SBX-3
Mini Tracker

User and Installation Manual

English

INTRODUCTION

Thank you for your purchase of redKnows SBX-3 series product. In order to take full advantage of this product, please read this manual carefully before starting to use the product.
SBX-3 can be used for guarding many types of objects such as cars, boats, excavators, containers, motorcycles, campervans and others. In this manual all objects are referred to as "vehicles" or objects.
SBX-3 is a GSM-based positioning alarm. The alarm can be triggered by an alarm sensor connected to one of the inputs or if the object is moved outside a defined area, so called geofencing. When triggered, the siren will sound and an SMS message will be sent to pre-stored telephone numbers.

In addition to the alarm function, SBX-3 can also be used for tracking the position of an object and control equipment with SMS. The SBX-3 can only communicate with the pre-stored telephone numbers on the SIM-card in SBX-3. They can receive SMS-alarms and control them.

In the package you will find:

Main unit with integrated GSM module and spare battery.
GPS receiver
GSM antenna
Magnet Switch - (Marine package only)
Siren
Remote Control
Microphone
Cable kit

The units are installed according to the instructions in this manual and a SIM-card is inserted. Then the user´s telephone numbers has to be stored into the SIM-card in order to allow access to the system. After this introduction, the manual continues with instructions for handling the SBX-3 with the remote controller and a mobile phone once it is installed and initialised.

The installation should be made by a person with proper knowledge of the electrical system of the object. Instructions are found in the Installation Manual. When the system is installed a SIM-card is inserted and power is applied. Then the SIM-card should then be prepared with the proper settings, these are described in the Setup Manual.

TABLE OF CONTENTS

USER MANUAL

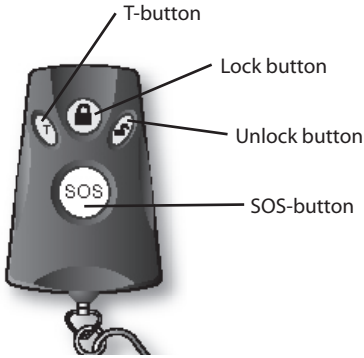
The functions of SBX-3 are controlled by the wireless Remote Controller and a mobile phone through SMS and phone calls.

With the remote controller you can:
• Arm and disarm SBX-3
• Send an S O S-message to one or more mobile phones

With a mobile phone you can:
• Send SMS to arm and disarm SBX-3
• Send SMS to receive position from the alarm
• Send SMS to control equipment like a heater
• Send SMS to change telephone numbers in SBX-3
• Call SBX-3 to receive status and position from SBX-3
• Call SBX-3 to listen to the microphone
• Receive alarm SMS from SBX-3

Remote Controller

The remote controller has four buttons. The T-button is only used for initiating the SIM-card, see the setup instructions. The functions of the other buttons are described here. A red LED under the SOS-button flashes when a button is pressed.



The remote controller is powered with a long life 12V battery measuring 10x28 mm.

Arm and disarm using the Remote Controller

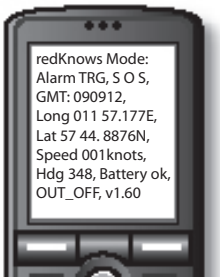
The alarm is armed with the Lock button and disarmed with the Unlock button. When the alarm is armed the high decibel siren will beep once.

If a sensor input is in an activated state, the SBX-3 will not go into armed mode and the high decibel siren will beep 3 times as a warning. When disarming, the high decibel siren will beep twice. If the relay is on it will be switched off.

SOS Trigger

When the SOS-button is pressed twice within 3 seconds the SOS-alarm is triggered, When SOS-alarm is triggered, the mobile phones in group 2 will receive an SMS-message with the text SOS as well as time, position, etc., see picture

SMS-message:



Mobile Phone

With the mobile phone you can, besides receiving alarm messages, also track the position of an object and control equipment by sending an SMS.

The SBX-3 can only communicate with the pre-stored telephone numbers on the SIM-card in SBX-3. They can receive SMS-alarms and control them.

A table in section 3 Setup Manual shows the content of the SIM-card, here is a short summary:

Group 1 receives all SMS-alarms except SOS
Group 2 receives SOS-alarms SMS
Group 4 can call and listen to sounds from the microphone
Group 5 can call to receive status SMS.
Group 6 can send control SMS with commands to SBX-3

The picture shows an SMS where the alarm has been triggered by alarm input 2 being activated by e.g. a magnetic contact on a door.

