Installation instructions for wireless alarm

21st November 2010
Contents

1 What is covered and what not in this manual 3
2 The basics - Very important to know 5
3 Give your sensors a unique address 7
4 Train the alarm system. 11
5 Configuring your alarm via a phone or cellphone 14
6 Configure the phone numbers and siren sound (when arming or disarming the alarm) 17
1 What is covered and what not in this manual

Please note that the manual that comes with your alarm system is your primary manual and is more important than this manual. It also contain some detail not in this manual. We wrote this manual after we realised that many clients can find it hard to install this alarm as the product manual is too technical and assumes too much.

Please note that this manual is a work in progress, it is only intended as an additional manual not to replace your original manual. This manual is not part of the product itself but rather a free information manual to our customers that I hope will assist you to understand and make your wireless alarm installation painless.

What is covered in this manual

We wrote this manual as an additional information manual to the new comer in the field of wireless alarms, the manual that comes with your alarm is much more technical and do not give the basics of wireless alarm technology.

• This manual approaches the installation of your alarm in a more DIY and step by step way that we believe can assist in better understanding of the alarm system and therefor will make installation much easier and quicker.

• Not included in the product manual is sensor settings, it is important to know how to set the sensors so they can communicate with the alarm correctly and that there are no conflicts between the sensors. We cover these settings in this manual in great detail.

• We use less technical terms in this manual and also explain more in detail what each feature or setting do. The technical manual sometimes do not explain and assume the installer understand these terms and functions already.

What is not covered in this manual

• The technical manual have details on how to use the alarm, how to arm it, how to use the remote that comes with it. The technical manual also explain how to use your alarm via a phone or cellphone. This manual does not cover this area, this manual got all to do with installing and configuring your alarm.
1 What is covered and what not in this manual

- The technical manual have tables with default settings as well as quick look-up tables for the codes used to program the alarm. This manual do not have it

Who will find this manual boring and lightweight

Anybody that previously installed a wireless alarm will probably find this manual very boring and can move on straight to the more technical manual that came with your alarm.

It will probably still be worth it to just scan through it in case there is something you always wanted to know but never had time to learn.
2 The basics - Very important to know

Wired communication

When one deals with wired things it is easy to get them communicating, you simply take some wire and connect them between the wired devices.

To get device A to communicate with device B you simply put a piece of wire between them. If you now want device C to also communicate with device A you put another piece of wire between device A and then C.

If we use an alarm as an example device A can be the alarm unit and device B and C motion detectors.

Zones

A zone makes it possible to give more flexibility to the overall alarm system and to group some sensors in common location areas together. Zones make it possible to switch some sensors off in one location but leave other on in other locations when activating the alarm. This has the advantage that when you are at home you can have some sensors not on, for example those in your bedroom. When going away you can have all zones active. Another advantage of zones is that you can have a good idea where the alarm was tripped because that zone light will flicker on the alarm.

If you look at our earlier example we can still have device A (as the main alarm unit) and we can then have device B connected to zone 1 of device A and device C connected to zone 2 of Device A.

You might want more than one sensor on zone 1 and it is possible to connect Device B and C to zone 1 of device A.

Wireless communication

We can do the same with zones in wireless technology but we will need to send out some identification to device A so device A knows what device it is communicating with and once it does to know what zone it belongs to if any. In wireless technology there is no wires so there is no direct communication via wires between devices.

You can probably imagine that it is very possible that your alarm can pick up your wireless devices but also those devices of places around you. If your neighbour’s wireless alarm’s signals are strong enough your alarm might pick it up. Even your own wireless devices can interfere - maybe you have a RF remote control for your gate motor.

You need a way to teach your alarm what wireless signals it must act upon and what signals to ignore.
The solution

All wireless alarm sensors (motion sensors, door sensors, gas sensors etc.) must have some way to be uniquely identified. That is to say each sensor need its own sort of address or code and that address or code must be send to the alarm it communicate with.

