
E17	No fluid container detected.
E18	Wrong fluid container detected.
E19	Fluid level too low to run detected.
E22	Fluid container empty.

FOG TIME DIP 2-3-4

PROTECT 800i C™				
Dip Setting			Fog Time	Fog Volume
Dip 2	Dip 3	Dip 4		m ³
OFF	OFF	OFF	demo	-
ON	OFF	OFF	20s	350
OFF	ON	OFF	40s	700
ON	ON	OFF	60s	850
OFF	OFF	ON	60s + 1 min.	1000
ON	OFF	ON	60s + 5 min.	1275
OFF	ON	ON	60s + 10 min.	1900

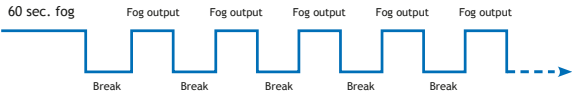
DIPSWITCH SETTINGS

DIP	Function
1	Heat disable. On = The heating element disconnects if disable is activated
2	Fog time
3	Fog time
4	Fog time
5	Arm*
6	Primary*
7	Secondary*
8	Fire-alarm delay**
9	Reserved. Leave in OFF position
10	Error indicator. On = Beeper connected

* ON = normal open.
OFF = normal closed.
** ON = delay is active.

DISPLAY / FAULT CODES

 Display/ fault codes	<u>Protect 8-0-1</u>			
	<i>H.</i> H: Heat <i>r.</i> r: ready <i>d.</i> d: disable <i>Hd.</i> Hd: Heat disable <i>Bt.</i> Bt: Blocking timer <i>A.</i> A: Arm trig	<i>P.</i> P: Primary trig <i>S.</i> S: Secondary trig <i>bat.</i> bat: battery <i>C.</i> C: Charge <i>E.</i> E: Error + no <i>1.234567890</i> <i>rc.</i> rc: Remotely controlled*	<i>norc.</i> norc: No remote control signal* <i>rd.</i> rd: Remotely disabled* <i>rHd.</i> rHd: Remotely heat disabled* <i>rP.</i> rP: Remote primary* <i>rb.</i> rb: Remotely blocked* <i>rF.</i> rF: Remote fire alarm* <i>rPA.</i> rPA: Remote panic alarm activated*	



PROTECT 1500iC™

SPECIFICATIONS:

Performance (fog generation), examples:	20 sec.: 425 m ³ 40 sec.: 850 m ³ 60 sec.: 1350 m ³ 80 sec.: 1600 m ³ 80 sec. + 4 min. pulse: 1950 m ³ 80 sec. + 9 min. pulse: 2740 m ³
Fog generation settings:	Can be timed at 3 intervals from 425-1600 m ³
Total capacity (full fluid container):	Approx. 4800 m ³
Fluid container:	1.1 litres
Electronic fluid measurement:	Yes
Number of 60/80-sec. shots in one container:	3
Pulse function:	Yes, able to shoot several times
Mains connection:	230 V, 50 Hz
Power consumption:	1350 W
Standby consumption after heating up:	49 W (on average)
Standby consumption when heat is disabled:	5-10 W
Heating time from cold:	15-25 min.
Re-heating time after fog discharge:	0-8 min.
Operating temperature (min./max.):	5/80° C.
Input:	5 signals (+2)
Output:	3 signals (+2)
Control settings for fog time, signals and heating:	On/off DIP switches
Battery backup (2 x 12 V, 1.2 Ah):	Backup of electronics and pump
Power backup after power failure:	Up to 3 hours
Built-in automatic battery testing:	Yes
Signals/Indications:	Optical, audible and electrical
Status indicator on PCB:	Yes
External status indicator:	Yes, red/yellow/green LED
Data log memory:	Possible with IntelliSuite
Dimensions (mm):	L: 650, W: 170, H: 190
Installation weight:	18.5 kg
Nozzles (the standard nozzle is adjustable):	Max 30 degrees
Available in the following colours:	White

White - Item no.: 90031500



CONSUMER GOODS

90020212 XTRA® Fog fluid 1,1 l
SPP1060 Battery 12V - 1,2Ah

TYPICAL SPARE PARTS

SPP1075-0000 Thermo Sensor
SPP1500i-0000 PCB

DISPLAY EXPLANATION

	DISPLAY
H	Heating. The system is in the heating phase and has not reached operating temperature.
r	The system has reached normal operating temperature and is ready to produce fog.
d	"Disable" input activated and system blocked, as the alarm is not connected (heating has not been disconnected).
Hd	"Heat Disable". "Disable" input activated and system blocked, as the alarm is not connected. Heating is also disconnected, as dipswitch 1 is in the ON position.
bt	"Blocking timer active". System blocked from fog triggering internally (timer-controlled). This occurs after the fog has been triggered or in connection with system start-up after loss of mains voltage.
A	"ARM" input activated.
P	"Primary Trig" input activated.
S	"Secondary Trig" input activated.
bat	A battery is (or has been) mounted.
C	The battery is currently being charged.
E1	Mains voltage failure.
E2	Low fluid level.
E3	Fire alarm input activated.
E4	Low battery voltage.
E5	Failed attempts to charge the battery for 24 hours.
E6	Battery failed load test.
E7	PCB temperature too high.
E8	PCB temperature too low.
E9	Thermo-sensor temperature too high (or connection lost).
E10	Thermo-sensor temperature too low (after preliminary heating).
E12	Pump timeout. The pump has been running for too long. Lack of fluid, etc.
E13	External 12 supply shut down due to overload.
E14	Error in "load test circuit".
E17	No fluid container detected.
E18	Wrong fluid container detected.
E19	Fluid level too low to run detected.
E22	Fluid container empty.

FOG TIME DIP 2-3-4

PROTECT 1500i C™					
Dip Setting			Fog Time	Fog Volume	
Dip 2	Dip 3	Dip 4		m ³	
OFF	OFF	OFF	demo	-	
ON	OFF	OFF	20s	425	
OFF	ON	OFF	40s	850	
ON	ON	OFF	60s	1350	
OFF	OFF	ON	80s	1600	
ON	OFF	ON	80s + 4 min.	1950	
OFF	ON	ON	80s + 9 min.	2740	

DIPSWITCH SETTINGS

DIP	Function
1	Heat disable. On = The heating element disconnects if disable is activated
2	Fog time
3	Fog time
4	Fog time
5	Arm*
6	Primary*
7	Secondary*
8	Fire-alarm delay**
9	Reserved. Leave in OFF position
10	Error indicator. On = Beeper connected

* ON = normal open.
OFF = normal closed.
** ON = delay is active.