Alarm TRG SENSOR 2 shows that the alarm has been triggered by a sensor connected to the SENSOR2-input.

- GMT shows the time for the alarm in Greenwich Mean Time.
- Lat and Long show the position from the GPS-receiver.
- Speed and Hdg show the speed and heading of the object. This information also comes from the GPS.
- Battery ok shows that the battery providing power to the alarm, usually the standard boat or car battery, has a voltage above 9V.
- OUT_OFF shows that the relay control output is off.
- v1.60 is a version number, which can vary depending on the manufacturing date.

The following describes which messages are sent to the mobile phone in different situations.

Use of SMS to arm and disarm

The phone numbers in group 6 can be used for this function. When SBX-3 receives SMS-message SET, it will arm the security system and the high decibel siren will beep once. If a sensor input is in activated state, the SBX-3 will not go into armed mode and the high decibel siren will beep 3 times as a warning. To check at a distance if the alarm is activated, mobiles in group 5 can phone for a SMS-status which then shows Alarm ON.

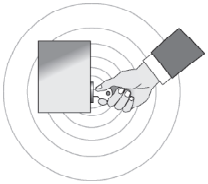
If the message is CLR, it will disarm the security system and the high decibel siren will beep twice. If the relay is on, it will be switched off.

Attention: Use only UPPERCASE letters in your SMS

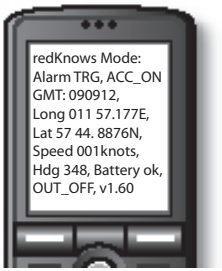
Alarms

Ignition/ACC Alarm

SBX-3 will immediately trigger the alarm when Ignition key, ACC, is turned on.
When the alarm is triggered, the mobile phones in group 1 will receive ACC_ON + status message. The siren will beep for 45 seconds.



SMS-message:

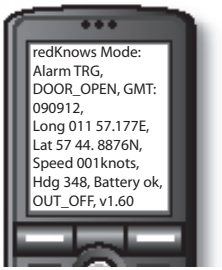


Door Alarm

When someone opens a door with magnetic sensors, the SBX-3 is triggered.

When the alarm is triggered, the mobile phones in group 1 will receive a DOOR_OPEN + status message. The siren will beep for 45 seconds.

SMS-message:



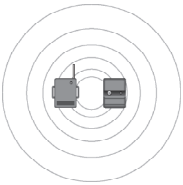
Sensor Alarm

Input on pin 8 gives the message SENSOR1 and input on pin 9 gives the message SENSOR2.

When a sensor is activated, it will trigger the SBX-3 immediately.

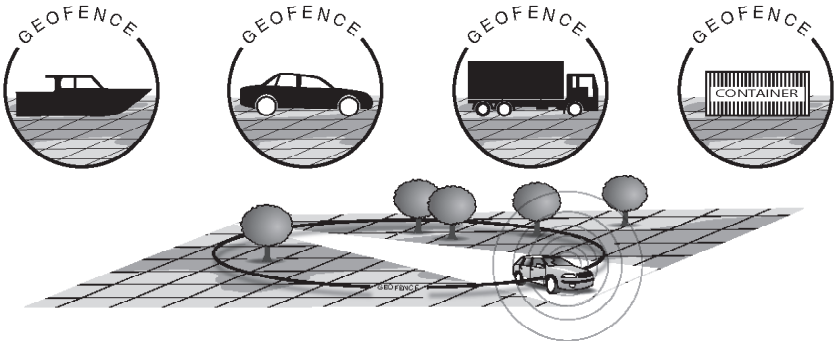
When the alarm is triggered, the mobile phones in group 1 will receive a SENSOR + status message. The siren will beep for 45 seconds.

Pin 8 requires 3 ground impulses within 6 seconds to be triggered.



SMS-message:

Geofence Alarm



Geofence can be translated to geographical fence, if the object is moved outside an area from the position where the alarm was armed the alarm will be triggered. The user can define the size of the approved region between 0.10 to 0.90 minutes. 0.10 minutes is equal to 185 metres in a north-south direction, latitude. In a west-east direction, longitude, the distance lessens depending on the latitude. Latitude 57° equals 100 metres.

The approved region is defined on the SIM-card as LON and LAT with the numbers 1-9 indicating one hundredth of a minute.

