IntelliBox™

Installation Manual

Version 2.0

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1. Introduction to IntelliBox

IntelliBox has been developed to ensure that the installation of multiple fog cannon units is easy and fast to cope with.

Installing multiple fog cannon in the traditional way, using the same alarm system, normally requires extensive cable systems. This makes the installation and documentation far too time consuming.

Up to 16 fog cannon units – wired, wireless or mixed
The use of IntelliBox and the IntelliBusCards with fog cannon, will enable you to fully connect and control up to 16 fog cannon units – this can be simply achieved by using one single twisted pair in the same cable, this will connect all fog cannon units in the same installation.

In addition to the wired IntelliBus system (balanced twisted pair communication bus – also see 4.3 and 4.5) wireless communication is also possible by use of the IntelliWirelessCard for lower security level applications. Even mixed wire and wireless installations are also possible.

Wireless – or part wireless – installations can reduce installation costs even more, and can vastly reduce the amount of cabling required.

Large cost savings and quick installations
With the IntelliBox system, most of the installation work, settings and testing can actually be completed in the workshop prior to the installation making quicker installations possible.

In addition to the large cost savings on installation, the IntelliBox saves time on service and problem solving by showing real text messages in the large and easy-to-read LCD display.

Easy to diagnose
Especially in installations where fog cannon units are installed in hard to reach places, service and fault identification is easy to perform without actually having to physically access every individual unit.

If a general fault condition is displayed, the user or owner at the premises can identify the problem and pass accurate information over the telephone to the service personnel. This early notice will reduce service costs by preparing the service engineers for the prescribed fault, it will also help in job prioritisation.

Even detailed information as to the state of each fog cannon can be accessed by connecting a computer (running IntelliSuite software) directly to the centrally located IntelliBox.

Panic button alarm
The IntelliBox system also allow selected fog cannon, normally used as part of the alarm system, to serve as a daytime robbery protection system (panic button alarm).

Active zoning
Active zoning is possible with "smart alarm systems." Where verification is done by the alarm system, it will evaluating multiple sensors in the dedicated protected zone. Two zones can be controlled at the same time and this will still allow the local verification of each fog cannon. Three zones can be controlled without using local verification.

The possibility of "global verification" connected directly to the IntelliBox is also a possibility.

2. Examples of different installation combinations

STOCK I

IntelliBusCard™ inside

OFFICE

IntelliBusCard™ inside

SHOP

IntelliBusCard™ inside

Intelli-Wireless-Card™

IntelliSuite™

STOCK II

IntelliBusCard™ inside

STOCK III

IntelliBusCard™ inside

ALARM SYSTEM

MONITORING STATION
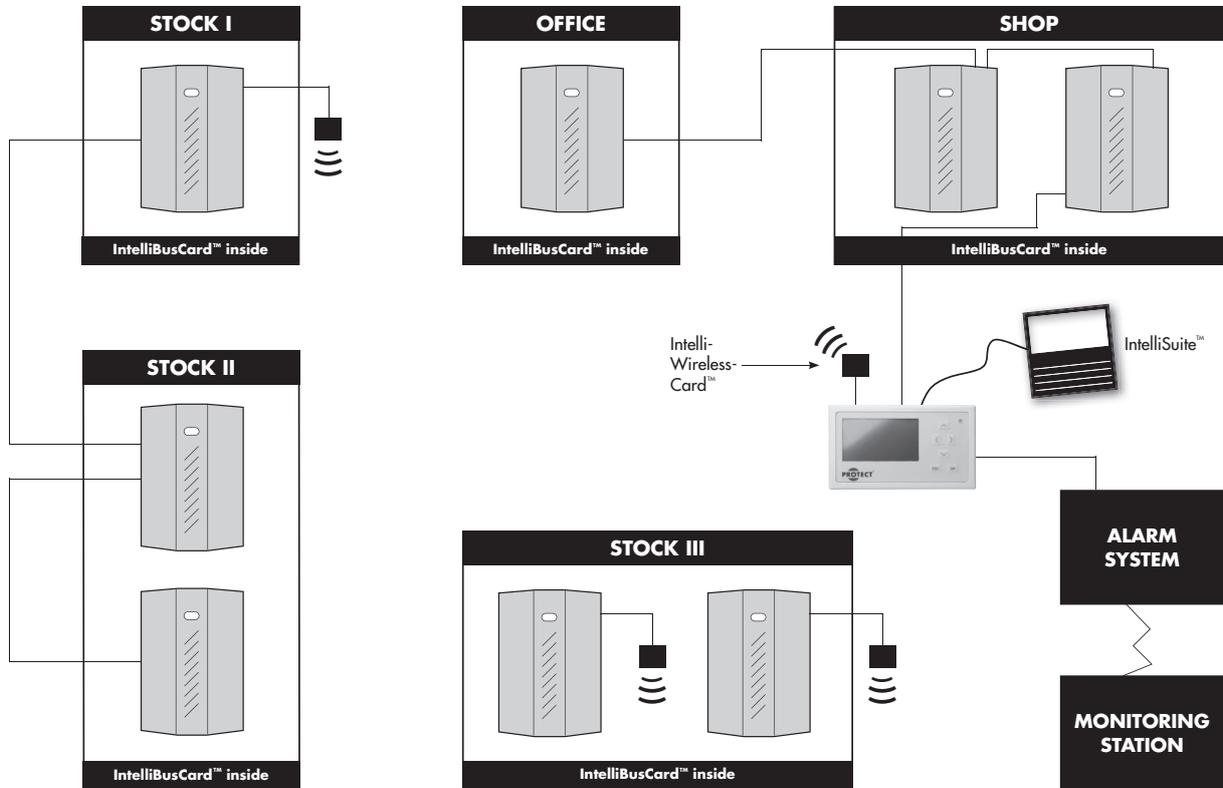
EXAMPLE:
- **8 Fog cannon units™**
- **8 IntelliBusCards™**
- **4 IntelliWirelessCards™**
- **1 IntelliBox™**

IntelliBusCard™ inside
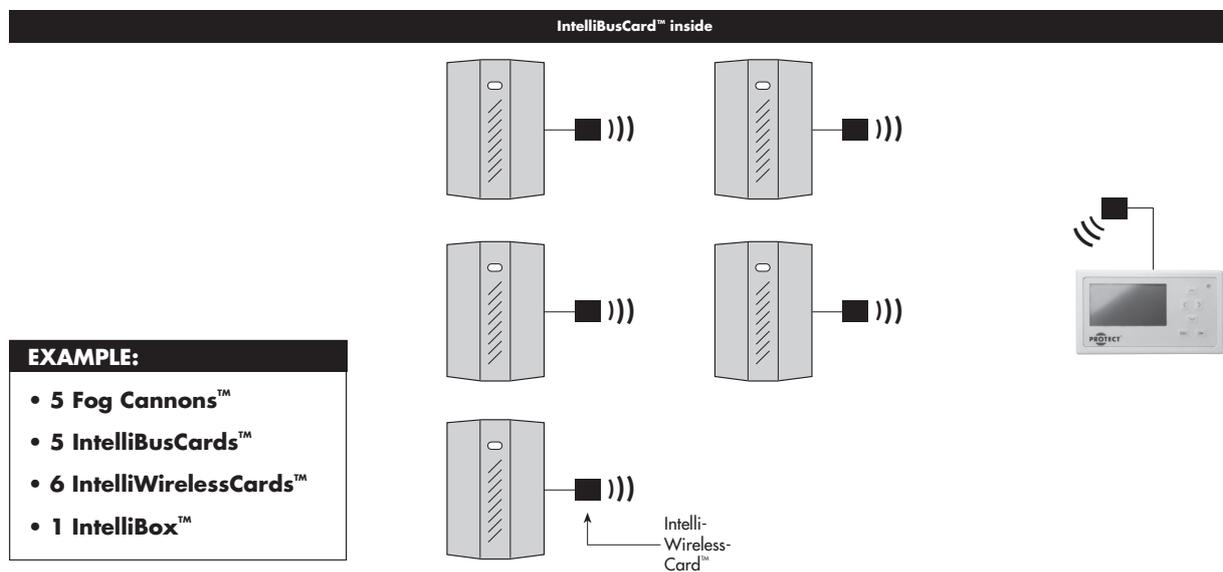
EXAMPLE:
- **5 Fog Cannons™**
- **5 IntelliBusCards™**
- **6 IntelliWirelessCards™**
- **1 IntelliBox™**

Intelli-Wireless-Card™

IntelliBusCard™ inside

EXAMPLE:

- **16 Fog Cannons™**
- **16 IntelliBusCards™**
- **4 IntelliWirelessCards™**
- **1 IntelliBox™**

Intelli-
Wireless-
Card™

3. Preparation prior to installing IntelliBox

Before installing the IntelliBox, you may want to check that the software installed in the IntelliBox is up to date. You will need to contact your local PROTECT support regarding any available software upgrades.

Always plan ahead and read this manual carefully before attempting to install a fog cannon system.
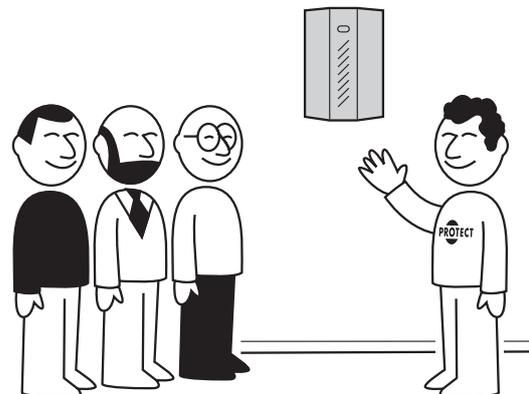
Your local PROTECT representative will be able to supply you with any necessary technical support.

Avoid pitfalls – training is available on fog cannon and IntelliBox installations.

Ask your local PROTECT representative.

