ANTENNA CAREPHONE

AP2000

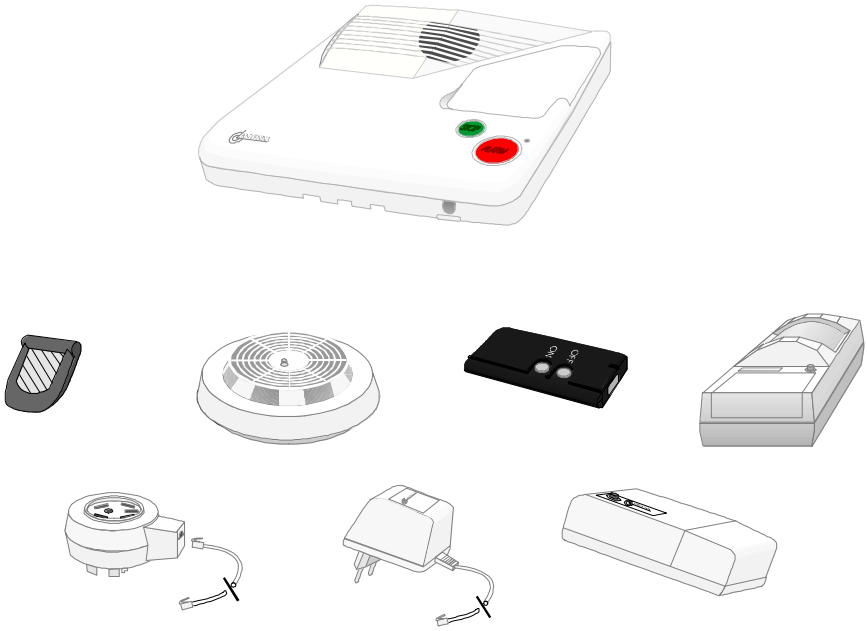
Contents

The contents of this document can be altered without further notice.

Product overview

The Antenna Carephone AP2000 is an advanced alarm product with synthetic speech, a receiver for cordless radio-transmitted alarms, automatic dialling and two-way voice communication. Antenna Carephone has also automatic voice switching capacity, duplex. When the Central Unit receives an alarm, it calls a previously selected alarm receiver. The receiver gets information about why the alarm has been sent and where it comes from. A voice connection is established when an assistance alarm is activated, e.g. by the portable Radio Alarm Button. Such alarms establish an audio-connection between the Central Unit and the alarm receiver. The Central Unit has both an integrated microphone and a loudspeaker which enable voice connection to take place. Since the Central Unit uses synthetic speech to communicate with the receiver, alarms can be sent not only to a conventional alarm central, but also to private telephones.

The Antenna Carephone is easy to install. Connect it to the public telephone network with a telephone plug; to an electrical outlet using an adapter. In case of electrical power-failure, the storage battery functions as a backup. Use the built-in keyboard for programming (some models also has remote programming function). Programming is simplified by synthetic-speech instructions. Radio alarms (e.g. assistance alarm, panic alarm, smoke alarm, intruder alarm) are easy to install since the Central Units radio receiver has a "self-learning" function. There are also inputs for wire connected alarms and a controllable output (e.g. for a siren).



- Central Unit AP2000 (incl. Telephone plug, Adapter, Battery, User's Guide)
- Radio Alarm Button
- Smoke Detector, radio
- Remote Control, radio
- IR-Detector, PIR, radio
- Radio Alarm Box

Function

Alarm sequence

The Central Unit can store up to six different alarm receivers with programmable telephone numbers and alarm codes. When an alarm is activated, from radio or input, the Central Unit start the dialling sequence. This dialling sequence continues until the alarm is acknowledged by an alarm receiver or until ten attempts[1] has been executed to each receiver. First alarm attempt is to receiver no. 1. If the alarm is not acknowledged by receiver no. 1, another attempt is made, this time to receiver no. 2. This sequence continues until all six receivers have been dialled or a receiver with no telephone number is found. Thereafter, the sequence starts anew with receiver no. 1. Normally, the Central Unit pauses 10 sec. between dialling attempts. If only one receiver is installed, the pause is one minute. A tone indicates that the Central Unit awaits a new dialling attempt (not silent alarms). An alarm unit can be designated to a specific individual receiver (1-6). Alarms from such a device direct all alarm attempts to the selected receiver. The Central Unit can handle the dialling even if a connection after own connection has low-impedance, is off-hooked).

After the start-signal has been received from the alarm receiver the Central Unit transmits the alarm message and waits for acknowledge. After acknowledgement it disconnects, or, alternatively, establishes voice connection, depending on the alarm type. A voice connecting alarm establish a speak-channel with normally automatic voice-switching (duplex), where the alarm receiver can talk directly to the distressed person. If there are disturbances on the telephone network it is possible to change from automatic voice-switching to manual voice-switching, simplex. The call is automatically disconnected three minutes[2] after the last command from the receiver. If a new alarm is detected during voice connection, a beep-tone is sent to the receiver (the new alarm must have the same alarm type as the connected alarm). This function opens a possibility for the distressed person to "communicate" with the receiver via e.g. the Radio Alarm Button.

When sending an alarm to some receivers (protocol) there is an activation of a reset message if a voice-connection is stopped with the STOP-key. Furthermore there is also send a reset message, primary to receiver 6, if the STOP-key is pressed for more than 3 seconds when the Central Unit is in normal mode.

Alarm receivers

The Central Unit can send alarm to different types of alarm receivers. There are different groups of receivers depending on the protocol used for alarm transmission. The following protocols are implemented:

- Antenna
- L400 (not Germany)
- Telephone
- Paging (type Minicall)
- Ericsson
- Slow-Franklin (needs special hardware)
- Tunstall
- ANT
- Digifon (only Germany)

[1] Austria has a limit of 4 attempts to each receiver.
[2] Holland has two minutes and Austria 100 seconds time-out.

In normal mode the Central Unit automatically selects the correct receiver type / protocol, multi-protocol. The multi-protocol includes Antenna, L400, Telephone, Tunstall, ANT and Digifon. (L400 only in Sweden, Norway, Finland and Denmark, and Digifon only in Germany). If a special protocol is desired the receiver type must be programmed for the receiver. The following receiver types diverge in some way from the alarm sequence described above:

Telephone

After acknowledge from the telephone, an acknowledgement-message, logging, is send to receiver no. 6 (if it is programmed). This message include the alarm code and alarm type of the acknowledged alarm which is converted to a logging by the receiver. The acknowledgement-message can be switched off with special function 06. For correct function of the acknowledge-message the receiver must be compatible with Antenna AR1082.

Alarm type: 89 (acknowledgement)
Alarm code: ...xxxtt (...xxx=alarm code-6 (max. 8 digits), tt=acknowledged alarm type)

At alarm to a telephone the Central Unit looks for busy tones and dial tone during the voice connection. If such tones are found the connection is ended. This speed-up the termination of the call if the receiver omit the disconnect command (notice - dependent of the exchange unit).

Paging

When an alarm is send to a paging device it is normally not acknowledged and therefore it should be receivers of other type later in the sequence. If the last receiver in the alarm sequence is a paging device there is only one alarm attempt to each receiver. The pause between alarm attempts to two consecutive paging devices is one minute.