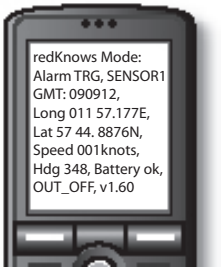
If the SIM-card shows LON 3, LAT 3, the approved region is 0.30 minutes from the place where the object was triggered, i.e. approx.300 resp. 555 metres.

Recommended setting is 6 due to the fact that, even if the vehicle is in a fixed position, the data from the GPS can change depending on high buildings etc. that can reflect signals from GPS-satellites so that the position changes. If a false alarm is triggered as a result, the values for LAT and LON should be increased.

When armed, the SBX-3 will store the current position. Then, every ten minutes, it will exit power saving mode, read the GPS-position and compare with the stored position. If either the LAT or LON difference exceeds the specified values, the Geofence alarm is triggered.

When the alarm is triggered, the mobile phones in group 1 will receive a LOCATE + status message.

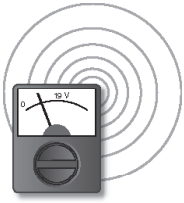
SMS-message:



Low battery Alarm

When the SBX-3 voltage goes below 9V for more than 40 seconds, the alarm is triggered.

When the alarm is triggered, the mobile phones in group 1 will receive a BATTERY_OFF + status message. The status information will then show the text Battery NG (no good).

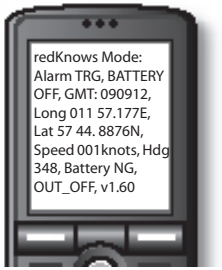


Disconnected GPS Alarm

When the GPS-data is missing this alarm is triggered.
If the GPS-cable is disconnected or cut off it will trigger the alarm.

When the alarm is triggered, the mobile phones in group 1 will receive a GPS NG + status message.

SMS-message:

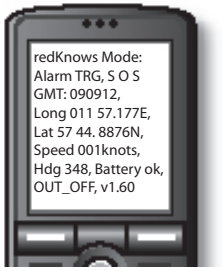


SOS Alarm

When SOS-button is pressed twice in less than 3 seconds the SOS-alarm is triggered.

When SOS is triggered, the mobile phones in group 2 will receive an SOS + status message.

SMS-message:



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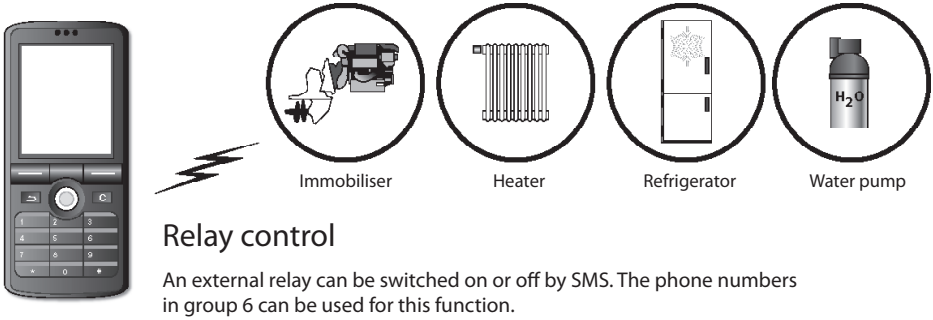


Relay control

An external relay can be switched on or off by SMS. The phone numbers in group 6 can be used for this function.
When used for immobilizing the vehicle, the engine can not be started if the relay control function is on. One way to achieve this is to break the battery cable to the ignition key and connect to the NC (Normal Closed) terminals of the relay.

WARNING! This type of installation should only be made by a person with proper knowledge of the electrical system of the vehicle. Be aware that turning off the engine can be dangerous for a vehicle in motion or a boat at sea so use this function with care.

If immobilization function is not required this function can be used to turn on and off other devices such as a refrigerator, a heater or water pump.

The relay is switched on when SBX-3 receives SMS message OUT_ON
The relay is switched off when SBX-3 receives SMS message OUT_OFF or when SBX-3 is disarmed.

Attention: Use only UPPERCASE letters in your SMS.

Monitoring Function

When SBX-3 receives a phone call from phone numbers in group 4, the system will automatically answer the call and the caller can hear the sounds picked up by the connected microphone.