4. Installation & connections

4.1. Physical installation and cabling

4.1.1. Grounding
All fog cannon units and other equipment connected to the IntelliBus (balanced twisted pair communication bus) must be earthed (via the PE wire), to eliminate the risk of current loops on the communication link. This is is an essential part of the electrical safety of the fog cannon (class I device) and it is mandatory by law. The IntelliBox and its power supply (GND terminal) must also connected to earth to avoid ground potential faults.
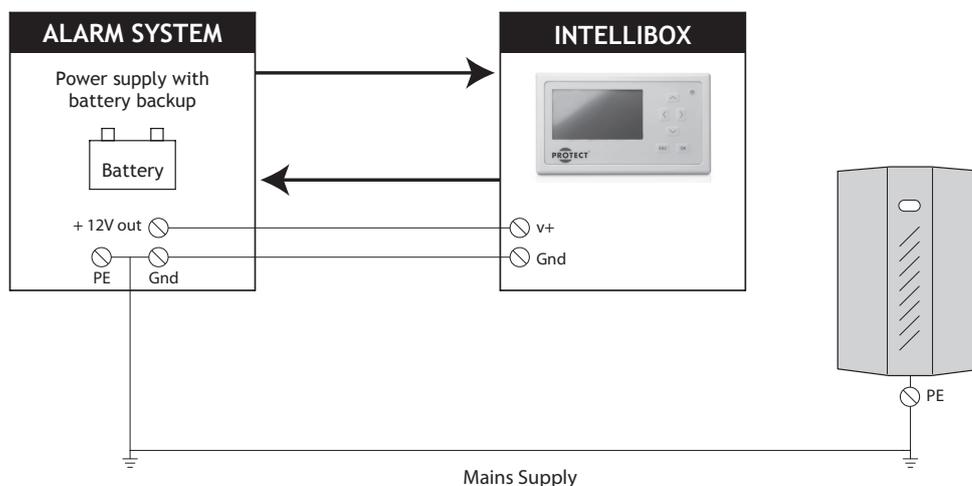
If the power supply to the IntelliBox is taken from the existing alarm system, it's GND should also be connected to earth.

Current loops and ground faults may lead to severe communication problems on the communication bus and in some cases cause damage to equipment.

4.1.2. Positioning
The IntelliBox does not display any information that the user of the alarm system would normally need. Therefore it can be installed out of reach.

A good place to install the IntelliBox could be next to the main alarm systems central components. In the event of a problem with the fog cannon system, this will signal a fault condition on the normal user display of the alarm panel.

The IntelliBox can then be interrogated to establish the source of the problem.

4.2. Mechanical installation of the IntelliBox

IntelliBox mounting base plate.

Screw holes

Holes for cable ties
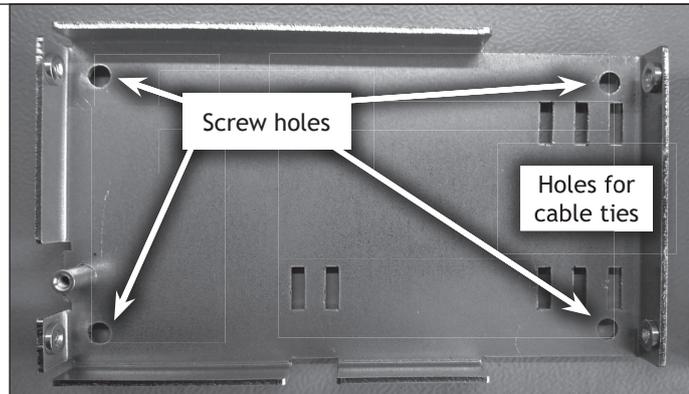
The IntelliBox has several break-out lugs for routing cables through to the outside.

Make sure cables are located in the cable area.
Do not place any cables anywhere else on top of the PCB, since this may compromise EMC performance.

Cable area

Tamper switch
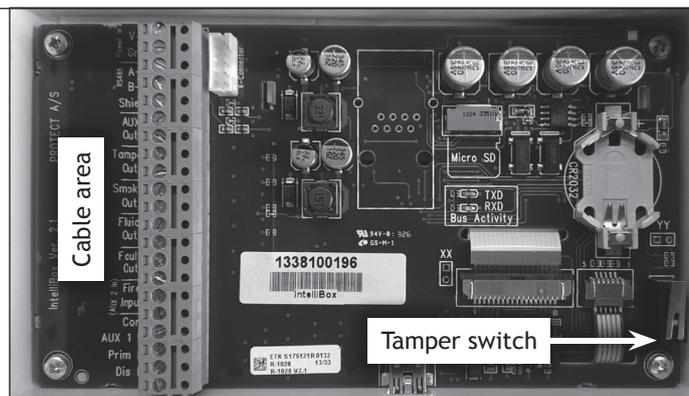
Note that all screw terminals in the IntelliBox can be plugged and they can be removed for service or installation purposes.

Remove terminals gently by using a flat screwdriver. Take care not to damage the PCB.
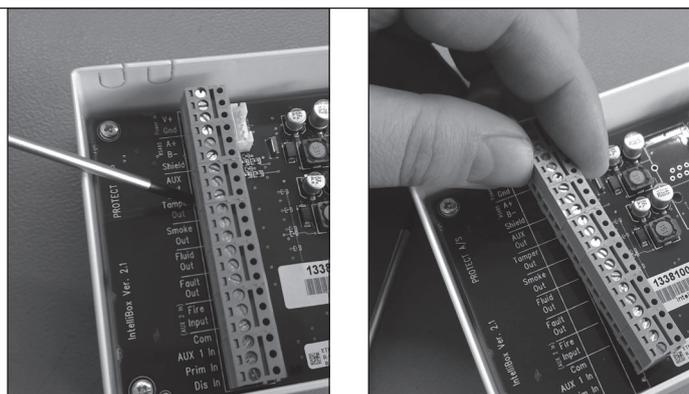
Install the wires into the terminals.

Use the small holes in the mounting plate to fasten the cable with cable ties.
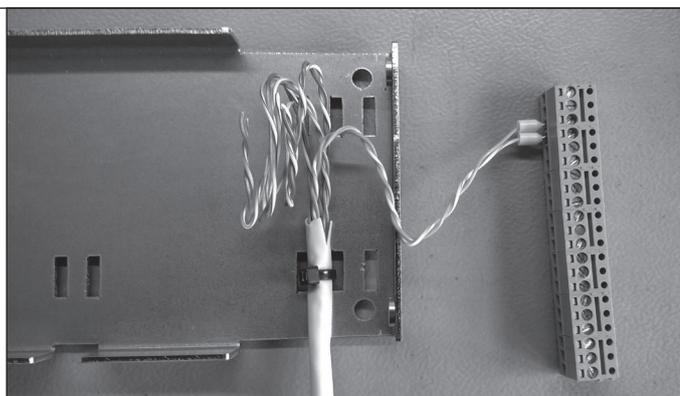
Reinstall the terminals before attaching the front to the base.
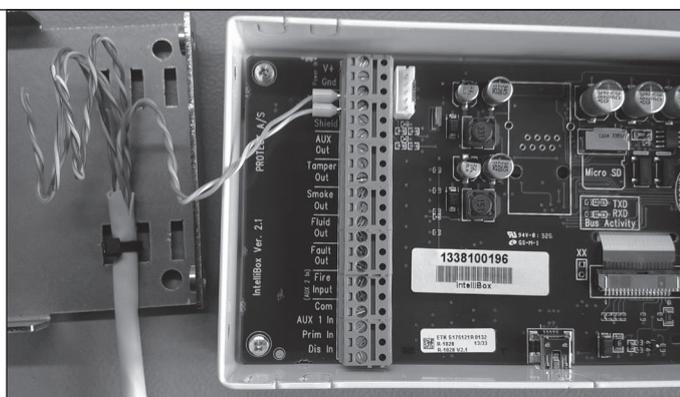
Remember to install RTC backup battery (included).
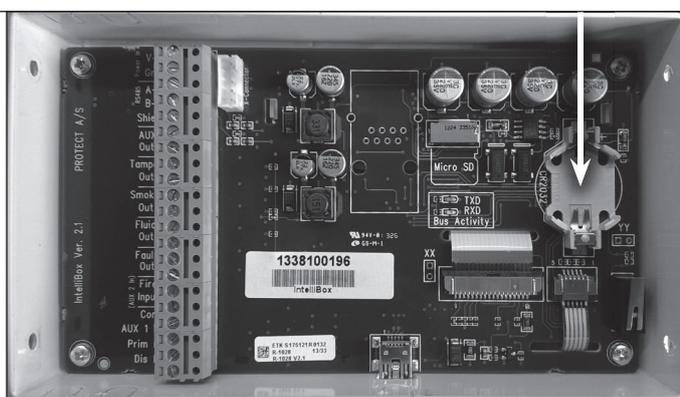
4.3. Power and signals

OVERVIEW OF TYPICAL INTELLIBOX INSTALLATION

IntelliWirelessCard™

IntelliBus

IntelliBus

INTELLIBOX

V+   Gnd

PE

PE

PE

PE

Mains Supply

Trigger, Disable

Power

Fault, Fluid, Fog, Tamper

ALARM SYSTEM

Power supply with battery backup

Battery

+ 12V out

Gnd

PE

4.3.1. Power supply
Power supply to the IntelliBox should be a stabilized 12V DC supply **with battery backup**.

The battery backup is a very important requirement that should not be overlooked.
If the power to the IntelliBox fail's, it will no longer be able to control any of the connected devices. However if the cable, supplying the IntelliBox, is damaged during a burglary, it will not affect the performance of the connected fog cannon, as long as the alarm signal has already been sent from the IntelliBox to the connected units.

This should be taken into consideration when installing the system. The alarm system, IntelliBox, power supply and associated cables, should all be placed in the area protected by the alarm system, so that at pre-trigger signals can be transmitted before any tampering of the system is possible.