In a wireless alarm the communication is simple. First, the sensors talk but do not listen, the alarm unit itself just listen, it do not talk back.

Very basically the sensor just transmit its address (code) via radio frequency. The alarm system will receive this address (code) and look into its memory to see if it knows about this address (code). If the address is not there that message is simply ignored (maybe it received the address of your gate remote or some other device not part of your alarm system).

When the alarm unit receive this address (code) and it is in its memory it knows that the sensor was activated because the sensor will only send out its address (code) if it was triggered.

Now, if the alarm system is activated it will sound the alarm and do all kinds of things like sending you an SMS. If the alarm is not activated it will only light up the little light for the zone it received the communication from.

Note: Sensors and other devices can send other data with the address. Your alarm remote control for example have 4 buttons, each button doing something different like activating the alarm, disarming the alarm and sending a panic. If you press a button on your remote the remote address as well as the remote button number is send to the alarm. The alarm will look up the address in its memory as well as the button number and then do as requested.

All that is thus needed is to give your sensors an unique address (code) and then let the alarm unit be informed about the address and what to do if it receives a signal from that address (code). That teaching (informing) of the alarm is what most of this manual is covering.

Telling the alarm unit about the sensor’s address in called teaching the alarm, your alarm can thus learn. We will talk shortly on how to teach your alarm, first lets have a look at how we configure our sensors to have its own unique address. All remote sensors (motion detectors, door sensors, beam parameters, smoke alarms, gas alarms etc.) use this method I describe below to give your sensor an address.
3 Give your sensors a unique address

Giving your sensors a unique address (code) is done using something called jumpers. The idea behind jumpers is an easy one, many electronic device have jumpers to set or unset features on that electronic device.

**Picture of jumper:**

A jumper is a little piece of plastic with a piece of metal inside. This fits over pins sticking out of a electronic board to make a connection between the pins.

A jumper can be thought of as a kind of switch. If you insert a jumper between two pins it makes a connection between the 2 pins. If you take the jumper of the pins it breaks the connection between the 2 pins. That is exactly how a switch like a light switch work.

You will see many of these pins inside your wireless sensor and by putting jumpers across some pins and not over others you create the address (code) for this sensor.

As long as these jumpers are inserted differently for each sensor you will have different addresses (codes) for each sensor.

**More than one sensor in a zone is done often**

A zone is nothing more than I way to group sensors together. A zone can then be configured to be doing things like to not be active when you are at home, or to be active when at home or not at home, a zone can even be active even if the alarm is not been armed.

Sometimes you want some sensors to have the same address - that way you can have more than one sensor on one zone. My alarm, as an example, have 3 sensors all with the same address. These sensors are the front door sensor, lounge motion detector and TV room motion detector. I did that because the 3 sensors are so near each other and I will still know where in the house the alarm was triggered. Many installers will put sensors together on one zone in a general location.
I trained the alarm system (more about that in the next section) to know one of the sensor’s addresses and then set the other sensors address to the same address as that sensor.

Remember the alarm get the address of the sensor that is tripped, it has no idea that there are 3 sensors with the same address. The alarm system is only concerned with the address and what action it should perform with that address, it is not concerned with the type of sensor or the amount of sensors with the same address.

Planning your zones.

Most of our alarm systems have 6 zones. There are other systems with more but most of the time 6 zones are more than enough. I have 4 bedrooms and an outside office and still have 2 zones not used.

When planning your zones there is only to major questions you should ask yourself.

1. What rooms should not be protected when you are at home before going to sleep? The room you sleep in should not be protected - the alarm will be activated each time you turn. Also the passage to the bathroom should be unprotected when going to the bathroom at night. This information is important as you will want to setup your alarm in such a way that those zones are inactive in “stay at home” mode. Of course you can also set those zones active in “go away” mode. More about that later.

