



# A-Comfort

## SMS-operated Alarm and Switch Control User and Installation Manual

Informationen auf Deutsch / Informations en français :  
[www.EcoStarter.com](http://www.EcoStarter.com)

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**For a complete understanding of the product, and before initiating any connection, it is important to entirely read through the instructions.**

**The following MUST be read and done to get started:**

**Chapter 1 / page 3: Installation and configuration:**

- About your SIM card (and inserting it correctly)
- Installation, connection to the power source
- Mobile network coverage
- "Identification" of keyboard, wireless sockets, temperature sensors, etc.
- Input of mobile phone numbers to which A-Comfort will send alarm and status messages.

**Chapter 4 / page 16: SMS control (for remote control of A-Comfort):**

- Turn switches on/off (e.g. for stoves)
- Turn alarm on/off
- Get status message from A-Comfort

During the setup procedure, you will be led through a number of steps that are further explained in other chapters (e.g., several menus described in Chapter 2, as well as SMS control in Chapter 4).

## **Terms and Notions Used in this Manual**

<b>Input panel:</b>	The keyboard on the A-Comfort central unit.
<b>Keyboard:</b>	Small wireless remote control for on-site usage.
<b>Node:</b>	Plug-in wireless 230V socket for controlling electric current and connecting sensors.
<b>Inputs:</b>	Inputs 1 and 2 on the underside of the wireless socket (node).
<b>Menu 1.7: (example)</b>	Menus are organized hierarchically. The example "Menu 1.7" refers to Main menu 1, Sub-menu 7.
<b>PIR:</b>	"Passive InfraRed Sensor", usually called <i>IR sensor</i> or <i>motion detector</i> .
<b>Registration:</b>	Operation by which a wireless accessory or extension is identified for the first time by the central unit it will depend on.
<b>Temperature surveillance:</b>	A function where A-Comfort sends you a message if the temperature falls down to e.g. 4°C or raises up to e.g. 20°C. Requires a temperature sensor to be connected to input 1 of your node.
<b>Thermostatic control (T-Control):</b>	With a temperature sensor connected to input 1 of your node, and a stove or radiator plugged into the socket, the built-in thermostatic regulation allows you to choose between comfort temperature and eco-temperature.
<b>Personal code</b>	A 4-digit password (factory-set to 1234) that A-Comfort requires in all SMS commands, and in certain commands executed locally. Not to be confused with the PIN code (of the SIM card), which, in contrast, has to be deactivated!

## CHAPTER 1: INSTALLATION



**A-Comfort** central unit with display and input panel.  
Not pictured above: a GSM antenna and a radio antenna.



*Schuko version*      *Swiss version*  
**"Node"**  
**(Wireless 230V socket)**  
For controlling stoves, lights, etc.

### Other frequent options:

- Temperature sensor (usable indoors, and also outdoors, if the tip is sufficiently protected against humidity).
- Wireless remote control ("Keyboard") for on-site control of switches and alarms.
- PIR sensor (motion detector) with 4m cable and plug.
- Wall bracket w/2 screws.
- "GR-1" and "GR-3" modules: alternatives to a Node for controlling electric circuits from the fuse box. To be installed by an electrician.

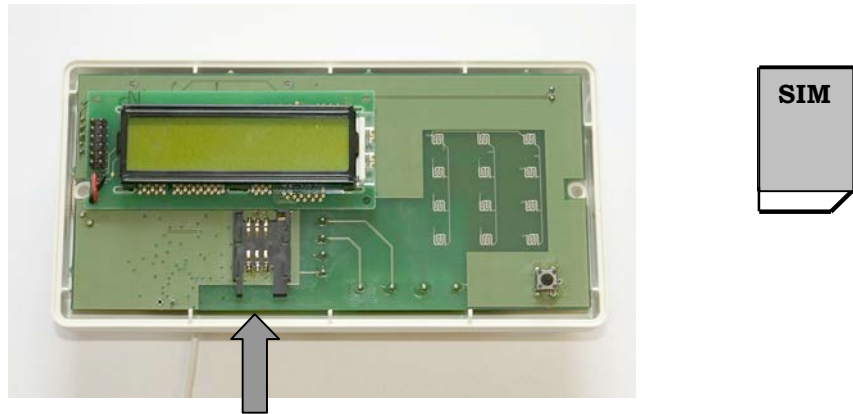
**The following must be done before A-Comfort is ready to use (and before connecting the central unit to the power source).**

### Chapter 1.1: Preparation of the SIM Card

To be able to send and receive SMS messages, A-Comfort needs a SIM card. SIM cards from any mobile phone operator will work, both pre-pay and subscription based.  
NB: for pre-pay cards, durability and usage are limited, and usually requires a follow-up.  
**A-Comfort requires the SIM card PIN code to be deactivated.** This has to be done by temporarily inserting the SIM card into a normal GSM mobile phone in order to **turn off the PIN code** of the SIM card. The exact procedure will be described in the manual of your mobile phone.

### Chapter 1.2: Insertion of the SIM Card

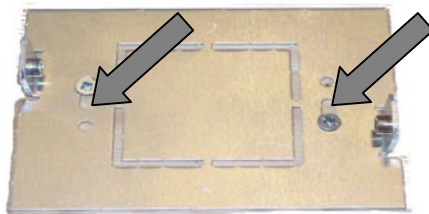
**NB!** A-Comfort **must not** be connected to the power source; **always** disconnect it from the power source when handling the SIM card or when opening the case.  
Unscrew the 2 screws on the backside of the central unit, and gently lift off the top cover. Insert the SIM card into the holder and slide it into position. **The card shall be placed upside down (the gold contact side facing down, and the notch in the lower right corner).** See fig. 1 below.



*Fig. 1: Insertion slot of the SIM card*

After having inserted the SIM card and removed the protective tape from the display, put back the top cover, and mount the unit onto the wall (on top of the included wall bracket, as explained in Chapter 1.3 below).

### **Chapter 1.3: Fixing the Unit to the Wall**



Screw the wall bracket to the wall (using the 2 enclosed wood screws) through the two "keyholes". Adjust the bracket to make it hang straight on the wall, and then firmly tighten the screws.

*Fig. 2: Mounting bracket - for fixing the central unit to the wall*

Gently push your A-Comfort into position, onto the two holders, and fasten it with 2 screws (as in figure 3 below).



*Fig. 3: Fastening of A-Comfort*

## Chapter 1.4: Connection to the Power Source

A-Comfort comes with an already mounted cable and plug. The unit *may* also be mounted in front of a hidden junction box: disconnect then the 230V cable and remove the central part of the mounting bracket (this must be performed by a qualified electrician).

### Battery backup (optional equipment):

In addition to its 230V power source, A-Comfort may receive a battery backup solution provided by Sikom. Information on how to connect this option comes with the backup solution. The connectors may be found by disconnecting the power source, removing the top cover and turning the printed circuit over.