Fog cannon units will maintain their state for another 30 minutes, following the loss of contact to the IntelliBox. In this case the pre-triggered state (primary signal).
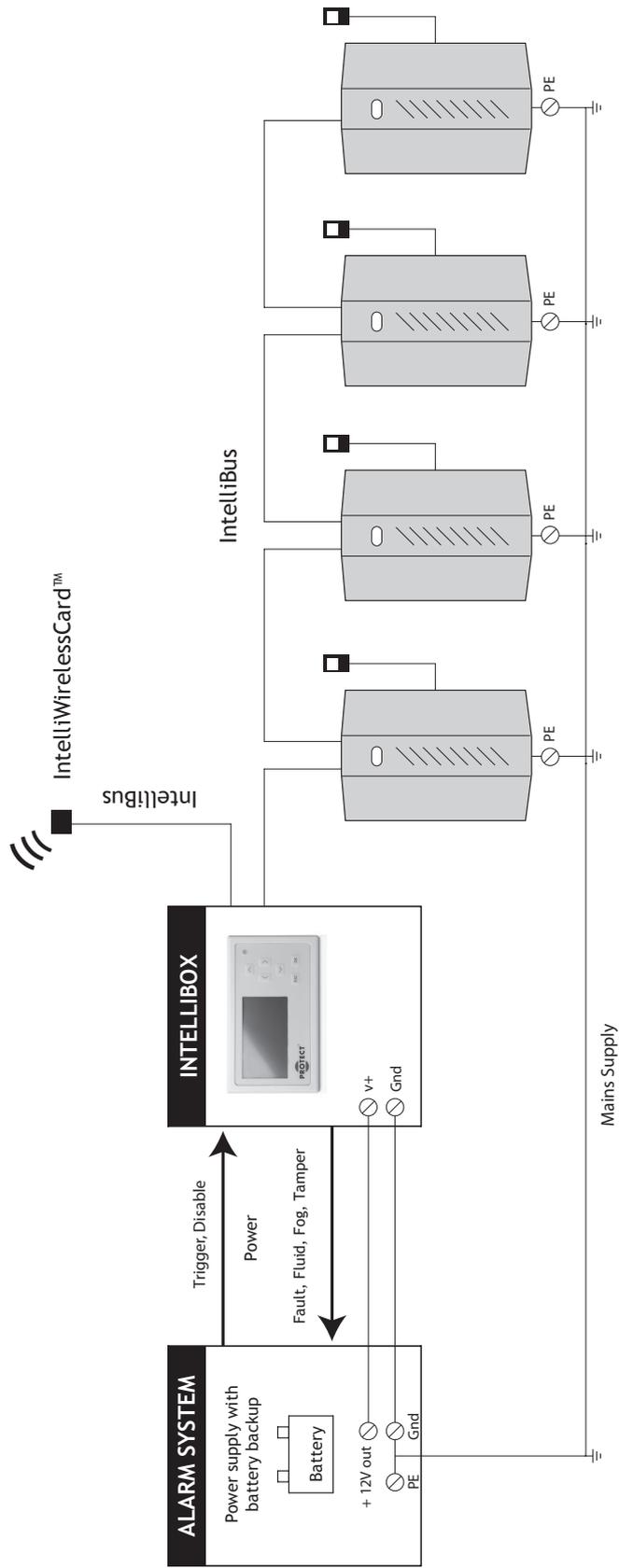
A secondary (verifying) trigger signal from the local PIR sensor, attached directly to the fog cannon, will trigger the fog expulsion during this time period.

4.3.2. Power requirement
The necessary electrical current required to supply the IntelliBox and its associated equipment, will vary depending on the intricacies of the setup. The IntelliBox itself uses around 40mA, backlight (if enabled and active) 45mA and one IntelliWirelessCard 50mA average, making a total of 135mA average and up to 200mA peak.

To save some current, the backlight can be disabled from the menu in the IntelliBox.

4.3.2.1. Power requirement – wireless and mixed
If an IntelliWirelessCard is used, and part of the IntelliBus is run by cable, the IntelliWirelessCard may be connected to one of the fog cannon. In this way the power supply to the IntelliWirelessCard will be taken directly from the fog cannon and not from the supply connected to the IntelliBox. This will not cause an overloading of the normal 12V AUX supply used by the fog cannon.

In the event that a fog cannon supplying the IntelliWirelessCard breaks down, or is removed, the wireless link will then no longer work and this have to be recertified by a technical appointment.

4.3.3. In case of multiple fog cannon installation
If more than one fog cannon is used, it is not recommended to take the necessary 12V power supply to the IntelliBox directly from the fog cannon units AUX supply, since a break down on this particular unit, will cause a total loss of function to the entire system.

If a suitable 12V power supply is not available from the alarm system power supply, then you will require a suitable 12V power supply, with battery backup. These are readily available on the market.
Look at the appendix for a more detailed list of power consumption, DC characteristics and other data.

4.4. How to install the IntelliBusCard in the fog cannon

Remember to disconnect the fog cannon from the mains and battery power supply when inserting the IntelliBusCard into the main PCB.

To install the IntelliBusCard in the main PCB, remove the 2 screws as shown in the picture.
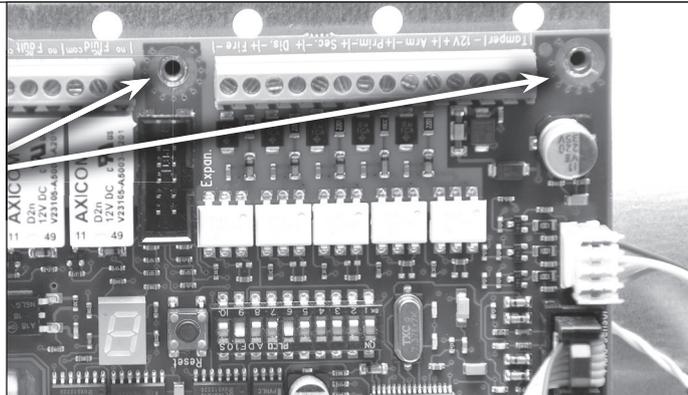
Insert and fasten the 2 spacers and washers, as shown in the picture. Plug the IntelliBusCard into the main PCB and tighten it with the 2 screws.
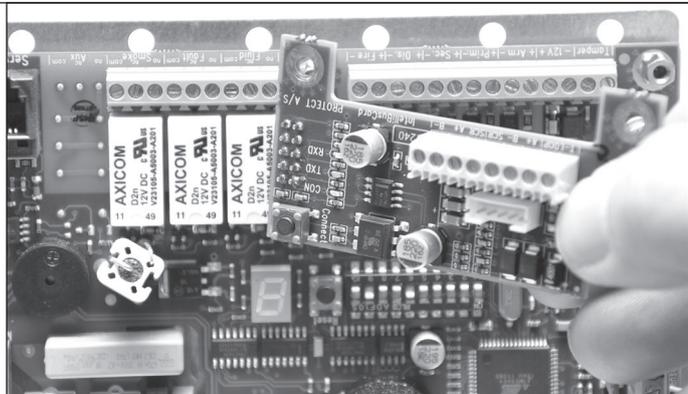
Scan the QR-code with a smartphone and watch the associated video footage which will show you how to install an IntelliBusCard.

Remember there are 2 wires for the tamper switch.
If verifying, the PIR sensor is used. Its tamper loop should replace one of the two wires.
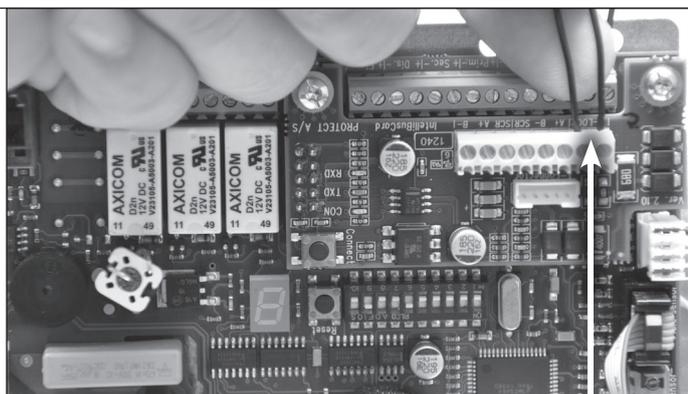
4.5. Cabling the IntelliBus (communication bus) – see also 4.3.

The cable that is used to connect individual units on the IntelliBus must be of a twisted pair type. In the case of long cables that are placed together with other signal or power cables, it is recommended that you use a screened cable with low capacity.

Combined theoretical bus length in excess of 800 meters but it depends on the type of cable used, and the number of units connected to the bus.

Cable types such as **Cat5E LAN** cable are good and cheap candidates for this job, and they do come in a variety of qualities, both screened and non-screened. The Cat5E type of cable has a total of 4 twisted pairs, which leaves 3 pairs for other uses, such as: fast tamper detection on the bus cable, the forwarding of 12V power to and from the IntelliBox, the equalization of ground potential between units (in addition to the mandatory PE wiring, this is NOT a substitute for it) and other additional signals. Cat5E cable comes in both stranded and solid wire types. Both types should be fitted with crimping ferrules to reinforce the connection to the screw terminals.

The screen, of screened cables, should be connected to the "shield" or "scr" terminal on every unit. **The screen should also be connected to the "gnd" terminal at ONE, and only ONE**, unit on the bus, to add proper ground potential to it.

Cable connection between all units on the bus should ideally be connected as one long wire with no side strands. The coupling of the entire bus or the individual parts of it, by use of star topology (multiple side strands), is possible but this will reduce the total maximum length of the bus. If side strands are used, they should be kept as short as possible.

The IntelliBus (communication bus) must be terminated, at both ends, using 120 Ohm termination resistors. One at the first, and one at the last bus member (units connected to the communication bus), connected between A+ and B-.

A maximum total of two resistors should be used at each section of the IntelliBus. A minimum of one termination resistor should be used if the bus section is short. An IntelliBox or fog cannon that is only fitted with an IntelliWirelessCard should also be fitted with one termination resistor.