2. What sensors should have the same address? I divided my zones like this: rooms (all 4) on same zone (also the only zone I have to program for stay at home zone) - all 4 sensors for the rooms get the same address. Front of house (lounge, TV room, front door and eating room) all on the same zone (all sensors have the same address), back door and kitchen on the same zone (both sensors have the same address), outside office on its own zone). I have 2 zones I am not going to use right now but is available if I want to add outside beams at some stage or garage door sensors and so on. If you have a gas stove you might want to use a gas sensor on a zone for gas leak detection.

With this questions answered you can now start adding addresses to your sensors. Looking at my setup you will see that although I have 9 sensors (2 door sensors and 7 motion sensors) I will only have 4 unique addresses as some sensors will share the same address.

Setting the sensor addresses

We now have enough knowledge and information to start setting addresses for the sensors. We know how wireless sensors work, why unique addresses are needed and that more than one sensor can share an address. We also asked ourselves the 2 questions above and we know what sensors are on what zones, what sensors should not be active while we are at home and we know what sensors we want to share the same address and thus the same zone.

Here is a picture of a sensor when you take of the back cover:
We are interested in all those pins sticking out to the left on the electronic board. All wireless sensors have those pins on them. It will now be a good time to stop reading for a minute and open up a sensor to see what I mean.

When you open your sensor you will see that some of those pins already might have factory set jumpers across them. You also will get a packet of extra jumpers so you can change the address to whatever you like.

These pins are numbered from A0 - A7 and then D0 - D3.

Each row of pins have 3 pins named L, N and H.

Very basically all you need to do is put jumpers on these pins in such a way that they are different for each sensor that needs its own address.

Let's say for zone one you will put jumpers across pin A0 (L-N pins), A4 (N-H pins),
Give your sensors a unique address

D0 (N-H pins).

Zone 2 must then be different, even if it is just with one pin like this: A0 (L-N pins), A4 (N-H pins), D1 (N-H pins) <- this jumper setting is different. If you look carefully you will see that on Zone 1 I put the jumper across D0 (N-H pins) and on Zone 2 D1 (N-H pins).

These sensors now have different addresses and we can teach our alarm system soon.

Additional information (not required to know but informative)

As most things electronic-wise there are standards and it is the same for these pins. This alarm system is very clever and will learn the whole address. Other alarms have the first part of the address pre-programmed in them and then the last part of the address will only be learned. Your alarm will learn the full address from A0 - D3.

A0 - A7 is the part of the address that one can call the address part and as explained in the earlier paragraph is pre-programmed in some alarm systems.

D0-D3 is then the pins left to distinguish one sensor from another.

Note: Although our alarm systems take the A and D pins as the full address it is still a good idea to keep things standard. To do that set the jumpers to all the pins of the address part A0 - A7 to be the same and then just change the D0 - D3 to change the last bit of the address to be different.

The L-N-H do have meaning as well.

If you put the jumper across L-N it represent the number “0”
If you put the jumper across L-H it is represented as number “1”
If you put no jumpers in a row it is represented as number “2”

If you look at the earlier picture again you will see that it shows jumpers between some pins already. In that picture the pins can be represented as the code: “101201200101” That is also how the address is send to the alarm system and how the address looks in memory.

The address part of that number is the first 8 numbers “10120120” and the unique sensor number is “0101”
4 Train the alarm system.

Using the alarm system for the first time

At this point please refer to your manual on how to use the alarm for the first time. You will need to insert a sim card in your alarm and the manual you received with the alarm will tell you more. Note the sim card must not be password protected. Normally “pay as you go” sim cards do not have a password. In case it does you will have to take the password off using a cellphone.

Put some money on the cellphone as well. R50.00 will probably last you a very long time if you do not get lots of false alarms that let the alarm call you and / or sms you.

When switching the alarm on it will peep constantly until it pics up a cell phone provider from your sim card. Please make sure you have a sim card at hand else the beeping will drive you up the walls.