NOTE! If the unit is roaming to an operator in another country, a pre-paid SIM-card could run out off credit very fast due to the fact that the cost for the foreign part of the call is paid by the receiver. This can occur also near country borders depending on the signal strength from the different operator´s base stations.

Location Search by SMS

When SBX-3 receives a TRACK message the system will send back an SMS with LOCATE + status. The phone numbers in group 6 can be used for this function.

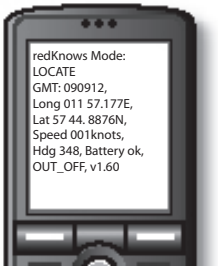
The format of the message is TRACKssnn: ss is the number of 10-second intervals between LOCATE SMS. The interval can be set between 10 to 990 seconds, ss=01 is 10 seconds and ss=99 is 990 seconds.

nn is the number of LOCATE SMS to be sent from SBX-3. The number can be set between 01 to 99. The default number is 5 SMS: message TRACK60 is the same as TRACK6005, it will send back 5 SMS with LOCATE + status to the user in 600-second intervals.

The SMS message TRACK0001 will send back one SMS with LOCATE + status.

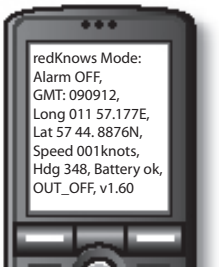
The SMS message TRACK0000 will cancel the location search function, the remaining SMS will not be sent.

SMS-message:



Location Search by phone call

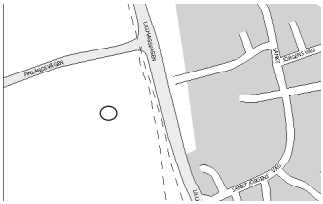
SMS-meddelande:



When users in group 5 call to SBX-3, the system will send back one SMS with Alarm status and position.

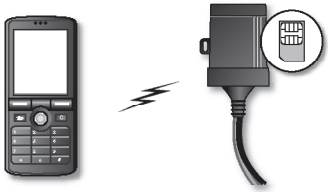
Example:
When users in group 5 call SBX-3, the unit will not answer the call which results in a busy tone or an error message from the operator. This is to avoid unnecessary cost for the caller. SBX-3 then sends an SMS to the user.

On www.redknows.com under Locate there is a function for entering the coordinates and get a map with the position indicated.



Changing telephone numbers using SMS

Attention: use only UPPERCASE letters in your SMS



Users can change the setting in the phonebook by sending SMS to the SBX-3. Any number or setting in the phonebook can be changed or added by an SMS in this format:

TSST$aa:bb& aa=phonebook name, bb=phone number. Several numbers can be sent in one SMS, separated by &. Remember to finish the message with &.

Example 1
Message TSST$USER_A:0706123456&SEARCH_A:06123456&
it will set USER_A to 0706123456 and SEARCH _A to 06123456
(which are the last 8 digits of the USER_A number).

Example 2
Message TSST$LAT:8&LON:8&
will change the Geofence region to LAT 8 and LON 8

Power saving mode

SBX-3 has an automatic power saving function. When it enters the power saving mode, all LEDs are shut off and the GPS is powered down. To exit the power saving mode, press the unlock key on the remote control.

System parts, included

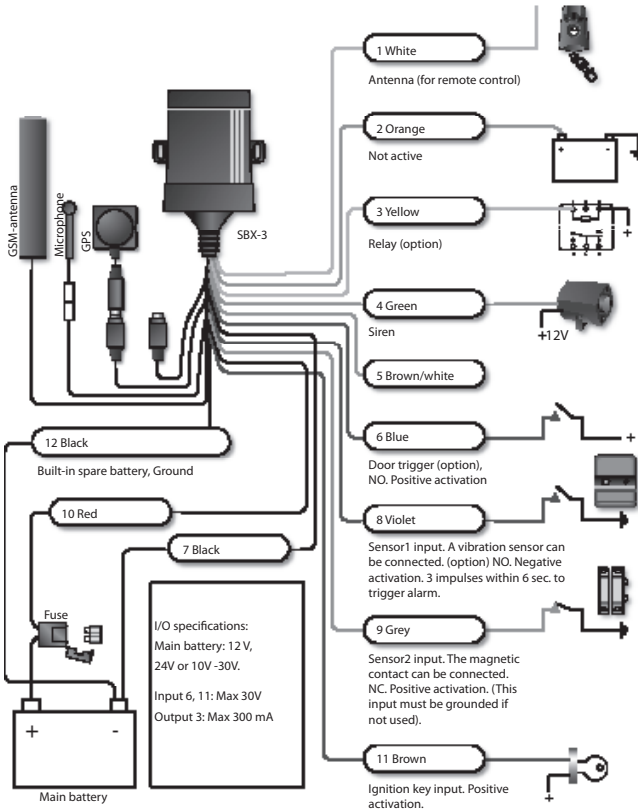
- Main unit with integrated GSM module and spare battery.
- GPS receiver
- GSM antenna
- Siren
- Remote Control
- Microphone
- Cable kit
- Magnet Switch - NOTE: Only in the Marine package