Alarm types

Type tt	Alarm cause	Synthetic speech	Voice con	Silent	Output
05	Boundary alarm	*Boundary alarm*		X	X
07	Intruder alarm	*Intruder alarm*		X	X
09	Smoke alarm	*Smoke alarm*			X
10	Assistance alarm	*Assistance alarm*	X		
12	Reset message	*Reset*		X	
13	Panic alarm	*Panic alarm*	X, listen[3]	X	
14	Passive alarm	*Passive alarm*	X		
16	Battery alarm, radio-unit	*Battery alarm, alarm-unit*		X	
17	Battery alarm, Central-Unit	*Battery alarm, central-unit*		X	
19	Power failure	*Power error*		X	
20	Power OK	*Power OK*		X	
26	Test alarm	*Test alarm*		X	
27	Lift alarm	*Lift alarm*	X		
28	Door alarm	*Door alarm*	X		
29	Smoke alarm	*Smoke alarm*	X		X
32	Fire alarm	*Fire alarm*			X
34	Gas alarm	*Gas alarm*			X
35	Door alarm	*Door alarm*		X	
36	Dampness alarm	*Dampness alarm*			
37	Passive alarm	*Passive alarm*		X	
38	Bed alarm	*Bed alarm*		X	
39	Stove alarm	*Stove alarm*		X	
40	Epilepsy alarm	*Epilepsy alarm*		X	
41	Dementia alarm	*Dementia alarm*		X	
42	Pulse alarm	*Pulse alarm*		X	
43	Temperature alarm	*Temperature alarm*		X	
44	WC alarm	*WC alarm*	X		
45	Door call	*Door*	X		
46	Service call	*Service call*	X		
47	Medicine alarm	*Medicine alarm*	X		
50	Bypass	- no alarm -	-	-	-
51	Pulse output	- no alarm -	-	-	X(5s)
52	Pulse output	- no alarm -	-	-	X(5s)

[3] The alarm receiver is able to open the speech-function by sending two output commands.

	(60miutes after an alarm)				
70	Panic alarm	*Panic alarm*		X	
74	Intruder-/Passive alarm	-	-	-	-
80	Alarm off (Boundary & Intruder) Passive alarm on	*Alarm off* *Passive alarm on*		X	
81	Boundary alarm on Passive alarm off	*Boundary alarm on* *Passive alarm off*		X	
82	Intruder alarm on Passive alarm off	*Intruder alarm on* *Passive alarm off*		X	
83	Presence marking	*Presence marking*		X	
84	Service done	*Service done*		X	
89	Acknowledge message	*Operating alarm 89*		X	
9n	Panic alarm social (note no dialling)	*Panic alarm item n*	-	-	X
tt	Operating alarm	*Operating alarm nn*		X	

Voice con: States if an alarm establishes a voice connection.
Silent: States if the loudspeaker is turned off during the alarm sequence.
Output: States if an alarm activates the output (5 minutes, can be changed with special function 13).

Translation of alarm types:

Antenna	L400	Ericsson	Slow-Franklin	Tunstall	ANT (Byte 2-4-5)	Digifon (Byte 1-4-5-6-7)
05	5	E	5	8	0A-08-08	01-04-00-00-00
07	7	E	7	8	0A-08-08	01-08-00-00-00
09	9	D	9	3	0A-08-04	01-01-00-00-00
10 (C) 10 (R) 10+16 (R+B)	A	A	0	1 2 5	0A-09-00 0A-08-01 0A-28-01	02-81-00-00-00 02-90-00-00-00 02-90-00-0C-00
12	C	E	2	6	0A-0C-00	02-00-40-00-00
13 (C) 13 (R)	D	A	3	1 2	0A-09-00 0A-08-01	02-81-00-00-00 02-90-00-00-00
14	E	B	4	7	0A-0C-00	02-A0-00-00-00
16	B	C	6	5	0A-28-00	02-00-00-0C-00
17	B	C	1	4	0A-48-00	02-00-80-00-00
19	3	D	9	4	0A-48-00	02-00-03-00-00
20	4	E	0	6	0A-08-08	02-00-02-00-00
26	2	F	6	6	0A-08-08	02-00-40-00-00
27 (C) 27 (R)	A	A	7	1 2	0A-09-00 0A-08-01	02-82-00-00-00
28 (C) 28 (R)	A	A	8	1 2	0A-09-00 0A-08-01	02-84-00-00-00
29	E	D	9	3	0A-08-04	01-01-00-00-00
32	0	D	2	3	0A-08-04	01-01-00-00-00
34	2	E	4	3	0A-08-08	01-80-00-00-00
35 (C) 35 (R)	3	D	5	6	0A-09-00 0A-08-01	01-80-00-00-00
36	4	E	6	6	0A-08-08	01-80-00-00-00
37	5	B	7	7	0A-0C-00	02-20-00-00-00
38	6	E	8	6	0A-08-08	01-80-00-00-00
39	7	D	9	6	0A-08-08	01-80-00-00-00
40	8	E	0	6	0A-08-08	01-80-00-00-00
41	9	D	1	6	0A-08-08	01-80-00-00-00
42	0	E	2	6	0A-08-08	01-80-00-00-00
43	1	D	3	6	0A-08-08	01-80-00-00-00
44 (C) 44 (R)	A	A	4	1 2	0A-09-00 0A-08-01	02-82-00-00-00

45 (C) 45 (R)	E	A	5	1 2	0A-09-00 0A-08-01	02-84-00-00-00
46 (C) 46 (R)	A	A	6	1 2	0A-09-00 0A-08-01	02-81-00-00-00 02-90-00-00-00
47 (C) 47 (R)	E	A	7	1 2	0A-09-00 0A-08-01	02-82-00-00-00
70 (C) 70 (R)	6	E	0	6	0A-09-00 0A-08-01	02-01-00-00-00 02-10-00-00-00
80	0	E	0	6	0A-08-00	02-00-08-00-00
81	1	D	1	6	0A-0A-00	02-00-0C-00-00
82	2	E	2	6	0A-0A-00	02-00-0C-00-00
83	3	D	3	6	0A-08-08	01-80-00-00-00
84	4	E	4	6	0A-08-08	01-80-00-00-00
89	9	D	9	6	0A-08-08	02-20-00-00-00
tt - even tt - odd	tt mod 16	E D	tt mod 10	6	0A-08-08	01-80-00-00-00

C = Central Unit
R = Radio alarm unit
R+B = Radio alarm unit with battery error

Status indicator

On the Central Unit there is a status indicator (LED) that shows the actual status (function normal, alarm, power error and bypass status).

Function	Signal type	Diagram [1=on 100ms, 0=off 100ms]
Function normal	on (fixed)	1111111111111111...
Power error, (Switched off)	off (fixed)	0000000000000000...
Alarm active	fast blink	1010101010101010...
Alarm-repeat active Alarm block active	slow short blink	1111111111111110...
Passive alarm off Presence-marking active Boundary alarm on	slow blink	1111111100000000...
Intruder alarm on	slow double-blink	1100110000000000...

Power failure

In the event of an electrical power failure, the storage battery provides backup for the Central Unit by switching to the battery mode. If this happens, the current supply is minimised to the essential functions for initiating alarms. Passive and test alarms are deactivated. The estimated time for backup- battery operation differs from one installation to another. The differences depend on battery type, the radio-transmission environment and the use.

If alarm at power error is desired, this function can be activated with special function 09 (default setting is off). The alarm is delayed in five minutes after power error but the power OK message is send direct when the power returns. Notice - during the five minutes alarm delay and alarm transmission some of the battery power is consumed, which result in shorter reserve time.

During each restart of the Central Unit, and intermittently, once an hour, the battery function is checked. If the battery voltage is lower than a predetermined level, a battery alarm is issued (special function 03 can disable the battery alarm function). After a battery error-message, the battery has about half of its total capacity left (not valid for the rechargeable battery, Alt. B). If a central, power-backup system exists, it is advisable to disable the battery-alarm function.

Bypass

Boundary-, intruder- and passive- alarms are turned on and off with the Central Unit's ON1-/ON2-/OFF-keys (possibly an additional password), with a remote control or with an input programmed with bypass function. The remote control must be installed as bypass, assistance alarm or panic alarm to get the bypass functions. When an input is programmed with bypass function then bypass with the keyboard and remote control is disabled. Activation of intruder alarm includes activation of boundary alarm.

When switching to alarm off all alarms in progress are disconnected. The information key indicates when the boundary-, intruder-, or passive-alarm function is enabled via a synthetic speech message--*boundary alarm on, intruder alarm on* or *passive alarm on*. The bypass state are also indicated by the status indicator. With special function 05 can the function ”status-message” be activated, default setting is off. This function means that a message is send to the alarm receiver when the bypass status is changed.