Things you should know and do before teaching the alarm

The alarm unit do not have a keypad and all teaching is done via a push button at the back of the unit. Other settings are done using a phone or cellphone.

The training of the alarm to learn about the sensor addresses is done from the unit itself.

Note 1: Make sure the alarm is switched on at the back and that it is plugged into the wall socket. To save on battery power some programming functionality is switched off while the alarm just run from the battery.

Note 2: The alarm should not be activated, it should be disarmed when you train the alarm.

Note 3: When the alarm learn a sensor’s address the other sensors must not be switched on to ensure the alarm does not learn the wrong sensor’s address. MOST SENSORS AFTER SWITCHING OF WILL TRANSMIT A TRIGGER SIGNAL WITHIN A MINUTE OF SWITCHING OF. THIS IS A FEATURE THAT WILL LET YOUR ALARM BE TRIGGERED WHEN SOMEONE SOMEHOW GET NEAR ENOUGH YOUR SENSOR UNNOTICED AND TURN IT OFF.

The best will be to put motion sensors on their faces and under a newspaper while you teach the alarm system so the wrong sensors do not get activated while training.

Teach the alarm about your remote controls

The remote units are very important in security. If the wrong person have a remote control they can de-activate a alarm system. For that reason each remote is programmed
4 Train the alarm system.

by the factory, each with its own secret address. This does not stop you from teaching your secret address to your alarm even if you yourself does not know the address.

1. Press the button at the back of your alarm system called “set” for about 3 seconds until you hear a beep from the unit. The unit will now be in settings stage. You will see that because the light on the unit will flicker.

2. Now that you are in set mode press the button once more to be in remote control learning mode. You will know the alarm is in remote control learning mode because all the lights will be on.

3. Now simply take each remote control and press any button on it. If you hear a beep you will know the alarm system learned the address successfully and you can press another remote’s button to teach another remote control address to the alarm system. You can do this for 8 remotes in total.

4. To exit out of the settings mode you can either wait for about 30 seconds for the alarm to go out of settings mode automatically or press the settings button for 3 seconds.

Teach the alarm about the sensor addresses

By now you will know what zones you will use and you will have set the addresses of the sensors.

1. Press the button at the back of your alarm system called “set” for about 3 seconds until you hear a beep from the unit. The unit will now be in settings stage. You will see that because the light on the unit will flicker.

2. Now that you are in set mode press the button once more to be in remote control learning mode. You will know the alarm is in remote control learning mode because all the lights will be on.

3. We already set the remote controls so press the setting button once more. You will see that the zone 1 light goes on. That means the alarm system is ready to learn the address for zone 1.

4. Activate the sensor for zone 1, for door sensors just move the magnet part way, for motion sensors switch it on. The alarm will learn the address and make a beep. If you used a motion sensor switch it of and place it under some news paper or something before moving to the second sensor. When switching a sensor off, like a motion sensor, the sensor will send a signal out in under minute - see earlier explanation on why. If that signal is send while programming your second zone the zone will learn the wrong sensor's code. So just put it face down and cover it with something.
4 Train the alarm system.

5. Now simply press the settings button again, the light for zone 2 will light up and the alarm is ready to learn the sensor address for zone two. Activate the sensor and again you will hear a beep informing you that the address were successfully learned.

6. Continue this to teach the alarm the other zone codes as well.

7. To exit out of the settings mode you can either wait for about 30 seconds for the alarm to go out of settings mode automatically or press the settings button for 3 seconds.

Note: If the alarm do not pick up an address on a zone and you move to the next zone it will not learn the new address and keep the old address. This is of note as it means if you just want the alarm to learn one new address on a specific zone you can just use the set button to go to the specific zone and activate the sensor for that zone. The rest of the zones will keep its settings.