Not included: SIM card for SBX-3, more information in the Setup Manual section

Connections

Input and output wires

Colour	Cable
Function	
White	1
RF antenna, remote key	
Orange	2
Not activated	
Yellow	3
Relay control	
Green	4
High decibel siren	
Brown/White	5
Not activated	
Blue	6
Door trigger. Positive triggering	
Black	7
External main battery Gnd	
Purple	8
Sensor1 trigger. Negative triggering	
Gray	9
Sensor2 trigger. Positive triggering	
Red	10
External main battery +	
Brown	11
ACC trigger. Positive triggering	
Black	12
Internal Spare battery Gnd, connect to 7	



Cable Installation instructions

Cable 1 RF-antenna for receiving signal from remote key. Install as vertical as possible in order to achieve maximum range.

Cable 2 Not active

Cable 3 Relay control. This output can be used to control a relay for an immobilizer or other equipment by sending SMS. The relay is connected between battery + and cable 3. Max current 300 mA.

Cable 4 High decibel siren included with SBX-3 is connected with red cable to battery +12V and black cable to cable 4.

Cable 5 Not active.

Cable 6 Door trigger input, Positive triggering. >1.5V is positive, < 1.5V or no connection is negative. An alarm sensor with Normal Open, NO, contact can be connected to cable 6 and battery +. Several sensors can be connected in parallel, when one of them is activated the input is positive and the alarm is triggered.

Cable 7 External main battery Gnd. Connect as close to battery negative terminal as possible.

NOTE! Do not connect cable 7 until the SIM-card has been inserted into the SBX-3

Cable 8 Sensor1 trigger, Negative triggering. >1.5V or no connection is positive, < 1.5V is negative. An alarm sensor with Normal Open, NO, contact can be connected to cable 8 and ground.
Several sensors can be connected in parallel, when one of them is activated the input is grounded. Sensor 1 trigger requires 3 ground impulses within 6 seconds in order to trigger the alarm.

Cable 9 Sensor2 trigger, Positive triggering. >1.5V or no connection is pos.; < 1.5V is neg. To this input, sensors with Normal Closed contact, should be connected. The sensors should be connected between pin 9 and ground. Several sensors can be connected in series, if any one of them is activated the alarm will be triggered.

NOTE! Connect cable 9 to ground if not used, otherwise the alarm can not be armed.

Cable 10 External main battery +. Connect and fuse as close to battery positive terminal as possible. Be sure to connect between the battery and the main switch in order to provide power to SBX-3 when the main switch is off.

Cable 11 Ignition/ACC trigger. Positive triggering. Connect to ignition key output or a fuse terminal with battery voltage when the ignition key is turned on.

Cable 12 Internal Spare battery Gnd, connect to External main battery Gnd, cable 7. This cable is recognised on delivery by being shorter than the other cables.

NOTE! Do not connect cable 12 until the SIM-card has been inserted into the SBX-3

Installation

For best protection the system should be installed in a way that makes it very difficult for an intruder to discover and manipulate it. Hide the components and cabling as much as possible. Since SBX-3 is operated only with the wireless Remote Controller and mobile phone there is no need to have easy access to the units.

Main unit: Install with cabling down for splash proof protection.

GPS-receiver: Must be installed horizontally in a place where the GPS-signals from several satellites can be received. That means that the GPS-antenna should be able to "see" most of the sky. However, the signals can travel through glass, plastics and other soft materials if not too thick. Metal roofing and even glass with an invisible metal coating will screen out the signal. The red GPS LED on the unit will flash when a position is found, this can take up to one hour the first time the GPS is used.