DISPLAY / FAULT CODES



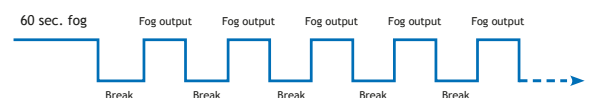
Display/
fault codes

Protect 15-0-1

H: Heat
r: ready
d: disable
Hd: Heat disable
Bt: Blocking timer
A: Arm trig

P: Primary trig
S: Secondary trig
bat: battery
C: Charge
E: Error + no
1. 2 3 4 5 6 8 7 9 0
rc: Remotely controlled*

norc: norc: No remote control signal*
rd: Remotely disabled*
rHd: Remotely heat disabled*
rP: Remote primary*
rb: Remotely blocked*
rF: Remote fire alarm*
rPA: Remote panic alarm activated*



PROTECT 600i™

SPECIFICATIONS:

Performance (fog generation), examples:	30 sec. TURBO: 600 m ³ 60 sec.: 700 m ³ 60 sec. with 9-min. pulse: 1700 m ³
Fog generation settings:	Can be timed at 3 intervals from 290-700 m ³
Total capacity (full fluid container):	Approx. 4800 m ³
Fluid container:	1,1 litres
Electronic fluid measurement:	Yes
Number of 60-sec. shots in one container:	7
Pulse function:	Yes, able to shoot several times
Mains connection:	230 V, 50 Hz
Power consumption:	1050 W
Standby consumption after heating up:	60 W (on average)
Standby consumption when heat is disabled:	5-10 W
Heating time from cold:	10-15 min.
Re-heating time after fog discharge:	0-5 min.
Operating temperature (min./max.):	5/80° C.
Input:	5 signals
Output:	3 signals
Control settings for fog time, signals and heating:	On/off DIP switches
Battery backup (2 x 12 V, 1.2 Ah):	Backup of electronics and pump
Power backup after power failure:	Up to 3 hours
Built-in automatic battery testing:	Yes
Signals/Indications:	Optical, audible and electrical
Status indicator on PCB:	Yes
External status indicator:	Yes, red/yellow/green LED
Data log memory:	Possible with IntelliSuite™
Dimensions (mm):	L: 475, W: 332, H: 154
Installation weight:	12.6 kg
4 different angled nozzles and nozzle extension options:	Yes
Available in the following colours:	White and black
Tested and approved in accordance with EN 50131-8:	Yes

White - Item no.: 90010618



Black - Item no.: 90010619

CONSUMER GOODS

90020206	XTRA® Fog fluid 1,1 l
90220430	30 Nozzle
90220403	3-hole nozzle
90020433	30 degree 3-hole nozzle
90020000	Nozzle extension 15 cm
90020500	Ceiling plate
90020500	Hoist tool
SSP1060	Battery 12V - 1,2Ah

TYPICAL SPARE PARTS

SPP1075-0000	Thermo Sensor
SPP600i-0000	PCB
SPP600-0025	Heating Rod

DISPLAY EXPLANATION

	DISPLAY
H	Heating. The system is in the heating phase and has not reached operating temperature.
r	The system has reached normal operating temperature and is ready to produce fog.
d	"Disable" input activated and system blocked, as the alarm is not connected (heating has not been disconnected).
Hd	"Heat Disable". "Disable" input activated and system blocked, as the alarm is not connected. Heating is also disconnected, as dipswitch 1 is in the ON position.
bt	"Blocking timer active". System blocked from fog triggering internally (timer-controlled). This occurs after the fog has been triggered or in connection with system start-up after loss of mains voltage.
A	"ARM" input activated.
P	"Primary Trig" input activated.
S	"Secondary Trig" input activated.
bAt	A battery is (or has been) mounted.
C	The battery is currently being charged.
E1	Mains voltage failure.
E2	Low fluid level.
E3	Fire alarm input activated.
E4	Low battery voltage.
E5	Failed attempts to charge the battery for 24 hours.
E6	Battery failed load test.
E7	PCB temperature too high.
E8	PCB temperature too low.
E9	Thermo-sensor temperature too high (or connection lost).
E10	Thermo-sensor temperature too low (after preliminary heating).
E12	Pump timeout. The pump has been running for too long. Lack of fluid, etc.
E13	External 12 supply shut down due to overload.
E14	Error in "load test circuit".

DIPSWITCH SETTINGS

DIP	Function
1	Heat disable. On = The heating element disconnects if disable is activated
2	Fog time
3	Fog time
4	Fog time
5	Arm*
6	Primary*
7	Secondary*
8	Fire-alarm delay**
9	Reserved. Leave in OFF position
10	Error indicator. On = Beeper connected

* ON = normal open.
OFF = normal closed.

** ON = delay is active.

FOG TIME DIP 2-3-4

PROTECT 600i™					
Dip Setting			Fog Time	Fog Volume	
Dip 2	Dip 3	Dip 4		m ³	
OFF	OFF	OFF	demo	-	
ON	OFF	OFF	20s	290	
OFF	ON	OFF	40s	540	
ON	ON	OFF	60s	700	
OFF	OFF	ON	60s + 1 min.	775	
ON	OFF	ON	60s + 4 min.	1050	
OFF	ON	ON	60s + 9 min.	1700	
ON	ON	ON	30s - turbo	600	

DISPLAY / FAULT CODES



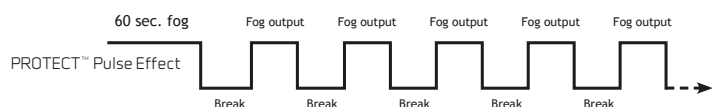
Display/
fault codes

Protect 600i

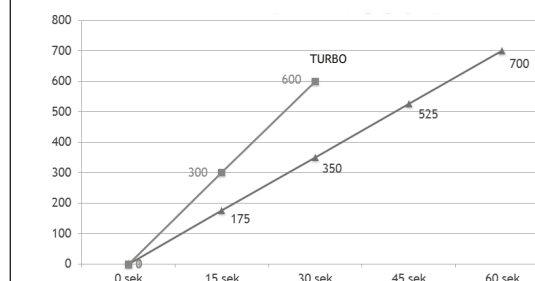
H: Heat
r: ready
d: disable
Hd: Heat disable
Bt: Blocking timer
A: Arm trig

P: Primary trig
S: Secondary trig
bat: battery
C: Charge
E: Error + no
1.234567890
rc: Remotely controlled*

norC: norC: No remote control signal*
rd: Remotely disabled*
rHd: Remotely heat disabled*
rP: Remote primary*
rb: Remotely blocked*
rF: Remote fire alarm*
rPA: Remote panic alarm activated*



FOG OUTPUT DIAGRAM



PROTECT 1100i™

SPECIFICATIONS:

