Customer:	 	
Address :	 	
Telephones:		

Programming Comfort

Comfort can be programmed either using the Engineer Voice Menu on Keypad or telephone (local and remote), or using the Comfigurator software with Universal Communications Module. It is easier and faster to program using the Comfigurator software. However Programming by Voice Menu can be convenient when the requirements are simple or when making changes remotely by telephone. The Worksheet is handy when doing programming by Voice Menu. Also refer to the Engineer Voice Menu manual for how to access the Engineer Menu. For programming by Comfigurator, refer to the manual "programming By Comfigurator". All manuals and documentation can be downloaded from the Cytech website http://www.cytech.biz

Comfort Modules

No Of UCMs	(Location 1672)	(0 to 8) Needs RESET
No of Slaves	(Location 1673)	(0 to 3) Needs RESET
No of DoorStations	(Location 1674)	(0 to 3) Needs RESET
No of Keypads	(Location 1675)	(0 to 8) Needs RESET

The number of Comfort Peripherals (UCMs, Slaves, Door Stations, Keypads in the system are in Locations 1672 to 1675 respectively. Their IDs are set according to the switch settings given in the respective installation manuals. The IDs of each device is the same type must be consecutive, i.e. starting with 1, with no missing IDs in between, otherwise a Communications Failure Trouble alarm will be reported. Comfort must be reset by pressing the RESET button to make this setting effective. Only UCM ID 1 does not cause a trouble alarm when Comfort loses communications with it. UCM ID 1 is reserved for use with Comfigurator and any PC Interface software. This UCM can be removed at any time without causing a Communications Failure alarm.

Some of the programming settings will require changing values in Locations. The Locations menu is in Engineer Menu 7,4,1.

Document Title	Program Worksheet (FS31)
Document Revision	2.1.3
Date Last Modified	22 February 2011

Table 1 - System Settings (7)

Menu	Parameter	Range	Value	Remarks
(7,2)	PABX Option	Yes/No	No	Set ON if connected as an extension of a PABX
(7,2,1)	PABX Digit	0-9,*	9	Key to access outside line on a PABX (if PABX Option is set to ON). Don't program the PABX access key in the telephone number.

Comfort is usually connected to the telephone line directly, through the TEL IN connector, with the house telephones connected to TEL OUT. This is necessary for alarm installations, so that Comfort can disconnect the house telephones during an alarm in order to dial out to the programmed telephone numbers. For non-alarm applications, Comfort TEL IN can be connected to an analog extension of a PABX or telephone systems. The PABX option (Engineer Menu 7,2) in such cases is turned on so that Comfort knows to dial the PABX digit before the main telephone number.

Table 2 - Status LED Output Assignments (Location Menu 7,4,1)

Outputs can be used to indicate the following system status.

Status LED	Location	Output (1-64)	Note
Armed/Alarm	45		Steady = Armed. Flash = Alarm
Off/Trouble	46		Steady = Off, Flash = Trouble
Dialout in progress	1693		ON = Dialout in progress (Outside version Only)

This table gives the Locations in outputs (1 to 64) can be assigned to indicate the system conditions, shown. Enter the Output number in the locations given. For example, to indicate Armed/Alarm on output 4, program Location 1695 with 4. The output will be steady on when the system is armed and will flash when the system is in alarm or alert state, just like the keypad LED

Table 3 - Away Arming Method (Location Menu 7,4,1)

There are 3 methods of (local) arming to Away Mode.

Away Arming Method	Location 1692	Remarks
Final Door Arm	0 (Default)	Arm after Final Door closed
Arm After Exit Delay	1	Arm after exit delay and all zones closed
Exit Terminator (UK Only)	2	Arm after Exit Terminator push button

Comfort has 3 methods of arming to Away Mode, i.e. when no one is in the premises. In Final Door Arming, the exit delay is terminated and the system armed when the user exits via the designated Entry Door (Zone Type 2). In Arm after Exit Delay, the system is armed when the Exit time expires and all protected zones are closed. This is used when an Entry Door contact is not available. Exit Terminator is used for the UK only, and arms only when an Exit Terminator or Door station button is pressed

Table 4 - Zone Settings (1)

Zone	Description (4 words max.)	Word 1	Word 2	Word 3	Word 4	Zone Type	Entry Path	Zone Resp	Off Resp
		0-255	0-255	0-255	0-255	0-31	yes/no	0-255	0-255
			Pre	ss 1		Press 2	Press 3	Press 5	Press 6
1	Front Door	22	186			2	1		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
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24									
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26									
27									
28									
29									
30									
21									
31									
32									
33									
34									
35									
36									

Zone	Description (4 words max.)	Word 1	Word 2	Word 3	Word 4	Zone Type	Entry Path	Zone Resp	Off Resp
		0-255	0-255	0-255	0-255	0-31	yes/no	0-255	0-255
			Pre	ss 1		Press 2	Press 3	Press 5	Press 6
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									
63									
64									

For each zone in the system, enter the selected zone number and # key. The system announces the programmed zone settings. Select the submenus to program the following:

- 1 Description, up to 4 words from the Wordlist. If less than 4 words are needed, enter 255# to terminate. If no description is entered for a zone, the Zone number is used as the default description.
- 2 The Zone Type, which defines the type of detector or input. This is the only mandatory setting for a zone. Unused zones are set to Zone Type 0
- 3 The Entry path setting (on/off). A zone on the Entry path does not cause an alarm when it is triggered after the Entry Door is opened when the system is armed.

- 5 The On Response (the optional Response or program which is activated when the Zone goes on). ON means open for a normally closed zone type and closed for a normally open zone type.
- 6 The Off Response (the optional Response or program which is activated when the Zone goes off). OFF means closed for a normally closed zone type and open for a normally open zone type.

Zone Responses

Each zone can have an response assigned to it to alter its operation or to change it's function, such as changing a zone from an immediate type to entry / exit in Night Mode or adding a chime, placing a double knock filter or soak testing it. You can use the On or Off response of any zone to perform a function, or you may need to change the zone type, the possibilities are endless. Select your required response and enter its number into the relevant zone that is to have the attribute using Eng Menu 1, (zone number#), 5. Refer to Table 33 for Responses.

34 Cancel Entry Delay in Night Mode

Circuits with this On response will perform an immediate alarm if activated during Night Mode and respond as normal when in Away Mode

16 Entry Delay in Night Mode

Circuits with this On response will initiate the entry procedure when the system is in Night Mode and respond as normal when in Away Mode. It is commonly used to change a Hall movement detector's behaviour.

18 Announce Zone Name

Circuits with this On Response will announce their zone name description from the Keypads on the system during all security modes. If this response is assigned to the Zone Off Response, the system will announce (Zone Name) OFF when the zone is deactivated. The word number for "OFF" (i.e. 229) should be programmed in Location 1689. Alternatively, word number 70 ("Close") may be suitable.

Table 5 -Output Assignments (Information only)

Output	Appliance	Output	Appliance
1		9	
2		10	
3		11	
4		12	
5		13	
6		14	
7		15	
8		16	

Table 6 - X10 Assignments (Information only)

Appliance	X10 Address	Appliance	X10 Address

Table 7 - Infrared Codes (Information only)

Each of Comfort's outputs are able to transmit Infrared codes. An Infrared (IR) transmitter must be connected to the output to send the IR signal. The IR signal to be sent has to be selected using the Comfigurator software tool. Table 7 lists the IR codes numbers which are available i.e. have been selected and loaded via Comfigurator.

IR Code	Appliance/Function	IR Code	Appliance/Function
1		17	
2		18	
3		19	
4		20	
5		21	
6		22	
7		23	
8		24	
9		25	
10		26	
11		27	
12		28	
13		29	
14		30	
15		31	
16		32	

Zone Types

There are 32 Zone Types available in the system. Zone Types define the characteristics of the Zone, what type of

zone it is, how it is activated and in which security mode it is active, and what alarm it triggers if it is activated when it is active. Zone Types make it easy to program the system.

The 3 Zone Types tables show the default settings and how to change them using Locations. It is rarely necessary to change default Zone Types settings, unless there is a special requirement which is not catered for by the default values. It is necessary to Reset the panel after changing Zone Types, by pressing the reset button on the Comfort PCB. Press the Reset button after all changes are completed, rather than after each change

Zone Types cannot be programmed from the Engineer Voice Menu. They have to be programmed using Locations as shown in Tables 8 to 10, or from Comfigurator software.

Characteristic	Value	Remarks			
Away Mode	Instant,	Each zone type has a setting in each mode: Off, Night, Day and Away.			
Night Mode	Alert, Perimeter	This gives flexibility in defining the behaviour of the zone types. For example, a Zone Type may be Inactive in Off or Day Modes. Alert in			
Day Mode	, Inactive	Night Mode and Instant in Away Mode. See Flowchart for Instant, Ale			
Off Mode		and Perimeter Zone Activation (figure 3.2). Note: Inactive Zone types will trigger their ON/ OFF responses but not their alarm types. Thus, switches and other input devices which have no security function should be set to Inactive in all security modes. The only purpose of switches is to activate responses			
Trouble Alarm Type	0 to 31	The Trouble condition Alarm Type is activated when a non-Null (Instant, Alert or Perimeter) zone is in trouble condition (short circuit or open circuit) when the system is armed. When the system is not armed, the Zone Trouble alarm as programmed in the Non Detector Alarms is activated. For example, if the wiring for a door magnetic contact is broken or cut, in SECURITY OFF activates a Trouble Alarm, while in Away mode activates an Intruder Alarm as specified in table 9			
Alarm Type	0 to 31	The Normal Alarm type is the Alarm which is triggered when the zone is activated when it is not Inactive (i.e. it is Instant, Alert, or Perimeter).			
Entry Door	Yes/No	Determines if the zone type is an Entry Door, i.e. used for entry and exit for the premises. Closing an Entry door ends the exit sequence during arming, and opening the entry door starts the entry sequence when the system is armed for Final Door Away Arm.			
Normally Open/Closed	NO or NC	Defines the behaviour of the sensor contacts to the zone. Most Security sensors are Normally Closed.			
Sensitivity	20 ms to 850 ms	The Sensitivity setting determines how long a zone has to be activated before it is considered a genuine trip. A higher setting prevents false alarms, while a lower setting allows for detection of short action sensors like vibration sensors.			
24-hour	Yes/No	A 24 hour zone is always active irrespective of the Off, Away, Night, Day settings. The Instant, Alert, Perimeter and Inactive settings do not apply if a Zone is defined as 24-hour. 24 hour zones cannot be bypassed. A zone type can be Instant in all 4 modes, but still have the 24 hour setting OFF to allow bypassing			

Zone Types Characteristics

There is normally no need to change the default settings for Zone Types, unless there is a special requirement which cannot be met by the default Zone Types.

Instant/Alert/Perimeter Zoning for False Alarm Filtering

Comfort has an advanced mechanism to help filter false alarms. Each Zone Type has one of 4 zone activation modes - Inactive, Instant, Alert and Perimeter. An Inactive Zone setting does not cause any alarm when tripped. An Instant Zone activates its assigned Alarm Type when it is tripped. An Alert Zone causes the system to go into Alert State when tripped. If another non-Inactive zone is tripped (but not the same zone) within the next 10 minutes, an Intruder Alarm is activated. A Perimeter Zone causes the system to also go into Alert State. Tripping of an Alert or Instant zone, but not another Perimeter zone within the next 10 minutes will cause an Intruder Alarm to be activated. Each zone type can be assigned to any one of these filter settings for each security mode (Security off, Night, and Away/Vacation). The use of Alert and Perimeter Zones is a useful tool in preventing false alarms, but requires careful planning and design on the part of the installer. Refer to the table below for the flowchart which explains the sequence of zone activation to trigger an alarm.