End of cabled bus with terminating resistor in a fog cannon.
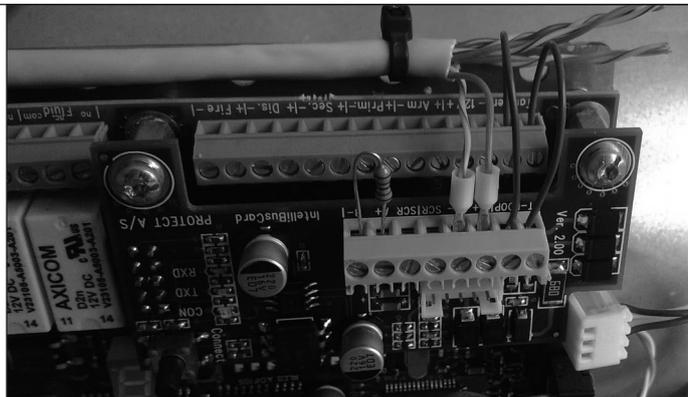
Wireless controlled fog cannon with terminating resistor.
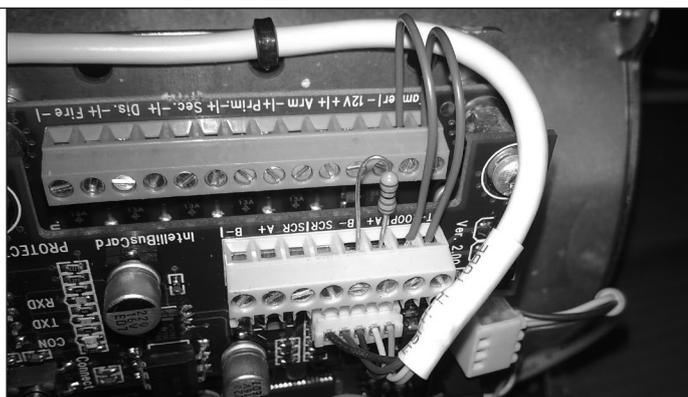
IntelliBox with IntelliWirelessCard and bus terminating resistor.
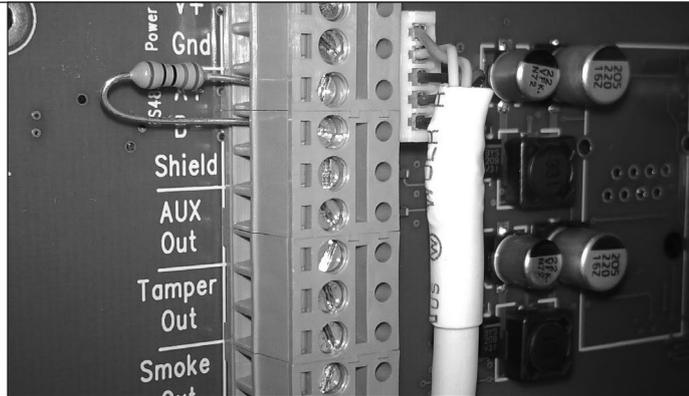
IntelliBox with cabled bus and bus terminating resistor.
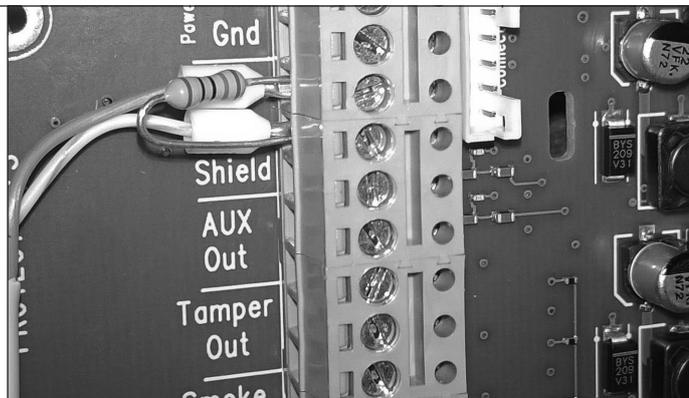
4.6. Associating new units (fog cannon) with the IntelliBox - wired

Before adding units to the IntelliBox, you should make sure that all triggering and disabling signals are present and have been set up correctly in the appropriate IntelliBox menu (see 5.2.). **Failure to do so before adding units to the IntelliBox may lead to unintentional release of fog. As an additional safety measure, it is also recommended that you remove the fluid containers, before before you attempt work on the units, IntelliBox, IntelliBus or with their associated components.**

4.6.1. Add new unit (fog cannon)
When the IntelliBusCard has been installed and correctly cabled, select 14-02 ("Add new Unit") from the menu on the IntelliBox and press OK. The IntelliBox is now ready to accept new units.

Make sure the fog cannon has the correct software version installed before proceeding*.
Press and hold down the small button in the corner of the IntelliBusCard until a beep is heard for each fog cannon.

After a few seconds a message will be sent from the fog cannon to the IntelliBox. The IntelliBox will indicate with a sound to show that the message has been received. It will then list the serial number of the fog cannon in the display.

Immediately after a return message is sent to the fog cannon, a second beep will sound on the unit.

If you do not hear this second beep, then this is an indication that the procedure has failed. You must then repeat the operation until you are successful. You must allow 5-10 seconds between the attempts.

The fog cannon has now been connected to the IntelliBox. This procedure must be repeated for all fog cannon units connected to the IntelliBox.

After successfully connecting all of the units, you should leave the message "add new unit" displayed, and normal operation will be resumed.

Scan the QR-code with a smartphone and watch a video showing how to adding a new unit.

4.6.2. *Test each fog cannon*

Test the connection to each fog cannon, by purposely invoking a fault condition (e.g. removal of fluid or activation of tamper switch).

Test of proper connection may also be done by using the separate IntelliSuite, debugging and testing software, that is available from PROTECT.

*fog cannon units with software versions 2.30 or higher are prepared for use on IntelliBus networks. If a machine has a lower software version, it must be upgraded, before connection is possible. Fog cannon units with software versions lower than 1.81 are not compatible with the IntelliBox system and cannot be upgraded for such use. Contact your local PROTECT representative for further up to date information regarding this.

4.7. Installation and communication check of IntelliWirelessCard in fog cannon units

Please note that no wireless system should ever be used in high risk or high security installations, since any wireless communication link, could potentially be disturbed by external means and in this way be sabotaged.

This includes the IntelliBox wireless system, as well as any other form of wireless alarm system.

Install the IntelliBuscard as indicated in 4.4.

Then install the IntelliWirelessCard cable in the dedicated connector on the IntelliBusCard marked "X-connector" and in the IntelliBox.

IntelliBusCard, fog cannon
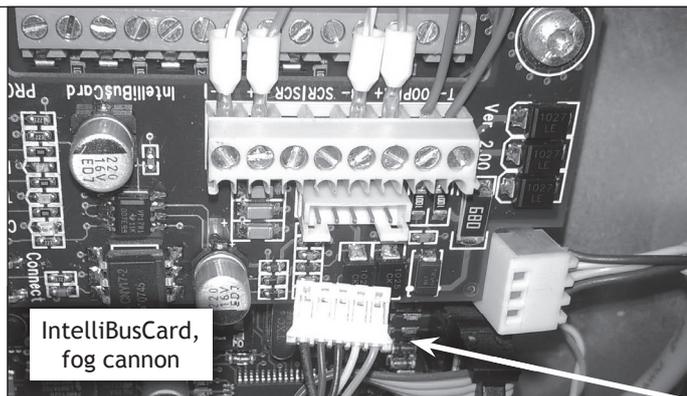
Scan the QR-code with a smartphone and watch the video showing you how to install the IntelliWirelessCard.

The cable to the IntelliWirelessCard should be routed through the strain relief, and out through the hole in the bottom plate of the fog cannon as you would for any other normal signal cable.

Installation of both cabled and wireless communication in the same fog cannon
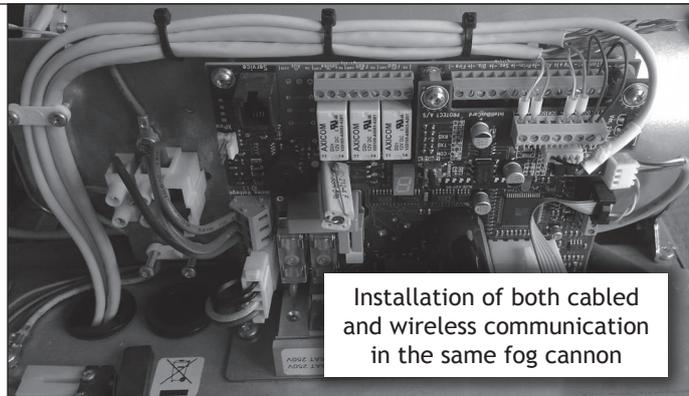
4.7.1 Placing of the IntelliWirelessCard

IntelliWirelessCard's should always be installed as far away from metal objects as possible (be aware that metal parts may be embedded in walls). Any metal objects in close proximity of the IntelliWirelessCard will greatly reduce the effective range of the wireless system.

Place the IntelliWirelessCard on the surface where the fog cannon has been installed, away from the fog cannon **(not ON or inside the fog cannon).**
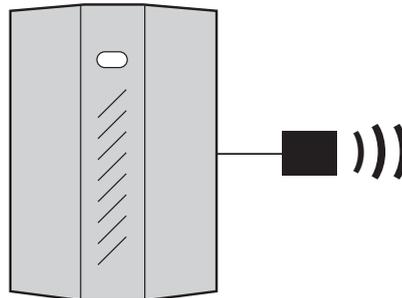
On the IntelliBox the connector close to the power terminals should be used.
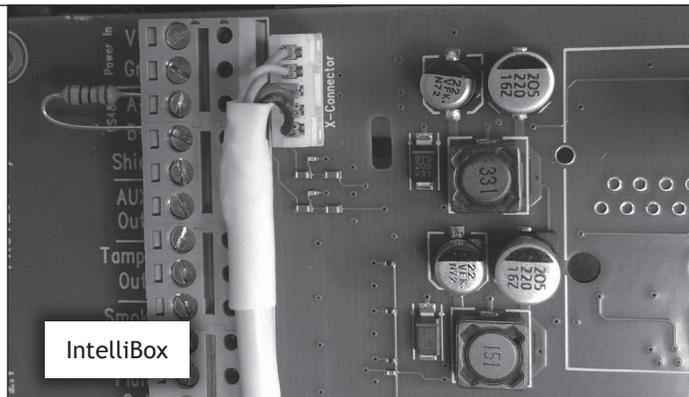
IntelliBox

The IntelliWirelessCard should be placed as high as possible above the IntelliBox.
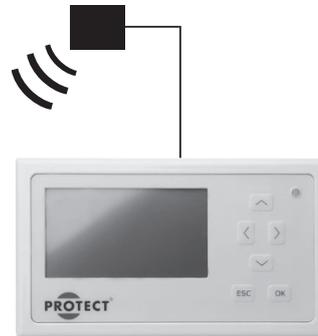
Transceivers (IntelliWirelessCards) should not be installed any closer than 2 metres from each other, since very high signal levels may overload the receivers, and hence corrupt the communication.