Performance (fog generation), examples:	60 sec.: 1300 m ³ 60 sec. + 4 min. pulse: 1700 m ³
Fog generation settings:	Can be timed at 4 intervals from 500-1300 m ³
Total capacity (full fluid container):	Approx. 4800 m ³
Fluid container:	1.1 litres
Electronic fluid measurement:	Yes
Number of 60-sec. shots in one container:	4
Pulse function:	Yes, able to shoot several times
Mains connection:	230 V, 50 Hz
Power consumption:	1350 W
Standby consumption after heating up:	70 W (on average)
Standby consumption when heat is disabled:	5-10 W
Heating time from cold:	15-25 min.
Re-heating time after fog discharge:	0-8 min.
Operating temperature (min./max.):	5/80° C.
Input:	5 signals
Output:	3 signals
Control settings for fog time, signals and heating:	On/off DIP switches
Battery backup (2 x 12 V, 1.2 Ah):	Backup of electronics and pump
Power backup after power failure:	Up to 3 hours
Built-in automatic battery testing:	Yes
Signals/Indications:	Optical, audible and electrical
Status indicator on PCB:	Yes
External status indicator:	Yes, red/yellow/green LED
Data log memory:	Possible with IntelliSuite
Dimensions (mm):	L: 475, W: 332, H: 174
Installation weight:	16 kg
4 different angled nozzles and nozzle extension options:	Yes
Available in the following colours:	White and black
Tested and approved in accordance with EN 50131-8:	Yes

White - Item no.: 90011118



Black - Item no.: 90011119

CONSUMER GOODS

90020206 XTRA® Fog fluid 1,1 l
90220430 30° Nozzle
90020403 3-hole nozzle
90020433 30° degree 3-hole nozzle
90020000 Nozzle extension 15 cm
90020505 Ceiling plate
90020500 Hoist tool
SPP1060 Battery 12V - 1,2Ah

TYPICAL SPARE PARTS

SPP1075-0000 Thermo Sensor
SPP1100-0025 Heating Rod
SPP1100i-0000 PCB

DISPLAY EXPLANATION

	DISPLAY
H	Heating. The system is in the heating phase and has not reached operating temperature.
r	The system has reached normal operating temperature and is ready to produce fog.
d	"Disable" input activated and system blocked, as the alarm is not connected (heating has not been disconnected).
Hd	"Heat Disable". "Disable" input activated and system blocked, as the alarm is not connected. Heating is also disconnected, as dipswitch 1 is in the ON position.
bt	"Blocking timer active". System blocked from fog triggering internally (timer-controlled). This occurs after the fog has been triggered or in connection with system start-up after loss of mains voltage.
A	"ARM" input activated.
P	"Primary Trig" input activated.
S	"Secondary Trig" input activated.
bAt	A battery is (or has been) mounted.
C	The battery is currently being charged.
E1	Mains voltage failure.
E2	Low fluid level.
E3	Fire alarm input activated.
E4	Low battery voltage.
E5	Failed attempts to charge the battery for 24 hours.
E6	Battery failed load test.
E7	PCB temperature too high.
E8	PCB temperature too low.
E9	Thermo-sensor temperature too high (or connection lost).
E10	Thermo-sensor temperature too low (after preliminary heating).
E12	Pump timeout. The pump has been running for too long. Lack of fluid, etc.
E13	External 12 supply shut down due to overload.
E14	Error in "load test circuit".

DIPSWITCH SETTINGS

DIP	Function
1	Heat disable. On = The heating element disconnects if disable is activated
2	Fog time
3	Fog time
4	Fog time
5	Arm*
6	Primary*
7	Secondary*
8	Fire-alarm delay**
9	Reserved. Leave in OFF position
10	Error indicator. On = Beeper connected

* ON = normal open.
OFF = normal closed.
** ON = delay is active.

FOG TIME DIP 2-3-4

PROTECT 1100i™				
Dip Setting			Fog Time	Fog Volume
Dip 2	Dip 3	Dip 4		m ³
OFF	OFF	OFF	demo	demo
ON	OFF	OFF	15s	500
OFF	ON	OFF	30s	875
ON	ON	OFF	45s	1200
OFF	OFF	ON	60s	1300
ON	OFF	ON	60s + 4 min.*	1700*
OFF	ON	ON	-	-
ON	ON	ON	-	-

*Not usable on 115/130 V markets

DISPLAY / FAULT CODES

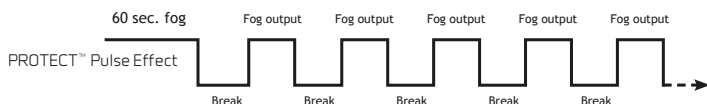
Display/
fault codes

Protect 1-1-0-1

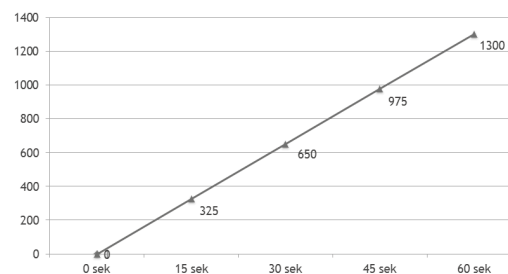
H: Heat
r: ready
d: disable
Hd: Heat disable
bt: Blocking timer
A: Arm trig

P: Primary trig
S: Secondary trig
bat: battery
C: Charge
E: Error + no
1.234567890
rc: Remotely controlled*

norc: No remote control signal*
rd: Remotely disabled*
rHd: Remotely heat disabled*
rP: Remote primary*
rb: Remotely blocked*
rF: Remote fire alarm*
rPA: Remote panic alarm activated*



FOG OUTPUT DIAGRAM



PROTECT 2200i™

SPECIFICATIONS:

Performance (fog generation), examples:	60 sec.: 2700 m ³ 70 sec.: 2875 m ³ 60 sec. with 10-min. pulse: 3700 m ³
Fog generation settings:	Can be timed at 4 intervals from 900-2875 m ³
Total capacity (full fluid container):	Approx. 13200 m ³
Fluid container:	3 litres
Electronic fluid measurement:	Yes
Number of 60-sec. shots in one container:	5
Pulse function:	Yes, able to shoot several times
Mains connection:	230 V, 50 Hz
Power consumption:	1680 W
Standby consumption after heating up:	80 W (on average)
Standby consumption when heat is disabled:	5-10 W
Heating time from cold:	30-45 min.
Re-heating time after fog discharge:	0-14 min.
Operating temperature (min./max.):	5/80° C.
Input:	5 signals
Output:	3 signals
Control settings for fog time, signals and heating:	On/off DIP switches
Battery backup (2 x 12 V, 1.2 Ah):	Backup of electronics and pump
Power backup after power failure:	Up to 3 hours
Built-in automatic battery testing:	Yes
Signals/Indications:	Optical, audible and electrical
Status indicator on PCB:	Yes
External status indicator:	Yes, red/yellow/green LED
Data log memory:	Possible with IntelliSuite
Dimensions (mm):	L: 633, W: 352, H: 172
Installation weight:	24.8 kg
4 different angled nozzles and nozzle extension options:	Yes
Available in the following colours:	White and black
Tested and approved in accordance with EN 50131-8:	Yes

White - Item no.: 90012218



Black - Item no.: 90012219

CONSUMER GOODS

90022200	XTRA® Fog fluid 3 l
90022230	30° Nozzle
90022203	3-hole nozzle
90022233	30° degree 3-hole nozzle
90020000	Nozzle extension 15 cm
90020506	Ceiling plate
90020500	Hoist tool
SPP1060	Battery 12V - 1,2Ah