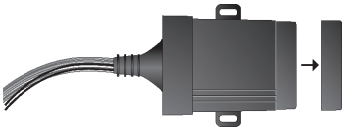
GSM-antenna: Install vertically and at least 50 cm from the main unit and GPS to avoid possible interference. In metal surroundings, such as a steel boat, check the signal strength with a mobile phone.

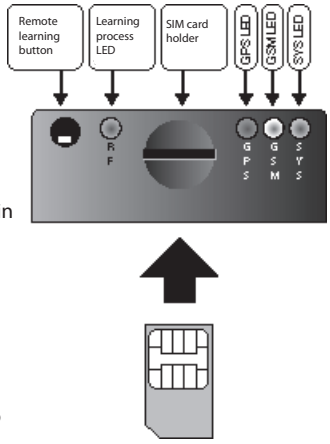
Siren: Install indoors but if possible near a ventilation so that the sound can be well heard from outside. In order to reduce the risk of intruders finding the system and disarming the alarm, the siren should be placed as far from the main unit as possible with its cables hidden. The sirens can alternatively be completely disconnected. Ask you insurance company which alternative they recommend.

Microphone: Install in any place where possible intruders could be monitored.

Magnet Switch (included in the marine package): Should be installed on the inside of a door or opening through which the intruder has to pass. When the door is closed, the distance between the magnet and the switch must not exceed 10 mm.

Other sensors: Depending on type of object and desired protection a number of different sensors can be applied. There are several types and models of motion sensors on the market, as well as water level sensors, mats, smoke alarms, gas sensors etc. that can be connected to the SBX-3 inputs.





Under the top lid of the main unit there are four LEDs, a slot for the SIM card and a button for pairing a new remote controller to the main unit.

SBX-3 has an automatic power-saving function. When it enters the power-saving mode, all LEDs are off and the GPS is powered down. To exit the power-saving mode, press the unlock key on the remote control.

The red GPS LED is on when the GPS is connected to the unit but no position can be found.

The red GPS LED flashes when a position is found. It normally takes a minute or so after power on until position is found but the first time the GPS is used it can take up to one hour.

Yellow GSM LED flashes when the SBX-3 is in contact with the GSM-net.

Green SYS LED flashes when the SBX-3 is in operation.

During power up the LEDs indicate one or both of the following functions:

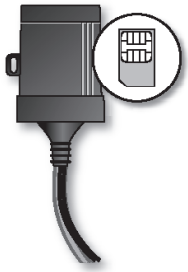
GPS LED	GSM LED	SYS LED	Function
On	Off	Flashing	SIM-card is read
Flashing	Off	On	SIM-card is initialized with basic settings

More information under Programming the SIM-card.

SIM card in users mobile phone

The SBX-3 must identify incoming calls and SMS in order to authorise an action or response. To do that, it uses the Caller ID function. Some types of SIM-cards, such as an extra card to a subscription do not provide the Caller ID function and can not be used to call the SBX-3, it can only send SMS.

SIM card in SBX-3



When selecting operator and type of SIM-card, carefully consider the following factors: Use a SIM-card from the same country as the user´s SIM-cards even if the object is in another country.

Pre-paid or subscription. Pre-paid cards normally must be filled with credit once a year or they will expire. They should have the possibility to check the remaining credit on the operators website and to fill with new credit on Internet sites. If a prepaid SIM-card has been inactive (no calls or SMS) for 6 months an operator (i.e. Vodafone) can choose to deactivate the SIM-card. With that type of card, be sure to use it at least once every 6 months.

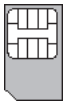
Caller ID function. Verify that the number of incoming calls is displayed when the SIM-card is used in a mobile phone. Some operators require that prepaid SIM-cards are registered in order to activate the Caller ID function.

Coverage. The GSM-coverage can vary between different operators. Check for coverage in the area where your SBX-3 normally will be located.

Call and SMS charges. Not as important since there are normally very few SMS sent from SBX-3 and no calls.

Call and SMS from abroad. Important if there is a possibility that the object will be taken to another country. Check with operators that SMS can be sent from another country in the same way as within the own country. Verify that number presentation will work to and from another country if you want to contact SBX-3 when you are in another country.

Programming the SIM-card in SBX-3



The PIN code lock must be inactive, use a mobile phone to verify. Automatic answering function should also be inactive.

Insert the SIM-card into the SIM-card holder observing the correct position indicated by the figure close to the card slot, The cut corner should be directed away from the three LEDs.