Keep transceivers (IntelliWirelessCards) away from any electrical equipment, that by nature will emit electromagnetic noise, such as other transmitters, switch mode power supplies, VLT 's etc.

4.7.2. *Range of the wireless IntelliBus system*
The effective range of the wireless IntelliBus system will very much depend on the environment, into which the system is installed.

Maximum possible range may vary from 25 meters in heavily steel reinforced concrete buildings, and up to 500+ meters in free range line of sight areas, mainly depending of the materials found in the propagation path between the transceivers. Such distances may be possible during test and installation, but may not be reliable over time.

Wireless range depending on materials in signal path

Range Meters

1000

100

10

Steel Reinforced Concrete   Brickwork   Drywall   Wood   Free Air   Material
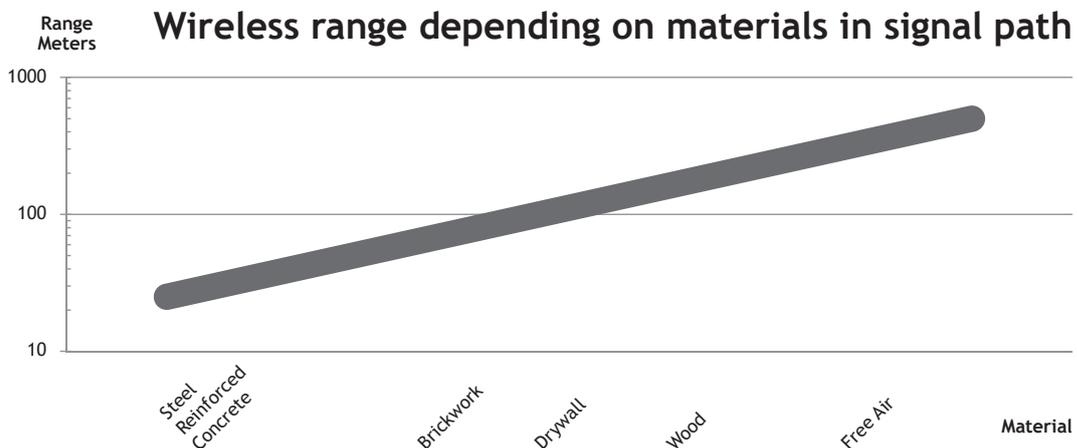
It is not recommended that you install a wireless system at the very edge of its possible range, since radiation patterns and signal dampening will vary over time, depending on weather, time of year and varying levels of background noise etc.

If transceivers (IntelliWirelessCards) are installed too far from each other the system could become unpredictable, working one day but not the next.

For this reason PROTECT recommends the following rule of thumb, using the wireless system, for distances up to maximum 100 meters in <u>wood and drywall environments</u>, and for distances up to maximum 50 meters in <u>steel reinforced concrete</u> and <u>sub terrain environments</u>, where signals have to pass through building parts like walls, ceilings and floors. <u>Numbers indicated are only maximum recommended distances, and correct operation is not as such guaranteed under all circumstances. Numbers indicated are preliminary, and may be subject to change</u>.

Wood and drywall enviroments up to maximum 100 meters.

Steel reinforced concrete and sub terrain enviroments up to maximum 50 meters.
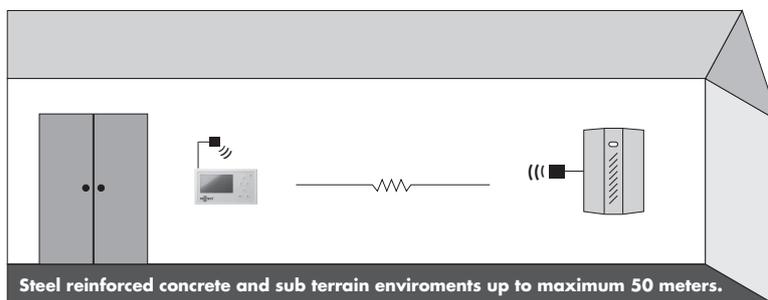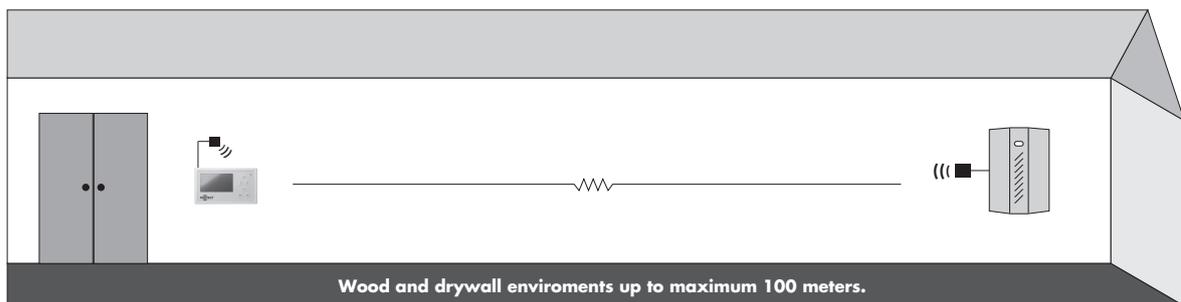
4.7.2.1. Signal information in the IntelliBox menu
An indicator on signal strength of transmissions between the transceiver connected to the IntelliBox and the transceiver (IntelliWirelessCard) at the far end of the transmission path can be found in the IntelliBox menu 15 ("RF Signal Info") where signal levels at the different transceiver nodes can be observed.

Similar info can be retrieved using IntelliSuite software on a connected computer.

An indication on background noise can also be found and be used to determine if something external is influencing the system performance.

Signal levels are indicated as dBm. Note that levels are indicated as negative numbers, and that -54dBm is a lower and weaker signal than -46dBm.

As a rule of thumb, the signal level goes down by 6dBm for every time range is doubled in a free air line of sight environment.

4.7.2.2. Practical test of the wireless signal

If in doubt it is recommended to perform a practical test at the installation site, by using an IntelliBox and a fog cannon, both equipped with IntelliWirelessCards.

Place the IntelliBox at the intended place of installation, and move it around together with a fog cannon (can be cold and running on batteries).

Try out the different places where the fog cannon units are to be installed. Note the signal levels and then try doubling and quadrupling the distance. Test the connection by pressing the tamper switch on the fog cannon at different distances.

If you still have a responsive connection at 4 times the normal installation distance, you should be okay under all circumstances.
If you find that 4 times the distance is not reliable, but 2 times the distance appears to be stable then you may still be okay.

If 2 times the normal installation distance fails, you could be on rocky ground, and may be better off using a wired connection in part or in total.

Always bear in mind that the installation environment, and hence signal levels, may change over time. Buildings or scaffolding may be erected nearby, walls may be moved and noisy equipment may be installed in close proximity of the transceivers (IntelliWirelessCards).

In the event of the loss of wireless communication for more than ten minutes to a fog cannon the IntelliBox will send out a warning.

4.7.2.3. Maximum numbers of IntelliWirelessCard

One and only one IntelliWirelessCard is allowed on each wired section of IntelliBus.

Connecting more than one IntelliWirelessCard on the same wired section will cause conflicts.

Intelli-Wireless-Card™
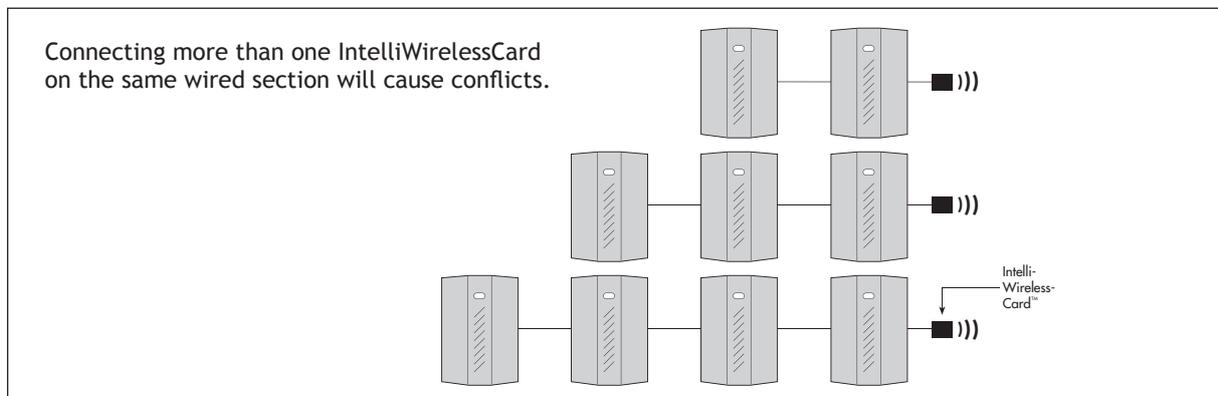
4.7.2.4. Paring fog cannon units with IntelliBox - wireless

After Installing the IntelliWirelessCard, setting dipswitches and powering up the fog cannon, it can then be paired up with the IntelliBox as indicated earlier, using the same procedure as used with cabled units (4.6.).

Note that the wireless bus function may react somewhat slower, than the cabled one, when adding the unit to the IntelliBox.

4.8. Verifying signals

Alternative 1
- It is always recommended that you use some sort of verifying signal to trigger the fog. A verifying PIR detector connected directly to the fog cannon will hold off fog production until movement has been detected in the areas where the individual fog cannon units have been installed. Verifying PIR detectors will greatly reduce the risk of fog being released by mistake and will thereby also reduce the risk of condensing the fog fluid.

Alternative 2
- If verification is not performed on every individual fog cannon in the installation, one common verification signal could be used, connected directly to the IntelliBox.
  In this way several PIR detectors can be coupled in series and used to verify the alarm signal to all units at the same time.
  A maximum of two zones controlled from the IntelliBox can be used along with verifying sensors directly connected to the fog cannon units.

Alternative 3
- A third alternative is to allow the main alarm system do all verification work by detecting several signals from different detectors in the same protected area and then trigger fog cannon in dedicated zones. A maximum use of three such zones is possible on the IntelliBox.

This variation should only be used if the controlling alarm system is truly doing some sort of verification of the activity in an area, before triggering fog cannon units in the specific zone.