Function	Central Unit	Remote Control	Input
Alarm off	OFF	OFF	closed
Boundary alarm on Passive alarm on	ON1		
Intruder alarm on Passive alarm on	ON2	ON	open

Boundary alarm and Intruder alarm

Boundary alarm and intruder alarm are activated only if a boundary alarm unit or an intruder alarm unit is installed either as a radio alarm or via an alarm input. When the intruder alarm is turned on, alarm detection is delayed for 30 sec. The pause is indicated by a loudspeaker tone. When changing the bypass status short pulses are generated on the output (for siren). One pulse at alarm off and two pulses at alarm on. This function can be disabled with special function 07, ”status-marking”.

Passive alarm

Switching the passive alarm on and off is only possible if the passive alarm time-out is greater than 0 (special function 11). Notice - if a boundary alarm or intruder alarm are installed and passive alarm is active, then the passive alarm is switched off when the boundary / intruder alarm are switched on and contrariwise.

Test alarm

A test alarm is sent to alarm receiver no. 6, once a period, as an indication that the Central Unit is working properly. With special function 14 the time period between test alarms can be set to 0-15 days (default setting 0=function off). The first test alarm is sent 12 hours after activating the function, then once every selected period. After restart of the Central Unit the test alarm is send within 1 to 4 hours (randomised).

Forwarding

When the Central Unit dials an alarm receiver using the Antenna protocol, a forwarding command can be sent from the alarm receiver to the Central Unit. This command consists of a telephone number to an alternative alarm receiver. The next dialling attempt is forwarded to the new number. Forwarding to another receiver is temporary and it concerns only the next attempt.

Answer-function

If the special function 01, ”answer-function”, is enabled, an incoming call may be answered by activating an assistance alarm or a panic alarm. The Central Unit distinguishes between an alarm and an "answer" by checking the presence of a dial tone (10-sec.). If no dial tone is detected, it is an answer command -- otherwise it is an alarm. An answer command permits the caller to control the Central Unit as an alarm-receiving telephone. If the conversation shall continue by the ordinary telephone the hook should first be lifted off. Thereafter the answering function is disconnected by pressing the STOP-key on the Central Unit.

Presence-marking

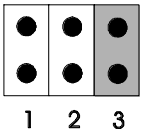
When executing the functions ”presence-marking” and ”service-done”, a message is send to an alarm receiver as a registration. The message is primarily send to receiver no. 6, and secondly in normal sequence. Assistance alarm which is activated when presence-marking is active is converted to a service-call. Presence-marking can be controlled from an input with the alarm type presence-marking (83) or with the STOP-key on the Central Unit . When controlled by an input, closed input states presence-marking and open service-done. If the STOP-key shall control the function it must be selected with special function 25. A long press on the STOP-key execute presence-marking and a short press service-done.

Alarm-repeat and Alarm-block

The function ”alarm-repeat” (reminder-alarm) is activated from the alarm receiver and it means that if an alarm has not been acknowledged with the STOP-key on the Central Unit within a pre-set time, then the alarm is repeated. Also the function ”alarm-block” is activated from the alarm receiver and it means that active alarm type is blocked for a pre-set time. The function alarm-block can also be reset with the STOP-key on the Central Unit. If presence-marking is activated both functions are reset. The time for the functions are common and can be adjusted with special function 16.

Inputs and outputs

The Central Unit has two alarm inputs and a possibility to select between one additional input and an output with a switch on the circuit board (default setting is output). Input-1 is general, input-2 is eligible and input-3 is in parallel with the ALARM-key. Notice - if input-2 is selected instead of the output then the output activation time must be set to 0 minutes with special function 13.

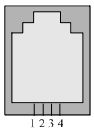


1 IN2 (input-2)
2 EXT BAT (external battery connection, not used)
3 OUT (output, default setting)

The alarm inputs are activated when they are grounded, closed (NO), for at least 100 ms (alarm at opening (NC) is programmable). An input can also serve as a bypass. Open - intruder alarm on / passive alarm on; closed - alarm off / passive alarm off. Notice - the Central Units battery-save mode does NOT work with a closed input. The alarm type is programmable. A specific individual receiver can be specified for the input. In this case, the input alarm is sent to this receiver alone. It can also be programmed if the output should be activated at alarm (this is only necessary if the output is not activated by default settings for the alarm type).

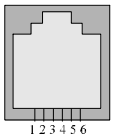
The Central Unit output can carry a maximum load of 30mA. Some alarm types will activate the output when the alarm dialling is issued (e. g., starting a siren). The activation time is by default setting 5 minutes, but it can be set from 0-10 minutes (special function 13). The output can also issue a five-second, pulse-signal from the alarm receiver, or from a radio alarm unit.

Modular connectors (Western) on the back-side of the Central Unit:



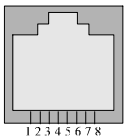
POWER

1. Output (7-16V, < 30mA)
2. AC-1
3. AC-2 / DC-in (12-16V)
4. GND



TELE

1. Input-1
2. Telephone-line out
3. Telephone-line in
4. Telephone-line in
5. Telephone-line out
6. GND



AUX

1. Telephone-line in
2. Telephone-line in
3. GND
4. DC-in (12-16V)
5. DC-out (7-16V, < 30mA)
6. Input-2 / Output (7-16V, < 30mA)
7. Input-1
8. Input-3 (ALARM-key)

Radio

Communication with radio can be exposed to disturbances. However, the risk of radio disturbances is reduced to minimum by the use of a professional alarm frequency, open only for radio alarm transmitters with low output power.

At installation it is necessary to check radio-transmission conditions. The location of the Central Unit is important. It should have a key location. This is essential for the transmitting range. Interference from other electrical devices must be taken into consideration (even two Central Units disturb each other). After installing the radio units, a range test should be made.

During installation of a radio alarm unit, an alarm type is selected. An item number may also be selected. The item number then will be transmitted to the receiver along with the alarm code when an alarm is issued. A specific individual receiver can be selected for the alarm unit. The alarm units can also be programmed to activate the output during an alarm.

The Central Unit

Inside the Central Unit there is a radio receiver especially designed for decoding signals from radio alarm units. The signals supply the ID-code, current battery status and the transmitter type of the radio alarm unit. The Central Unit read and decode the radio signal and if the ID-code is programmed in the unit's memory, the specific function is activated, e.g. assistance alarm. Signals enter the radio receiver via a flexible antenna on the Central Unit's backside. For optimal range, the antenna must be fully extended (if possible, in a suspended position).

Radio alarm units

When the radio alarm unit is activated (e.g. alarm) it transmits a sequence of pulse signals. The battery voltage is checked only at transmission and if the voltage is below the alarm level a battery error is registered. If the radio alarm unit is programmed as an assistance alarm, and its battery voltage is low, a battery alarm is issued. Battery error from other types of radio alarm units do not activate any battery alarm by default settings (can be selected by special function 08). Some radio alarm units have a test button used for programming and test functions. When the test button is pressed, the Central Unit responds by saying *function normal* or *battery error*, depending on battery status.

Coding

All transmitters get a specific code (address) when they are made and the code can't be changed. The code consists of a 9-bit trinary sequence, $n_1\ n_2\ n_3\ n_4\ n_5\ n_6\ n_7$ bt. The code is subdivided into an ID-code, n_1-n_7 (7 bits, 7^3=2187 options, nnnn), battery status, b (1 bit), and transmitter type, t (1 bit). The first three bits of the ID-code, n_1-n_3 (3^3=27 options, gg), are carriers of the group-code. All transmitters with three identical bits in the beginning of the string, belong to the same group. If a radio unit is programmed with a group-code option, the Central Unit activates an alarm from all transmitters with the same group-code.