Apply power to the SBX-3: Connect the black cables 7 and 12 to ground and red cable 10 to battery +.

On the remote controller press the T-button four times and then the SOS-button, the yellow LED will go off while the other LEDs will be on or blinking for a couple of minutes. When both the yellow GSM and green SYS light is blinking the SIM-card is initialized with a SETUP code and phone book entries, see the example on the next page.

Wait until the power -up is complete and both the yellow GSM and green SYS light are flashing. Then the unit may enter the power-saving mode, all LEDs are off, in that case, press the unlock key on the remote controller to exit the´power-saving mode.

The user´s telephone numbers must now be stored on the SIM-card. This can be done in different ways:
- On the redknows.com Internet site
- By sending an SMS to the SBX-3
- By removing the SIM-card from SBX-3 and entering the numbers with a mobile phone or SIM-card reader connected to a computer.

If you have access to Internet go to www.redknows.com and select SBX- 3 EZ-start.

The website is used to easily enter the phone numbers to be used with SBX-3 and select different options. Then an SMS is created by the redknows.com server and sent to SBX-3, making it ready to use.

If you do not use the Internet, fill in the desired telephone numbers in the table on page 17, one number in each square. Do NOT use country code at the beginning of phone numbers. Note: If Norwegian SIM-cards are used, special setup applies, see separate information.

The SIM-card´s own telephone number is stored in the In MAIN_A
Group 1 numbers receive all SMS-alarms except SOS
Group 2 numbers receive SOS SMS-alarms
Group 3 numbers are not used in this version
Group 4 numbers can call in for monitoring. Important! Enter only the first six of the last eight digits of the phone number, the unshaded positions in the chart above.
Group 5 numbers can call in for status SMS. Important! Enter only the last 8 digits of the phone number, the unshaded positions in the chart above.

The same telephone number cannot be used in both group 4 and group 5

Group 6 numbers can send SMS to control SBX-3 Shaded positions in the table on page 17 should not be changed or used.

As a basic setting we suggest the following: In MAIN_A the telephone number of the SIM-card, The primary user´s phone number in USER_A and the last 8 digits of the primary user´s phone number in SEARCH_A. The primary user can then receive alarms, call in for status SMS and send an SMS to control the SBX-3.

	Preinstalled numbers	Group					
SETUP	0112204305550451240						
CYCLE	0000						
MAIN_A	9999						
CALL_A	9999						6
CALL_B	9999						6
CALL_C	9999						6
CALL_D	9999						6
CALL_E	9999						6
USER_0	9999	1					6
USER_A	9999	1					6
USER_B	9999	1					6
USER_C	9999		2				6
USER_D	9999		2				6
USER_E	9999		2				6
CSC_A	9999			3			
CSC_B	9999			3			
STEL_A	9999			3			
STEL_B	9999			3			
IN_A	9999				4		
IN_B	9999				4		
LON	6						
LAT	6						
SEARCH_A	9999					5	
SEARCH_B	9999					5	
SEARCH_C	9999					5	
redKnows	1234567890						

Sending an SMS to enter the numbers:

In order to store numbers and settings in the SBX-3 SIM-card, send an SMS in this format:
TSST$MAIN_A:0733123456&USER_A:0706123456&SEARCH_A:06123456&

Where 0733123456 should be changed to the telephone number of the SIM-card, 0706123456 should be changed to the primary user´s phone number

06123456 should be changed to the last 8 digits of the primary user´s telephone number

When the SBX-3 has received the SMS the numbers are entered into the SIM-card, the yellow LED will go off while the other LEDs will be on or flashing for a couple of minutes. When both the yellow GSM and green SYS light flash, the SBX-3 is ready for use.

Using a mobile phone or SIM-card reader to enter the numbers:

See the description for the mobile phone or SIM-card reader.

We recommend the use of Internet or SMS to enter the numbers for the following reasons: Some mobile phones can not enter numbers directly on the SIM-card and may add a character to the name to indicate the type of number. Some SIM-card readers have problems reading certain types of SIM-cards.

When reloading the SIM-card into the main unit, the unit has to perform a system reset in order to read the SIM-card. To do this, disconnect wires 7 and 12 (the two black ones) and make sure that they have no contact with each other. Wait a few seconds and reconnect both wires to ground.

When the GPS, GMS and SYS LEDs flash after a few minutes, the SBX-3 is ready for use.