TYPICAL SPARE PARTS

SPP1075-0000	Thermo Sensor
SPP2200-0025	Heating Rod
SPP2200i-0000	PCB

DISPLAY EXPLANATION

	DISPLAY
H	Heating. The system is in the heating phase and has not reached operating temperature.
r	The system has reached normal operating temperature and is ready to produce fog.
d	"Disable" input activated and system blocked, as the alarm is not connected (heating has not been disconnected).
Hd	"Heat Disable". "Disable" input activated and system blocked, as the alarm is not connected. Heating is also disconnected, as dipswitch 1 is in the ON position.
bt	"Blocking timer active". System blocked from fog triggering internally (timer-controlled). This occurs after the fog has been triggered or in connection with system start-up after loss of mains voltage.
A	"ARM" input activated.
P	"Primary Trig" input activated.
S	"Secondary Trig" input activated.
bAt	A battery is (or has been) mounted.
C	The battery is currently being charged.
E1	Mains voltage failure.
E2	Low fluid level.
E3	Fire alarm input activated.
E4	Low battery voltage.
E5	Failed attempts to charge the battery for 24 hours.
E6	Battery failed load test.
E7	PCB temperature too high.
E8	PCB temperature too low.
E9	Thermo-sensor temperature too high (or connection lost).
E10	Thermo-sensor temperature too low (after preliminary heating).
E12	Pump timeout. The pump has been running for too long. Lack of fluid, etc.
E13	External 12 supply shut down due to overload.
E14	Error in "load test circuit".

DIPSWITCH SETTINGS

DIP	Function
1	Heat disable. On = The heating element disconnects if disable is activated
2	Fog time
3	Fog time
4	Fog time
5	Arm*
6	Primary*
7	Secondary*
8	Fire-alarm delay**
9	Reserved. Leave in OFF position
10	Error indicator. On = Beeper connected

* ON = normal open.
OFF = normal closed.
** ON = delay is active.

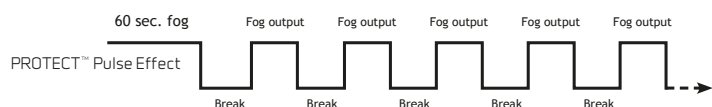
FOGTIME DIP 2-3-4

PROTECT 2200i™					
Dip Setting			Fog Time	Fog Volume	
Dip 2	Dip 3	Dip 4		m ³	
OFF	OFF	OFF	demo	demo	
ON	OFF	OFF	20s	900	
OFF	ON	OFF	40s	1800	
ON	ON	OFF	60s	2700	
OFF	OFF	ON	70s	2875	
ON	OFF	ON	30s + 6 min.*	2500*	
OFF	ON	ON	60s + 10 min.*	3700*	
ON	ON	ON	-	-	

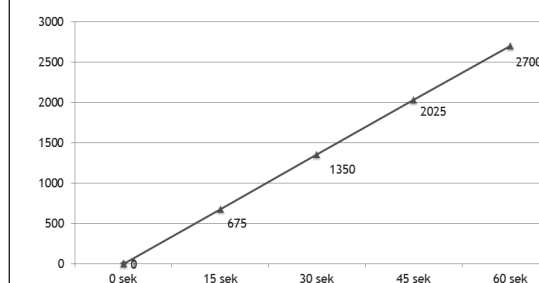
*Not usable on 115/130 V markets

DISPLAY / FAULT CODES

8	Display/ fault codes	ProtEct 2-2-0-1	P. S. bAt. C. E. 1.234567890 rc.	P: Primary trig S: Secondary trig bat: battery C: Charge E: Error + no 1.234567890 rc: Remotely controlled*	norC. rd. rHd. rP. rb. rF. rPA.	norC: No remote control signal* rd: Remotely disabled* rHd: Remotely heat disabled* rP: Remote primary* rb: Remotely blocked* rF: Remote fire alarm* rPA: Remote panic alarm activated*
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FOG OUTPUT DIAGRAM



PROTECT FOCUS™

SPECIFICATIONS:

Fog generation: Rooms up to 25 m ²
Fog production settings: Three possible durations (8, 16 and 25 m ²)
Pulse mode: Yes, can shoot several times (3 settings)
Fog fluid container: 1.1 litre (same as model 600/600i and 1100/1100i)
Shots per container: Min. 20
Electronic fluid measurement: Yes
Mains connection: 230 V, 50 Hz z
Power consumption: 700 W
Standby consumption (after warm up): 55 W
Standby consumption (when heat is disabled): 5 - 10 W
Warm-up time from cold: 7 min.
Warm-up time after fog discharge: ½ - 3 min.
Operation temperature (min./max.): 5/80° C.
Input: 5 signals
Output: 3 signals
Control settings for fog time, signals and heating: On/off DIP switches
Battery back up (2 x 12 V, 1.2 Ah): Electronics and pumps
Power backup after power failure: Up to 1 hour
Built-in automatic battery loading: Yes
Signals/Indicators: Audible, optical, and electrical
PCB status indicator: Yes
Data log memory: Yes, optional with IntelliSuite
Dimensions (mm): L: 400, B: 240, H: 135
Installation weight: 7 kg
Possibility of 2 different angled nozzles: Yes (straight ahead and 30°)
Metal casing colour: White

White - Item no.: 90010201



CONSUMER GOODS

90020206	XTRA® Fog fluid 3 l
90020230	30° Nozzle
SPP1060	Battery 12V - 1,2Ah

TYPICAL SPARE PARTS

SPP1075-0000	Thermo Sensor
SPP200-0020	Heating Rod
SPP200-0000	PCB

DISPLAY EXPLANATION

	DISPLAY
H	Heating. The system is in the heating phase and has not reached operating temperature.
r	The system has reached normal operating temperature and is ready to produce fog.
d	"Disable" input activated and system blocked, as the alarm is not connected (heating has not been disconnected).
Hd	"Heat Disable". "Disable" input activated and system blocked, as the alarm is not connected. Heating is also disconnected, as dipswitch 1 is in the ON position.
bt	"Blocking timer active". System blocked from fog triggering internally (timer-controlled). This occurs after the fog has been triggered or in connection with system start-up after loss of mains voltage.
A	"ARM" input activated.
P	"Primary Trig" input activated.
S	"Secondary Trig" input activated.
bAt	A battery is (or has been) mounted.
C	The battery is currently being charged.
E1	Mains voltage failure.
E2	Low fluid level.
E3	Fire alarm input activated.
E4	Low battery voltage.
E5	Failed attempts to charge the battery for 24 hours.
E6	Battery failed load test.
E7	PCB temperature too high.
E8	PCB temperature too low.
E9	Thermo-sensor temperature too high (or connection lost).
E10	Thermo-sensor temperature too low (after preliminary heating).
E12	Pump timeout. The pump has been running for too long. Lack of fluid, etc.
E13	External 12 supply shut down due to overload.
E14	Error in "load test circuit".

DIPSWITCH SETTINGS

DIP	Function
1	Heat disable. On = The heating element disconnects if disable is activated
2	Fog time
3	Fog time
4	Fog time
5	Arm*
6	Primary*
7	Secondary*
8	Fire-alarm delay**
9	Reserved. Leave in OFF position
10	Error indicator. On = Beeper connected

* ON = normal open.
OFF = normal closed.
** ON = delay is active.