nnnn-gg ID-code, nnnn, and group-code, gg, of radio alarm unit

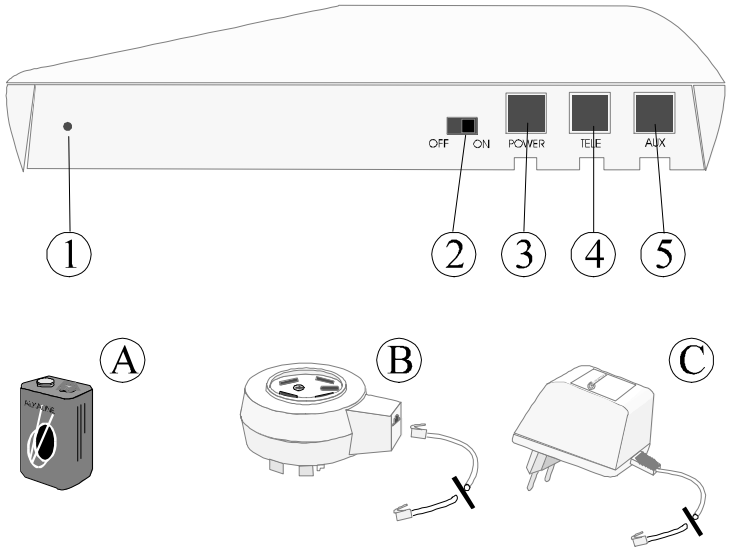
Installation

General

The Central Unit is easy to install. For programming, use the keyboard (or remote programming in some models). Synthetic speech guides you through the procedure. Connect the Central Unit to the telephone network via a telephone jack and plug in the adapter into a standard electrical outlet. The Central Unit can be placed on a table, or hung on a wall with screws that fits the key holes on the chassis's backside. External units with wire connection is connected to the Central Units modular connectors.

Basic kit:

- Central Unit
- Telephone plug
- AC/AC Adapter
- Battery (Alkaline or rechargeable NiMH)
- User's Guide



1. Switch the power to OFF, **2**, and install the storage battery, **A**. Notice - if the Central Unit has a rechargeable battery it is pre-installed.

2. Unplug any existing telephone from the telephone jack. Connect the intermediate jack plug, **B**, to the Central Unit (TELE), **4**. Then hook-up to the public telephone network via the telephone jack. Then, plug in the existing telephone.

3. Connect the adapter, **C**, to the standard electrical outlet and to the Central Unit (POWER), **3**.

4. Turn the Central Unit to ON, **2**. Notice - if the Central Unit is turned on and the adapter is removed, the storage battery will discharge. Make certain that the antenna, **1**, is extended.

5. Test the Central Unit by pressing the INF-key. In a normal operational mode, the Central Unit leaves the message -- *function normal*.

6. Switch on the keyboard, if it is turned off.

7. Erase previously programmed data (default settings).

8. Program telephone number(s) and alarm code(s) for alarm receiver(s). If necessary, the type of receiver must be selected (the protocol). Check the receivers with information (read) and make a test alarm.

9. Install radio alarm units and perform range- and function-test.

10. Program data for the wired inputs (if necessary).

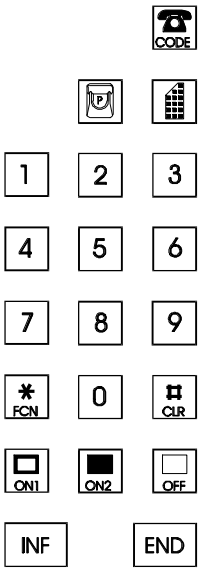
11. Program data for special functions (if necessary).

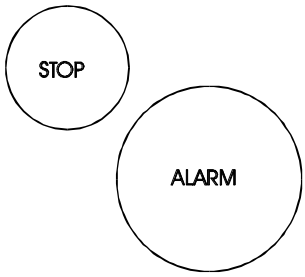
12. Turn off the keyboard (if necessary - install the access-code, password, for bypass function and switching keyboard on).

Programming

Program the Central Unit using the build-in keyboard (or by remote programming on some models). The keyboard is covered with a keyboard-cover. Follow the instructions given by the synthetic speech function. Always terminate a programming sequence with the END-key. After an accepted sequence, the Central Unit says - *programming done.* An incorrect sequence will give an *error* message. Both programming and an alarm can be interrupted by pressing the STOP-key. All information is stored in dedicated memory. Thus, the information remains intact even if the Central Unit is turned off or if the battery is removed. Programming is disabled when power for the Central Unit is provided by the storage battery alone, also when alarms are transmitted. Only two functions can be engaged when the Central Unit is running on battery. These are the alarm- and information-functions.

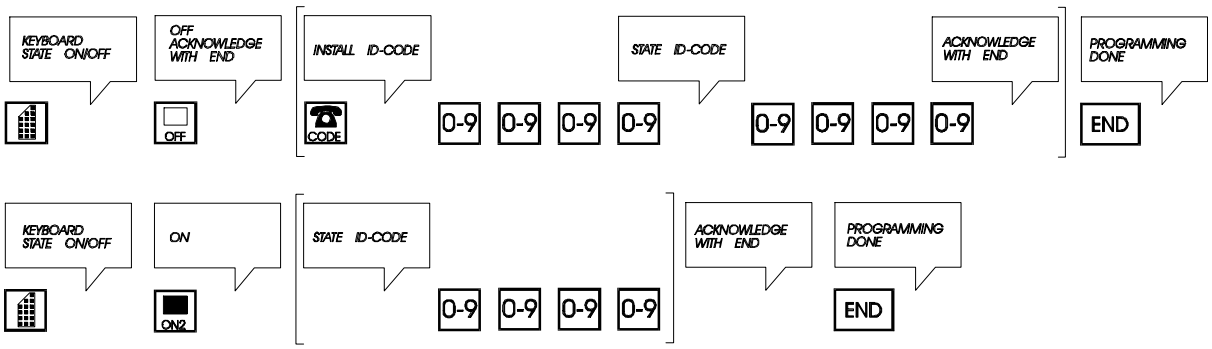
In the following programming sequences keys surrounded by [ ] or ( ), can be omitted. The telephone / code-key is translated to [TEL] and the keyboard-key to [KEYB].



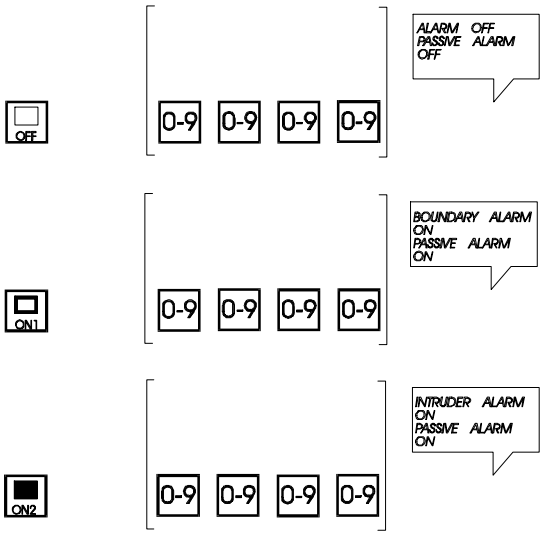


■ ERASE ALL DATA (DEFAULT SETTINGS):

■ SWITCHING KEYBOARD ON/OFF:

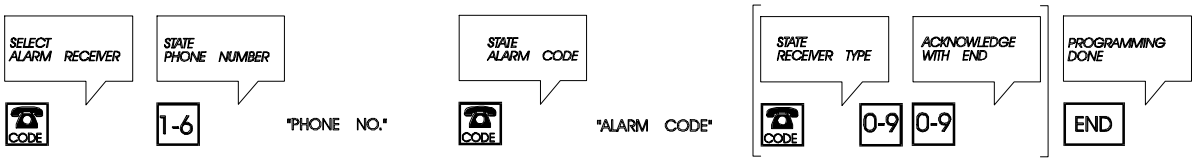


■ BYPASS (SWITCHING INTRUDER ALARM ON/OFF):

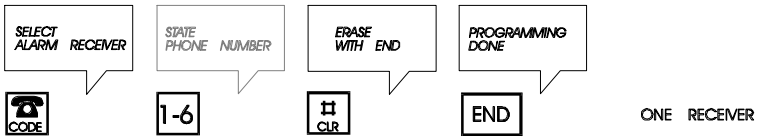


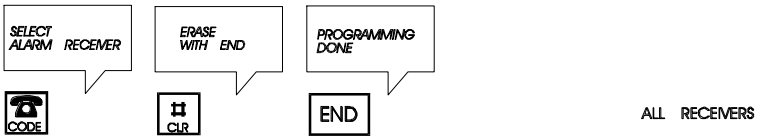
■ SYSTEM INFORMATION:

■ PROGRAM ALARM RECEIVERS:

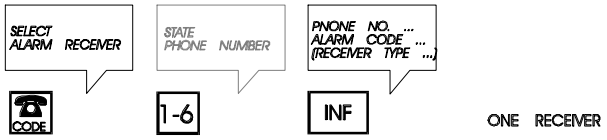


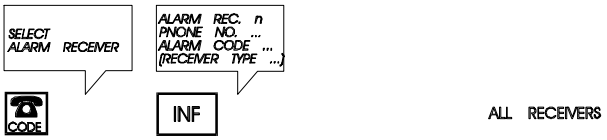
■ ERASE ALARM RECEIVERS:





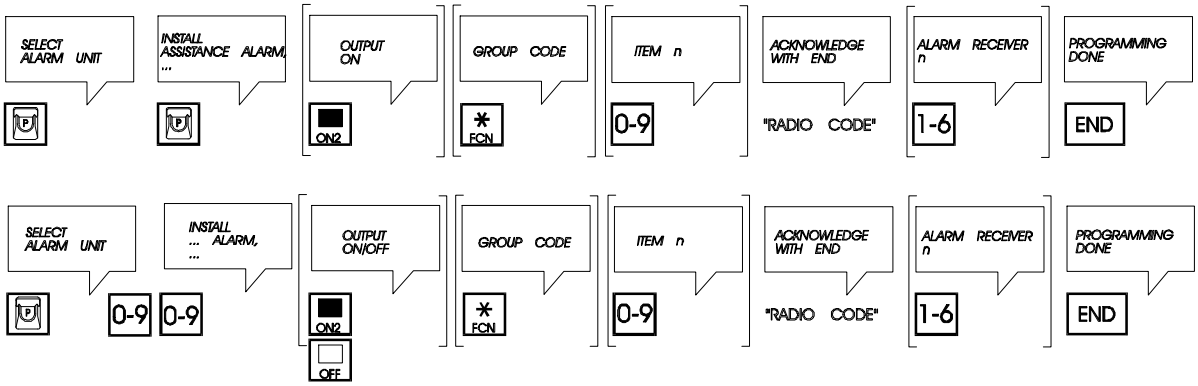
■ INFORMATION ALARM RECEIVERS:



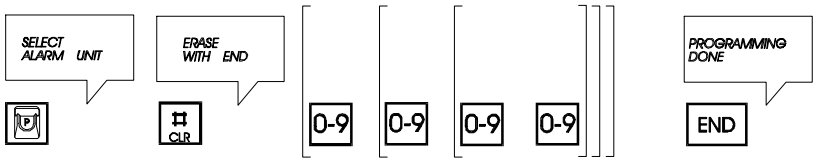


■ TEST ALARM TO ALARM RECEIVER:

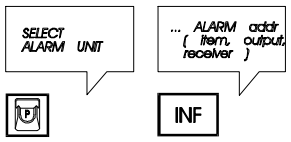
■ PROGRAM RADIO ALARM UNITS: (Assistance alarm is valid only for Antenna Carephone)



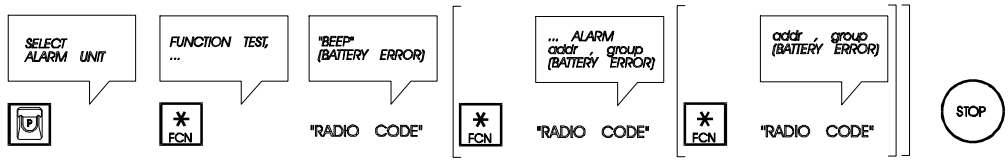
■ ERASE RADIO ALARM UNIT:



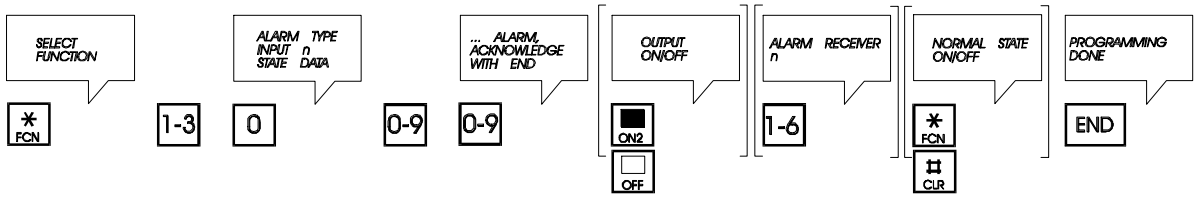
■ INFORMATION RADIO ALARM UNIT:



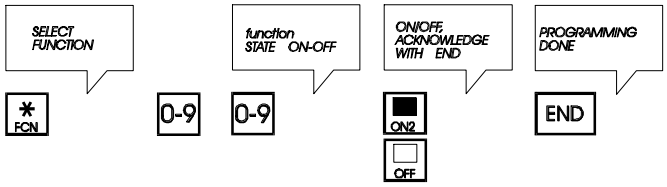
■ FUNCTION TEST RADIO ALARM UNIT:



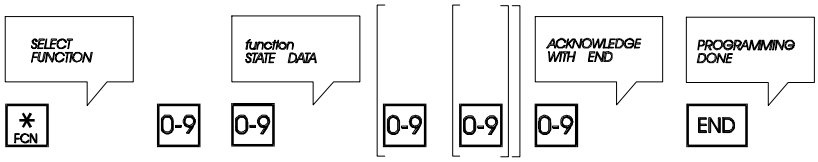
■ PROGRAMMING INPUTS:



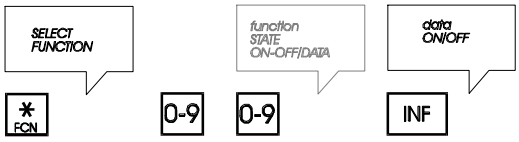
■ PROGRAMMING SPECIAL FUNCTION (ON/OFF):



■ PROGRAMMING SPECIAL FUNCTION (DATA):



■ INFORMATION INPUTS AND SPECIAL FUNCTIONS:



- **Reset memory - default settings**

[#] [#] [#] [END]

Before entering any information, erase previous data so that the Central Unit returns to its default settings. The erase data sequence removes all information logged for alarm receivers and radio alarm units. The programming of inputs and special functions are reset to their default values. Always erase memory before and after a PROM exchange.

- **Keyboard on and off**

[KEYB] [OFF] ([TEL] [n_1][n_2][n_3][n_4] [n_1][n_2][n_3][n_4]) [END] keyboard off
[KEYB] [ON2] ([n_1][n_2][n_3][n_4]) [END] keyboard on

This procedure disables/enables the possibility to program the Central Unit from the keyboard. When switched off it prevents unauthorised programming of entered data. During disengagement of the keyboard (off), a 4-digit access code (password) can be selected. When the access code is installed it must be entered to gain admission to the keyboard and the bypass. Even the STOP-key is blocked during silent alarms when access code is installed. When it is turned on, the access code is erased and must be reinstalled at the next off-occasion.

- **Bypass**

[ON1] ([n_1][n_2][n_3][n_4]) boundary alarm on / passive alarm on
[ON2] ([n_1][n_2][n_3][n_4]) intruder alarm on / passive alarm on
[OFF] ([n_1][n_2][n_3][n_4]) intruder & boundary alarm off / passive alarm off

The bypass can disable or enable intruder or passive alarm functions. If the access code is enabled (installed when switching keyboard off), it must be entered. When intruder alarm is switched off all alarms and alarm attempts are cancelled. Notice - bypass is not possible with the keyboard if any input is programmed as bypass controller.

- **Information**

[INF]

The Central Unit uses synthetic speech to report the current operational status. Voice messages indicate battery error, electrical power failure, line error, locked keyboard, and whether the intruder/passive alarm is enabled.