Function test

Call the SBX-3 using the primary user´s mobile phone. The SBX-3 will deny the call resulting in a busy tone or an error message from the operator. An SMS with position and status information will arrive to the primary user´s mobile phone, usually within a minute.

SETUP	Grp											
CYCLE												
MAIN_A												
CALL_A		6										
CALL_B		6										
CALL_C		6										
CALL_D		6										
CALL_E		6										
USER_0	1	6										
USER_A	1	6										
USER_B	1	6										
USER_C	2	6										
USER_D	2	6										
USER_E	2	6										
CSC_A	3											
CSC_B	3											
STEL_A	3											
STEL_B	3											
IN_A	4											
IN_B	4											
SEARCH_A	5											
SEARCH_B	5											
SEARCH_C	5											
LON												
LAT												
redKnows												
Example			0	7	9	8	7	6	5	4	3	2

Learn Remote Controller

The remote controller supplied with the unit is learned to the main unit in factory. The following procedure is only necessary if a new remote controller is to be used with the system.

In order for SBX-3 to recognize the commands from a remote controller it has to be learned. The procedure for learning the remote is:

1. Press the learning button (on the left-hand side of SIM-card holder) for 2 sec.

2. The Learning LED will light for 7 seconds. During these 7 seconds, press any key on remote. To learn another remote, press any key on that remote also within the 7 seconds or repeatthe learning procedure later.

3. If you want to clear all learning on the SBX-3, simply press the learning button until the learning LED begins to flash

TECHNICAL SPECIFICATION

System description

redKnows SBX-3 is a very compact security and tracking system. Using highly sensitive GPS-modules and tri-band GSM-modules, the mini security tracker can perform security and tracking for all over the world. The water resistant design allows the SBX-3 to be applied to any mobile vehicle, boats, houses, cargo containers, and any objects for complete safety.

Functions

* GPS-positioning and GSM-communication.
* Temporary or continuous reporting with selectable reporting time internals.
* SOS Emergency button on the remote for help
* Anti-theft alarms
* Remote audio monitoring of object with included microphone
* Water resistant and robust enclosure
* Automatic power-saving mode
* Wide input power range (DC 10V - 30V)
* Easy installation and hiding.
* Tri-band GSM-module for worldwide tracking and monitoring
* Highly-sensitive GPS-module
* GPS, GSM and systems operation status signal LED-display
* Using SIM-card phone book to set reporting numbers and parameters to make the interface easy
* Immobilization function possible
* Can connect to PC or PDA for navigation
* Can connect to traditional car/motorcycle alarm system to add GSM reporting function
* Can connect to traditional home alarm system to add GSM reporting function
* Embedded 750 mA rechargeable battery

Specifications

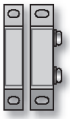
* Dimension: 98mm x 72mm x32mm.
* Weight: 300g
* Power: DC 10V - 30V
* Power consumption: Energy save mode 20 - 80mA, max. < 600mA
* Inputs: Max. 30V
* Output: Max. 30V, 300 mA
* GSM-frequencies: Tri-band 900/1800/1900MHz
* Battery: 750mAh rechargeable Li-Ion
* Temperature: Operating -20°C - +55°C, storage -30°C - +70°C

Accessories, optional

Motion sensor, Infrared

Vibration sensor

Magnet Switch



Glossary

Explanations for some technical expressions appearing in the manual

GPS - Global Positioning System - A global satellite system for positioning and navigation

GSM - Global System for Mobile communication - Telephone system for mobile phones

LED - Light emitting diode - A small, low-current lamp

LAT/LONG - Latitude and Longitude - A coordinate system of degrees, minutes and seconds covering the entire world. Latitude 0° is the equator, 90°N is the North Pole and 90°S is the South Pole. Longitude 0° is the Greenwich Meridian or Prime Meridian.

GMT - Greenwich Mean Time - GMT is sometimes called Greenwich Meridian Time because it is measured from the Greenwich Meridian Line at the Royal Observatory in Greenwich, London, England. It is the place from where all time zones are measured. Sweden has GMT + 1 hour (+2 hours in the summertime).

SMS - Short Message Service - A text messaging service in the mobile telephone system
Relay - An electrically controlled circuit breaker

SIM-card - A small plastic card with a computer chip used by mobile phones and SBX-3. The card contains information such as telephone number and mobile phone operator.