**NB:** Main menu 3, sub-menu 8 shall not be activated!

### SMS:

With battery backup installed, A-Comfort will send this SMS in the event of power interruption: **Power!**

When the power is restored, it will send the SMS message: **Power OK!**

### A-Comfort can also be powered by 12 volts sources

To this end, remove the 230V cable and connect the 12 volts source to the black terminal strip labelled +12V and GND (ground).

**NB:** Main menu 3, sub-menu 8 shall be activated for 12V usage, in order to prevent warnings about power interruptions.

## Chapter 1.5: Antennas

The GSM antenna resides on the top of A-Comfort. If the mobile network coverage is too weak, it may be replaced with an external directional antenna.

The radio antenna is attached to the underside; this is a short, white cable, which **MUST** hang straight down. A-Comfort uses the 433.9 MHz radio frequency for communicating with wireless equipment like nodes and keyboard.

## Chapter 1.6: Start-Up Procedure

- Power on the unit (e.g. by inserting the plug into a socket)

The display shows:

**Central reg.!**  
**Press OK key.**

Pressing the OK key makes the following appear:

**Initiating GSM**  
\*\*\*\*\*

After initiation, the text will scroll in the display, showing information about the product, such as the software version, GSM status, number of registered wireless peripherals, etc. This text will usually keep scrolling continuously.

### NB!

*If no SIM card is inserted, or the PIN code still is active, this message will be displayed:*

**Error, press OK**  
**8: GSM SIM card**

*In this case, disconnect the power and verify that the SIM card has been inserted correctly and/or check if the PIN code still is active (by inserting the card into a mobile phone and ascertaining that no PIN code is requested when the phone is turned on).*

## Chapter 1.7: Mobile Network Coverage

Verify the mobile reception conditions with the following steps:

- Press the OK key on the A-Comfort input panel. This text will be displayed:

**Main menu:  
1: Alarm**

- Press the arrow key (4) downwards to main menu **4: GSM Setup**  
The display will show:

**Main menu:  
4: GSM Setup**

- Press the OK key  
**You will be asked for your personal code. Key in the 4-digit access code (factory set to 1234)**
- Press the arrow key down to  
**Sub-menu 3: Signal**
- Press the OK key, and one of the following will be displayed:

### **Signal strength: Good!**

- The coverage is satisfactory - or:

### **Signal strength: Medium!**

- The coverage *may* be good enough (conditions do not have to be as good for SMS messaging as for voice calls). It may help to move the product to another place in the room, or even to another room with better coverage (the coverage may also be evaluated by making a standard phone call, and noting the level on the display of the mobile phone).

### **Signal strength: Bad!**

- Try to move A-Comfort to another place with better coverage. It may be necessary to use an external antenna; contact your reseller or Sikom AS. (More on mobile network coverage in Chapter 9).

Return to the main menu with the **CANCEL** key. This key is also used for correcting wrong input or if you are unsure of your position in the menu structure.

### **NB!**

*The following may appear on the display:*

**Error, press OK  
2: Timeout!**

*More than 1 minute has elapsed since the last keypress. Press OK, and continue.*

## Chapter 1.8: Registration of Keyboard, Nodes, Sensors

### A: REGISTRATION OF KEYBOARD

- Press the **OK** key on the input panel of A-Comfort, and this will show up in the display:

**Main menu:**  
**1: Alarm**

- Scroll downwards with the arrow key (4) to the following:

**Main menu:**  
**7: Keyboard**

- Press the **OK** key.  
(at this point you will be asked for your personal code; key in the 4-digit access code, which was factory set to 1234).

**Keyboard menu:**  
**1: New keyboard**

- Confirm with the **OK** key.
- You will then receive advice to follow directions for keyboard registration.

#### FOLLOW THESE STEPS:

- Keep the **S** and **A** keys of the keyboard depressed together for 4-5 seconds. The display will shortly show the registration number. Write down this number. The display will then show:

**New keyboard OK!**

If not successful, try again by keeping the **S** and **A** keys depressed for 4-5 secs. The light-emitting diode (LED) should flash the colour sequence green-green-red several times to indicate success.

- Press the **OK** key (on the A-Comfort central unit)
- Return to the main menu with the **CANCEL** key (input panel of A-Comfort).

Remove the protective film from the keyboard before use.

Read more on how to use the local keyboard in Chapter 3.

### B: REGISTRATION OF "NODES" (Wireless Sockets)

- Go to the **Main menu** (by pressing the **OK** key)
- Scroll with the arrow key down to **Main menu 8: Node**
- Press the **OK** key, and you will see this in the display:

**Node menu**  
**1: New node**

- Press the **OK** key, and the display will show:



**Follow node reg. procedure!**

- The node may be plugged into any socket.
- The display will shortly show the registration number. Write down this number.
- The central unit will then display:

**New node OK!  
Press OK key.**

**If no more nodes are to be registered, just press the CANCEL key.**

***NB!** Registered keyboard and nodes are given sequential numbers by the central unit (00, 01, 02, etc.). It is important to write down what number each node is given, and where each node is placed. We recommend fixing on each node a small sticker showing the number it received at registration.*

**If several nodes are to be registered, repeat the mentioned procedure:**

- Plug the node into a power socket
- Follow the rest of the procedure, and write down the new registration number

**Sample numbering of registered equipment:**

Keyboard:	00
1 <sup>st</sup> registered node:	01
2 <sup>nd</sup> registered node:	02 etc.

- Place the nodes nearby the stoves, lamps, etc, which are to be controlled by A-Comfort, and write down their numbers and where they are located (e.g.: node 01 = bedroom, node 02 = living room, node 03 = annexe, etc).

You may also name the nodes, as explained in Chapter 6.3.

***Why is it important to write down the number (00, 01, etc) of all equipment?***

*When controlling stoves etc. via SMS, you have to tell which node (more precisely: which number) to switch on or off. The same applies to requests for status messages. Similarly, these numbers have to be known when controlling nodes locally with the keyboard. Read more on this in Chapter 4.*

## **C: CONNECTION OF MOTION DETECTORS, SMOKE DETECTORS, TEMPERATURE SENSORS, etc:**

- Pull the node out of the wall socket
- Plug a temperature sensor (for indoor temperature) into **input 1**
- Plug a motion or smoke detector into **input 2**

If no temperature sensor is needed, input 1 may instead be used with other equipment, like a smoke or motion detector. See Chapter 6.2 for information on how to connect the cables.

- Put the node back into the wall socket. A-Comfort automatically registers connected equipment (only if acquired from Sikom AS for A-Comfort).

To preserve their precision, temperature sensors should be laid out so as to avoid electrical interference, e.g. from 230 V cables or floor heating. Also, protect them from excessive humidity.

## **D: INPUT OF MOBILE PHONE NUMBERS TO WHICH A-COMFORT SHALL SEND MESSAGES:**

### **Explanation:**

For A-Comfort to be able to send SMS alarm messages (such as in the event of an activated intrusion or smoke detector), it must know the mobile phone numbers to which the messages shall be sent (i.e., your mobile phone number, plus up to 8 other mobile phone numbers).