- **Install alarm receiver**

`[TEL] [1-6] "phone no." [TEL] "alarm code" ( [TEL] [n] [n] ) [END]`

The Central Unit handles up to six different alarm receivers. Enter the telephone number and alarm code for each alarm receiver. Telephone numbers can be up to 16 characters long; alarm codes up to 10 characters. Receiver type (protocol) can also be specified for each alarm receiver. If no receiver type is entered, selection is multi-protocol (see below). The following special characters can be a part of the telephone number:

• *	New dial tone
• [OFF]	Pause 2 seconds
• [KEYB] (first char)	Disable read-function of telephone number
• [ON2]	R, Register recall
• P*	DTMF - *
• P#	DTMF - #

Example:	Phone no.	Function
	"123456"	<dial tone>, 123456
	"0*123456"	<dial tone>, 0, <dial tone>, 123456
	"[OFF]123456"	<pause>, 123456
	"[OFF]0*123456"	<pause>, 0, <dial tone>, 123456
	"[KEYB]123456"	Phone number is read-protected

The following special characters can be a part of the alarm code if receiver type is paging. When paging is selected no '#' character, stop sign, shall be entered in the code, it is automatically added when the code is transmitted:

• * before a digit, "*n..."	Delay in 5*n seconds
• * last in code, "...*"	Alarm type is added in alarm message as "...tt#"
• # last in code, "...#"	Alarm type is added in alarm message as "...000tt*"

Example:	Alarm code (type=10)	Function (after dial sequence)
	"12345"	<rx start tone>, <tx "12345#">
	"*412345"	<delay 20s>, <tx "12345#">
	"12345*"	<rx start tone>, <tx "12345*10#">
	"12345#"	<rx start tone>, <tx "1234500010*">

Type of receiver, nn, (protocol):

00 Multi-protocol (Antenna / L400[4] / Telephone / Tunstall / ANT / Digifon[5]) default setting
01 Antenna
02 L400 (not in Germany)
03 Telephone
04 Paging, (type Minicall)
05 Ericsson
06 Slow-Franklin
07 Tunstall
08 ANT

[4] L400 only in Sweden, Norway, Finland and Denmark.
[5] Digifon only in Germany.

09 Digifon (only in Germany)

- **Erase alarm receiver**

[TEL] [1-6] [#] [END]	erase the programming of one alarm receiver, 1-6
[TEL] [#] [END]	erase the programming of all alarm receivers

- **Information about alarm receivers**

[TEL] [1-6] [INF]	information about one alarm receiver, 1-6
[TEL] [INF]	information about all alarm receivers

Synthetic speech discloses telephone numbers, alarm codes, and receiver type (if other than default setting) for one or all alarm receiver(s).

- **Test alarm to alarm receivers**

[TEL] [1-6] [ALARM]

Sends an alarm to a selected alarm receiver, 1-6. The type of the alarm is the type of input-3, ALARM-key.

- **Install radio alarm units**

Assistance alarm:

[P] [P] ([ON2]) ([*]) ([0-9]) "radio-code" ([1-6]) [END]

Other radio alarm units:

[P] [t] [t] ([ON2/OFF]) ([*]) ([0-9]) "radio-code" ([1-6]) [END]

The Central Unit can handle up to 10 different radio alarms (addresses). First of all the alarm type be selected, [t][t] or [P]. When the Central Unit says, *install ...alarm*, the alarm button or test-key on the radio alarm unit must be pressed for at least five seconds, or until the Central Unit says, *acknowledge with end*.

During installation, it is possible to select whether the output should be put on when an alarm is activated, or not. This is done by pressing [ON2] after the selected alarm type and before radio-code. If the alarm type activate the output by default settings, the settings can be overruled by pressing [OFF].

Group code can be selected by pressing [*] before radio-code. Group code means that all radio alarm units with the same group code triggers the selected alarm. (For more information about group code see part about radio).

A radio alarm unit can be programmed to transmit an item-number to the receiver along with the alarm code. This is done by pressing [0-9] (item n) when the Central Unit says, *install ...alarm*. Note that the item-number must be entered prior to the radio code. The item-number is added to the alarm code when an alarm is triggered, [alarm code] + [item no.].

Example:

alarm code:	69600
item-number:	3
code to alarm receiver:	696003

The radio alarm unit can also be programmed to send an alarm to a specific individual receiver [1-6]. If a radio unit is linked to a specific receiver, its alarm will be sent to that receiver only. Notice - enter the selected receiver's number ([1-6]) **after** the radio code has been received by the Central Unit.

- **Erase radio alarm unit**

[P] [#] [END]	erase all radio alarm units
[P] [#] [n] [n] [n] [n] [END]	erase radio alarm unit with ID-code, address, nnnn
[P] [#] [n] [END]	erase radio alarm unit with item-number n
[P] [#] [g] [g] [END]	erase radio alarm unit with group-code gg

- **Information about radio alarm units**

[P] [INF]

States the alarm type and the ID-code and group-code (nnnn gg) for all installed radio alarm units.

- **Function test for radio alarm units**

[P] [*] [STOP]	range-test
[P] [*] [*] [STOP]	verification
[P] [*] [*] [*] [STOP]	identification

The function range-test elicits a beep in the loudspeaker and a pulse signal at the output each time a programmed radio alarm is detected. Verification states alarm type and code (nnnn-gg) of a received programmed radio alarm. Identification states alarm type and code (nnnn-gg) of all received radio alarm. All functions indicate *battery error* when battery power is low. They are automatically turned off after two minutes (can also be stopped with the STOP-key).

- **Inputs**

[*] [n] [n] [t] [t] ([ON2/OFF]) ([1-6]) ([*/#]) [END]
[*] [n] [n] [INF]

Every input (n=1-3) can be programmed with alarm type [t][t], output activation [ON2/OFF], specific individual alarm receiver [1-6], and alarm at opening (NC) or closing (NO) [*/#]. If only alarm type is stated alarm is activated on closing (NO), normal alarm sequence and output activation according to alarm type. Input-3 is in parallel with the ALARM-key and it can only activate alarm on closing (NO). Notice - input-2 must be selected with a switch on the circuit board.

- **Special functions**

[*] [n] [n] [ON/OFF] [END]
[*] [n] [n] [d] ([d] ([d])) [END]
[*] [n] [n] [INF]

The special functions are divided into two groups, one for functions that only can have the value on and off, and one for functions with numerical values. Function number is always stated with two digits, nn.

nn	Name	Default	Function
	On/Off:		
00	Pre-alarm	Off	Selects a pre-alarm time of 10 seconds for all non-quiet alarms. During count down of the pre-alarm time there is a beep in the speaker. If pre-alarm is on and passive alarm is active there is a warning signal and a message, *"passive alarm"*, when 20 minutes remains to passive alarm. And when the passive alarm function temporary is switched off (bypass) there is a information message *"passive alarm off"* every hour in 12 hours, thereafter once a day.
01	Answer function	Off	Switch the answering function on and off.
02	Filter time, ALARM-key	Off	Selects a 5 seconds filter time on input-3 (ALARM-key).
03	Battery alarm Central Unit	On	Selects if a battery alarm should be activated when the battery power is low on the Central Unit.
04	Pulse (dialling)	Off	Selects if the dialling should be done with break pulsing instead of with MF-tones.
05	Status-message	Off	Selects if a message (alarm) should be send when there is a change in the status of the bypass
06	Acknowledge-message	On	Selects if an acknowledge message (logging) should be send to alarm receiver 6 when an alarm has been acknowledged from a telephone.
07	Status-marking	On	Selects if the output should give a marking when there is a change in the status of the bypass. The marking is one short pulse when alarm is switched-off and two short pulses when the alarm is switched-on.
08	Battery alarm all radio alarm units	Off	Selects that battery error should activate an alarm from all radio alarm units. Normally only from units installed as assistance alarm.
09	Power failure alarm	Off	Selects that an alarm shall be activated when there is a power failure (delayed 5 min.) and when the power returns. When the function is