Flowchart for Instant, Alert and Perimeter Zone Activation

Table 8 - Zone Types (Security Mode Assignments) - Needs RESET

No	Туре	Security Off	Away Mode	Night Mode	Day Mode	Location	Value
		Inactive = 0 Alert=1 Perim=2 Instant=3	Inactive = 0 Alert=4 Perim=8 Instant=12	Inactive=0 Alert=16 Perim=32 Instant=48	Inactive=0 Alert=64 Perim=128 Instant=192		
1	Door/window	Inactive=0	INST=12	INST=48	INST=192	2568	252
2	Entry Door	Inactive=0	INST=12	INST=48	INST=192	2572	252
3	Alert Night/Away	Inactive=0	Alert=4	Alert=16	Inactive=0	2576	20
4	Alert Away	Inactive=0	Alert=4	Inactive=0	Inactive=0	2580	4
5	Instant Away/Night	Inactive=0	INST=12	INST=48	Inactive=0	2584	60
6	Alert Vibration	Inactive=0	Alert=4	Alert=16	Alert=64	2588	84
7	Vibration, armed	Inactive=0	INST=12	INST=48	IINST=192	2592	252
8	Switch (N/O)	Inactive=0	Inactive=0	Inactive=0	Inactive=0	2596	0
9	Monitor (N/O)	INST=3	INST=12	INST=48	INST=192	2600	255
10	Fire N/O	INST=3	INST=12	INST=48	INST=192	2604	255
11	Gas N/C	INST=3	INST=12	INST=48	INST=192	2608	255
12	Panic	INST=3	INST=12	INST=48	INST=192	2612	255
13	Tamper, Armed	Inactive=0	INST=12	INST=48	INST=192	2616	252
14	Perim Night/Away	Inactive=0	Perim=8	Perim=32	Inactive=0	2620	40
15	Glass Break	INST=3	INST=12	INST=48	INST=192	2624	255
16	Perim Vibr Night/Away	Inactive=0	Perim=8	Perim=32	Perim=128	2628	168
17	Monitor (N.C.)	INST=3	INST=12	INST=48	INST=192	2632	255
18	INST Away	Inactive=0	INST=12	Inactive=0	Inactive=0	2636	12
19	24 hr Vibr	INST=3	INST=12	INST=48	INST=192	2640	255
20	24 hour Tamper	INST=3	INST=12	INST=48	INST=192	2644	255
21	Doorbell	Inactive=0	INST=12	Inactive=0	Inactive=0	2648	12
22	Not Assigned	Inactive=0	INST=12	INST=48	Inactive=0	2652	60
23	Fire N/C	INST=3	INST=12	INST=48	INST=192	2656	255
24	Switch N/C	Inactive=0	Inactive=0	Inactive=0	Inactive=0	2660	0
25	Vibration 100 ms , armed	Inactive=0	INST=12	INST=48	INST=192	2664	252
26	24 hr Zone (N.C.)	INST=3	INST=12	INST=48	INST=192	2668	255
27	24 hr Zone (N.0)	INST=3	INST=12	INST=48	INST=192	2672	255
28	Vibr 100 ms Away/Night	Inactive=0	INST=12	INST=48	Inactive=0	2676	60
29	Vibr 20 ms Away/Night	Inactive=0	INST=12	INST=48	Inactive=0	2680	60
30	Digital N/C	Inactive=0	Inactive=0	Inactive=0	Inactive=0	2684	0
31	Digital N/O	Inactive=0	Inactive=0	Inactive=0	Inactive=0	2688	0

Fable 9 - Zone Ty	oes (Alarm	Type Assignments)	- Needs RESET
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No	Туре	Normal Alarm		Alarm, Zone Trouble, Armed		
		Alarm Type	Location	Alarm Type	Location	
1	Door/window	1, Intruder	2570	1, Intruder	2571	
2	Entry Door	1, Intruder	2574	1, Intruder	2575	
3	Alert Night/Away	6,Alert	2578	1, Intruder	2579	
4	Alert Away	6,Alert	2582	1, Intruder	2583	
5	Instant Away/Night	1,Intruder	2586	1, Intruder	2587	
6	Alert Vibration	6,Alert	2590	1, Intruder	2591	
7	Vibration, armed	1,Intruder	2594	1, Intruder	2595	
8	Switch (N/O)	0	2598	5,Trouble	2599	
9	Monitor (N/O)	14, Family Care	2602	5,Trouble	2603	
10	Fire N/O	12,Fire	2606	5,Trouble	2607	
11	Gas N/C	13,Gas	2610	5,Trouble	2611	
12	Panic	9,Panic	2614	11, Tamper	2615	
13	Tamper, Armed	11,Tamper	2618	11, Tamper	2619	
14	Perim Night/Away	15,Perimeter	2622	1, Intruder	2623	
15	Glass Break	1,Intruder	2626	1, Intruder	2627	
16	Perim Vibr Night/Away	15,Perimeter	2630	1, Intruder	2631	
17	Monitor (N.C.)	14, Family Care	2634	5, Trouble	2635	
18	INST Away	1,Intruder	2638	1, Intruder	2639	
19	24 hr Vibr	1,Intruder	2642	1, Intruder	2643	
20	24 hour Tamper	11,Tamper	2646	11,Tamper	2647	
21	Doorbell	25,Doorbell	2650	5,Trouble	2651	
22	Not Assigned	14,Family Care	2654	5, Trouble	2655	
23	Fire N/C	12,Fire	2658	5,Trouble	2659	
24	Switch N/C	0	2662	5,Trouble	2663	
25	Vibration 100 ms , armed	1,Intruder	2666	1, Intruder	2667	
26	24 hr Zone (N.C.)	1,Intruder	2670	1, Intruder	2671	
27	24 hr Zone (N.0)	1,Intruder	2674	1, Intruder	2675	
28	Vibr 100 ms Away/Night	1, Intruder	2678	1, Intruder	2679	
29	Vibr 20 ms Away/Night	1,Intruder	2682	1, Intruder	2683	
30	Digital N/C	0	2686	0	2687	
31	Digital N/O	0	2690	0	2691	

Table 10 - Zone Types (Miscellaneous Settings) - Needs RESET

No	Туре	Entry door	Normally Open	24 Hr	Digital	Sensitivity Number (ms)	Location	Value
	Add Value	Add 64	Add 32	Add 16	Add 8	Add 0 to 7		
1	Door/window	No	No	No	No	6 (500)	2569	6+128
2	Entry Door	Yes	No	No	No	6 (500)	2573	70 +128
3	Alert Night/Away	No	No	No	No	6 (500)	2577	6 +128
4	Alert Away	No	No	No	No	6 (500)	2581	6 +128
5	Instant Away/Night	No	No	No	No	6 (500)	2585	6 +128
6	Alert Vibration	No	No	No	No	2 (50)	2589	2 +128
7	Vibration, armed	No	No	No	No	2 (50)	2593	2 +128
8	Switch (N/O)	No	Yes	No	No	6 (500)	2597	35 +128
9	Monitor (N/O)	No	Yes	No	No	6 (500)	2601	38 +128
10	Fire N/O	No	Yes	No	No	6 (500)	2605	38 +128
11	Gas N/C	No	No	No	No	6 (500)	2609	6 +128
12	Panic	No	No	No	No	6 (500)	2613	6 +128
13	Tamper, Armed	No	No	No	No	6 (500)	2617	6 +128
14	Perim Night/Away	No	No	No	No	6 (500)	2621	6 +128
15	Glass Break	No	No	No	No	6 (500)	2625	6 +128
16	Perim Vibr Night/Away	No	No	No	No	2 (50)	2629	2 +128
17	Monitor (N.C.)	No	No	No	No	6 (500)	2633	6 +128
18	INST Away	No	No	No	No	6 (500)	2637	6 +128
19	24 hr Vibr	No	No	No	No	2 (50)	2641	2 +128
20	24 hour Tamper	No	No	No	No	6 (500)	2645	6 +128
21	Doorbell	No	Yes	No	No	4 (200)	2649	36 +128
22	Not Assigned	No	No	No	No	6 (500)	2653	6 +128
23	Fire N/C	No	No	No	No	6 (500)	2657	3 +128
24	Switch N/C	No	No	No	No	6 (500)	2661	6 +128
25	Vibration 100 ms armed	No	No	No	No	3 (100)	2665	3 +128
26	24 hr Zone (N.C.)	No	No	No	No	6(500)	2669	6 +128
27	24 hr Zone (N.0)	No	Yes	No	No	6(500)	2673	38 +128
28	Vibr 50 ms Away/Night	No	No	No	No	2 (50)	2677	2 +128
29	Vibration 20 ms armed	No	No	No	No	1 (20)	2681	1 +128
30	Digital N/C	No	No	No	Yes	3 (100)	2685	11 +128
31	Digital N/O	No	Yes	No	Yes	3 (100)	2689	43 +128

The value in the last column of the above table is normally increased by 128.

See Table 11 for Sensitivity Number settings

Standard Zone Types

To select the zone type for the zone enter * Engineer Code then #. You will hear 'Engineer Menu'. Press 1 for 'zone settings', select your Zone number followed by #. Press 2, you will hear the current zone type for that zone. Enter the zone type number required from the following list of zone types. The term 'Instant' zone type is sometimes referred to as an immediate, burglar, night or intruder zone by other panel manufacturers.

0 Not Used

A totally disabled circuit for Alarm triggering. It cannot be used to activate responses

1 - Door / Window (NC, Intruder Alarm)

A circuit that will generate a full alarm in Away, Night and Day modes and is particularly intended for perimeter protection.

2 - Entry Door (NC, Entry Alert)

This type of circuit must be the first detector triggered when entering the protected area whilst the system is set. Once set, activation of the circuit will start the entry timer. The function of this circuit is determined by the type of Away Arming Method selected. If Final Door arming is programmed, then the system will not complete arming until the door is closed on the way out and all other protected circuits are clear.

3 - Alert Night/Away (NC, Alert)

A circuit that can be used to dial-out silently if activated during Night, Away Modes generating an Alert Alarm 'type 6'. A full alarm will be generated only when another alert zone, perimeter or immediate zone is activated within the next 10 minutes.

4 - Alert Away (NC, Alert)

This circuit is the same as zone type 3 except it is not active during Night and Day Mode.

5 - PIR Night/Away (NC, Intruder Alarm)

A circuit that will generate a full alarm during Night and Away Modes and not Day Mode. It is intended for PIRs in interior zones.

6 - Alert Vibration Night/Away (NC, Alert Alarm)

This circuit is the same as zone type 3 except it has an operating sensitivity of 50ms and is suitable for use with non-electronic (mechanical) inertia shock detectors. A zone response may be needed to act as an analyzer.

7 - Instant Vibration Armed (NC, Intruder Alarm)

A circuit that has an operating sensitivity of 50ms which is suitable for use with non-electronic (mechanical) inertia shock detectors and will generate a full alarm in only Night , Day and Away Modes.