- Press the **OK** key on the input panel of A-Comfort, to make this text appear:

**Main menu:**  
**1: Alarm**

- Press the arrow key (4) to scroll down to the following:

**Main menu:**  
**4: GSM Setup**

- Press the **OK** key.  
(at this point you may be asked for your personal code; key in the 4-digit access code, which was factory set to 1234)

**GSM:**  
**1: Number**

- Confirm with the **OK** key.

**Choose position**  
**1:**

- Confirm that you want the number to be stored at position 1 with the **OK** key

**Enter number**

- Key in your mobile phone number, and press **OK**
- The display confirms that **the number has been stored**
- The **CANCEL** key will lead you back to the main menu

For more information related to programming and activating/deactivating mobile phone numbers, we refer to **Chapter 2, Main menu 4: GSM Setup**.

## CHAPTER 2: MAIN MENU (Control via Input Panel)

A-Comfort has its own display and input panel where configuration and control can take place manually. Some menu commands require the user to input a personal code in order to modify settings. This code is **factory set to 1234**, but you should set your own (see Chapter 2, Main menu 1.3 below). Of course, do remember your new code!

**To enter the main menu, always do the following:**

- Press the OK key.
- Choose a menu from the main menu (browse the menu with the up/down arrow keys).
- Press the OK key to select an entry in the main menu, and browse further through the sub-menus with the arrow keys.
- Press the OK key to select a sub-menu, and so on.
- Press CANCEL to go back.

### Chapter 2.1:      **Menu 1: Alarm** (read more about alarm functions in Chapter 5)

This menu offers the following commands, to be selected with the **OK** key (except for Sub-menu 1.7, these options are also available by SMS):

Sub-menu:      **1: Alarm Off** - or

Sub-menu:      **2: Alarm On**

Sub-menu:      **3: Change code** (i.e. the access code)

Pressing **OK** leads to the request:

**Enter new code !**

Key in the **new 4-digit code** and confirm with **OK**

Take note of your new access code

#### **IMPORTANT!**

It will no longer be possible to send SMS commands if you lose or forget your access code, because A-Comfort will refuse to execute them! Should you forget your code, you will *only* be able to set a new code by resetting the central unit. For security reasons, this can *only* be done physically on the central unit.

Sub-menu      **4: Tempsurv. On**

Explanation:

This menu option requires a temperature sensor to be connected to input 1 of given node.

You may e.g. want to receive an SMS message if the temperature of a room falls down to +4°C, or if it raises up above +20°C.

To this end, press OK, then input **Low** (the lower temperature limit) and **High** (the higher temperature limit):

Use key "1" for "+" (plus) and key "4" for "-" (minus):

E.g.: Low +04 High +20 (temperatures are always given with two digits) shall be typed like this: "104 120"

Press **OK** to proceed:

**Choose node** (the chosen values are still displayed)

Press **up/down arrow keys**, and the unit will propose available nodes in turn.

Confirm chosen node with **OK** to turn temperature surveillance **ON** for that node. An alarm message (SMS) will then be sent if any limit is exceeded.

**NB!** Alarm messages will not be sent if *Master Alarm* is deactivated (see sub-menu 6 and Chapter 5: Alarm Functions).

Sub-menu **5: Tempsurv. Off**

Press **OK**, and the unit will ask: **Choose node**.

Select the node with up/down arrow keys.

Confirm with **OK**, and temperature surveillance will be turned **OFF** for the chosen node.

Sub-menu **6: Master alarm** (toggle (de)activation of all alarms; cf. Chapter 5)

Press **OK**, and the unit will ask: **Master Alarm Deactivate?** or **Master Alarm Activate?** depending on the current mode.

Press **OK** again to confirm the toggling of Master Alarm.

Sub-menu **7: Alarm Timeout** (delay until an intrusion alarm is sent off)

Press **OK**, and the unit will ask: **Enter delay**

Input the desired number of seconds (as a 2-digits value).

## Chapter 2.2: Menu 2: Control (Turning Switches On / Off)

### Explanation of available choices:

A-Comfort allows you to manage nodes and similar equipment, such as GR-1 and GR-3, as remote switches. You may choose to either keep them in a manual control mode, i.e. to remotely switch appliances on/off yourself, or set them in a thermostatic regulation (*T-Control*) mode, i.e. to let the node manage its own on/off switching as required to reach the desired high (*Comfort*) or low (*Eco*) temperature. The T-Control mode requires a temperature sensor and a heating appliance to be connected to the relevant node.

You can choose between "**Turn On/Comfort**" (to switch on explicitly, when in manual mode, or to reach the comfort temperature, when in T-Control mode) and "**Turn Off/Eco**" (to switch off explicitly, when in manual mode, or to reach the eco-temperature, when in T-Control mode). For the T-Control mode, you must first input the desired *eco-temperature* (i.e. the lowest temperature during your absence), and *comfort temperature* (i.e. the one you want at your arrival).

**NB!** If no temperature sensor is connected to the node, thermostatic regulation cannot work, and Sub-menus 1 and 2 will function in manual mode (remote manual on/off switching). If you do have a temperature sensor, but *only* want to switch equipment on and off yourself, then you do not need to specify any comfort or eco-temperature. Any connected temperature sensor will then only be used to obtain the room temperature when you request a status message (see Chapter 4.6: Status Message).

Sub-menu: **1: Turn On/Comf**

Press **OK**, and the unit will ask "**Choose node**".

Press up/down arrow keys to browse the nodes.

Press **OK** at the appropriate node number to switch that node **On**; the unit will confirm with message "**Node On!**".

- Sub-menu **2: Turn Off/Eco**  
 Press **OK**, and the unit will ask "**Choose node**".  
 Press up/down arrow keys to browse the nodes.  
 Press **OK** at the appropriate node number to switch that node Off;  
 the unit will confirm with message "**Node Off!**".
- Sub-menu **3: T-Control On.** Thermostatic control presupposes that a temperature sensor is connected to the node on input 1.  
 Press **OK**, and the unit will display:  
**Eco Comfort**  
 To set +4°C as eco-temperature, and +20°C as comfort temperature, do as follows, using key "1" for "+" (plus) and key "4" for "-" (minus), and always writing temperatures with two digits.  
 E.g.: Eco +04 Comfort +20 shall be typed in a sequence like this: "104 120".  
 Confirm with **OK**.  
 "**Choose node**" appears in the display.  
 Press **up/down arrow keys** to browse through numbers 00, 01, and so on. Confirm selection of node with **OK**, and temperature regulation (or thermostatic control function) will be ON.
- Sub-menu **4: T-Control Off**  
 Select the node with up/down arrow keys, and confirm with **OK** (comfort and eco-temperatures will no longer be active; any stoves may only be explicitly switched on / off).

### Chapter 2.3: Menu 3: Configuration

Explanation: This menu enables changing various settings of the central unit itself, as well as obtaining information about registered peripherals. Among available commands, swapping over registration numbers can be performed here.