This type of verification though, will not hold off the fog in the event of a malfunction on the alarm system, as has previously been experienced.

By experience the best solution, that will give the most reliable installation, and save installers and customers a lot of trouble over time, is still the use of local verifying PIR sensors connected directly to each fog cannon (alternative 1 above).

Using several detectors coupled in series to give verification to all fog cannon units in the same area, is also a valid option.

4.9. Diagrams of hardware interface between AIA and IntelliBox
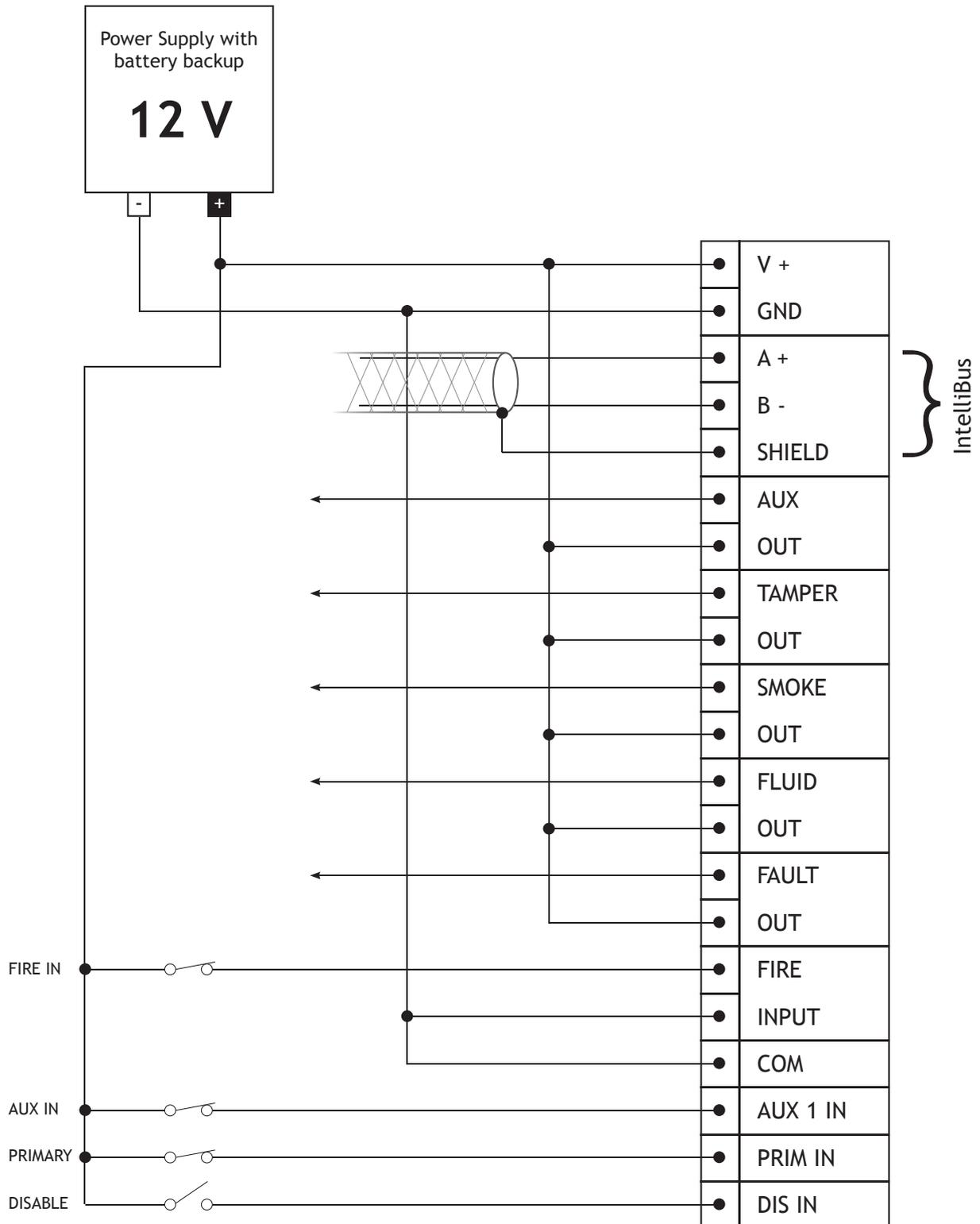
The terminal of the IntelliBox.

1 ZONE - LOCAL VERIFICATION
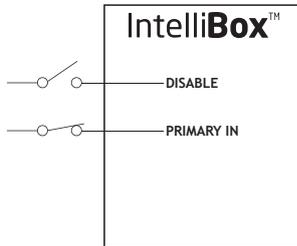
IntelliBox™

- DISABLE
- PRIMARY IN

600i™

ZONE 1

	OFF	ON
5	●	
6		●
7	●	
8		
9		

Sec. -
Sec. +
12V -
12V +

PIR

600i™

ZONE 1

	OFF	ON
5	●	
6		●
7	●	
8		
9		

Sec. -
Sec. +
12V -
12V +

PIR

```
07 PRIM IN POLARITY

NC-Activated when LO

Press OK to save
Press ESC to abort
```

```
08 AUX IN FUNCTION

NO FUNCTION

Press OK to save
Press ESC to abort
```

```
11 FIRE IN FUNCTION

FIRE ALARM INPUT(NO)

Press OK to save
Press ESC to abort
```
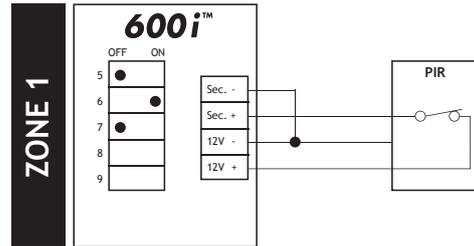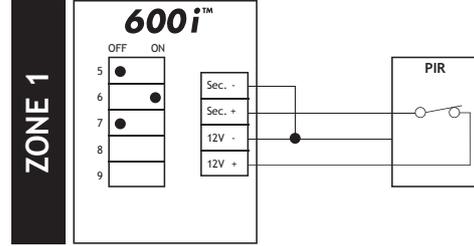
2 ZONES - LOCAL VERIFICATION

IntelliBox™

- DISABLE
- PRIMARY IN   (ZONE 1)
- AUX IN   (ZONE 2)

600i™

ZONE 1

	OFF	ON
5	●	
6		●
7	●	
8		
9		

Sec. -
Sec. +
12V -
12V +

PIR

600i™

ZONE 2

	OFF	ON
5		●
6	●	
7	●	
8		
9		

Sec. -
Sec. +
12V -
12V +

PIR

```
07 PRIM IN POLARITY

NC-Activated when LO

Press OK to save
Press ESC to abort
```

```
09 AUX IN POLARITY

NC-Activated when LO

Press OK to save
Press ESC to abort
```

```
08 AUX IN FUNCTION

TRIG ZONE 2

Press OK to save
Press ESC to abort
```

```
11 FIRE IN FUNCTION

FIRE ALARM INPUT(NO)

Press OK to save
Press ESC to abort
```

1 ZONE - VERIFIED ON INTELLIBOX
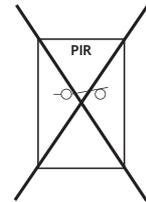
IntelliBox™

— DISABLE
— PRIMARY IN
— AUX IN

ZONE 1

600i™

OFF   ON

5 ●
6   ●
7 ●
8
9

Sec. -
Sec. +
12V -
12V +

PIR

ZONE 1

600i™

OFF   ON

5 ●
6   ●
7 ●
8
9

Sec. -
Sec. +
12V -
12V +

PIR

```
07 PRIM IN POLARITY

NC-Activated when LO

Press OK to save
Press ESC to abort
```

```
09 AUX IN POLARITY

NC-Activated when LO

Press OK to save
Press ESC to abort
```

```
08 AUX IN FUNCTION

VERIFYING TRIG ZONE 1

Press OK to save
Press ESC to abort
```

```
11 FIRE IN FUNCTION

FIRE ALARM INPUT(NO)

Press OK to save
Press ESC to abort
```

3 ZONES - NO VERIFICATION
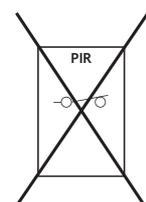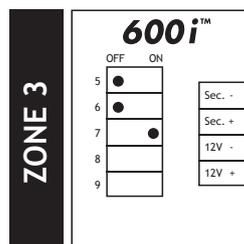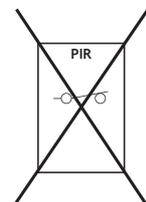
IntelliBox™

— DISABLE
— **PRIMARY IN**   (ZONE 1)
— **AUX IN**   (ZONE 2)
— **FIRE IN**   (ZONE 3)

ZONE 1

600i™

OFF   ON

5 ●
6   ●
7 ●
8
9

Sec. -
Sec. +
12V -
12V +

PIR

ZONE 2

600i™

OFF   ON

5   ●
6 ●
7 ●
8
9

Sec. -
Sec. +
12V -
12V +

PIR

ZONE 3

600i™

OFF   ON

5 ●
6 ●
7   ●
8
9

Sec. -
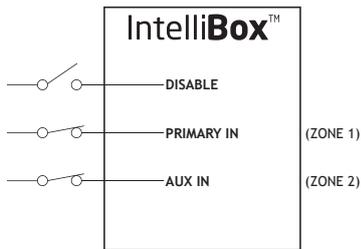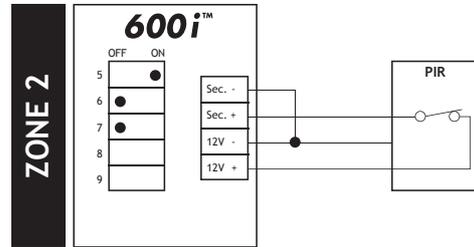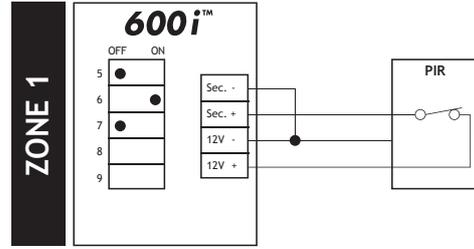Sec. +
12V -
12V +