8 - Switch (N.O. Null Alarm)

A normally open circuit which will not activate an alarm but can be used to activate a response at all times. Responses may be applied to action of closing, opening or both. The circuit operating sensitivity is 500ms and is suitable for use with detectors with a negative applied trigger output such as light sensors and some external movement detectors.

9 - Monitor (N.O, Alarm Type 14)

This is used to dial out to programmed phones whenever the zone is triggered. It can be used either to check detectors which cause false alarms ("soak test") or to monitor machinery breakdown. It activates Alarm Type 14, which must have the appropriate dialout settings. A similar N.C zone type is Zone Type 17

10 - Fire (N.O. Fire Alarm)

A normally open 24-Hr circuit which is usually connected to a smoke or heat detector. When activated it will generate a fire alarm sound from the speakers and pulse the 12v sirens for 10 minutes. A programmed response may be triggered in the zone setting or fire alarm type to switch lights on

aiding an escape or to open an automatic gate to enable easier access for the fire services. Cannot be bypassed.

11 - Gas (N.C, Gas Alarm)

A 24-Hr circuit which will generate a gas alarm sound on the speakers and operate the siren for 10 minutes. A programmed response may be triggered in the zone setting or gas alarm type to switch the gas supply 'OFF' or open doors and windows. This zone type can be bypassed by default, but bypass can be disabled by setting 24 Hour ON in Table 10.

12 - Panic Alarm (N.C, Panic Alarm)

(N.C, 24-Hr circuit) A 24-Hr circuit that will generate a full audible alarm condition when activated. Can be bypassed, but bypass can be disabled by setting 24 Hr ON in Table 10.

Panic Silent

(Siren Type 0 in Alarm Type 9) To select a silent Panic alarm type that will just remotely signal to the Central Monitoring Station and other phone numbers, change the siren type in alarm type 9 to '0' (no siren sound). This is found in Eng Menu 2,9,5.

13 - Tamper Armed (N.C, Tamper Alarm)

A circuit that will generate a full tamper alarm only when the system is 'set'.

14 - Perimeter Away (N.C, Perimeter Alarm)

A circuit that can be used to dial-out silently if activated during Away Modes generating a perimeter alert 'Alarm Type 15'. A full alarm will be generated only when an alert zone, or immediate zone is activated within the next 10 minutes. A perimeter circuit response may be programmed to operate lighting sequences, camera switching, video recording or voice announcements. The circuit operating sensitivity is 500ms.

15 - Glass-break (N.C, Intruder Alarm)

A 24-Hr circuit which is connected to a glass-break detector.

16 - Perimeter Vibration (N.C, Perimeter Alert)

This circuit is the same as zone type 14 being active only while the system is 'set' except it has an operating sensitivity of 50ms and is suitable for use with non-electronic (mechanical) inertia shock detectors. A zone response may be needed to act as an analyzer.

17 - Monitor (N.C, Alarm Type 14)

Similar to Zone Type 9, except it is Normally Closed

18 - PIR Away only (NC, Intruder Alarm)

A circuit that will generate a full alarm during Away Modes only. It is commonly used where access is required to areas during night time such as a bedroom or landing.

19 - 24-Hr Vibration (NC, 50 ms, Intruder Alarm)

A circuit that has an operating sensitivity of 50ms which is suitable for use with non-electronic (mechanical) inertia shock detectors and will generate a full alarm in all Modes. A zone response may be needed to act as an analyzer. This circuit is active in only while the system is 'set'.

20 - 24-Hr Tamper (N.C, Tamper Alarm)

A circuit that will generate a full tamper during all modes. System cannot be armed when this zone type is active. Can be bypassed by default, but bypass can be disabled by setting 24 Hr ON in Table 10.

21 Doorbell (N.O., Door Station)

The doorbell of an independent intercom system can be linked to the Door Station by providing a normally open contact to a zone of this type. This can activate the Door Station which is mounted next to the intercom system so that the user can talk to the visitor at the door from a mobile phone when the system is armed to Away.

22 - Spare

23 - Fire (N.C, Fire Alarm Type 12)

A normally closed 24-Hr circuit which is usually connected to a smoke or heat detector. When activated it will generate a fire alarm sound from the speakers and pulse the 12v sirens for 10 minutes. A programmed response may be triggered in the zone setting or fire alarm type to switch lights on aiding an escape or to open an automatic gate to enable easier access for the fire services. Cannot be bypassed.

24 - Switch (N.C., Null Alarm Type 0)

This zone type is the same as type 8 except the switch used should be normally closed type circuit.

25 Vibration 100 ms (N.C, Intruder Alarm Type 1)

Similar to Zone Type 7, except that sensitivity is 100 ms

26 - 24 Hour Zone (N.C Intruder Alarm Type 1)

A circuit which will cause an Intruder Alarm in all modes

27 24-hour (N.O., Intruder Alarm Type 1)

A circuit which will cause an Intruder Alarm in all modes

28 - Away/ Night 100 ms (N.C. Intruder Alarm Type 1)

Similar to Zone Type 7, except that sensitivity is 100 ms and it is inactive in Day Mode.

29 - Away/Night 50 ms Vibration (N.C. Intruder Alarm)

Similar to Zone Type 7, except that it is inactive in Day Mode.

30,31 - Digital (Digital, Null Alarm))

The Digital Zone type is either Normally Open or Normally Closed. It does not cause any alarm when triggered. EOL shunts on the zone shield be set to Double End-of-line. No Trouble alarm is activated if there is an open circuit or short circuit. An open/close contact can be connected. A 5 V logic-level signal can also be connected. Applicable from 4.166

Table 11 - Zone Sensitivity

Sensitivity No	Sensitivity (ms)	Sensitivity No	Sensitivity (ms)
0	10 ms	4	200 ms
1	20 ms	5	70 ms
2	50 ms	6	500 ms
3	100 ms	7	850 ms

The Sensitivity Number for each zone type in Table 10 are listed in this table. Sensitivity numbers are from 0 to 7. Zone Sensitivity is the minimum time for a zone to be activated before it is recognized by the system.

Table 12 - Phone Numbers (4,1)

Dial Index	Phone Type (0 to 4)	Note: Phone Types	Phone Number (max. 20 digits)	Notes on special keys
1		0 for No Phone,		* and <away> key</away>
2		1 for Voice Phone		clears the digits entered
3		3 for Alarm Message		a dial pause in seconds
4		4 for Monitoring Station		
5		only)		
6		6 for SMS (Need		
7				
8				

Up to 8 phone numbers may be assigned for dialout during alarms. The phone numbers may be assigned as Monitoring Station (1st 2 numbers only), Voice Phone (land line or cellular phone), numeric pager or Alarm Voice Message.

Central Monitoring Station must be assigned to Phone 1. Any backup or alternative Central Station must be assigned to Phone 2. If no monitoring is required, all 8 Phone settings may be assigned to other phone types.

Each Alarm Type can be programmed to dial to any combination of the 8 telephone numbers. To do this, go to the Alarm Types menu (Engineer Menu 2).

The assignment of phone types must be coordinated with the Dial Settings for the Alarm Types. Determine what phones or pagers are to be programmed for each alarm type, and program the phone types and numbers before programming the Dial settings for the Alarm Types. If an Alarm Type Dial Setting points to an index which has Phone Type 0 (No phone) programmed, no dial-out will be done for that number.

Central Monitoring Station (phone type 4) can be assigned to Dial Index 1 and 2 only. Dial Index 1 and 2 may also be assigned to other phone types if not assigned to CMS

Table 13 - Monitoring Station Settings - Phone Type 4 for Dial Indexes 1 and 2

CMS No.	Monitoring Station Code Account 3 to 4 digits	Monitoring Station Type (CMS Format -see table below)	Phone Number	CMS/Voice Station
Menu Ref.	Press 1	Press 2	Press 3	Press 4
Range	3 or 4 digits	1 to 13	up to 20 digits	ON/OFF
1		13 (Contact ID)		
2		13 (Contact ID)		

Phones 1 and 2 out of the 8 may be set as Phone Type 4, or Monitoring Station. Monitoring Station Code (submenu 1) is the Account number, which may be 3 to 4 digits.

Monitoring Station Type (submenu 2) means the Format. The list of formats supported is in Table 14. Use Contact ID format if possible as the Report and Restore Codes in all Alarm types are defaulted to this format. Contact ID is able to provide more information in its reporting, and being a DTMF format, is faster than traditional pulse type formats.

Phone Number (submenu 3) is for the phone number of the Central Monitoring Station receiver. If Phone Type 1 or 2 is set to Monitoring Station Type in Engineer menu, the User Program Menu 4 will not be able to change it. The User Program menu is not able to set Monitoring Station phone type in Phones 1 and 2.

In Comfort, unlike most other alarm panels, the Report and Restore codes are programmed for each Alarm type, not by Zone.

Format	Description	Characteristics
1	Ademco Slow	4x2, 10 pps, 1900 Hz data, 1400 Hz handshake 1400 Hz kissoff, 2 rounds
2	Ademco Slow	4x2, 10 pps, 1900 Hz data, 1400 Hz handshake 1400 Hz kissoff, checksum
3	Ademco Slow	3x1, 10 pps, 1900 Hz data, 1400 Hz handshake 1400 Hz kissoff, 2 rounds
4	Silent Knight	4x2, 14 pps, 1900 Hz data, 1400 Hz handshake 1400 Hz kissoff, 2 rounds
5	Franklin	4x2, 20 pps, 1800 Hz data, 2300 Hz handshake 2300 Hz kissoff, 2 rounds
6	Radionics	3x1, 40 pps, 1800 Hz data, 2300 Hz handshake 2300 Hz kissoff 2 rounds
7	Radionics	4x2, 40 pps, 1800 Hz data, 2300 Hz handshake 2300 Hz kissoff 2 rounds
8	Radionics	4x2, 40 pps, 1800 Hz data, 2300 Hz handshake 2300 Hz kissoff checksum
9	Radionics	3x1, 40 pps, 1800 Hz data, 2300 Hz handshake 2300 Hz kissoff checksum
10	Surgard	DTMF 4x3 2300 Hz handshake 2300 Hz kissoff 2 rounds
11	Surgard	DTMF 4x3 2300 Hz handshake 2300 Hz kissoff checksum
12	Ademco Express	DTMF 4x2 1400/2300 Hz handshake 1400 Hz kissoff
13	Contact ID	DTMF 4x3,3,2,3 1400/2300 Hz handshake 1400 Hz kissoff

Table 14 - CMS Formats supported

This table gives the list of CMS Format supported in Comfort

Table 15 - Entry/Exit Time (4,2)

Menu Ref.	Parameter	Range	Value	Remarks
4,2,0	Entry Time	0-255 seconds	30	The Entry Time is the time given for the user to disarm the system after opening the Entry Door when the system is armed (Away, Night, Day, Vacation mode). If no valid sign-in is entered after the Entry Time, the system goes into Entry Warning Time, during which a local alarm sounds (only the internal speaker gives a pulsed tone).
4,2,1	Exit Time	0-255 seconds	30	The Exit time is the time given for the user to leave the home during local arming to Away or Vacation Mode, provided all zones are closed. At the expiry of Exit time, if the system is not armed, it gives an Arm Fail Alarm, which is a local warning on the speaker and siren consisting of a series of short beeps. For the Final Door Arm Option (Location 1692=0), the exit time is terminated and the system is armed when the Entry Door is closed. For Arm after Exit delay option (Location 1692=1), the system is armed after the Exit time is all protected zones are closed.
4,2,2	Entry Warning Time	0-255 seconds	15	After the Entry Warning Time expires and no sign-in is given, a full Intruder alarm is generated. If the Entry Warning Time is set to 0, the system goes into a full intruder alarm when the Entry Time expires.
4,2,3	Night Exit Time	0-255 seconds	5	Night Exit Time is the delay in seconds to allow the user to leave the protected area in when arming to Night Mode before the system is armed. The keypads will beep during the Night exit Time. The user can disarm during the countdown by signing in on the keypad or phone.