- Sub-menu: **1: Sound off**  
 Turns off keypress beeps.
- Sub-menu **2: Sound on**  
 Turns on keypress beeps.
- Sub-menu **3: Volume**  
 Press **OK**, and use up/down arrow keys to adjust among the 16 available levels. A scale shows the level.
- Sub-menu **4: Show equipment**  
 Press **OK** to view the number of registered peripherals (nodes, keyboard, etc). Press the **down** arrow key to see the number assigned to each piece of registered equipment.
- Sub-menu **5: Swap equipment**  
 Swaps over the registration number between two peripherals, e.g. between one node and one keyboard. This is a handy function, if you want to arrange node numbers to start from 00 and upwards. Type in the (two digit) numbers of the devices that are to swap positions.
- Sub-menu **6: Software Ver(sion)**
- Sub-menu **7: Central info**
- Sub-menu **8: 12V Power**  
 Activate this **only** if A-Comfort is powered by a 12 volts source.

## Chapter 2.4: Menu 4: GSM Setup

- Explanation:** For A-Comfort to be able to send SMS alarm messages (such as in the event of an activated intrusion or smoke detector), you must beforehand input the mobile phone numbers to which the messages shall be sent (i.e., your mobile phone number, plus up to 8 other mobile phone numbers), as in Sub-menu 1.
- In Sub-menu 2 you can browse through registered phone numbers, and optionally activate / deactivate them (if the corresponding person does not want such messages any more).
- Sub-menu 3 provides information about the mobile network coverage where your A-Comfort is located.
- Sub-menu: 1: Numbers**  
This is a menu for storing up to 9 mobile phone numbers to which messages shall be sent. Select the desired number position with the arrow keys, and press OK; the unit will then ask you to "**Enter number**". Key in the phone number and press **OK**; the unit will confirm with "**Stored!**"  
The "+" (plus) prefix in international phone numbers is typed in using the "\*" (star) key as first digit.
- Sub-menu 2: Active numbers**  
A-Comfort will first show which number positions are active (e.g. **1 2 3 4**). Use **arrow keys** to browse to the number you want (de)activated. Press **OK** to toggle its state. All active numbers will receive alarm messages from there on.
- Sub-menu 3: Signal**  
Shows the GSM signal strength (good, medium, bad). Find more information on this in Chapter 1.7: Mobile Network Coverage.
- Sub-menu 4: Info**  
Shows information on the embedded GSM phone (may be of interest only to the manufacturer).

## Chapter 2.5: Menu 5: Detector

This menu only concerns detectors/sensors that are **not** directly plugged into a node (use Main menu 8 for detectors plugged into a node). More information comes with the actual detector.

- Sub-menu 1: New detector**
- Sub-menu 2: Del. detector**
- Sub-menu 3: List**

Information on connection and registration is included with the actual detector.

## Chapter 2.6: Menu 6: Siren

External siren may be acquired from Sikom AS.

- Sub-menu 1: New siren**
- Sub-menu 2: Delete siren**
- Sub-menu 3: List**

Information on connection and registration procedure is included with the siren.

<b>Chapter 2.7:</b>	<b>Menu 7: Keyboard</b>
---------------------	-------------------------

- |          |  |
|----------|--|
| Sub-menu | <b>1: New keyboard</b><br>See Chapter 1.8A on keyboard registration.   |
| Sub-menu | <b>2: Show info</b><br>This menu may be used to find the number assigned to a keyboard. Follow instructions on the display.        |
| Sub-menu | <b>3: Del. keyboard</b><br>Select appropriate keyboard by browsing up/down with arrow keys. It can then be removed from A-Comfort. |
| Sub-menu | <b>4: List</b><br>Shows information on registered keyboards.   |

<b>Chapter 2.8:</b>	<b>Menu 8: Node (Wireless Socket)</b>
---------------------	---------------------------------------

- |          |   |
|----------|---|
| Sub-menu | <b>1: New node</b><br>See Chapter 1.8B on node registration.  |
| Sub-menu | <b>2: Delete node</b><br>Select relevant node by browsing up/down with arrow keys. It can then be removed from A-Comfort.   |
| Sub-menu | <b>3: List</b><br>A-Comfort will show the number of registered nodes. Select a node using the arrow keys, and press OK. Browse further to obtain the status of the chosen node: connected sensors, name, and temperatures.  |
| Sub-menu | <b>4: Name node</b><br>Select relevant node with the arrow keys, and confirm with OK. The unit will then ask you to type in a name (max 10 characters); see alphabet given in Chapter 6.3. Press OK when the node is named. |
| Sub-menu | <b>5: Ping</b><br>Performs a communication test with a chosen node, to help determining if the radio network provides sufficient coverage from the central unit to the given node.  |

## CHAPTER 3: KEYBOARD (On-Site Control)

### Chapter 3.1: Locally Switch Node On/Off

The keyboard is for locally controlling the nodes, and for (de)activating the alarm.  
 To control a node, press **S** followed by the 2-digit node number.  
 The node will then switch itself off if it is on, and on if it is off.  
Note that if the thermostatic control function is active, this will toggle between comfort and eco-temperature.

**Example:**

S01 Switch on/off node 01  
 S02 Switch on/off node 02



### Chapter 3.2: Locally Turn Alarm On/Off

By pressing **A**, followed by the personal code, one can turn the alarm on and off, as well as check if it is on or off. More precisely, first press **A**, then wait for the keyboard LED to flash green or red according to this convention:

**green = inactive alarm** "open entry"  
**red = active alarm** "restricted or no entry"

If it blinks alternatively red/green, the radio coverage between the central unit and the keyboard may be insufficient (try to move closer to the central unit), or the keyboard may not be registered (registration takes place by pressing **S** and **A** simultaneously as the central unit is in registration mode; see Chapters 1.8A and 2.7 for details).

**Example:**

Press **A**.  
 Wait until the blinking red or green light (indicating the current alarm status).  
 Type the personal code (4 digits).  
 Wait again until the blinking red or green light (indicating the new alarm status).

### Chapter 3.3: Battery

The keyboard contains 2 batteries of type MN9100 LR1 Duracell.  
 These are standard N size 1.5V batteries. To change them, disassemble the keyboard by releasing the screws on the backside.

## CHAPTER 4: SMS CONTROL OF A-COMFORT

### Remote Control of Central Unit

The following commands are to be used for SMS (text messaging) control of A-Comfort:

#### IMPORTANT!

To send a text message to A-Comfort, always do the following:

- Open the messaging application of your mobile phone, and create a new SMS message, and:
- First type the access code (factory-set code: 1234)
- Type your command(s) as described below
- Send the message to the mobile phone number of (the SIM card in) your A-Comfort

The commands will be composed of a key letter (A,R,C,O,N,S,I,T,L) followed by parameters, the most frequent being parameter 1 for ON and 0 for OFF. All examples are surrounded by quotation marks (" ") that **must not** be included in the message.

#### Chapter 4.1: ALARM (Turn Alarm On / Off)

##### Command: A

- 0 = OFF (alarm is partially deactivated)
- 1 = ON (alarm is activated)
- 2 = Master Alarm deactivated (all alarms/detectors are deactivated)

##### Example (do not include the quotation marks):

- "1234 A0" = you send a message to turn the alarm OFF (leaving on the detectors that ensure your safety even when you are there: fire/smoke, gaz, etc).
- "1234 A1" = you send a message to turn the alarm ON.
- "1234 A2" = you send a message to deactivate the Master Alarm.