FOG TIME DIP 2-3-4

FOCUS™				
Dip Setting			Fog Time	Fog Volume
Dip 2	Dip 3	Dip 4		
OFF	OFF	OFF	-	Do not use
ON	OFF	OFF	-	8 m ² / 72 m ²
OFF	ON	OFF	-	16 m ² / 144 m ²
ON	ON	OFF	-	25 m ² / 180 m ²
OFF	OFF	ON	-	10 sec. of fog + 3 pulse shots (in all about 90 sec. fog)
ON	OFF	ON	-	10 sec. of fog + 6 pulse shots (in all about 180 sec. fog)
OFF	ON	ON	-	6 sec. of fog (full speed) + 294 sec. of fog (reduced speed). In all 300 sec. fog
ON	ON	ON	-	5 sec. of fog (at normal speed) + 5 min. of continuous fog (at very slow speed)

DISPLAY / FAULT CODES



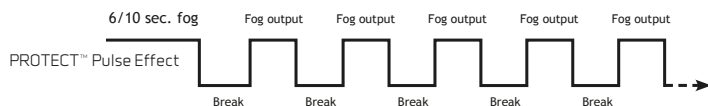
Display/
fault codes

Protect Focus

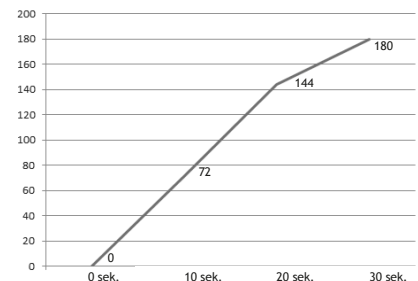
H: Heat
r: ready
d: disable
Hd: Heat disable
Bt: Blocking timer
A: Arm trig

P: Primary trig
S: Secondary trig
bat: battery
C: Charge
E: Error + no
1.234567890
rc: Remotely controlled*

norc: No remote control signal*
rd: Remotely disabled*
rHd: Remotely heat disabled*
rP: Remote primary*
rb: Remotely blocked*
rF: Remote fire alarm*
rPA: Remote panic alarm activated*



FOG OUTPUT DIAGRAM



PROTECT QUMULUS

SPECIFICATIONS:

Performance (fog generation): 60 sec.: 400 m ³
Fog generation settings: Can be timed at 3 intervals from 140 - 400 m ³
Total capacity (full fluid bag): 1800 m ³
Fluid bag: 0,4 litres
Electronic fluid measurement: Yes
Number of 60-sec. shots in one bag: 4
Pulse mode: Yes, can shoot several times (2 sittings)
Mains connection: 230 V, 50 Hz
Power consumption: 1050 W
Standby consumption after heating up: 60 W (on average)
Standby consumption when heat is disabled: 5-10 W
Heating time from cold: 8-10 min.
Re-heating time after fog discharge: 0-5 min.
Operating temperature (min./max.): 5/80° C.
Input: 5 signals
Output: 3 signals
Control settings for fog time, signals and heating: On/off DIP switches
Battery backup: Yes. Please notice: QUMULUS is delivered without batteries
Power backup after mains connection loss: Up to 1 hour (requires batteries, which are not delivered as standard).
Signals, indicators: Yes, optical, audible and electrical
Status indicator on PCB: Yes
External status indicator: Yes
Data log memory: Yes, export of data possible with IntelliSuite
Dimensions (mm): L: 650 x B: 140 x H: 148
Installation weight: 10 kg
Possibility of 2 different angled nozzles: Yes, straight ahead and 30°
Compatible with PROTECT's nozzle extension: No
Metal casing colour: White

White - Item no.: 90010101



CONSUMER GOODS

90020209 XTRA® Fog fluid Bag 0,4 l
90020430 30 degree nozzle
SPP1060 Battery 12V - 1,2Ah

TYPICAL
SPARE PARTS

SPP1075-0000 Thermo Sensor
SPP100-0025 Heating Rod
SPP100-0000 PCB

DISPLAY EXPLANATION

	DISPLAY
H	Heating. The system is in the heating phase and has not reached operating temperature.
r	The system has reached normal operating temperature and is ready to produce fog.
d	"Disable" input activated and system blocked, as the alarm is not connected (heating has not been disconnected).
Hd	"Heat Disable". "Disable" input activated and system blocked, as the alarm is not connected. Heating is also disconnected, as dipswitch 1 is in the ON position.
bt	"Blocking timer active". System blocked from fog triggering internally (timer-controlled). This occurs after the fog has been triggered or in connection with system start-up after loss of mains voltage.
A	"ARM" input activated.
P	"Primary Trig" input activated.
S	"Secondary Trig" input activated.
bAt	A battery is (or has been) mounted.
C	The battery is currently being charged.
E1	Mains voltage failure.
E2	Low fluid level.
E3	Fire alarm input activated.
E4	Low battery voltage.
E5	Failed attempts to charge the battery for 24 hours.
E6	Battery failed load test.
E7	PCB temperature too high.
E8	PCB temperature too low.
E9	Thermo-sensor temperature too high (or connection lost).
E10	Thermo-sensor temperature too low (after preliminary heating).
E12	Pump timeout. The pump has been running for too long. Lack of fluid, etc.
E13	External 12 supply shut down due to overload.
E14	Error in "load test circuit".

DIPSWITCH SETTINGS

DIP	Function
1	Heat disable. On = The heating element disconnects if disable is activated
2	Fog time
3	Fog time
4	Fog time
5	Arm*
6	Primary*
7	Secondary*
8	Fire-alarm delay**
9	Reserved. Leave in OFF position
10	Error indicator. On = Beeper connected

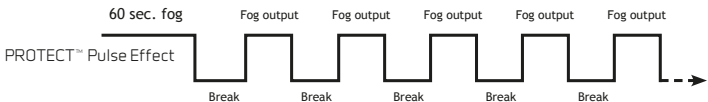
* ON = normal open.
OFF = normal closed.
** ON = delay is active.