PIR

```
07 PRIM IN POLARITY

NC-Activated when LO

Press OK to save
Press ESC to abort
```

```
11 FIRE IN FUNCTION

TRIG ZONE 3

Press OK to save
Press ESC to abort
```

```
08 AUX IN FUNCTION

TRIG ZONE 2

Press OK to save
Press ESC to abort
```

```
12 FIRE IN POLARITY

NC-Activated when LO

Press OK to save
Press ESC to abort
```

```
09 AUX IN POLARITY

NC-Activated when LO

Press OK to save
Press ESC to abort
```

1 ZONE - LOCAL VERIFICATION - PANIC BUTTON
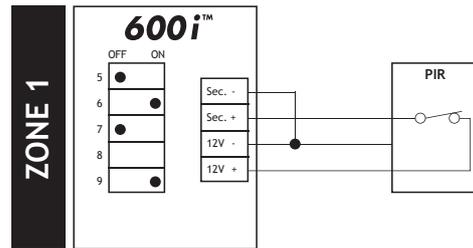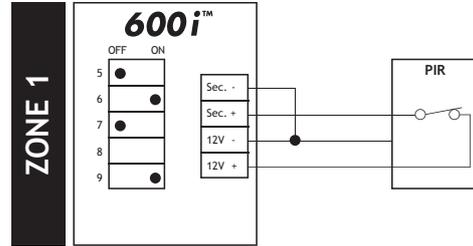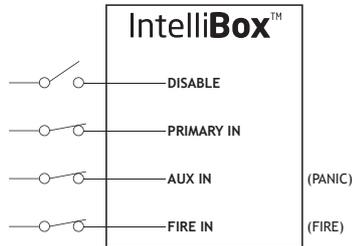
IntelliBox™

- DISABLE
- PRIMARY IN
- AUX IN (PANIC)
- FIRE IN (FIRE)

600i™

ZONE 1

OFF   ON
5
6
7
8
9

Sec. -
Sec. +
12V -
12V +

PIR

600i™

ZONE 1

OFF   ON
5
6
7
8
9

Sec. -
Sec. +
12V -
12V +

PIR

```
07 PRIM IN POLARITY

NC-Activated when LO

Press OK to save
Press ESC to abort
```

```
09 AUX IN POLARITY

NC-Activated when LO

Press OK to save
Press ESC to abort
```
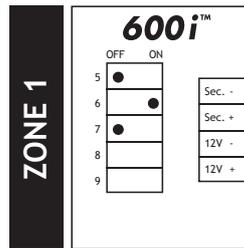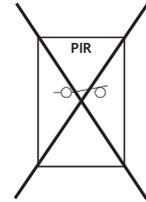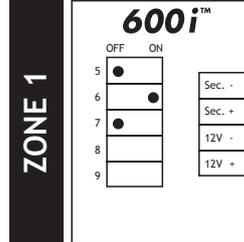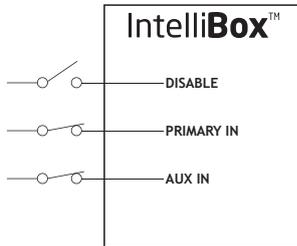
```
08 AUX IN FUNCTION

PANIC RELEASE

Press OK to save
Press ESC to abort
```

```
11 FIRE IN FUNCTION

FIRE ALARM INPUT(NO)

Press OK to save
Press ESC to abort
```

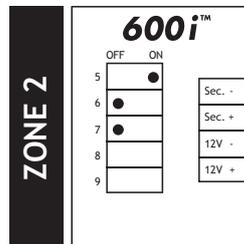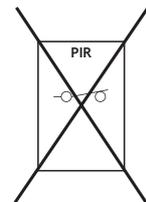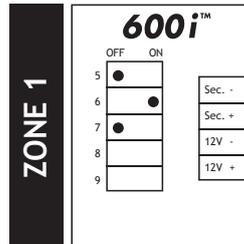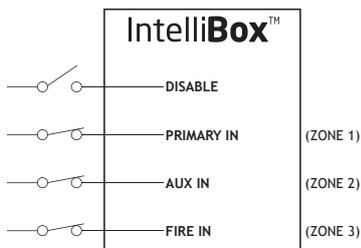## 5. Menu structure – How to navigate with IntelliBox

5.1. Introduction
When the IntelliBox is powered up, the main user screen is displayed. This screen will give short and simple clear text information on the system status.
Any alarms, errors and warnings present on the system will be displayed there.

The user can scroll through the main overview by using the up and down keys.

Double horizontal lines at the bottom, indicates more text below and double horizontal lines at the top indicates more text above.

5.2. Login

Scan the QR-code with a smartphone and
watch the video showing how to login.

To enter the technical menus, and perform any type of setup, a password must be entered.

From the main screen press "OK" twice. (The first time will activate the display backlight if enabled). A "LOG IN" screen will now appear.

Use the up, down, left and right keys to enter the appropriate password and then press "OK" to enter the technical menu system.

The factory default password is "1234000000".

You may now navigate the menu system by using the up and down keys.

Press "OK" to enter sub menus, and "ESC" to take one step back, to the next higher menu level. If you press "ESC" repeatedly you will come back to the main user screen again.

5.3. Menu 01 - 18

MENU 01: Password change
Scan the QR-code with a smartphone and watch
the video showing how to change the password.

You should change the password to one of your choice.

NOTICE!! The password used on the IntelliBox is the same password you will use if you upload new software in the IntelliBox or if you want to log into the IntelliBox from IntelliSuite.

Also notice, that the password is 10 digits. If you only use 1234 on the IntelliBox, you will need to write 1234000000 on the password in IntelliSuite when you want to access IntelliBox from there.

Password can at any time be reset to the factory default one again. See separate section on how to do this (8.0.).

MENU 02: Time settings
Once the power is switched on. A message in the display will inform that the time settings has been lost. This is because the real time clock's backup battery was not installed, or the one installed is flat and needs replacing. Time settings can be adjusted from this menu.

MENU 03: Contrast settings
LCD display contrast has already been set at the factory, but can be readjusted if necessary as LCD characteristic's change over time.

MENU 04: Backlight settings
Display backlight can be enabled or disabled.

When disabled the maximum required power supply current will drop 45mA @ 12V DC.

MENU 05: Sound settings
Different levels for sound indication on the IntelliBox itself can be selected ranging from always ON to always OFF.

E.g. the sound indication level can be set to signal when the fire alarm, the burglar alarm, or the tamper alarm is activated, but not when warnings or errors are present. In this case warnings and errors will still be signalled and monitored at the fault and fluid relay

MENU 06: IO monitoring
Inputs and outputs live status.

> **DISABLE IN**
> This input is equivalent to the Disable input on the fog cannon.
> Disable is always a "NO signal" and when 12V is applied to this input, the connected fog cannon units will be disabled, and stopped if activated.
> An exception is the "Panic" function that will operate regardless of the state of the Disable input. This input is fixed as "disabled when voltage is present".

> **PRIMARY IN (Trig Zone 1)**
> This input is equivalent to the Primary input on the fog cannon.
> This input can be selected on the IntelliBox, to be a NO-Activated when HI or a NC-Activated when LO, signal. Select the desired function using the arrows and save by pressing OK.
> **Fog cannon units that have dipswitch 6 ON, will be activated when PRIMARY IN is HI.**

MENU 07: Primary In polarity (change)
Select between NO or NC.

Scan the QR-code with a smartphone and watch the video showing menu 07.

MENU 08: AUX 1 IN

Scan the QR-code with a smartphone
and watch the video showing menu 08.

A   No Function

B   Panic Release (DEFAULT SETTING)
When Panic Release function is selected and when AUX1 is HI, all connected fog cannon units having dipswitch 9 ON, will be activated regardless of all other settings, and status of the signals from the alarm system, with the exception of the fire alarm signal. Fog time will follow the normal fog settings on dipswitches. The signal will remain for 60 seconds and you cannot stop the fog cannon during this period.

C   Verifying trig Zone 1
When selected, a trig signal to the connected fog cannon units having dipswitch 6=ON and dipswitch 5&7=OFF, will only be sent, when BOTH input PRIMARY IN and AUX 1 is HI.
In this way we can make a verifying signal connected to the IntelliBox, to ensure that the fog cannon units only expel fog, when the trig signal has been verified ("global" verification).

D   Trig Zone 2
This function is selected, if you want 2 different zones to be activated by the IntelliBox. You must set dipswitch 5=ON, on the fog cannon units, that shall be activated in Zone 2.

MENU 09: Aux In polarity (change)
Select between NO or NC.

Scan the QR-code with a smartphone and
watch the video showing menu 09.

MENU 10: AUX OUT settings
Separately showing the loss of power.

Scan the QR-code with a smartphone
and watch a video showing menu 10.

A   **No function**
B   **AC power lost (0 min., 10 min., 20 min. or 30 min.)**

MENU 11: FIRE IN (AUX 2 IN) settings (Trig Zone 3)

Scan the QR-code with a smartphone
and watch the video showing menu 11.

A   **FIRE ALARM IN** (NO) (DEFAULT SETTING)
     When this function is selected, and a signal is displayed on the input, all fog cannon units connected to the
     IntelliBox, will be disabled, and the error relay on both fog cannon units and IntelliBox will be activated.
     Heat on the fog cannon will be turned off. If the fog cannon have been triggered, they will be stopped.
     When this function is selected, the input is fixed as "Fire alarm active when voltage is present" (NO).

B   **Trig Zone 3**
     This function is selected, if you want 3 different zones to be activated by the IntelliBox. You must set
     dipswitch 7=ON, on the fog cannon units, that will be activated in Zone 3. NOTE that the use of all three
     zones in this way, will remove the possibility of using verifying sensors locally on the fog cannon units!

MENU 12: FIRE (AUX 2 IN) polarity (change)
Select between NO or NC.

Scan the QR-code with a smartphone and
watch a video showing menu 12.

MENU 13: System log (Not implemented yet)

MENU 14: External units
   A Units List (14-01)
     This function will give a list of serial numbers and alias names of assigned fog cannon units. Alias names
     may be added or edited by using the IntelliSuite software on a connected PC.

Scan the QR-code with a smartphone and
watch the video showing menu 14-01.