If you are unsure if the alarm is on or off, just send an SMS to query the central unit, as explained in Chapter 4.7 below.

#### Chapter 4.2: CONTROL (Switch Nodes On / Off)

##### Command: R

The two first digits indicate the node number (e.g. 00); always use 2 digits!

Third digit:

- 0 = OFF (or request eco-temperature in T-control mode)
- 1 = ON (or request comfort temperature in T-control mode)

##### Example (do not include the quotation marks):

- "1234 R011" = you want node 01 to switch itself ON
- "1234 R010" = you want node 01 to switch itself OFF
- "1234 R250" = you want node 25 to switch itself OFF

*To obtain a simultaneous confirmation (status message) that node 01 really switched itself on (as in the first example), write the following SMS:*

**"1234 R011 S01"** = you want node 01 to switch itself on, and then you want a status message in reply by SMS (S=Status message) from that node (see Chapter 4.6 below).

*Remember to write the **R** and **S** commands in that order, otherwise A-Comfort will send the status message before applying the control command.*

**SMS:** (Sample reply from A-Comfort )

**From:** "Chalet"  
**No. 01** Name.-----  
**Out. On**  
**Tempsurveil. Off**  
**Input 1. +08c 2. Not connected!**

Explanation:

**From:** The name you gave A-Comfort in the contact list on your mobile phone  
**No. 01** (number of the node this status message is about)  
**Name.-----** (with letters instead of dashes if you name the node, as in Chapter 6.3)  
**Out. On** (the node delivers power to the equipment plugged into its socket)  
**Tempsurveil. Off** (temperature surveillance is off)  
**Input 1. +08c 2. Not connected** (the temperature sensor connected to input 1 senses 8°C, and nothing is connected to input 2).

### **Chapter 4.3: CHANGE ACCESS CODE** (from the factory-set to a personal code)

**Command: C**

4 digits (composing your new code)

**Example:**

"1234 C4321" = you change the access code from 1234 to 4321

"1234 C9999" = you change the access code from 1234 to 9999

**NB! Remember the new code**, and use this code each time you send a message to A-Comfort, or control it on-site with the keyboard, or interact through the input panel of the central unit.

### **Chapter 4.4: REGISTRATION OF MOBILE PHONE NUMBERS**

**Command: N**

First digit = position where the mobile phone number will be stored (of 9 available)

The rest: the number of the mobile phone, possibly with an international prefix

Terminate with **#** (hash/sharp/number sign)

**Example:**

"1234 N1+4748054555#" = store the number +47 48054555 at position 1

"1234 N348054555#" = store the number 48054555 at position 3

The number is automatically activated when stored.

See also the **O** command for (de)activating a number.

### **Chapter 4.5: ACTIVATION/DEACTIVATION OF A NUMBER**

Handles already registered mobile phone numbers (for reception of any alarm messages).

**Command: O**

First digit: 0 = off, 1 = on

Second digit: Position (from 1 to 9) of the phone number to be (de)activated.

**Example:**

"1234 001" = deactivate number at position 1 (you don't want it to receive alarms).  
 "1234 011" = activate number at position 1 (No. 1 shall receive alarm messages again).  
 "1234 017" = activate number at position 7.

Active numbers will receive alarm messages whenever detectors are set off, or if a temperature limit is exceeded when temperature surveillance is activated. Deactivated phone numbers will not receive any messages.

**NB:** Usual status messages (see Chapter 4.6 below) are only returned to the one who requested the status message (A-Comfort answers to the mobile phone number that sent the request).

**Chapter 4.6: STATUS MESSAGE (request information from your A-Comfort)**

**Command: S**

2 first digits = Node number

**Example:**

"1234 500" = you request the status of node No. 00 \*)  
 "1234 512" = you request the status of node No. 12  
 "1234 500501502" = you request the status of node No. 00, 01 and 02

A-Comfort will send 1 message for each requested node.  
 The third above example will generate three SMS messages.

**SMS:**

\*) **Sample** status message (answer from the unit):

From: "Belvedere" (i.e. the name/phone number of your A-Comfort)  
 No. 00 Name.-----  
 Out. On  
 Tempsurveil. Off  
 Input 1. +12C  
 2. Not connected!

**Explanations:**

From: Mobile phone number (or corresponding residence name in your contact list)  
 No. 00 Name.-----  
 Out. On (The node is switched ON, because you previously either switched it on manually, or sent an SMS to switch it ON)  
 Tempsurveil. Off (Temperature surveillance is off, see Chapter 2.1, Main menu 2.4)  
 Input 1. +12C (The temperature sensor connected to input 1 senses +12°C)  
 2. Not connected! (No detector or temperature sensor connected to input 2)

**SAMPLE STATUS MESSAGES:**

- If you have set your Eco- and Comfort temperatures, then these values will appear in the message.  
 E.g.:  
 Comfort. (T-control is active in Comfort position)  
 Eco. +04 (Temperature chosen as lower limit when in the Eco/Off position)  
 Comfort. +20 (Upper limit when in the Comfort/On position).

**Tempsurveil. Off**

- Input 1. +12C** (Temperature at sensor connected to input 1 of node is +12°C)  
**2. Not connected!** (No detector or temperature sensor connected to input 2 of node)

- If you have turned temperature surveillance ON, you will also be able to read the chosen temperature limits for the given node in the status message, as in this example:

**Tempsurveil. On**

**Hi. +20 Low. +04**

- If Temperature surveillance is activated, you will receive an SMS message such as this as soon as one of the chosen limits is exceeded:

**01 Alarm .....** (Warning about exceeded temperature limit)  
**1. TempLo** (The lower temperature is exceeded)

Alternatively:

**01 Alarm .....**  
**1. TempHi** (The higher temperature is exceeded)

Remember that whenever you receive an alarm message about an exceeded temperature limit, you must reactivate the "Temperature surveillance ON", if you still want to receive such warnings. See Chapter 4.8 "Temperature Surveillance".

Hint: The chosen temperature values may be modified, and may be different from node to node.

- If a motion detector is connected to input 2 of node number 00, and this detector goes off, you will then receive this SMS from A-Comfort:

**No.00 Alarm. ....**  
**2. PIR**

- If a smoke detector is connected to input 2 of a node, and this detector goes off, you will receive the following SMS:

**No.00 Alarm. ....**  
**2. FIRE**

Explanation: This is an alarm message from node number 00. Smoke detector at input 2 activated the alarm. Any dots in the message may be replaced by given node names (See Chapter 6.3).

- Should you request a status message from an unregistered node number, your A-Comfort will reply along the following:

**No.03 Name. ....**  
**5.No answer** (see Chapter 8.5)

This message will also be sent in case of bad radio coverage between given node and A-Comfort. Try again.

## Chapter 4.7: INFO (about stored phone numbers and active alarms)

### Command: I

One digit: the requested kind of information message

- 1 = request overview of numbers stored at positions 1-9.
- 2 = request list of active numbers.
- 3 = request alarm status.