Note Exit Time Abort is in Location 2134. This is the time remaining when a zone is open during arming

Table 16 - Security Options (4,3)

Menu Ref.	Parameter	Range	Value	Remarks
4,3,1	Force Arm	On/Off	Yes	To enable the user to force-arm the system when not all zones are closed, go to Engineer Menu 4,3,1 for Force Arm Options and press 1 for on. To disable this option, press 0 for off on the same menu.
4,3,3	Siren Reverse	On/Off	No	OFF to activate sounder by applying 12V. Yes to activate sounder by removing voltage (for self-actuating sirens).

Table 17 - General (non-detector) Alarm Conditions

Zone Types trigger Alarm Types. Alarm Types are also triggered by other conditions, e.g., Power Failure, Low battery, Phone Line Cut, Arm Failure, New Message and so on, which are not related to zones. This group of Alarm conditions are termed General, or Non-Detector Alarms. The Table of General (Non-detector) alarms associate Alarm Types with the Alarm Condition. For example, Low Battery condition is assigned to Alarm Type 7. When low battery is detected, Alarm Type 5 is triggered. The behaviour of the low battery alarm is determined by the settings in Alarm Type 5. As another example, Telephone Line Fault is assigned to Alarm Type 3 in Location 7. This produces a Trouble alarm and trouble beeps.

The General Alarm, Intruder is triggered by two alert zones or perimeter-alert zone sequence, and not by directly by zone activation. It is assigned by default to Zone Type 1.

The General Alarm Zone Trouble is triggered by a zone trouble (open or short circuit wiring) when the security system is not armed (Security Off Mode). It is assigned by default to Alarm Type 5. There is a fixed set of General Alarm Conditions which Comfort responds to, but each of these can be assigned to any of the Alarm Types. If the Alarm Type for a General Alarm is set to 0 (Null Alarm), there will be no alarm activated. For example, if the general Alarm Line Cut is set to Alarm Type 0 by setting Location 7 to 0, the Security off/Trouble led will not flash and there will be no trouble beeping sound from the speaker and Keypad when the phone line is cut. Comfort will still detect a line cut condition, and announce "Phone trouble" on the local phone when the handset is offhook, but will take no alarm action.

There is usually no need to change the default settings, and they should NOT be changed unless it is necessary

General Alarm Condition	Location	Alarm Type	General Alarm Condition	Location	Alarm Type
Intruder	3	1	Siren Trouble	17	22
Zone Trouble	4	5	Bypass	18	16
Low Battery	5	7	Not Used	19	0
Power Failure	6	8	Dial Test	20	27
Line Cut	7	3	CMS Dial Test	21	18
Duress	8	2	Entry Alert	22	10
Arm Fail	9	4	Fire	23	12
Family Care	10	14	Panic	24	9
Disarm	11	17	Not Used	25	28
Arm	12	19	New Message	26	29
Tamper	13	11	Doorbell	27	25
Not Used	14	23	RS485 Comms Fail	28	24
Entry Warning	15	21	Sign In Tamper	29	31
Alarm Abort	16	20			

Alarm Types

Comfort provides 31 Alarm Types, which determines the alarm behaviour of siren, speaker, strobe, Monitoring Station report codes, dialouts, and other characteristics. Alarm Types are triggered either by **Zone Types** or by **General (Non-detector) Alarm** conditions.

The Alarm Types menu allows for change in the following settings for each of the 32 Alarm Types:

ltem	Value	Menu	Remarks
Dial-out	Yes/No	2,1	Determines whether a dialout is done
Dial Indexes	On/Off	2,1,1	Determines which phone numbers 1 to 8 are dialed during the dial out Each Alarm type can dial to any combination of the 8 phone numbers.
Dial Delay	Yes/No	2,1,2	If Dial Delay is on, the dialout will start only after the dial delay expires. Dial Delay time (common) is in Location 161.
Report Code	2 digits	2,1,3	For Comfort, Monitoring Station reporting is determined by Alarm Types instead of individual zones. This is more flexible and easier
Restore Code	2 digits 0 to 15	2,1,4	to program, especially if Contact ID is used, as default report and restore codes are already programmed. The Report and Restore codes consist of 2 digits, each 0 to 15. For 4-2 type formats (with 4 digit account code and 2 digit report codes), setting the 2nd digit to 0 will cause the zone or user number to be reported in place of the 2nd digit. e.g. for Intruder Alarm, if the Report Code is 3,0, and Zone 2 triggers a report, the Report code sent will be 32. To disable reporting of zone restores, set both 1st and 2nd digits to 15.
Monitoring Station Code	0 to 9	2,1,6	Class code (For Contact ID CMS format). This is defaulted to the correct standard setting. Do not change unless the Alarm Type definition is changed
Response	0-255	2,2	When an alarm is activated, a Response which performs actions like turning on lights and appliances may be activated. e.g when a fire breaks out, the lights in the exit path can be turned on.
Alarm Description	Sentence No	2,3	Alarm Sentence announced to a voice phone during dial out and in the event log. See table 20 for the list of Alarm phrases.
Strobe	Yes/No	2,4	Determines whether the strobe is turned on
Siren Type	0 to 20	2,5	Describes the speaker siren pattern (pulsed, steady, frequency) whether the 12V siren output is activated, the duration of the siren (see list of siren Types)
Siren Delay	Yes/No	2,5,1	If Siren Delay is on, the siren will go on only after the siren delay expires The Siren delay time in minutes is Location 51. The same Siren delay is used for all Alarm types which are set for Siren Delay.
Alarm State	0 to 3	2,8	0 = Idle 1 = Trouble - for trouble conditions 2 = Alert - for alert or perimeter states 3 = Alarm - for full alarm The alarm state defines the priority of the alarm.

It is not necessary to change the Alarm Type default except to turn the dialout on or off, and to program which of the Dial settings 1 to 8 to dial to. If Contact ID format is chosen for the Monitoring Station, then it is not necessary to reprogram the Report and Restore codes.

No	Assigned To	Dial Out?	ial Dial Indexes Dial CMS Report CMS Resto ut? Delay Code Code								Restore ode	Class Code				
			1	2	3	4	5	6	7	8		digit 1	digit 2	digit 1	digit 2	
						Ye	s/No						0 to	o 15		1-9
	Press					1,1					1,2	1	,3	1	,4	1,6
1	Intruder	Yes	1	1	1	1	1	1	1	1	No	3	0	3	0	1
2	Duress	Yes	1	1	1	1	1	1	1	1	No	2	1	15	15	1
3	Line Cut	No									No	15	15	15	15	3
4	Arm Fail	No	1	1	1	1	1	1	1	1	No	0	6	15	15	4
5	Zone Trouble	Yes	1	1	1	1	1	1	1	1	No	7	0	7	0	3
6	Zone Alert	Yes	1	1	1	1	1	1	1	1	No	3	2	15	15	1
7	Low Battery	Yes	1	1	1	1	1	1	1	1	No	0	2	0	2	3
8	Power Fail	No	1	1	1	1	1	1	1	1	No	0	1	0	1	3
9	Panic	Yes	1	1	1	1	1	1	1	1	No	2	0	15	15	1
10	Entry Alert	No	1	1	1	1	1	1	1	1	No	15	15	15	15	1
11	Tamper	Yes	1	1	1	1	1	1	1	1	No	3	7	3	7	1
12	Fire	Yes	1	1	1	1	1	1	1	1	No	1	0	15	15	1
13	Gas	Yes	1	1	1	1	1	1	1	1	No	5	1	15	15	1
14	Family Care	Yes	1	1	1	1	1	1	1	1	No	0	2	15	15	1
15	Perimeter	No	1	1	1	1	1	1	1	1	No	3	1	15	15	1
16	Bypass Zone	No	1	1	1	1	1	1	1	1	No	7	0	7	0	5
17	Disarm	No									No	0	1	15	15	4
18	CMS Test	Yes	1	1	1	1	1	1	1	1	No	0	1	15	15	6
19	Arm	No									No	0	1	15	15	4
20	Alarm Abort	No	1	1							No	0	6	15	15	4
21	Entry Warning	No									No	15	15	15	15	1
22	Siren Trouble	No	1	1	1	1	1	1	1	1	No	7	3	7	3	3
23	Not Used	No										5	0	15	15	4
24	RS485 Comms	No	1	1	1						No	15	15	15	15	3
25	Doorbell	No									No	15	15	15	15	6
26	Not Used	No									No	15	15	15	15	4
27	Dial Test	Yes	1	1	1	1	1	1	1	1	No	0	1	15	15	6
28	Not Used	No									No	15	15	15	15	3
29	New Message	Yes									No	15	15	15	15	6
30	Engineer Dial	No									No	15	15	15	15	6
31	Signin Tamper	Yes	1	1							No	1	3	15	15	4

Table 18 - Alarm Types (Engineer Menu 2) - Dial Settings

CMS Report codes are set to Contact ID as default

Table 19 - Alarm Types (Engineer Menu 2) - Other Settings

No	Assigned To	Resp	Descriptio n	Strobe	Siren Type	Siren Delay	Allow Arm	Alarm State
		0-255	0-254	Yes/No	1-20	Yes/No	Yes/No	0-3
	Press	2	3	4	5	5	7	8
1	Intruder		101	Y	1	No	N.A.	3
2	Duress		103	N	0	No	N.A.	3
3	Line Cut		104	N	11	No	Yes	1
4	Arm Fail		8	Y	14	No	N.A.	3
5	Zone Trouble		105	N	7	No	Yes	1
6	Zone Alert		106	N	0	No	N.A.	2
7	Low Battery		108	N	7	No	No	1
8	Power Fail		109	N	7	No	Yes	1
9	Panic		107	Y	1	No	N.A.	3
10	Entry Alert		121	N	3	No	N.A.	2
11	Tamper		102	Y	1	No	N.A.	3
12	Fire		100	Y	2	No	N.A.	3
13	Gas		113	Y	13	No	N.A.	3
14	Family Care		110	Y	0	No	N.A.	0
15	Perimeter		111	N	0	No	N.A.	2
16	Bypass Zone		197	N	0	No	N.A.	0
17	Disarm		20	N	0	No	N.A.	0
18	CMS Test		238	N	0	No	N.A.	0
19	System Armed		191	N	0	No	N.A.	0
20	Alarm Abort		131	N	0	No	N.A.	0
21	Entry Warning		135	N	6	No	N.A.	2
22	Siren Trouble		229	N	11	No	Yes	1
23	Not Used		242	N	0	No	N.A.	0
24	RS485 Comms		248	N	7	No	N.A.	1
25	Doorbell		213	N	10	No	N.A.	0
26	Not Used		119	N	0	No	N.A.	0
27	Dial Test		238	N	0	No	N.A.	0
28	Not Used						N.A.	
29	New Message		74	N	0	No	N.A.	0
30	Engineer Dial		9	N	0	No	N.A	0
31	Sign-in Tamper		127	N	0	No	N.A	0