FOG TIME DIP 2-3-4

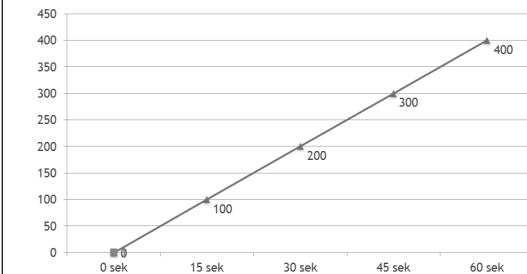
QUMULUS®					
Dip Setting			Fog Time	Fog Volume	
Dip 2	Dip 3	Dip 4		m ³	
OFF	OFF	OFF	demo	-	
ON	OFF	OFF	20s	140	
OFF	ON	OFF	40s	230	
ON	ON	OFF	60s	400	
OFF	OFF	ON	60s + 2 min.	600	
ON	OFF	ON	60s + 4 min.	900	
OFF	ON	ON	-	-	
ON	ON	ON	-	-	

DISPLAY / FAULT CODES

 Display/ fault codes	<i>P.</i>	P: Primary trig	<i>norC.</i>	norC: No remote control signal*
	<i>S.</i>	S: Secondary trig	<i>rd.</i>	rd: Remotely disabled*
	<i>bAt.</i>	bat: battery	<i>rHd.</i>	rHd: Remotely heat disabled*
	<i>C.</i>	C: Charge	<i>rP.</i>	rP: Remote primary*
	<i>E.</i>	E: Error + no	<i>rb.</i>	rb: Remotely blocked*
	<i>1.234567890</i>	1. 2 3 4 5 6 8 7 9 0	<i>rF.</i>	rF: Remote fire alarm*
<i>H.</i>			<i>rPA.</i>	rPA: Remote panic alarm activated*
<i>r.</i>				
<i>d.</i>				
<i>Hd.</i>				
<i>Bt.</i>				
<i>A.</i>				



FOG OUTPUT DIAGRAM



PROTECT *Xtratus*

SPECIFICATIONS:

Prepared for 0,4 l. fluid container (not included)
Enough fluid for 2 discharges in one fluid container
Power consumption: 1050 W
Mains connection: 230V, 50 Hz
Standby consumption after heating up: 60 W (on average)
Standby consumption when heat is disabled: 5-10 W
Heating time from cold: 8 min.
Re-heating time after fog discharge: 0-5 min.
Operating temperature (min./max.): 5/80° C.
Input: 3 signals (arming, trig 1, trig 2)
Output: 2 signals
Output power for verification sensor (PIR), 9V DC
On/off dipswitches for setting of signals and heating
Backup of electronics (9V Alkaline)
Power backup after power failure: 17 min.
Optical, audible and electrical signals/indicators
Internal and external status indicator
Anti-sabotage, impact-resistant steel casing
Colours available: White
Dimensions: L: 650, W: 140, H: 148 mm
Installation weight: 10 kg

White - Item no.: 90010013



CONSUMER GOODS

90020202 Fog fluid 0,4 l

DISPLAY EXPLANATION

GREEN LIGHT

Flashes when heating (1 flash/sec.).
Lights constantly when Xtratus is Ready.
Turns off if error occurs.

YELLOW LIGHT

Flashes at E2 error (no fluid),
beeper sounds and fault relay active
(1 flash/sec.).
Flashes for 24 hours after
successful fog release.
1 flash/sec. (no beeper active).
(Can be erased by pushing Reset button).

RED LIGHT

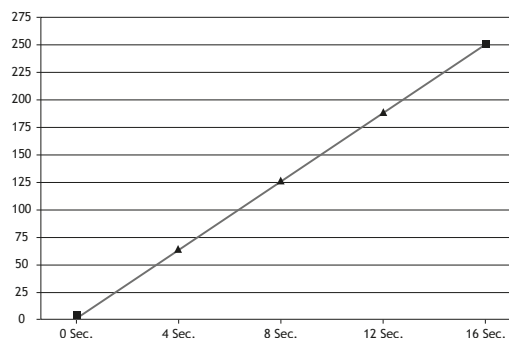
Lights constantly at critical errors:
E5, E6, E7, E8.
1 flash/sec. at less critical errors:
E1, E3, E4.

DIPSWITCH SETTINGS

DIP	Function
1	Heat disable On = The heating element disconnects if disarm is activated OFF = Constantly heating
2	Trig 1*
3	Trig 2*
4	Reserved. Leave in OFF position
5	Error indicator/buzzer ON = Beeper/buzzer connected

* ON = Normal open.
OFF = Normal closed.

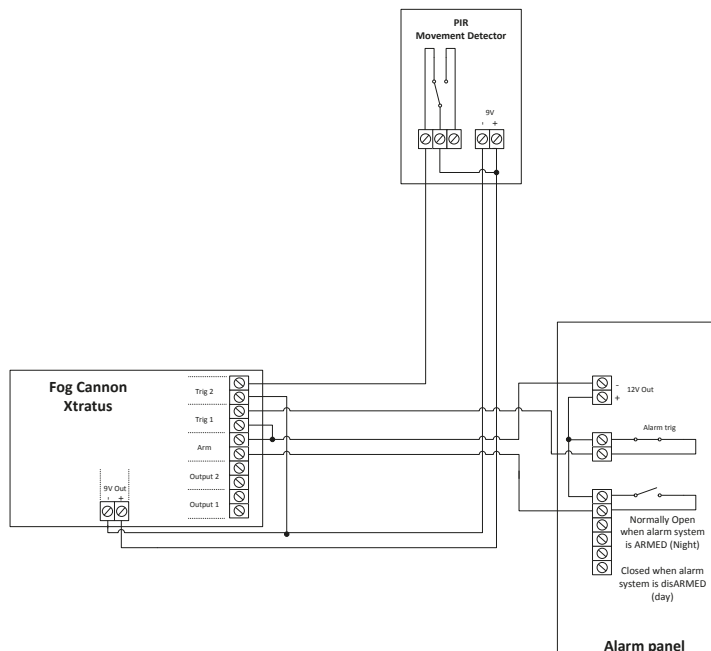
FOG OUTPUT DIAGRAM



FOG TIME

16 sec. = 250m³
Visibility = 1 meter.

TYPICAL INSTALLATION



8 DIFFERENT ERRORS

- E1: Mains supply error
- E2: No fluid error
- E3: Battery voltage low
- E4: PCB board temperature high/low error
- E5: Thermal sensor error
- E6: Heat rod error
- E7: Over temperature on heater error
- E8: Motor error

Which error is announced?

To find out which error is announced on the Xtratus, you simply press and release the Reset button shortly.

Immediately after, the Xtratus will tell you which error is present - simply by counting the present error. This is done by use of the red light and the buzzer that will flash and beep the error number.

An example: E5 error is present on the Xtratus. You press and release the Reset button and the constant red light will turn off. Then the red light slowly will flash 5 times and the buzzer will sound accordingly. Right after the red constant light comes back.

So you simply count the number of flashes and beeps, and this will correspond to the present error number.

This procedure can be repeated until you reset the error.

PROTECT *Xtratus Flex*

SPECIFICATIONS:

Prepared for 0,4 l. fluid container (not included)
Enough fluid for 2 discharges in one fluid container
Power consumption: 1050 W
Mains connection: 230V, 50 Hz
Standby consumption after heating up: 60 W (on average)
Standby consumption when heat is disabled: 5-10 W
Heating time from cold: 8 min.
Re-heating time after fog discharge: 0-5 min.
Operating temperature (min./max.): 5/80° C.
Input: 3 signals (arming, trig 1, trig 2)
Output: 2 signals
Output power for verification sensor (PIR), 9V DC
On/off dipswitches for setting of signals and heating
Backup of electronics (9V Alkaline)
Power backup after power failure: 17 min.
Optical, audible and electrical signals/indicators
Internal and external status indicator
Anti-sabotage, impact-resistant steel casing
Colours available: White
Dimensions: L: 650, W: 140, H: 148 mm
Installation weight: 10 kg

White - Item no.: 90010015



CONSUMER GOODS

90020202 Fog fluid 0,4 l

DISPLAY EXPLANATION

GREEN LIGHT

Flashes when heating (1 flash/sec.).
Lights constantly when Xtratus Flex® is Ready. Turns off if error occurs.