   B Add new units (14-02)
     This function is selected by pressing OK on the IntelliBox. The IntelliBox is now waiting for IntelliBusCards
     to assign to the IntelliBox. When all fog cannon units are assigned, press ESC to return back to the main
     menu.

Scan the QR-code with a smartphone and
watch the video showing menu 14-02.

C   Remove units (14-03)
In this function you can remove assigned fog cannon units. NOTE that if removed from the list of associated units, the fog cannon should also be turned off and removed from the installation.
Failure to do so may cause conflicts and unpredictable behaviour.

Scan the QR-code with a smartphone and
watch the video showing menu 14-03.

MENU 15: RF Signal info
Various information on RF signal strength to and from individual transceivers (IntelliWirelessCards) and information on background noise.

While connected to IntelliSuite, this menu will be blocked for use, and RF signal info will be available directly from IntelliSuite instead.

MENU 16: System info
Various information on IntelliBox serial number, software version, accumulated runtime, supply voltage, Network ID (UMID) encryption keys etc.

MENU 17: Service mode
NOTE that blocking the IntelliBox system in this way, will NOT allow you to safely modify any wiring, dipswitch setting etc. <u>on any of the connected fog cannon units</u>. Blocking is intended for safe service on the alarm system only!

A   System blocked
B   System enabled (Unblocked)
By blocking the IntelliBox system, you will completely disable the entire fog cannon system. In this way maintenance and service to the alarm system controlling the IntelliBox may be performed without any risk of unintentional fog release. When blocked, the IntelliBox will ignore all signals coming from the alarm system, and the alarm system including the IntelliBox may be powered down for maintenance.

When powered up again, the IntelliBox will still remember the "Blocked" state, and normal operation will not be resumed until the system is again "Unblocked". Before unblocking the system, you should make sure that all signals are still in the state intended, so that unblocking will not trigger the fog unintentionally.

When blocked general fault will be signalled on the Fault relay and the display and LED's of the IntelliBox will indicate "Blocked by technician".

MENU 18: Log out
You should log out of the IntelliBox menus before leaving the installation, so that unauthorized personnel cannot gain access to the settings of the system. If you accidentally forget to log out manually, you will automatically be logged out after 30 minutes.

NOTE that menu system and content may change with changes in software.

For the latest updates in software contact your local PROTECT representative.

6. Connection to IntelliSuite

IntelliSuite is a software tool designed specifically for aiding installation, debugging fog cannon and IntelliBox installation.

Scan the QR-code with a smartphone and watch the video showing the connection between IntelliBox and IntelliSuite.

To connect IntelliBox to IntelliSuite, you need to run IntelliSuite on your PC and connect the IntelliBox to the PC using a USB cable. USB connector is accessible from the outside of the IntelliBox for easy service and maintenance.

USB connector

In the menu in IntelliSuite "Connections" you select "Device type" to be in the IntelliBox mode.

Under "Connection", you select "Use Comport" and select "Auto detect".
The IntelliBox is now connected to the PC.

In IntelliSuite you will be able to monitor various parameters, states, errors, inputs and outputs of the IntelliBox and any fog cannon connected to the IntelliBox in real time.

You can get a full system report from any fog cannon in the system, containing logged events information.

You will be able to identify units on the bus by activating the beeper of a specific fog cannon, and give them alias names to be displayed in the display of the IntelliBox for easy identification.

If needed, software of both the IntelliBox and fog cannon can be changed using the built-in flash loader tool.

For more information on IntelliSuite contact your local PROTECT representative.

7. Display messages on fog cannon display

Additional display messages available on the LED display in the fog cannon, relevant to the use with IntelliBox, are listed in the info box below.
They indicate whether control from the IntelliBox is active and if so what signals are active at present.

Meaning of fog cannon display messages	
rc	Remotely Controlled
norc	No remote control signal. Timed out 30 minutes after losing the signal.
rd	Remotely Disabled
rHd	Remotely Heat Disabled
rP	Remote Primary
rb	Remotely Blocked
rF	Remote Fire Alarm
rPA	Remote Panic Alarm activated

8. Resetting password to factory default

If for some reason the password to the IntelliBox is lost, it is possible to reset it to the factory default setting "1234000000".

This is how it is done:
- Remove the IntelliBox from the base plate, so that the tamper switch is opened
- With the power on, and the IntelliBox, showing the main user screen, short the two points on the PCB marked "YY". You can use e.g. a pair of tweezers, a straightened out paperclip or a piece of wire
- While still shorting the "YY" points, press the "<" key on the keyboard. Display will now inform you that password has been reset
- Remove short from "YY" and press "OK" on the keyboard
- Press "OK" and wait for the log in screen to appear
- You can now log in using the password "1234000000"
- Remember to set a new password before leaving

The two "YY" points on the PCB and the tamper switch.
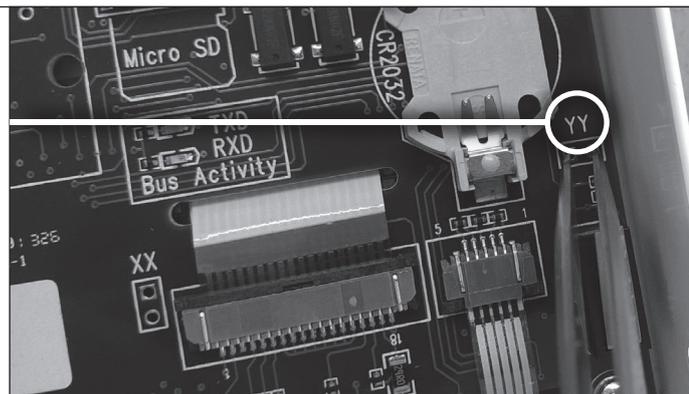
9. Performing reset to factory settings

In the event that all settings need to be reset to the factory default, this can be done in the following way:

PLEASE BE AWARE THAT ALL SETTINGS WILL BE RESET TO DEFAULT!
This includes settings for the trigger inputs etc.
This may lead to unwanted fog release if it has not been taken into consideration before
performing the reset.

- Remove the IntelliBox from the base plate, so that the tamper switch is opened.
- With the IntelliBox **Powered off**, short the two points on the PCB marked "YY" You can use e.g. a pair of tweezers, a straightened out paperclip or a piece of wire
- While still shorting the "YY" points, power up the IntelliBox, wait for it to start up, and observe the instructions on the display
- Press the tamper switch as indicated, to perform a reset to the default settings, or power off to abort
- After pressing tamper switch to reset to default settings, you will now be asked to cycle power to the IntelliBox

All settings including password, connected machines, settings for inputs and outputs, sound etc. will be deleted and reset to default.

The two "YY" points on the PCB
and the tamper switch.
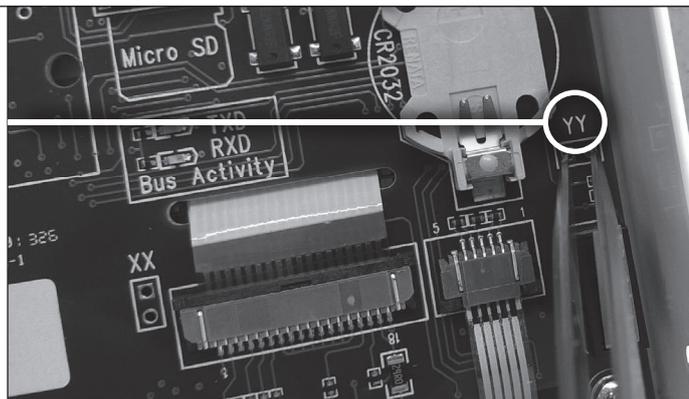
10. Technical data of IntelliBox

Electrical data IntelliBox
Power supply voltage .... 12VDC stabilized (10 – 15V)
Current consumption with no backlight .... 40mA (avg.@12VDC)
Current consumption with backlight enabled .... 85mA (avg.@12VDC)

Inputs:
Type .... Optically isolated Bidirectional DC input
Activation level (guaranteed ON) .... 7 – 30VDC (Max)
Not activated (guaranteed OFF) .... 0 – 1VDC
Current .... 2mA@12V, 4mA@24V

Outputs:
Type .... Optically isolated Bidirectional output
Overload protected solid state relay
Max Rating .... 120mA continuous / 30VDC (20VAC)
ON resistance .... typical 28 Ohm (Max 35 Ohm)

Connector for direct and easy connection of IntelliWirelessCard.
USB connection for debugning, monitoring, setup and programming via IntelliSuite software.

A maximum of 16 fog cannon units can be connected to the same IntelliBox.

Electrical data IntelliBusCard
Power Supplied directly from fog cannon.
Tamper sense inputs for fog cannon tamper switch and tamper loop in local verifying sensor.
Connector for direct and easy connection of IntelliWirelessCard, supplied directly from fog cannon.
Dual set of terminals for easy routing of IntelliBus to and from IntelliBus Card.

Electrical data IntelliWirelessCard
Power supply voltage .... 12VDC stabilized (10 – 15V)
Average Current consumption .... 55mA (@12VDC)
Peak Current consumption .... 150mA (@12VDC)

Operating frequency .... 433,050 MHz to 434,790 MHz
Maximum Effective radiated power 10mW
RF performance according to ETSI - EN 300 220-1 and EN 300 220-2

Absolute Maximum recommended Effective range, depending on the surrounding environment*:
Direct line of sight, wood and drywall .... 100 m.
Brickwork .... 75 m.
Steel Reinforced concrete and partial sub terrain .... 50 m.

Note that the figures given are NOT guaranteed to work under all circumstances.
They are only guidelines based on the experience, gained from practical tests and live installations.
Numbers may be subject to change.
(* Effective range is measured from the master transceiver, connected at the IntelliBox, to individual slave not transceivers. Note that a range of e.g. 50 meters corresponds to a circular covered area of 100m in diameter, with the master transceiver located at the centre.)

IntelliBus in general
Maximum operating common mode voltage range .... ±7V (gnd to any signal line)
Signal lines protected against:
Overload, short circuit, ESD, Surge transients and over voltage protected to ±30VDC .
All bus communication is fully encrypted.

CE emc RoHS

PROTECT A/S is the world's largest supplier and the only producer of Fog cannon units in Scandinavia.
PROTECT is represented worldwide in more than 50 countries.