### Example 1:

"1234 I1" = you request info message No. 1 (about stored phone numbers)  
 You will shortly receive an SMS from A-Comfort as follows:  
**Entered numbers. 1.0480545555 2. 3. 4. 5. 6. 7. 8. 9.**  
 signifying that only position 1 contains a number, and none of the other positions do.

### Example 2:

"1234 I2" = you request info message No. 2 (about active phone numbers)  
 You will shortly receive an SMS similar to the following:  
**Active numbers. 1.active 2.active 3.active 4.5.6.7.8.9**

### Example 3:

"1234 I3" = you request info message No. 3 (about (de)activated alarms).  
 You will shortly receive one of the three following SMS messages:  
 1) **Central. All alarms activated. 230V OK!** - or  
 2) **Central. Alarm inactive. (PIR and magnet deactivated) 230V OK!** - or  
 3) **Central. All alarms off. MasterAlarm deactivated. 230V OK!**

*You can send as a single SMS message to A-Comfort a compound request to switch nodes on/off, to obtain status from various nodes, as well as an info message from the central unit.  
 E.g.: 1234 R001 S00 I3 (to request switching node 00 on, receiving a status message about node 00, as well as obtaining an info message about alarm status).*

## Chapter 4.8: TEMPERATURE SURVEILLANCE

Temperature surveillance can be (de)activated via the input panel of A-Comfort, using Main menu 1.4 (as described on page 10 of this manual), or via SMS.

Remember that, after having received an SMS either with "Temp.Hi" or "Temp.Lo", you have to reactivate temperature surveillance, as well as to re-specify the temperatures, for the given node (otherwise, you would keep receiving SMS messages each time the temperature hits the chosen upper or lower limit).

### Command: T

First 2 digits: Node number (e.g., 02)  
 Third digit: 0 (to deactivate temperature surveillance) or  
 1 (to activate temperature surveillance; **MUST be followed by a lower and an upper temperature limit**)

### Example 1:

"1234 T021+04+24" = you turn temperature surveillance **ON** (for node No. 02) with a lower limit at +4°C and an upper limit at +24°C.

**Example 2:**

"1234 T020" = you deactivate temperature surveillance for node 02.

**Example 3:**

"1234 T021+04+24 S02" = identical to Example 1, except that you also request a status message confirming that temperature surveillance is activated.

## Chapter 4.9: THERMOSTATIC CONTROL

Thermostatic control can be (de)activated via the input panel of A-Comfort (Main menu 2, pp. 11-12 of this manual), or via SMS. After activation of the regulation, one can toggle between comfort and eco modes with the R command, where parameter 0 means *eco* and 1 means *comfort*.

**Command: L**

First 2 digits:	Node number (e.g. 02)
Third digit:	0 (to deactivate temperature regulation) or 1 (to activate temperature regulation; <b>MUST be followed by the desired eco and comfort temperatures</b> )

**Example 1:**

"1234 L021+06+20" = you turn temperature regulation on (for node No. 02) with eco mode at +6°C and comfort mode at +20°C.

**Example 2:**

"1234 L020" = you deactivate temperature regulation for node 02.

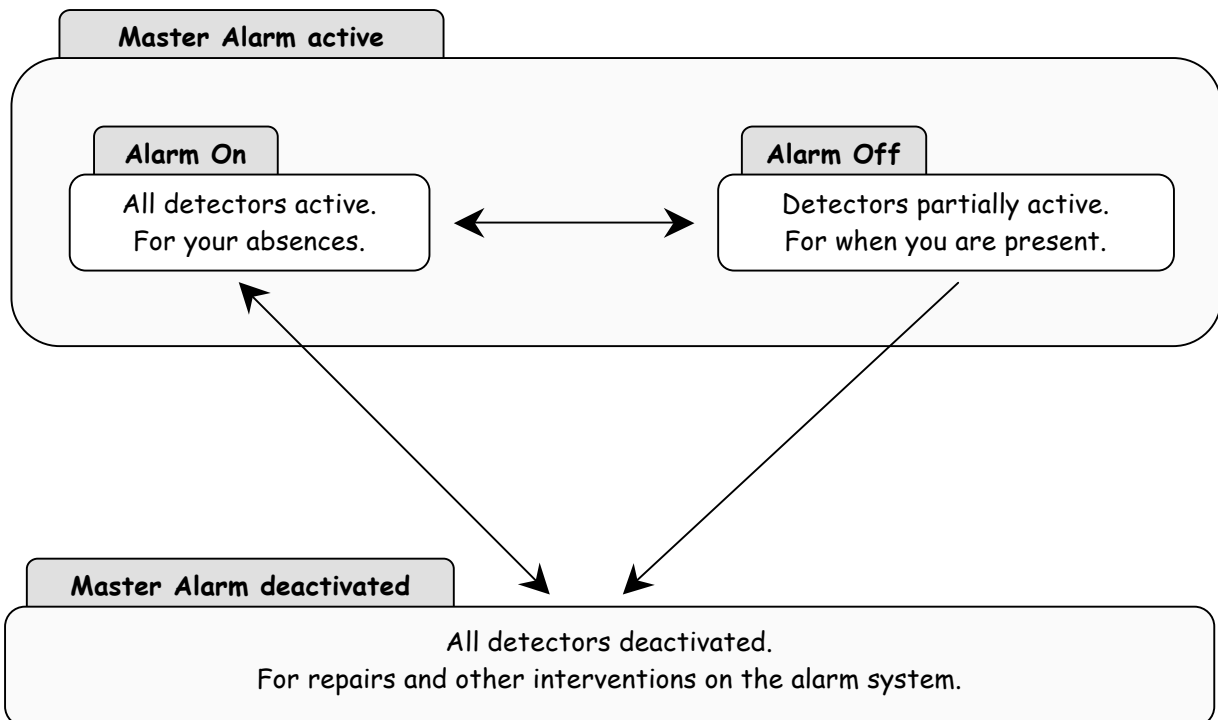
**Example 3:**

"1234 L021+06+20 R021 S02" = identical to Example 1, except that you also request activation of comfort mode, followed by a status message confirming that this setting is activated.

## CHAPTER 5: ALARM FUNCTIONS

There are three levels of alarm detection (see diagram below):

- All alarms turned ON; useful in case of absence.
- Alarms partially ON: smoke, gas and similar detectors remain active, whereas intrusion/motion and magnetic contact detectors are deactivated. This mode is relevant when you are present.
- All alarms OFF, when Master Alarm is deactivated. No alarm messages will be sent! This mode is useful during installation and any repairs or transformations of your system.



Normal use corresponds to the following alternative:

- 1: Alarm On (when leaving the premises):**  
All alarms become active after a delay of 1-10 minutes.  
Entering this mode will also implicitly activate Master Alarm.  
This function is executed via the input panel, the keyboard or an SMS message.
- 2: Alarm Off (relevant when you arrive):**  
Deactivates motion and magnetic contact detectors. Smoke and other detectors remain active. Temperature surveillance also remains active.  
This function is executed via the input panel, the keyboard or an SMS message.  
Only possible if Master Alarm is deactivated (see below).