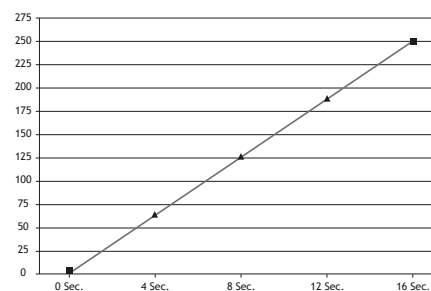
YELLOW LIGHT

Flashes at E2 error (no fluid),
beeper sounds and fault relay active
(1 flash/sec.).
Flashes for 24 hours after successful fog release.
1 flash/sec. (no beeper active).
(Can be erased by pushing Reset button).

RED LIGHT

Lights constantly at critical errors: E5, E6, E7, E8.
1 flash/sec. at less critical errors: E1, E3, E4.

FOG OUTPUT DIAGRAM



DIFFERENT DIPSWITCH SETTINGS

DIP	Function
1	Heat disable On = The heating element disconnects if disarm is activated OFF = Constantly heating
2	Trig 1*
3	Error indicator/buzzer ON = Beeper/buzzer connected
4	Fog time
5	Fog time

* ON = Normal open.
OFF = Normal closed.

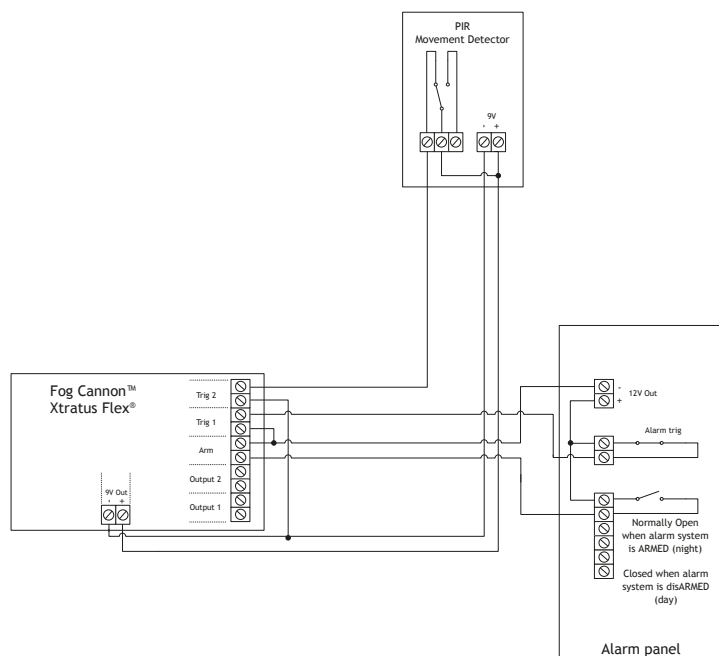
FOG TIME DIP 4-5

Xtratus Flex®			
Dip Setting		Fog time	***Fog volume
Dip 4	Dip 5		m³
OFF	OFF	2 x 16 sec.	250/151
ON	OFF	3 x 11 sec.**	164/125/100
OFF	ON	4 x 7 sec.**	118/96/81/78

** After the last fog activation, and generally after any change of the fog fluid container, Xtratus Flex® must always be reset.

*** New, unused fluid container.

TYPICAL INSTALLATION



8 DIFFERENT ERRORS

- E1: Mains supply error
- E2: No fluid error
- E3: Battery voltage low
- E4: PCB board temperature high/low error
- E5: Thermal sensor error
- E6: Heat rod error
- E7: Over temperature on heater error
- E8: Motor error

Which error is announced?

To find out which error is announced on the Xtratus Flex®, you simply press and release the Reset button shortly.

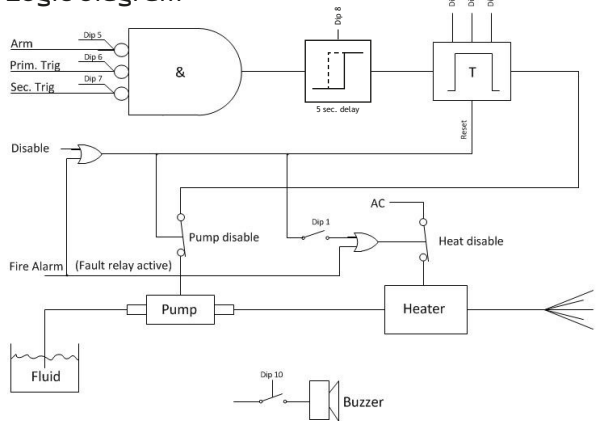
Immediately after, the Xtratus Flex® will tell you which error is present - simply by counting the present error. This is done by use of the red light and the buzzer that will flash and beep the error number.

An example: E5 error is present on the Xtratus Flex®. You press and release the Reset button and the constant red light will turn off. Then the red light slowly will flash 5 times and the buzzer will sound accordingly. Right after the red constant light comes back. So you simply count the number of flashes and beeps, and this will correspond to the present error number.

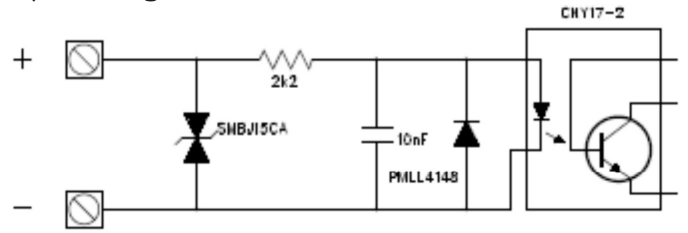
This procedure can be repeated until you reset the error.