Alarm Erased	131	Entry Alarm	135	Perimeter Alarm	111
Alarm Voice Message	173	Family Care Mode	19	Phone Trouble	104
Arm Failure	8	Family Care Alarm	110	Phone Call, Please hang up	230
Away Mode	3	Fire Alarm	100	Power Failure	109
Battery Warning	108	Force Arm	242	Restore	134
Bypass	197	Gas Alarm	113	Sign In Tamper	127
Bypass Off	212	Security off	20	Siren Trouble	229
Communications Failure	248	HomeSafe Sign In Report	119	System Armed	191
Day Mode	246	Intruder Alarm	101	Tamper Alarm	102
Dial Failure	112	Invalid - Call Engineer	201	Vacation Mode	75
Dial Test	238	Monitoring Station	142	Voice Phone	140
Door Bell	213	New Message	74	Warning Alarm	198
Duress Alarm	103	Night Mode	23	Wrong Code	27
Engineer Sign In Option	9	Pager	141	Zone Trouble	105
Entry Alert	121	Panic Alarm	107	Zone Alert	106

Table 20 - Alarm Description (Announcements) used in Engineer Menu 2,3

Any of the Alarm Phrases in the table above may be assigned to each Alarm Type. The Alarm Phrase is announced during dialout to a Voice phone, in the event log, and in the Alarm History. There is usually no need to change assignment of Alarm Phrases to Alarm Types unless you are customizing an Alarm.

Table 21 - Other Dialout Parameters

Other Parameters	Location	Value	Description
Dial Delay (Seconds)	2,130	30	This is the common delay time in seconds which is applicable when Alarm Types are set for Dial delay.
Maximum tries for dial-out	264	5	This sets the maximum tries for dialing to each phone number if the outcome is not successful, i.e. busy, no answer, or no acknowledgment
Redial Time (seconds)	265	30	This is the delay after an unsuccessful
Delay after CMS kissoff in alarm	1,687	0	This is the delay after receiving a kissoff from a CMS receiver during an alarm and before dialing other programmed phones. A delay may be needed in order for the Central Station to call to verify the alarm with the key holder. If the Location is programmed to 0 or 255, there will be no delay.

NZ installations: To comply with Telepermit requirements, Maximum tries for dialout should be not more than 10, and Redial time should not be less than 30 seconds.

Table 22 - Siren Types

Comfort has 20 Siren Types or patterns to cater for different audible indications. Each Alarm Type is assigned a Siren Type. Siren Type settings are not available directly in Engineer Menu, they can be changed using Locations, as given in the Worksheet. It is not necessary.

Siren	Siren Type		Location		System				
		Туре		Secs	1st Location Value 2nd Location		2nd Location	Value	use
1	Intruder	0	444	300	446	Any	447	23	Y
2	Fire	1	448	600	450	Any	451	46	Y
3	Arming Tone	2	452	300	454	Any	455	23	Y
4	Away Arm Trouble	3	456	600	458	Any	459	46	Y
5	Away Armed	4	460	1	462	20	463	0	Y
6	Warning	5	464	120	466	96	467	9	Y
7	Short Trouble	3	468	10	470	200	471	0	Y
8	Alternate Siren	7	472	300	474	Any	475	23	
9	Test Siren	0	476	2	478	40	479	0	Y
10	Doorbell	6	480	1	482	20	483	0	Y
11	Trouble	3	484	32,768	486	Any	487	1,275	Y
12	Ring	10	488	255	490	Any	491	19	Y
13	Веер	11	492	300	494	Any	495	23	
14	Arm Fail	8	496	60	498	Any	499	4	Y
15	Chime	6	500	2	502	40	503	0	Y
16	Night Armed	4	504	1	506	20	507	0	Y
17	Alternate Chime	11	508	3	510	60	511	0	
18	Auto Arming	2	512	300	514	Any	515	23	Y
19	Auto Arm trouble	3	516	300	518	Any	519	23	Y
20	Not Assigned	0	520		522		523		

Table 23 - Sound Type Definitions

Each Siren Type is assigned a Sound Type, which determines the frequency of the sound on the speaker (but not the 12V Siren), and the cadence or on-off pattern. The Sound Type of each Siren Type can be programmed in the Locations given in table 22. The list of available Sound Types is in Table 23. It is seldom necessary to change the default Sound Types

Sound Type	Description
0	Wailing 500 Hz to 2 kHz
1	1 kHz for 1 sec, 2 kHz for 1 sec, repeat 2 times, then pause 1.5 seconds
2	Beep 50 ms every second
3	Beep 200 ms, off 200 ms
4	Beep 100 ms off 400 ms
5	1 kHz tone 0.5 secs, off 0.5 secs
6	1 kHz tone 2 secs, 800 Hz 2 seconds
7	1 kHz 1 sec, 2 kHz 2 secs
8	1 kHz 50 ms, Off 200 ms
9	600 Hz 1 second, 800 Hz 1 second
10	700 Hz 400 ms, Off 200 ms repeat then 1.5 seconds off
11	600 Hz 500 ms, off 500 ms

The Duration of each siren type is programmed in two consecutive locations in the above table. Refer to the table below for programming different durations

Table 24 - Siren Duration

Duration (secs)	1st Location Value	2nd Location Value	Duration (secs)	1st Location Value	2nd Location Value
0.5	10	0	50	232	3
1	20	0	60	176	4
2	40	0	120	Any	9
4	80	0	180	Any	14
5	100	0	240	Any	18
10	200	0	300	Any	23
20	144	1	600	Any	46
30	88	2	1,200	Any	93
40	32	3	Indefinite	Any	255

Each Unit in the 2nd Location represents a duration of 12.8 seconds (or 256 x 50 ms). Each unit in the 1st Location represents a duration of 50 ms. For Siren durations longer than 60 seconds, the 1st Location value is insignificant and may be ignored.

Table 25 - Siren Types (Output Settings)

Sire	n Type	Location	Priority	Door	Keypad	Spare	Hi SPK	SIRE N	Value
		Add Value	Add 128	Add 64	Add 32	Add 16	Add 8	Add 4	Total
1	Intruder	445			32		8	4	44
2	Fire	449	128		32		8	4	172
3	Arming Tone	453		64	32				96
4	Away Arm Trouble	457		64	32				96
5	Away Armed	461		64	32		8	4	108
6	Warning	465			32		8		40
7	Short Trouble	469			32				32
8	Alternate Siren	473			32		8	4	44
9	Test Siren	477			32		8	4	44
10	Doorbell	481		64	32				96
11	Trouble	485			32				32
12	Ring	489			32				32
13	Веер	493			32				32
14	Arm Fail	497			32		8	4	44
15	Chime	501			32				32
16	Night Armed	505			32				32
17	Alternate Chime	509			32				32
18	Auto Arming	513			32				32
19	Auto Arm trouble	517			32				32
20	Not Assigned	521							

Each Siren type may be programmed to be output to any combination of the Keypads, Door Station, Siren (12V). All Siren Types will be output on the Speaker, but the Speaker level is programmable at

a High level (maximum) or Low level which is adjustable using the onboard VR1 trimmer. HI SPK setting sets the Speaker output. to High Level for Alarms

Home Control Menu

The Home Control Menu consists 10 control keys or devices which can be controlled.

0 for hall light 1 for master Bedroom Light 2 for dining room light ... 9 for garage light

When a control key is selected, the next menu level i.e. Operation, is announced

0 for Off 1 for On 2 for (dim) ... 9 for ..

This selects the operation intended for the device, i.e. on, off dim, bright, high, cool etc. To program the control keys (corresponding to devices) go to Control Settings (Engineer Menu 3,1). The system says;

Enter Control Code and # Key

Enter 0 to 9 and # key. The Menu says

Control Key, (0 to 9), (programmed words) Press 1 for Description, 2 for Action Key

Press 1 to assign words to the Control Key. The programmed words for the Control key are announced, if any, then the menu says;

Enter New Word and # Key

Each Control Key can be described by up to 4 words from the Wordlist (Table 40). To enter a word, enter the word number 0 to 254 and # key. The menu announces the word after each # key. If less than 4 words are used, enter 255 # as a terminator. Once a terminator or 4 words have been entered, the menu will announce the words entered.

The menu goes back to the previous level, i.e.

Control Key, (00 to 29), (programmed words) Press 1 for Description, 2 for Action Key

After assigning words to the Control key, press 2 for Actions. The menu says

Enter Control Action Key

This allows you to program the actions for each key, e.g.. "On", "off", "up", "down" etc.. Enter 0 to 9 to program the Action Key. Usually 1 is for ON and 0 is for OFF. To program 1 for ON, press 1 (without #). The menu says

No Action

if the Action key has not been programmed. Enter up to 3 words from the wordlist (Table 40). If less than 3 words are entered, enter 255# as terminator. "ON" is 230#. Enter 255# for terminator. The menu announces the Actions words ("ON"), and asks for the Response

Response 0 Enter Response and # key

Enter the appropriate Response number from Table 33, which performs the desired function. If no suitable default Response is available, program an unused Response or reprogram a Response which is not required.

Repeat for other Action Keys for this Control Key

Repeat the sequence for each Control Key, depending on how many appliances are to be controlled by Comfort.

Make sure that Control key 1 has words programmed otherwise the Control menu will not be announced in the User Menu. Pressing F2 will not announce the Home Control Menu

Feedback Types and Feedback Locations

Each Control key is able to announce a feedback value. For example, if Control key 1 is programmed as :"Living Room Light, Press 0 for Off, 1 for On". If a Current Sensor CSM03 is connected to Zone (Input) 15 as Zone Type 8 to determine the state of the light (on or off), the Feedback Type in Location 6625 should be 1 (for Zone On/Off), and the Feedback Value in Location 4799 should be 15 (zone 15). When these two locations are programmed accordingly, the control key will announce

:"Living Room Light is ON, Press 0 for Off, 1 for On".

The control menu will announce the state based on the words programmed in action keys 0 and 1. If the feedback status is off, the word for action key 0 will be announced (in this case "off". If the feedback status is on, the word for action key 1 will be announced (in this case "on".

Feedback Types 1 for zone on/off, 3 for output on/off, and 5 for flags are binary, i.e. either on or off, and will take the words for action key 0 and 1. Feedback types 2 for analog input and 4 for counter are analog values ranging from 0 to 255 and will announce the value (0-255) instead of on/off. For example, if Counter 2 holds the temperature on degrees F, the control key can be programmed as

:"Living Room temperature **is** 85, Press 0 for heat off, 1 for heat on". For control key 1, the feedback type should be 4 in Location 6625, and the feedback value should be 2 (counter 2) in Location 4799.

For the case of analog values, the values 0 and 255 are special cases, they are interpreted as binary values 0 and 1 respectively, so that they announce as action key 0 and 1 words. For example, if the counter 2 value is 255 in the heating example, the announcement will be

:"Living Room temperature is ON, Press 0 for heat off, 1 for heat on".