			active there is a warning message when a power failure occurs, the message *"power failure"* is repeated twice. (Notice - this alarm function can cause a jam at an alarm receiver if several Central Unit's at the same time is hit by a power failure).
21	Line multiplexer	Off	Selects that the connection of the telephone line is done through Antenna Line Multiplexer. Active function means that incrementing the alarm attempts and changing of alarm receiver is only done when the dial tone is approved. Between the alarm attempts the Central Unit give the message *"seeking under access"*.
22	Bypass of passive alarm with [STOP]	Off	Selects that switching on / off the passive alarm is managed by the STOP-key. A long press on the STOP-key switch-off the passive alarm function and a short press switch it back to on. This function postulate that there is no installed intruder- or boundary alarm.
23	Activation of passive alarm	-	Short-cut to activate passive alarm with the following parameters: On: 00=On, 05=On, 11=24, 22=On Off: 00=Off, 05=Off, 11=0, 22=Off
24	Speaker function during dialling	On	Selects if the speaker shall be switched-on during the dialling procedure. If the function is switched-off, then during a voice-connected alarm the speaker is switched on first when the voice-connection is established.
25	Presence-marking with STOP-key	Off	Selects that the function presence-marking is controlled by the STOP-key. A long press on the STOP-key execute Presence-marking and a short press Service-done.
26	Battery alarm to alarm receiver 6	Off	Selects that all battery alarm, primarily, shall be send to alarm receiver no. 6.
27	Alarm message: *"... alarm apartment xxx"*	Off	Selects the word *"apartment"* instead of *"alarm code"* in the alarm message to a telephone.
28	Power alarm to alarm receiver 6	Off	Selects that power-error / power-OK alarms, primarily, shall be send to alarm receiver no. 6.
29	STOP-key interrupt an alarm	On	Selects if the STOP-key is able to interrupt an alarm.
	Numerical:		
11	Passive alarm time-out [hours]	0	Selects the time-out time for passive alarm, 0-60. The value 0 switch off the passive alarm function. If the value 61-63 is entered there is a test-time of 1-3 minutes. The time is cleared every time there is an indication from an alarm unit installed as passive alarm (14 or 37) or when any key on the keyboard is pressed (e.g. [STOP].
12	Delay intruder alarm [seconds]	0	Selects the delay time from activation of an intruder alarm to the start of dialling and

			output activation, 0-150 in step of 10.
13	Output activation time [minutes]	5	Selects the activation time of the output after an alarm that activate the output, 0-10. The value 0 switch off the alarm activation of the output. The value 11 states that the output follows the state of the presence-marking.
14	Test alarm time [days]	0	Selects the time between test alarms, 0-15. The value 0 switch off the test alarm function. Notice - alarm receiver no. 6 must be programmed before this function is switched on.
15	Delay boundary alarm [seconds]	10	Selects the delay time from activation of an boundary alarm to the start of dialling and output activation, 0-150 in step of 10.
16	Alarm repeat- & block-time [minutes]	0	Selects the time for the functions Alarm-block and Alarm-repeat, 0-150 in step of 10. (Both functions activated from an alarm receiver).

Remote programming

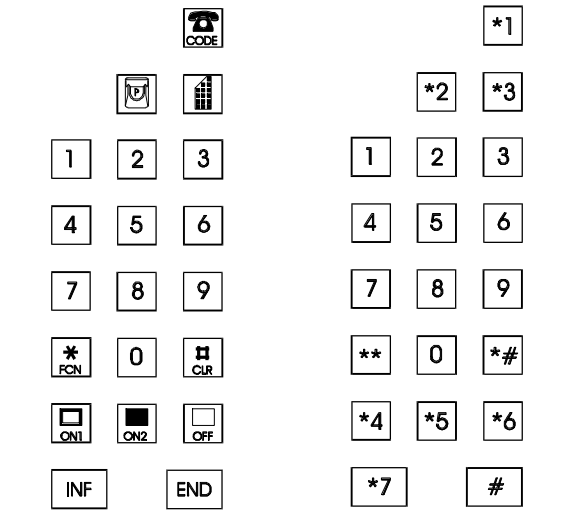
Remote programming, implemented in some models, is done from a ordinary telephone and in the same way as programming from the build-in keyboard. Each key on the build-in keyboard corresponds to a key-sequence on the telephone (MF-code). The only difference is when programming a radio alarm unit. The speech message *"install ... alarm"* is only repeated once and thereafter a two-way voice-connection is open during the "self-learning" mode. Then programmer can speak with the user and request the user to activate the radio alarm unit.

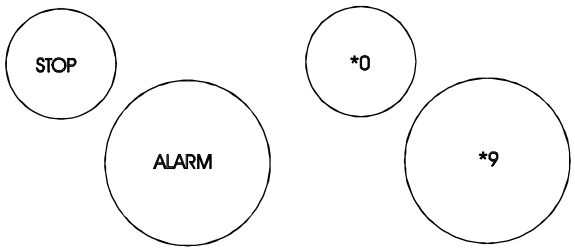
Remote programming can be activated in two ways:

- When receiving an alarm with a telephone. Switching over to remote programming is done by entering **[*] + [9]**. After exit of remote programming the alarm is disconnected.

- The programmer makes a call to the user and the user answers with the normal telephone. The user is instructed to activate an alarm (with e.g. the Radio Alarm Button or ALARM-key) and thereafter hang up the telephone hook when the call is interrupted. When the programmer notice that the Carephone is on-line (looking after dial tone, approx. 10s) shall the [*]-key be pressed immediately and the Carephone enters remote programming. (Notice - telephone no. 1 must be programmed if this shall work).

Activation of remote programming is indicated by the speech message, *"select function"*. There is an automatic disconnection 60 seconds after the last command from the programmer. Manual exit of remote programming is done with the command **[*] + [0]**. Translation of key-sequences from the telephone to keys on the build-in keyboard is as below:





Programming manuscript

- **Alarm receivers:**

[TEL] [1-6] "phone no" [TEL] "alarm code" ([TEL] [n] [n]) [END]

No.	Telephone number	Alarm code	(Receiver type)
1			
2			
3			
4			
5			
6			

- **Radio alarm units:**

[P] [P] ([ON2]/OFF) ([*]) ([0-9]) "radio code" ([1-6]) [END]
[P] [t] [t] ([ON2/OFF]) ([*]) ([0-9]) "radio code" ([1-6]) [END]

No.	Alarm type, tt	(Output)	(Item)	(Receiver)	nnnn-gg
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

- **Inputs:**

[*] [n] [n] [t] [t] ([ON2/OFF]) ([1-6]) ([*/#]) [END]

nn	Input	Default settings (type / outp / rec / level)	Setting
10	Input-1	10 / - / - / -	
20	Input-2	09 / - / - / -	
30	Input-3 & ALARM-key	10 / - / - / -	

- **Special functions:**

[*] [n] [n] [ON2/OFF] [END]
[*] [n] [n] ([d] ([d])) [d] [END]

nn	Special functions	Default setting	Setting
00	Pre-alarm	Off	
01	Answer-function	Off	
02	Filter time, ALARM-key	Off	
03	Battery alarm Central Unit	On	
04	Pulse (dialling)	Off	
05	Status-message	Off	
06	Acknowledge-message	On	
07	Status-marking	On	
08	Battery alarm all radio alarm units	Off	
09	Power failure alarm	Off	
21	Line multiplexer	Off	
22	Bypass of passive alarm with [STOP]	Off	
23	Activation of passive alarm On : 00=On, 05=On, 11=24, 22=On Off : 00=Off, 05=Off, 11=0, 22=Off		
24	Speaker function during dialling	On	
25	Presence marking with [STOP]	Off	
26	Battery alarm to alarm receiver 6	Off	
27	Alarm message: *... alarm apartment xxx*	Off	
28	Power alarm to alarm receiver 6	Off	
29	STOP-key interrupt an alarm	On	
11	Passive alarm time-out [hours]	0 (0-60)	
12	Delay intruder alarm [seconds]	0 (0,10,...,150)	
13	Output activation time [minutes]	5 (0-10, 11)	
14	Test alarm time [days]	0 (0-15)	
15	Delay boundary alarm [seconds]	10 (0,10,...,150)	
16	Alarm repeat- & block-time [minutes]	0 (0,10,...,150)	

Service

PROM

Always erase memory, default settings, before and after the PROM is changed. Notice - make certain the PROM are aligned correctly (A).