**This alternative is to be used for deactivating all alarms, e.g. in the event of a faulty detector:**

**A: Master Alarm deactivated:**

Deactivates all alarms, including temperature surveillance.

This function may only be executed via the input panel or an SMS message.

Does not deactivate power interruption messages (such warnings are only possible with the battery backup option).

**B: Master Alarm activated:** relevant when nobody is present.

Turns all alarms on with a 1-10 minutes delay (as with Alarm ON, see point 1 above)

**GENERAL REMARKS:**

The central unit relays every alarm signal received from a detector by sending an SMS to all active phone numbers in its list. After 10 minutes, it will send a new round of SMS messages if connected detectors still get activated. This means that up to 6 rounds of messages may be sent each hour for each detector. In the event of a faulty detector, the alarm must be deactivated until the problem is solved.

**Note:** After turning alarms on, it can still take up to 10 minutes before an intrusion detector is set off. All connected sirens will start resounding **before** the SMS messages are sent off.

**Note:** Once an alarm is set off, you will have a few seconds available to prevent, if necessary, the sending of SMS alarm messages (this delay is adjustable in Menu 1.7 via the input panel, but not with the keyboard).

**NB!** In the event of an overheating condition in a node (when exceeding the specified load limit), A-Comfort will send an SMS message containing "**Warn!**" and the identity of the relevant node.

## CHAPTER 6: MISCELLANEOUS INFORMATION

### Chapter 6.1: Using the Node (Wireless Socket)

**This chapter explains the use of nodes.**

Each A-Comfort node has two inputs for detectors/temperature sensors.

We recommend plugging the temperature sensor into input 1, if you only have one such sensor; this is because the thermostatic regulation is implemented on that input of the node.

The node automatically recognizes the equipment connected to it. This may be intrusion (PIR), fire, magnet, gas, water or yet other detection devices.

**Pull the node out of the wall socket before connecting any equipment to it.**

A cable is required between the node and its detectors or temperature sensor(s). Such cables can be bought from Sikom AS.

As shown in the following, the node may provide various information on the display of the central unit, when operated through the input panel in **Menu 8.3** (List):

First, the display shows the number of registered nodes.

Browse up/down through the list and press OK to select the node number you want more information on. Browse up/down with the arrow keys through the following information:

**Name.** ----- 10 characters

One of the next 3 lines will then show the current control mode of the node (thermostatic control or manual on/off):

**Power Out. Off** Manual On/Off mode; 230V power output is now Off.

**Eco. Out. Off** Eco-temperature mode; 230V power output is now Off.

**Comfort.Out. Off** Comfort temperature mode; 230V power output is now Off.

**Eco. +10** Shows stored target value for regulation at Eco-temperature. With +10°C set as eco-temperature, the thermostatic control function (activated with Menu 2.3, and put into eco-mode with Menu 2.2) will make sure the temperature never falls below 10°C.

Deactivate the thermostatic control with Menu 2.4.

**Comfort. +20** Shows stored target value for regulation at Comfort temperature. With +20°C set as comfort temperature, the thermostatic control function (activated with Menu 2.3, and put into comfort mode with Menu 2.1) will make sure the temperature stays at 20°C.

**Tempsurveil. Off** Shows that temperature surveillance currently is off.

**Hi. +35 Low. -06** Limits for surveillance; in surveillance mode, A-Comfort will send SMS messages to all active numbers stored via Menus 4.1 and 4.2, with information about an exceeded limit. Remember to reactivate the surveillance with Menu 1.4.

**1: +22c**

**2: Not connected!** Shows equipment connected to inputs 1 and 2. Here, input 1 is tied to a temperature sensor, whereas input 2 (normally for fire, gas, PIR, and such detectors) is unused.

Such information may also be obtained on a per-node basis as an SMS status message, if required. E.g.: "1234 500"

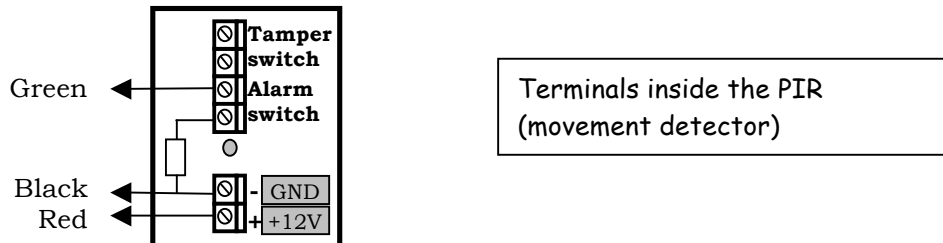
## Chapter 6.2: Connecting Detectors to a Node

### Connection of detector cable to the terminals inside a PIR (movement detector):

Black lead: "-" (GND/ground)

Red lead: "+" (+12 volts)

Green: "NC" (detector loop)



The electrical resistor mounted inside each detector delivered by Sikom enables A-Comfort to automatically recognize the kind of equipment connected to the node:

10 k $\Omega$  = PIR (motion) detector; 12 k $\Omega$  = fire (smoke); 15 k $\Omega$  = water; 18 k $\Omega$  = magnet (window or door opening detection); 22 k $\Omega$  = gas; 27 k $\Omega$  = other types.

## Chapter 6.3: Alphabet

**Use the input panel to type in letters and name your nodes.**

(See Chapter 2: Main menu 8.4)

The input panel has letters associated to each key, from A to Z.

To select a letter, do the following:

**Example 1:** Key 1 may yield the letters **A**, **B** or **C**.

Press therefore 1, then again 1, to obtain the letter **A**.

1, then 2 produces the letter **B**.

1, then 3 produces the letter **C**.

**Example 2:** You want to write **BEDROOM** (to name the bedroom node)

First press the key corresponding to letter **B** (key 1)

Then press key 2 since **B** is the 2<sup>nd</sup> letter of ABC

Then, for **E**, press key 2 for selecting a letter in DEF

Press key 2 since **E** is the 2<sup>nd</sup> letter of DEF

Press key 2 again for **D**, which is a letter in DEF

Press key 1 since **D** is the 1<sup>st</sup> letter of DEF

And so on.

If you press 0 as a second key, you will get the corresponding digit instead of a letter.

Example:

1-0 Gives 1.

2-0 Gives 2.

Use the **CANCEL** key to correct typing errors.

Other combinations will produce the space character, e.g. 1-5 and 4-8.

## Chapter 6.4: Total reset of A-Comfort

Below the # key you will find a hole for performing a *total reset* of A-Comfort (using a needle or another similarly shaped object). Do this *only* if you are completely certain of what you are doing. This will clear all numbers, alarms, registered nodes and keyboard, and reset A-Comfort back to factory settings.

The personal code (access code) becomes 1234 after reset.