Feedback Type	Meaning of Feedback Value
0	No Feedback
1	Zone 1-64 on/off
2	Analog Input 1-64 value
3	Output 1-64 on/off
4	Counter 0-127 value
5	Flag 1-64

Table 26 - Control Menu (3,1)

Key	Descripti	on			Action	Actio	on Words			Resp
					0 to 9	Description	(0-255)	(0-255)	(0-255)	(0-1023
0	Word 1 Word 2 Word 3 Word 4				0					
	(0-255)	(0-255)	(0-255)	(0-255)	1					
					2					
					3					
					4					
					5					
					6					
	Feedbac	k Tvpe			7					
	3373			8						
	Feedback value				9					
	3362				*					

1	Word 1	Word 2	Word 3	Word 4	0			
	(0-255)	(0-255)	(0-255)	(0-255)	1			
					2			
					3			
					4			
					5			
					6			
	Feedback Type				7			
	3374				8			
	Feedback value				9			
	3363				*			

2	Word 1	Word 2	Word 3	Word 4	0			
	(0-255)	(0-255)	(0-255)	(0-255)	1			
					2			
					3			
					4			
					5			
					6			
	Feedbac	k Tvpe			7			
	3375				8			
	Feedbac	k value			9			
	3364				*			

			/			0			/	
Key	Descripti	on			Action	Actio	on Words			Resp
					0 to 9	Description	(0-255)	(0-255)	(0-255)	(0-1023
3	Word 1	Word 2	Word 3	Word 4	0					
	(0-255)	(0-255)	(0-255)	(0-255)	1					
				. ,	2					
					3					
					4					
					5					
					6					
	Feedbac	k Type			7					
	3376				8					
	Feedbac	k value			9					
	3365				*					
4	Word 1	Word 2	Word 3	Word 4	0					
	(0-255)	(0-255)	(0-255)	(0-255)	1					
					2					
					3					
					4					
					5					
					6					
	Feedbac	k Tvpe			7					
	3377				8					
	Feedbac	k value			9					
	3366				*					
	1		1	1		1				
5	Word 1	Word 2	Word 3	Word 4	0					
	(0-255)	(0-255)	(0-255)	(0-255)	1					
					2					
					3					
					4					
					5					
					6					
	Feedbac	k Tvpe			7					
	3378				8					
	Feedbac	k value			9					
	3367				*					

Key	Descripti	on			Action	Actio	on Words			Resp
	-				0 to 9	Description	(0-255)	(0-255)	(0-255)	(0-1023
6	Word 1	Word 2	Word 3	Word 4	0					
Ŭ	(0-255)	(0-255)	(0-255)	(0-255)	1					
	(0 200)	(0 200)	(0 200)	(0 200)	2					
					3				-	
					4					
					5					
					6					
	Feedbac	k Type			7					
	3379				8					
	Feedbac	k value			9					
	3368				*					
7	Word 1	Word 2	Word 3	Word 4	0					
	(0-255)	(0-255)	(0-255)	(0-255)	1					
	(0 = 0 0)	(0 = 0 0)	(====)	(* _ = * *)	2					
					3					
					4					
					5					
					6					
	Feedbac	k Type			7					
	3380				8					
	Feedbac	k value			9					
	3369				*					
8	Word 1	Word 2	Word 3	Word 4	0					
	(0-255)	(0-255)	(0-255)	(0-255)	1					
					2					
					3					
					4					
					5					
					6					
	Feedbac	k Type			7					
	3381				8					
	Feedbac	k value			9					
	3370				*					

Key	Descripti	on			Action	Actio	on Words			Resp
					0 to 9	Description	(0-255)	(0-255)	(0-255)	(0-1023
9	Word 1	Word 2	Word 3	Word 4	0					
-	(0-255)	(0-255)	(0-255)	(0-255)	1					
					2					
					3					
					4					
					5					
					6					
	Feedback Type Location 3382			7						
				8						
	Feedback value				9					
	3371				*					

Table 27 - Holidays (3,2)

Comfort allows 24 Holidays to be programmed. Holidays are used in Time Programs and Reminder Messages.

Also, if Comfort is armed to Vacation Mode, the day of week is set to Holiday regardless of whether it is a holiday. This means that in Vacation Mode, Time Programs and Reminder Messages will operate as if it is a holiday.

No	Holiday Name	Month (1-12)	Day (1-31)	No	Holiday Name	Month (1-12)	Day (1-31)
1				13			
2				14			
3				15			
4				16			
5				17			
6				18			
7				19			
8				20			
9				21			
10				22			
11				23			
12				24			

Table 28 - Time Programs (3,3)

No	Description				Day of	Week				Ti	Time			
		Mon	Tue	Wed	Thu	Fri	Sat	Sun	Hol	Hour	Minute			
		1	2	3	4	5	6	7	8	0-23	0-59	0-255		
					Pres	ss 3				Pre	ss 2	Press 4		
1	Auto arm to Night											69		
2	Auto arm to night											63		
3	Auto arm Night Weekend											69		
4	Auto disarm											63		
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														

16 Time Programs are available which can be activated at any time of day and for any combination of days of the week and holidays. These Time Programs can be used to turn appliances and lights on and off or for arming and disarming the security system.

If a Time Program Day of week is ON for Holidays, it will be active on any of the defined Holidays. The application for this is when things should happen at a different time from normal days, for example when a shop opens later or closes earlier.

Each Time program consists of an Activation Time, days of the week for activation, and a Response. A Time program can be specified for any combination of days of the week (Monday to Sunday) as well as Holidays. A Time program is activated if the current day of week is selected and the time matches the programmed time (to the minute). When this happens, the programmed Response is activated.

For example, in an office, Time Program 1 may be programmed for 9:00 am on Monday, Tuesday, Wednesday, Thursday, Friday to activate a Response which disarms the security system and turns on the lights, air-conditioning and photocopying machine. Time Program 2 may be programmed for 7 PM on the same days to arm the system to Away mode and turn off the lights, photocopying machine and air-conditioning. However, on Holidays, Time Program 1 should not take place. The Response for Time Program 1 should check that the day is not a holiday, and if it is, to exit without performing the other actions. Up to 24 Holidays in a year can be defined to handle situations like this.

Time Programs can also handle automatic Daylight Savings Time Adjustments.

Time Programs can be switched On or Off in the Time Program Menu (0 for Off, 1 for On).

Time Programs On/Off settings are maintained when Comfort is Reset or after power up

Holidays in Time Programs

If a Time Program is set for days of week say Monday to Friday but not for Holiday, and a particular day is a Holiday (as defined in the Holidays table), the Time Program will be active on that day. If it is required that the Time Program/ Reminder should **not** be active on a Holiday then in the Time Program Response, the actions code sequence 73,19 (Get Holiday), 13 (Exit if NZ) should be used to bypass the Response on holidays

Table 29 - Vacation Programs (3,4)

The system has the ability to control lights and home appliances at semi-random times during the day or night in Vacation Mode. This is made possible by Vacation Programs. There are 8 Vacation programs available. See Worksheet Table 29.

Each Vacation Program consists of a Start Time in hours (0-23), a Duration in hours (0-23) , an ON Response, and an OFF Response.

The Start Time is when the ON Response is activated. Only the Start Hour (0 to 23) is specified in the Vacation program. The actual time within the hour is generated randomly by the system, and is different for each day that it is activated. The duration is specified in hours in the Vacation Program, but the actual duration minutes is also generated randomly, and is different each time that the Vacation program is activated. At the end of the Duration, the OFF Response is activated.

For example, Vacation Program 1 is programmed for Start Time of 7 PM, a duration of 1 hour, ON Response to turn on a light, and OFF Response to turn off the light. Each day, the light will turn on between 7 PM and 8 PM, for a duration of 1 hour to 1 hour 59 minutes. With this randomized pattern, it will not appear to be a programmed or automatic operation. All Vacation Programs may run simultaneously and overlap in time.

No	Description	Start Time	Hours	ON Response	Off Response
		Hours 0-23	Duration 0-23	0-255	0-255
		Press 1	Press 2	Press 3	Press 4
1					
2					
3					
4					
5					
6					
7					
8					

Table 30A - Security Mode Responses (3,5)

Mode	Response (0-255)	Description	Mode	Response (0-255)	Description
0 - Off			2 - Night		
1 - Away			3 - Day		

When the system changes from one of the Security Modes (Security off, Away, Night, Vacation) to another, a Response may be activated. When the system is armed to Away, Night or Vacation Mode, lights and appliances may be turned off. For Security Off Mode, heating or air-conditioning may be turned on or set to a comfortable temperaturre

Table 30B - Event Triggered Response Locations

When the Events in the table occur, the Responses programmed into the corresponding Location will be activated. Locations are accessed in Engineer Menu 7,4,1

Function	Location	Resp	Remarks
Startup Response	722	0	Response activated at Starup (reset or Power on)
Phone Ring Response	723	0	Response for Ring Detected
4 to Open Gate Response (Door Station Menu)	724	0	The Door Station Menu will announce "4 to Open Gate", and pressing 4 will activate this Response (hopefully, to open the gate)
Doorbell Response	725	0	Response activated when Door Station button is pressed
Offhook Response	726	0	Phone Offhook Response
Onhook Response	727	0	Phone Onhook Response
Hourly Response	728	0	Response activated each hour
AC Restore Location	729	0	Response activated when AC is restored after power failure
Phone Trouble Restore	730	0	Response activated when Line cut is restored after "phone trouble"
Start Arming Response	731	0	Response activated when the system is being armed, after the desired security mode has been set, but before the arming process is completed.
7 to Open Door Response (Door Station Menu)	732	0	The Door Station Menu will announce "7 to Open Door", and pressing 7 will activate this Response (hopefully, to open the door)

Table 31 - Voice/Recording Settings

This table gives the locations for Voice and recording-related settings. Locations are accessed in Engineer Menu 7,4,1

Function	Location	Def	Range	Remarks
Keypad Voice Level	54	80	70 = Loud 90 = Soft	Voice menu volume on telephone. This is a software setting which can control the telephone voice volume. Reset is needed.
DTMFTwist Low Group Gain	95	3	15 (min) to 0 (Max)	DTMF dialing Gain DO NOT CHANGE THIS VALUE
DTMF Master Gain	97	5	15 (min) to 0 (Max)	DTMF dialing Gain DO NOT CHANGE THIS VALUE
CMS Tone Gain	98	3	15 (min) to 0 (Max)	CMS dialing Gain DO NOT CHANGE THIS VALUE
Voice Menu Speed	1698	3	1 = slow 7 = fast	The Voice Menu Speed determines the speed of the voice menu. The default value is 3.
Voice Recording Level	1699	8	0 = soft 20 = loud	Gain for Telephone Voice Recording is the gain applied to the amplifier for the voice from the remote telephone to be recorded in the mailboxes. The range is from 0 to 20 with 0 being minimum and 20 being the maximum gain.
Phone Intercom Voice Level	1700	13	0 = soft 20 = loud	Gain for Telephone to Keypad in Voice Station Mode. This allows the level of the voice from the remote telephone to the keypad during the Voice Station or Door Station intercom mode to be adjusted. The range is 0 (minimum) to 20 (maximum) and the default value is 20.
Recording Quality	1704	0	0 = Low 2 = High	This affects the quality of recorded Voice and the amount of voice memory required
Message Speed	1705	3	1 = slow 7 = fast	The Message Speed determines the speed of the recorded messages. The default value is 3.
Phone Voice Level	1706	80	70 = Loud 90 = Soft	Voice menu volume on telephone. This is a software setting which can control the telephone voice volume.