Battery

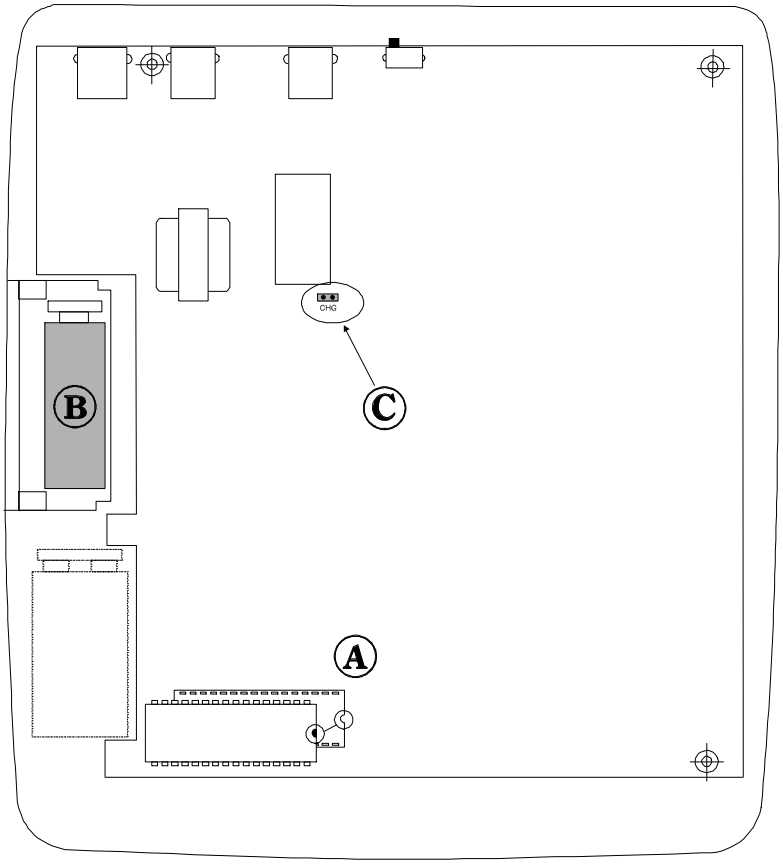
A storage battery back-up operation during an electrical power failure. When the battery voltage drops below the alarm limit a battery alarm is initiated (can be disabled with a special function 03). Battery status can be checked by pressing the INF-key on the Central Unit. The Central Unit can be equipped with two different types of batteries, either an alkaline battery or a rechargeable battery. The battery is installed in the battery compartment located in the Central Unit's bottom (B).

Alt. A: Alkaline battery:

The alkaline battery is a 9V Alkaline 6LR61 standard battery. Note – when installing an alkaline battery shall the switch **CHG** (C) on the PCB **not be mounted**. Always change the battery after a battery error or a battery alarm. Notice - when a new battery is installed, it should always be tested with the INF-key

Alt. B: Rechargeable battery:

The rechargeable battery is of type 9V NiMH 6F22. Note - when installing a rechargeable battery shall the switch **CHG** (C) on the PCB **be mounted**.


CHG
B
C
A

Alarm reception with a telephone

A telephone of MF type (with */# symbols) can easily accept alarms from Antenna Carephone. Using synthetic speech, the Central Unit sends an alarm message to identify the alarm and report the cause of the alarm. Below is a guide of how to handle an alarm from Antenna Carephone by a telephone:

1. When you lift the receiver, you can hear the Central Unit repeat the alarm type and send a tone - for instance, *assistance-alarm "beep"*.

2. Press **[4]** to acknowledge the alarm. The Central Unit gives information about alarm type and alarm code (e. g., *assistance alarm, alarm code 123456*). Press **[4]** to repeat message.

3. Alarm with voice-connection establish a two-way voice-connection using automatic voice-switching. If disturbances occur, change to manual voice-switching and switch between **[7]** and **[8]** to alternate between listening and speaking. Return to automatic voice-switching and/or extend the talk-time by pressing **[4]**. Alarm without voice connection repeat their alarm message until disconnection.

4. End with **[0]**. The Central Unit confirms with voice contact *disconnect*.

Below is a specification of functions (commands) that can be executed when connected to an Antenna Carephone:

Key	Function
0	Disconnect (terminate)
4	Acknowledge alarm Repeat alarm message Extend talk-time Automatic voice-switching
5	Disconnect with Alarm-block
6	Disconnect with Alarm-repeat
7	Listen - manual voice-switching
8	Speak - manual voice-switching
9	Output control (5s pulse)
*4 (nnnn)	Open voice-connection (for non-voiced alarms) password, nnnn, if keyboard locked
*9	Remote programming (only some models)

Specifications

Central Unit AP2000

Power supply	: 10-12VAC, 12-16VDC
Current	: ~85mA idle (max. 300mA alarm)
	: ~5mA battery operation
Battery	: 9V Alkaline 6LR61 (Alt. A)
	9V NiMH 6F22 (Alt. B, rechargeable)
Battery alarm at	: ~7.7 V
Reserve time	: 4-48h (Alt. A, dependent on radio environment and operation)
	1-12h (Alt. B, dependent on radio environment and operation)
Programming	: With integrated keypad or by remote programming[6]
Synthetic speech	: Yes (support for programming and alarm message to telephone)
Alarm receivers	: 6 receivers possible
Type of receivers	: Antenna
(protocol)	L400 (not Germany)
	Telephone
	Paging (Minicall)
	Ericsson
	Slow-Franklin (note: special hardware)
	Tunstall
	ANT
	Digifon (only Germany)
Radio receiver	: Integrated and programmable, using a special alarm frequency
	169,3875 MHz (Sweden)
Radio units	: 10 units possible
Inputs / Outputs	: 2 / 1 (switched for output, default)
	: 3 / 0 (switched for input)
Calling	: MF tones or pulsing[7]
Voice switching	: Two-way, duplex or simplex
Dimensions	: 205x235x55mm (lxwxh)
Weight	: 0.7kg
Temperature range	: 0-40°C

Radio Alarm Button RB1091

Frequency	: Special alarm frequency, 169,3875MHz (Sweden)
Range:	: >50m (open view)
Battery	: 12V Alkaline MN21
Battery alarm	: Yes
Battery life	: 36month (3 alarm / day)
Current	: ~8mA (operation)
	: < 0.01µA (idle)
Dimensions	: 45x35x12mm (lxwxh)
Temperature range	: 0-40°C

Hereby, Antenna AB declares that this Carephone is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC
Original can be found at: www.antennacare.com/infobank.htm

[6] Not implemented in all models
[7] Not in Sweden, Norway, Finland and Denmark.

Options

Item	Item no. (x = country code)
Smoke detector, radio	x-1090SD
IR sensor, radio (PIR)	x-EX/35R
Remote control	x-1125RC
Radio alarm box	x-1127LB
Antenna Carephone AP2000, Central Unit	xx-2000D0
Radio Alarm Button	xx-1091C0
Bracelet for Radio Alarm Button	200-1091WB
Pins for bracelet	200-1091CR
Necklace for Radio Alarm Button	200-1091NN
Holder for necklace	200-1091JJ
Screw for Radio Alarm Button	200-R/TSCR
Repair kit for Radio Alarm Button (plastic, bracelet, necklace, screws and holder)	1-RTSATS
User's Guide Antenna Carephone	3C0-200001
Technical manual Antenna Carephone	3C0-200002
Adapter AC/AC 10V/280mA (model Sweden)	400-220/10
Intermediate jack-plug	200-STxxxx
Battery 9V Alkaline 6LR61	1007-96LR61
Battery 9V NiMH 6F22	1007-NIMH9V
Battery 12V Alkaline MN21	1007-12MN21
Connection set 6P-modular	1-1090IN
Modular box 6P	200-BOX6P6
Modular box 8P	200-BOX8P8
Indoor siren	1-PS40WH
Indoor siren + siren box	1-1090PS
Siren box	10-1090PS