## Chapter 6.5: Some Conditions Regarding Eco- and Comfort Temperature

### How to obtain the desired comfort temperature at your arrival?

These are some preconditions for reaching the desired comfort temperature (e.g. +18°C) at your arrival, after an absence:

- How large the room is, compared to the power (Watts) of the stove.
- How low the eco-temperature is set:
  - eco-temperature set at +05°C requires a shorter time to reach +18°C
  - eco-temperature set at -10°C requires a longer time to reach +18°C
- Outside conditions: negative temperatures, wind, open air vents, etc.
- Level of insulation and thermal inertia of the premises.
- How long in advance you switched on or turned up the heating through A-Comfort.

### Tips:

Request a status message a few days in advance, to check the temperature at the nodes. Based on this, you will decide when to switch on, in order to reach the desired comfort temperature in time (depending on season, outdoor temperature, etc). The web services at [www.EcoStarter.com](http://www.EcoStarter.com) may help you determining the performance of your heating equipment.

The location of the temperature sensor will influence reported temperatures (it should be in the lower half of the room).

## CHAPTER 7: FRONT PANEL

The front panel of A-Comfort includes the following:

- **12 keys**
- **1 hole** for total reset of the central unit.
- **A display** (detailed under the various menu explanations)

## CHAPTER 8: ERROR MESSAGES

Error messages may sometimes be displayed by A-Comfort. These are explained below.

- |                         |  |
|-------------------------|--|
| <b>Error message 1:</b> | <b>"1:Out of space"</b><br>The maximum number of nodes, keyboard, etc. is already registered (64)  |
| <b>Error message 2:</b> | <b>"2:Timeout"</b><br>Too much time elapsed since the last keypress. Try again.  |
| <b>Error message 3:</b> | <b>"3:PING"</b><br>Bad radio coverage.   |
| <b>Error message 4:</b> | <b>"4:CANCEL"</b><br>The CANCEL key was pressed before completion of a command.  |
| <b>Error message 5:</b> | <b>"5:No answer"</b><br>The coverage to the node is insufficient, or the node is not powered.<br>The line-of-sight range is up to 100m.                        |
| <b>Error message 6:</b> | <b>"6:GSM module"</b><br>Something is wrong with the GSM parts inside A-Comfort. Contact your reseller.  |
| <b>Error message 7:</b> | <b>"7:GSM Timeout"</b><br>Coverage conditions and other GSM network issues may lead to this message.   |
| <b>Error message 8:</b> | <b>"8:GSM SIM card"</b><br>The PIN code is active on the SIM card, or no SIM card has been installed, or there may be other possible issues with the SIM card. |

For other errors, please look at the FAQ at [www.EcoStarter.com](http://www.EcoStarter.com).

## CHAPTER 9: PRECONDITIONS AND ADVICE

For A-Comfort to work satisfactorily, a **good coverage of the relevant GSM network** is needed. No contact can be established if the coverage is too weak. This also is a requirement for sending SMS messages. Once a message has been sent off by A-Comfort, it is under the control of the current network operator. The SMS will not be delivered in case of errors on the GSM network, or similar issues under the responsibility of the operator. When the GSM network is heavily loaded, it may take several minutes (or even hours) for an SMS message to be delivered. These are conditions that Sikom AS cannot do anything about. The dispatch date and time of the message are nevertheless visible at delivery. In conformance with legal regulations, network operators are free to cease certain GSM services. Sikom AS is not a provider of GSM services and can therefore not be held liable for any changes of such services. Notifications should nevertheless be published long before such events take place (2 years or so). If you opt for a **prepay solution**, remember that the credit must be recharged before use. Information on this procedure comes with the SIM card. If the credit gets exhausted, no information on this will be given by A-Comfort, since it will then not be able to send out any SMS message. To check the remaining credit, it is sometimes necessary to pull out the SIM card and insert it into a usual mobile phone; instructions on how to do this follow your mobile phone and/or SIM card.

In the event of an **overheating** condition of a node, A-Comfort will send an SMS message indicating the relevant node. The message will contain the text "Warn!"

## CHAPTER 10: TECHNICAL SPECIFICATIONS

Manufacturer:	Sikom AS, Norway
Model:	A-Comfort
Power source:	230V 50Hz AC or 12-15 V DC
Consumption at 230V:	Max 10 Watts (typical: 1.9W in standby)
Consumption at 12V:	Max 80 mA
Max load per node: (wireless 230V socket)	10A 230V (approx. 2300W) in the Swiss version 16A 230V (approx. 3600W) in the Schuko version
Operating temperature:	-20°C to 50°C
Non-operating temperature:	-40°C to 70°C
Dimensions LxHxD:	160x80x50 mm
Weight:	0,4 kg
Temperature measuring range:	-29°C to +49°C
GSM standard:	Dualband 900/1800 MHz
Radio frequency:	433.9 MHz (for local communication between the central unit and its wireless accessories)

Central unit and accessories are designed for indoor use only.

This equipment complies with the European R&TTE directive.  
Further information may be obtained by contacting either the Swiss importer through [www.EcoStarter.com](http://www.EcoStarter.com) or the manufacturer:

Sikom AS  
Neptunveien 6  
7650 Verdal  
Norway

Internet address: [www.sikom.no](http://www.sikom.no)

## CHAPTER 11: WARRANTY

Sikom A.S. products are covered by a two years warranty against any faults due to material flaws or manufacturing errors, which limit or render useless certain functions described for the product. The warranty requires the customer to present the original bill, with date of purchase and type of equipment clearly readable.

### What is covered by the warranty?

During the warranty period, Sikom A.S. reserves the right to repair the product or to replace defective parts with functionally equivalent parts. If, after several attempts, Sikom A.S. is unable to correct the problem, and the product does not work as described in the manual, Sikom may elect to refund the purchase price or to replace the product with a functionally equivalent one. All replaced parts and products become the property of Sikom A.S.

### What is not covered by the warranty?

- Indirect damage to life, health, property, revenue and environment caused by circuits and appliances connected to the units (install and use this product responsibly).
- Costs related to (re)installing, transporting and dismantling units; recycling may be governed by special rules (see the relevant chapter below).
- Damages caused by use outside of the operating conditions specified in the manual.
- Malfunctions caused by transport damages.
- Any unauthorized repair, modification or disassembly.
- Use of non-original parts.
- External factors, such as lightning, power supply issues, mobile network issues, flood damage or fire.
- Units with modified, removed or unreadable serial number.

Sikom assumes no responsibility for any errors that may appear in this manual. Information contained herein is subject to change without notice.

## CHAPTER 12: RECYCLING INFORMATION

Waste Electrical and Electronic Equipment (WEEE) Symbol



The WEEE (Waste Electrical and Electronic Equipment) symbol indicates that this product must not be disposed of along with other household waste. It is the customer's responsibility to dispose of the product properly by taking it to a designated site for recycling. To locate a recycling/disposal site near you, contact your local city recycling program, your regular waste disposal service or the agent from whom you purchased this product.

For Switzerland, this product includes in its purchase price a contribution (the advanced recycling fee) to the SWICO Recycling Warranty, which means that used equipment can be handed in free of charge for recycling.

Collection sites are listed at <http://www.swicorecycling.ch>.