Table 32 - X10 Received Codes Responses

Comfort is able to receive X10 codes through the TW523/TW7223/XM10E X10 transceiver and activate Responses for 1 selected Housecode. This allows X10 switches or Controllers to trigger Comfort Responses.

Location 1851 is for the X10 House code which is recognized and will activate Responses.

X10 House Code	Location 1851

The Housecodes A to P are coded as shown in the table below. The codes used to represent the housecodes are the same as used in Action Code 195

Housecode	Value	Housecode	Value	Housecode	Value	Housecode	Value
A	65	E	69	I	73	М	77
В	66	F	70	J	74	N	78
С	67	G	71	к	75	0	79
D	68	Н	72	L	76	Р	80

For example, if Housecode P is required, program Location 1851 with 80. For the selected housecode, unit codes 1 to 16 ON and OFF commands as well as ALL Lights On and All Units Off may activate a Response. For example if Unit Code 5 ON and OFF is to switch Output 1 on and off respectively, program Location 1274 with Response 1 (Output 1 ON) and Location 1275 with Response 2 (Output 1 Off).

Locations for Responses to X10 Codes

X10 codes received with the programmed house code can activate programmed responses for each unit code off and on, as well as All Lights on and All Units Off

X10 Unit Code	Location	Response	X10 Unit Code	Location	Response
1 On	3,328		9 Off	3,342	
1 Off	3,329		10 On	3,343	
2 On	3,330		10 Off	3,344	
2 Off	3,331		11 On	3,345	
3 On	3,332		11 Off	3,346	
3 Off	3,333		12 On	3,347	
4 On	3,334		12 Off	3,348	
4 Off	3,335		13 On	3,349	
5 On	3,336		13 Off	3,350	
5 Off	3,337		14 On	3,351	
6 On	3,338		14 Off	3,352	
6 Off	3,339		15 On	3,353	
7 On	3,340		15 Off	3,354	
7 Off	3,341		16 On	3,355	
8 On	3,342		16 Off	3,356	
8 Off	3,343		All Units Off	3,357	
9 On	3,344		All Lights On	3,358	

Table 33 - Default Responses (3,6)

There are 127 Responses or programs in the system. Response 0 is the NULL Response which means there is no response activated. Each of these Responses may be assigned to Time Programs, Vacation Programs, Zone ON and OFF, Alarm activation, Security Modes, Control Menu, and Keypad Function Keys. Responses perform functions like Output on/off, transmission of Infrared Codes, transmission of X10 codes, auto arm and disarm etc... Most Responses are preprogrammed to default functions, but any Response may be reprogrammed according to requirements

No	Description	Action Codes					
		1	2	3	4	5	6
1	Output 1 ON	128	1	1	255		
2	Output 1 OFF	128	1	0	255		
3	Output 2 ON	128	2	1	255		
4	Output 2 OFF	128	2	0	255		
5	Two Way switch On OP1, Feedback I/P 9	79	9	115	1	78	1
6		255					
7	Entry Alert Response 7PM to 7 AM A1 Light	73	3	142	3	19	142
8	On	2	7	74	14	255	
9		255					
10	IR 1 Output 1	129	1	1	255		
11	IR 2 Output 1	129	2	1	255		
12	Disable Dialout in Night Mode	73	0	68	2	100	0
13		255					
14	X10 A1 ON	195	65	1	5	255	
15	X10 A1 OFF	195	65	1	7	255	
16	Entry Delay in Night Mode	73	0	145	1	2	4
17		255					
18	Announce Zone	1					
19	Auto Disarm from Night Mode only and not in	73	0	146	3	2	73
20	Alarm	9	142	1	3	71	0
21		255					
22	X10 All Lights 'A' Off	195	65	0	13	255	
23	AUTO ARM Away	71	1	255			
24	AUTO ARM Night from Security Off only	73	0	115	1	71	2
25		255					
26	KEY ARM Day from Security Off	73	0	115	1	72	3
27		255					
28	KEY ARM Away from Security Off	73	0	115	1	72	1
29		255					
30	KEY ARM Night from Security Off or Day	73	0	145	1	1	72
31	Mode	2	255				

		In vv	UIKSH	eel	'SSI,	/	
No	Description			Action	Codes		
		1	2	3	4	5	6
32	Pulse Output 1 1 second	130	20	1	255		
33	Pulse Output 2 1 second	130	20	2	255		
34	Cancel Entry Delay in Night Mode (entry	73	0	146	1	2	5
35	door)	255					
36	Vibration Analyser	86	8	16	194	8	0
37	Apply with Zone Types 6,7,16,19,25	30	0	131	7	1	192
38	Uses Counter 7 and Timer 8	83	7	70	3	85	8
39	1	193	21	255			
40	Doorbell Recording M'box1 after 30s , use in Alarm Type 25	135	01	30	255		
41	Bypass Menu	99	32	91	8	255	
42	Home Control Menu	99	64	91	4	255	
43	Test Menu	99	32	91	7	255	
44	Record Memo Menu	91	27	255			
45	Event Log	99	32	91	6	255	
46	Change Phone Menu	99	128	91	11	255	
47	Change Code Menu	91	24	255			
48	Change Date and Time	99	128	91	10	255	
49	Answering Machine Menu	99	128	91	09	255	
50	Enable Engineer Code, activate Alarm 30	92	1	88	30	255	
51	User Codes Menu	99	128	91	36	255	
52	Change Time Program	99	128	91	17	255	
53	Intercom request	22	255				
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							
64							
65							
66							
67							

No	Description	Action Codes					
INO	Description	1	2	Action	Codes	F	c
<u> </u>		I	2	3	4	Э	0
68							
69							
70							
71							
72							
73							
74							
75							
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77							
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100							
101							
102							
103							

No	Description			Action	Codes		
		1	2	3	4	5	6
104							
105							
106							
107							
108							
109							
110							
111							
112							
113							
114							
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122							
123							
124							
125							
126							
127							

The Responses which are used by the system by default (e.g. For Keypad responses) are shown in bold. Unused Responses can be changed as required

Table 34 - Locations Reference(7,4,1)

Not all settings are changed using the Engineer Menu. Those which cannot be changed in the menus can be changed using Locations (Engineer Menu 7,4,1). Enter the Location followed by #. The Location and current value at the location are announced, then "Enter new number and # key". when the number is entered and #, the new number is announced. Remember that Engineer Code access must be enabled by Program Menu 3,4,1. When some of the Locations are changed, it is necessary to press RESET or do a software reset in Engineer Menu 7,4,2). These Locations are indicated by the RESET column in the table below.

Loc.	Parameter	Range	Value	Units	Reset ¹
44	Alarm Abort Time	0 - 255	90	seconds	N
	If an alarm condition is disarmed with the Alarm Abort which can be used to signal to the Central Station indic	Γime, an Abort A ating a false ala	larm (Miso rm This is	peration) is a applicable to	ctivated, the UK
45	Armed/Alarm Output	1 - 64	0	Output	N
	Enter the output number to indicate Armed (Steady) or the output with a suitable series resistor (1k to 2.2k) to indication as the Red led on the main board	Alarm/Alert (Flas provide a visual i	sh). An LE indicator.	D can be con This is the sa	nected to me
46	Off / Trouble Output	1 - 64	0	Output	N
	Enter the output number to indicate Off (Steady) or Tro output with a suitable series resistor (1k to 2.2k) to prov indication as the green led on the main board	uble (flash). An L /ide a visual indio	ED can b cator. This	e connected to s is the same	o the
47	Incoming Call Release Time	0 - 255	45	Seconds	Ν
	This is the time in seconds for the telephone exchange phone is put on hook. If no dial tone is detected when 0 try a hook flash to get dial tone (if 3rd party call facility i on hook for the time programmed in this location before will not answer any incoming call. This protects against call and not hanging up. This is only effective if Wait for	to release the lin Comfort is trying to a available). If no trying to dial ag burglars who try Dial Tone settin	ne during a to call duri o dial tone ain. During to prever g is enabl	a call after the ing an alarm, i is obtained, it g this time, Co at a dialout by ed in Location	local t will first will go omfort making a 39
48	Pager Upper Frequency	0-255	63	counts	Ν
49	Pager Lower Frequency	0-255	54	counts	N
	Applicable for dialing to Pagers (i.e. not answered by the pager when a series of beeping tones is detected. the limits of the pager beep frequency. If the pager beep the pager upper and lower frequency locations, the pager calculated by the formula (Pager frequency)/33.33. e.g required count is 60. Setting pager upper frequency loc as 50 will provide the necessary tolerance for detection answering but do not provide a distinctive beep which i answering voice, but allows the pager sequence to be a frequency to detect voice. Use Lower Frequency = 17, triggered by busy or ringback tones.	numan operators The upper and lo p tone frequency jer data will be s; if the pager frequ- ation as 70 and . For paging sys; s not in the same sent while the vo Upper Frequenc). Comfort wer freque r falls withi ent. The v uency is 2 Pager low tem that h a frequenc ice is talkii y = 70. Th	sends informa ency counts du in the limits de value in the loo 000 Hz, then the er frequency l ave automatic y range as the ng, program the is range will n	ation to etermine fined by cation is the ocation : voice e ne pager ot be
51	Siren Delay	0 - 255	3	Minutes	N
	This is the common delay in minutes for all alarms whic (Engineer Menu 2,5,1) If the telephone line is cut durin immediately.	ch have the Siren ng the Siren Dela	Delay seay, the sire	etting enabled en is turned on	I
F 4		0.40			
54	Reypad Voice Level	0 - 12	6	-	N
05	See Table 31	15 to 0	2	1	V
95		15 to 0	3	-	Y the
	telephone exchanges in your country Do Not Change	. See Table 31	eu value to	operate with	une
97	DTMF Tone Level	15 to 0	5	-	Y