Record a voice message to play back when the alarm calls you

When the alarm calls you it will play a message back as well as the zone number that was triggered. The message it plays back need to be recorded first. When the alarm system phones you it will probably be ok if it is not a well thought out message but if the alarm will phone someone else it is important to have a message that give details like “This is John’s alarm calling you”.

To record the message is easy.

1. Press the set button at the back of your alarm 3 times.

2. The alarm will make a long beep.

3. Once it gives this long beep you can record your message.

4. The message can be 10 seconds long. After 10 seconds the recording will automatically stop and be saved for use.
5 Configuring your alarm via a phone or cellphone

Now that you recorder your message and set all sensors to be able to communicate with your alarm it is time to phone your alarm and configure the different zones.

**There are two modes of operation when you call the alarm**

1. Configuring (programming mode). The default password is 8888. This mode allows you to do the configuration for the different zones.

2. Operations mode. The default password is 1234. This mode is used to arm, disarm and to listen in.

The alarm system will activate the correct mode according to the password you used. **You can not use the same password for configuration mode and operation mode** - the alarm will not know what mode you want to use then!

**Change the passwords**

First lets change the passwords so only you know what they are.

1. Dial your new cellphone number. The alarm system will answer asking for the password. As we are going to configure the alarm use the configuring (programming) mode password - 8888

2. If you are near the alarm system you will hear beeps as you press keys on your cellphone.

3. Lets first change the password for operations mode, that is the mode where you can arm, disarm and listen in.

4. Press the following: 30 new code #. Lets say you want the new code to be 5678 then you press 305678#. Once you pressed the # key your alarm system will give a long beep. That indicates that it accepted and saved your new password. The number 30 tells the alarm that you want to change the operations password.

5. Without disconnecting also change the configuration (programming) mode password. Press the following: 31 new code #. Lets say you want the new code to be 6767 then you press 316767#. Once you pressed the # key your alarm system will give a long beep. That indicates that it accepted and saved your new password. The number 31 tells the alarm that you want to change the configuration password.
Configure the zones.

Configuring the zones is a 2-way process.

- First you set each zone for what should happen when you activated the alarm when nobody is at home.
- Second you must set each zone for what should happen if somebody is at home (normally used when you go to sleep at night).

Now will be a good time to take a piece of paper and write the codes down so you are ready when you dial your alarm system again. The alarm system automatically disconnects you if you do not enter the codes in a couple of seconds. So let us first put all the codes on paper so we can do all the configuration with one call.

Configure the guard mode (when nobody is at home)

Let’s first look at the options for this mode.

1. **Type of guard area.** There are 4 types of guard areas. [1] real time, this means the alarm must immediately be activated if sensor is tripped, this is the type you will use most of the time if not always. [2] 40 second delay, this means the alarm will wait for 40 seconds after a sensor was tripped and only then trigger the alarm. [3] 24 hours a day, this means the alarm will be triggered all the time even if it is not armed - zones used for this are usually those having gas or smoke sensors connected to it. [4] bypass, simply means that the zone will not work.

2. **Installation location.** There are 8 locations available on this alarm system to choose from. The only importance of the location setting is that when the alarm calls you and/or send you an sms it will include this location. The available locations are: [1] Help alarm (for panic buttons), [2] fire alarm, [3] gas leak, [4] door lock alarm, [5] hall alarm, [6] window alarm, [7] balcony alarm, [8] perimeter alarm. You will have to choose the nearest location you can even if not the same. The zone number is also send when the alarm calls you or send you an sms. For my rooms I choose balcony and for my lounge area I chose hall. The outside office is on perimeter location. It is not exact but when I get a call I have an idea where the sensors tripped.

3. **Siren type.** Should the siren sound when the alarm is triggered [1] or should the siren not go off when the alarm is triggered [0].

Here is the code that you send via a phone for the zone configuration:

60 “zone number” “guard type” “location” “siren type” #

Now this is the ideal time to use that pen and paper.