ELECTRICAL INSTALLATION

Logic diagram



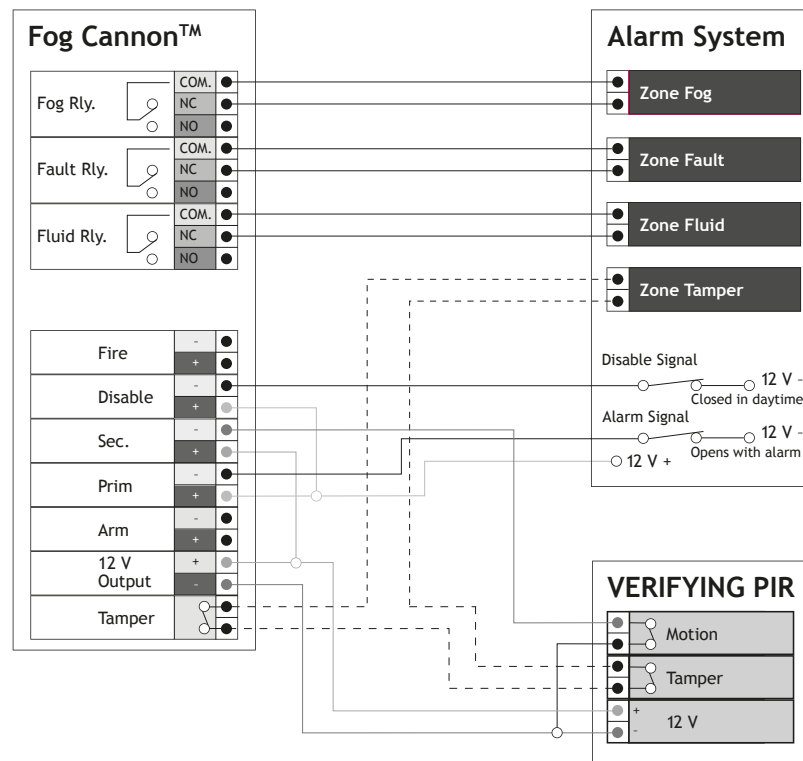
Input configuration



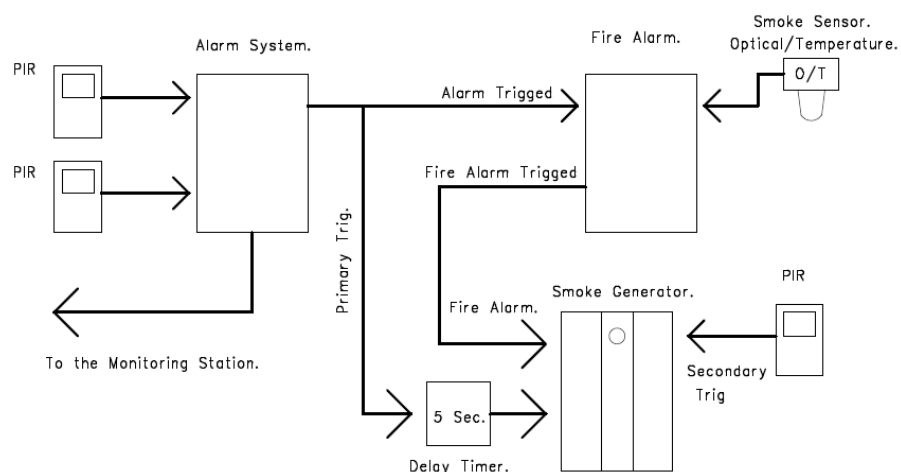
- Galvanic isolated
- Nominal 12V - 5 mA
- Inputs must be polarized correctly
- Inputs can be connected with 24V by connecting a resistance in series with the signal (2.4 Kohm)

Recommended NC (normal closed) circuit

STATUS: ALARM IS OFF (DAYTIME), FOG CANNON™ IS DISABLED



TYPICAL CONNECTION WITH AFA SYSTEMS



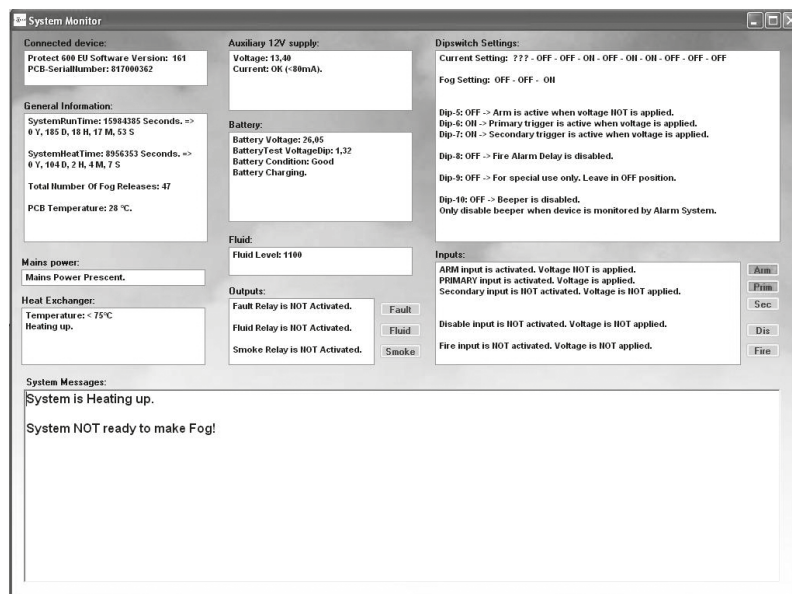


Setup PROTECT IntelliSuite™

- Install Driver to IntelliConnector (cable)
- Install IntelliSuite (Software) from PROTECT Download Center
- Connect the IntelliConnector (Cable) to the Fog Cannon
- Choose communications port
- Setup is normally only necessary once per laptop
- The Cable has a build in 3kV galvanic separation to ensure the Fog Cannon and the laptop

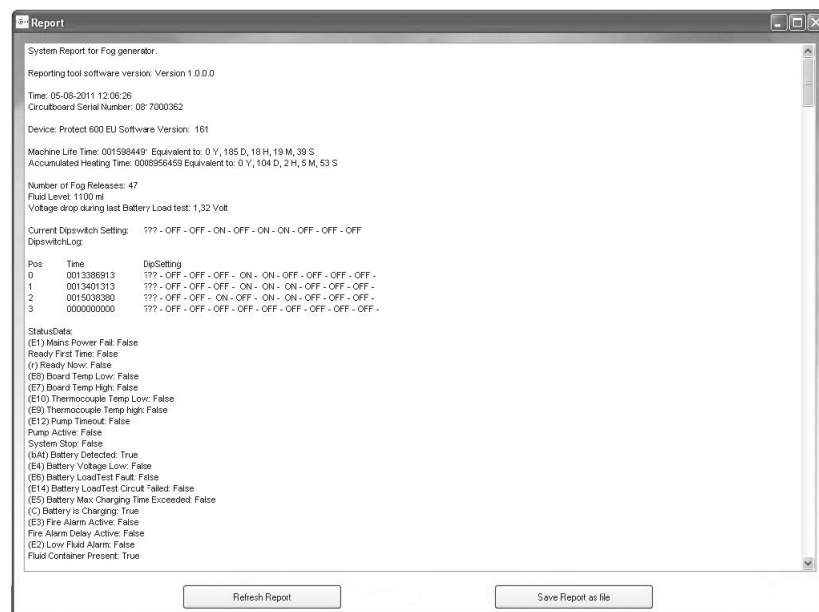
System Monitor

- Faults and reasons
- Condition on inputs and outputs
- Batteri condition
- Fluid level
- Operating time
- Dipswitch settingsguide (fog time)



Report tool

- All information in one text file
- Saves the last known dipswitch settings
- Shows faults
- Status on inputs
- Status on outputs
- Analog values





GB PROTECT A/S is the world's largest supplier and the only producer of Fog Cannon in Scandinavia. PROTECT is represented worldwide in 50 countries.



SECURED IN SECONDS