Write on that paper the first zone number e.g 1 then decide what guard type should be configured for that zone. Lets say you decide on real time type put 1 down next to
your previous number or lets say it will be used for a gas leak sensor put down 3 for 24 hour delay.

Next decide on a location. Lets say it will be for a door then “4” door lock alarm can be a good choice. Last decide if the siren should sound, if so put the number 1 down on paper as well.

So far then we have: 1141

To tell the alarm that you want to configure the guard area you need to start your settings with the number 60, last you need to use the # key to tell the alarm you completed an action.

The complete number then will be 601141#

Move on to your next zone and do the same as above in paper- maybe you now have 602281#. That means zone 2, 40 second delay, parameter location and siren should sound.

**Configuring the guard - stay at home mode**

You must also teach your alarm system what zones should be active in stay at home mode and which zones should not be active in stay at home mode.

There are just two options available to set. The first option tells the alarm if the zone should be active [1] or inactive [0] for stay at home mode.

The second option is used to tell the alarm if the siren should sound[1] or not[0] for that zone in stay at home mode.

The numbers you will use to tell the alarm that you are going to configure the stay at home mode is 61.

Here is 2 examples of the codes for stay at home:

61111# This tells the alarm that you are configuring the stay at home guard on zone 1, the alarm should be triggered and the siren should sound. This of course means that if a sensor in that zone is tripped the alarm will be triggered

61200# This tells the alarm that you are configuring the stay at home guard on zone 2, the alarm should not be triggered and the siren should not sound. This of course is the setting for the room you sleep in. You do not want the alarm to be triggered or the siren to sound every time you get out of bed.

**Phoning the codes in**

You now should have 2 codes for each zone you will use on paper.

Time to send them to your alarm via your phone or cellphone.

When you are prompted for your password use the configuration password (if you did not change it yet, it is 8888).

Now simply start adding in codes, every time you enter the # key you should hear a long beep from the alarm system indicating the code was successfully recorded.
6 Configure the phone numbers and siren sound (when arming or disarming the alarm)

The last thing to do is to put the phone numbers in and to tell the alarm system if the siren must make a short sound every time the alarm is activated or not.

**Entering the telephone numbers the alarm must call when triggered**

Entering phone numbers is easy. Dial the alarm system and use your configuration (programming) password.

The first phone number must be preceded with the code 51. If you are going to add the phone number 082333333 then you must use 5108233333#.

Remember the hash. It tells the alarm that you are finished giving it a command.

The next number must start with 52.

You can have up to 6 numbers stored in the alarm.

Each number must be preceded with the correct code:

51 number #
52 number #
53 number #
54 number #
55 number #
56 number #

**Entering the telephone numbers the alarm must sms when triggered**

It is exactly the same as entering numbers that must be dialled. The sms numbers must be preceded with the correct code as well.

You can add up to 3 numbers to be send an sms too.

These codes start wit 57 up to 59.

57 number #
58 number #
59 number #

**Set siren mode**

You can change the sound the alarm makes when you arm and disarm the alarm. In siren mode the alarm will use the siren to make a short but loud sound. That can be
6 Configure the phone numbers and siren sound (when arming or disarming the alarm)

heard from a longer distance. If you do not want the siren to make a prompt tone you can disable this and the alarm itself will make a beep - this sound is much softer.

If the alarm is very far from your entry point you might not hear the beep from the alarm indicating that you armed or disarmed the alarm. It can be useful then to use the siren to make the beep as it is much loader.

To enable the siren mode connect to your alarm system with configuration password and use this code: 751#

If you do not want the siren to make a beep when arming/disarming alarm use this code:

750#

Final note

That then is the whole process of installing your alarm. It is a long manual as we try to do lots of additional explaining. All this steps can easily be done in under 30 minutes though.

Please read your product manual to find out how to use your alarm system. It explains how to arm, disarm and arming the stay at home mode. It also explain what to do via your cellphone when the alarm system calls you as well as how to operate the alarm from a phone or cellphone