Loc.	Parameter	Range	Value	Units	Reset ¹
	For DTMF dialing. This parameter has been set accord telephone exchanges in your country. Do Not Change.	ing to the require	ed value to	operate with	the
98	CMS Tone Gain	15 to 0	3	-	N
	See Table 31				
260	Pager Start Key	0-9,	11	-	N
261	Pager Separator Key	*=11,	12	-	N
262	Pager 1st End Key	# = 12	11	-	N
263	Pager 2nd End Key		11	-	N
	These are numeric pager setup parameters. The pager sequence. The Pager separator is the number which a pager display. The Pager 1st End key is the number will some paging systems, 2 End keys are needed. If so, et Key Location. The pager data sent is in the sequence (key.	Start key is the popears as a sepanich terminates the second start Key), XXX	number wi irator, i.e. ne pager d number in <-YY-ZZ, (hich starts the -' or space on ata sequence the Pager 2nd 1st end key) (pager the . For d End 2nd end
264	Maximum tries for dial-out	1 - 255	5	-	Ν
	This number in this location determines how many time in case of a dial failure caused by busy, no answer, no case of Alarm Message Dialout, No pager beep acknow	es the system will sign in (for Voice wledgment for pa	attempt to phone), N ger.	o dial to this n lo acknowled	umber, gment (in
265	Redial Time	1 - 255	30	Seconds	Ν
	This location is the time between redials in seconds to	the same numbe	r		
720	Battery Test Interval	0 - 255	12	Hours	Ν
	This is the time in hours between Battery Tests Batter initiates an immediate Battery Test. For UL 985 (Fire) a During a battery test, the AC is turned off, leaving the s Duration of each battery test is in Location 721. Enter 0	y Test (User Me applications, prog ystem to be pow) in the Location	nu 3,4,11 ram 4 or le ered by th to disable	or Eng Menu ess into this lo e standby bat battery check	8,1) ication. tery. The
721	Battery Test Duration	1 - 255	2	Minutes	Ν
	This is the duration of each battery test in minutes. Dur the system to be powered by the standby battery. The in Location 720. To turn of the automatic battery Test,	ing a battery test Interval between use Engineer 8,1	, the AC is each batte ,0 or Use	turned off, le ery test is prog 3,4,1,0.	aving grammed
722	Startup Response. See Event-Triggered Response Loc	ations, Table 30	В		
723	Phone Ring Response. See Event-Triggered Response	e Locations, Tabl	e 30B		
724	Open Gate Response for Door Station Menu 4. See Ev	ent-Triggered Re	esponse L	ocations, Tabl	e 30B
725	Doorbell Response. See Event-Triggered Response Lo	ocations, Table 3	0B		
726	AC Restore Response Location. See Event-Triggered	Response Locati	ons, Table	30B	
727	Phone Trouble Restore Response Location See Event-	Triggered Respo	onse Locat	ions, Table 30)B
728	Offhook Response . See Event-Triggered Response Lo	ocations, Table 3	0B		
729	Onhook Response . See Event-Triggered Response Lo	ocations, Table 3	0B		
730	Hourly Response See Event-Triggered Response Loca	ations, Table 30E	3		
731	Start of Arming Response Location See Other Respon	se Locations, Ta	ble 31		
732	Open Door Response in Door Station Menu 7 (See Oth	ner Response Lo	cations, Ta	able 31)	
1672	No of UCMs	0 to 8	1	-	Y
	Number of UCMs connected. The location can be left a needed for the CSXpress software to upload and down	at 1 even if the U load to Comfort.	CM is not	connected. A	UCM is
1673	No Of Slave Expansion Modules	0-3	0	-	Y
	This location determines the number of SEMs which are connected to the Control Panel. Each SEP supports up to 16 zones and 16 outputs Maximum is 3 for a 64 zone system				

Loc.	Parameter	Range	Value	Units	Reset ¹
1674	No of Door Stations	0-3	0		Y
	This location gives the number of Door Stations which a Station must be set correctly.	are connected (0	to 2). The	e id for each D	oor
1675	No of Keypads	0-8	0		Y
	This Location gives the number of Keypads which are a correctly	connected The i	ds for eacl	h Keypad mus	t be set
1684	Line Cut Detection Time	0-255	60	seconds	N
	Time (secs) required to detect a Line cut				
1687	Delay after CMS kissoff in Alarm	0 to 255	0	seconds	Ν
1689	"OFF" Word Number	0 to 255	211		N
	Word number for "OFF" announced by Action 1 in Zone	e OFF Response			
1690	Zone Auto-shunt count	0 to 255	0	counts	N
	This is the number of successive activations of any zo disable the zone from causing any further alarms. The activation of any other zone. If this feature is not require	one in alarm state count is reset by ed, set the Loca	which wil arming, d tion to 0 o	l automatically isarming, and r 255	/ shunt or
1692	Away Arming Method (See Table 3)				
1693	Dialout in Progress	1-16	0	Output	Ν
	Enter the output for indication that a dialout is in progre a suitable series resistor (1k to 2.2k) to provide a visual	ess. An LED can I indicator.	be connec	ted to the out	put with
1695	Line Cut Output	1 - 64	0	Output	N
	Enter the output for indication that the telephone line has connected to the output with a suitable series resistor (as been cut or is 1k to 2.2k) to pro	faulty. An wide a vis	LED can be ual indicator.	
1698	Voice Menu Speed	1 to 7	3	-	Y
	The Voice menu speed can be changed to suit the cus	tomer. See Table	e 31		
1699	Phone Recording Level	0 - 20	3	-	Ν
	See Table 31				
1700	Phone Intercom Voice Level	0 - 20	8	-	N
	See Table 31				
1703	Alert Time	1 to 60	10	minutes	Ν
	This is the window of the alert time started by the activation this time window another zone activation may cause ar Perimeter zone activation in the Programming Manual. at 10 minutes, but after 4.170, the Alert time was made greater than 60 minutes will cause a 60 minute alert time	ation of an Alert of Intruder Alarm Prior to firmware programmable on ne.	or Perimet (see the flo 4.170, th up to 60 m	er zone type. owchart for Alo e alert time wa inutes. Any no	During ert and as fixed umber
1704	Recording Quality	0-2	0		
	See Table 31				
1705	Message Speed	1-7	3		
	See Table 31				
1706	Phone Voice Level	90-70	80		
	See Table 31				
1846	Time Adjust (seconds) Location	0 to 59	0	Seconds	N
	The time in seconds is added to or subtracted from the current time at 3:00 AM each day to correct for innacuracy in the clock. Positive values are 1 to 29, negative values are 30 to 59. A value of 59 is equivalent to -1 second, and 30 is equivalent to -30 seconds.				

Loc.	Parameter	Range	Value	Units	Reset ¹	
1849	Time given to press * after phone offhook for local phone access to Menu	0 to 255	6	Seconds	N	
	The value in this location is the delay (secs) after local	phone offhook for	or the * ke	y to access C	omfort	
2130	Dial Delay	0 to 255	30	seconds	Ν	
	This is the dial delay in seconds which applies if the Dial Delay Setting for the Alarm Type is enabled (Engineer menu 2,1,2). When the Alarm Type is activated, the system will commence dialing only when the Dial delay time expires					
2134	Exit Time Abort	0 - 255	5	Minutes	Ν	
	This is the time in Minutes to abort arming if not all protected doors and windows are not closed. During this time, the names of the zones are announced. When the time expires, there will be an ARM Fail Alarm, but the premises is not armed. The user must disarm and arm again					
The RE System	SET column indicates if it is necessary to reset the syste Reset can be done by pressing the Reset switch on the	em after changing board or remote	g the value ly in the E	e at this location ngineer Menu	on. (7 4, 2)	

Table 35 - Location 39 and 40 Flag Settings

Location 39 and 40 contain certain **flags** which determine some behavior of Comfort. Add up all the value in the ADD VALUE column for the flags to be enabled, and enter the sum in Location 39 or 40. RESET the system by the Reset button or Eng Menu 7,4,2 for the settings to take effect. Some of these flags are accessible in Engineer Menu, in which case the menu reference is given in the last column. When changing flags which are not in Engineer Menu, you must take into account the values of all the flags in the Location

Flag Setting Location 39	Location	Add Value	Value	Engineer Menu
Connected as PABX extension	39	2		7,2 (Table 1)
Force Arm Option enable		4	4	4,3,1 (Table 16)
Not Used		8	8	
Hear Announcements on Phone		16	16	
Incoming Call Screening on Keypad		32	32	User 2,6,6
Not Used		64		
Wait for Dial Tone before dialing		128	128	Not Available
Total			188	

Flag Settings Location 40	Location	Add Value	Value	Engineer Menu
Siren Reverse (Self-actuated siren)	40	1		4,3,3 (Table 16)
Ignore Line Cut		2		
Not Used		4	4	
Seize Phone Line for Idle alarm dial		8		
Disable Voice on Door Station		16	16	
LEM03 16 input 0 output		32		0 if SEM installed
Repeat Alarm Zone on keypad		64	64	
Ext Answering machine bypass		128		Program 1,0
Total			84	

Flag Settings Location 42	Location	Add Value	Value	Engineer Menu
Not Used	42	1		
Not Used		2		
Allow Low Battery to Arm		4	4	
Engineer Code for Download *		8		
Detect Battery Disconnected *		16		
Not Used		32		
Not Used		64		
Not Used		128		
Total			4	

* - Implemented in Firmware 5.134

When "Wait for Dial Tone" is enabled, Comfort will wait for a dial tone before dialing. If a dial tone is not detected, Comfort tries a Hook Flash to try to get dial tone (this works if 3rd party or Conference call) is available on the telephone line. If there is still no dial tone, it will wait for the Incoming Call Release time in Location 47 (See Table 34) before trying again. During this time, if an alarm is on, it does not answer any calls.

Set Ignore Line Cut ON when it is not possible to connect the incoming telephone line to Comfort TEL IN and the house phones to TEL OUT. With this setting, house phones can be connected in parallel to TEL IN. The system will ignore Line Cut and will not report Phone Trouble. If there is a line cut, the house phones cannot be used to access the system. There is a loss of security, as the system will not be able to dial out if any house phone is offhook. This is not to be used for UL installations or for a monitored system.

Seize Phone Line for all Dialouts: this causes the house phones to be cut off for all Comfort dialouts, including non-alarm situations like reporting system armed, disarmed, Dial Test and new messages. If this flag is not set, the house phones are cut off only for alarm dialouts. Set the flag if the number of phones in the premises causes Dial test to be unsuccessful, and removing the phones from the TEL OUT connector allows the Dial test to complete.

Disable Voice on Door Station prevents the announcement of zones and "Away Mode" during away arming. If the flag is ON, the Door Station is only used for 2 way conversation. There will be no zone and armed announcements in Night or Day Mode irrespective of the flag.

LEM 16 input 0 output: This flag tells Comfort that a 16 zone (no outputs) Local Expansion Module (LEM) is installed. This means that the system capacity is 24 zones and 8 outputs. If a 8 zone 8 output LEM or no LEM is installed, this flag should be Off. Slave Expansion Panels (SEM) may not be used with the 16 input LEM

Repeat Alarm Zone on Keypad setting will keep announcing an activated zone until system is disarmed or another zone is activated.

External Answering Machine Bypass This flag allows external answering machines and fax machines to be bypassed. First, call to the telephone number to which the system is connected and let it ring exactly once. Hang up and call again within 5 to 20 seconds. The system will answer immediately on detecting the first ring

Most of these Flags can be enabled or disabled in Engineer Menu (See the Engineer Menu column for the menu reference)

Table 36A - RC01 Remote Control Infrared Codes

The handheld RC01 remote control can be used as a remote keypad when pointed at a KP04 or KP02. However the other buttons for Room and Scenes have no effect for Comfort II OPT. These buttons only work for Comfort II Ultra

Timer	In Responses	Comments	Timer	In Responses	Comments
1			9		
2			10		
3			11		
4			12		
5			13		
6	195	Doorbell Macro	14		
7	49,51	Flashing Lights in alarm	15		
8	86,118	Vibration Analyser, Strobe Flash	16		

Table 37A - User Timers

16 User Timers can be used to do general timing functions. Action Codes 194 (Start Timer), 85 (Stop Timer), 86 (Check timer) handle timers. This table is for reference, so that a Timer is used for only one function

Table 37B - Counter Responses

There are 128 Counters which can be used for any counting or logic operations. The UCM can set Counters to any value using the C! Command. Each Counter has a Response which is activated by a C! command from the UCM. Action 31 (Get last counter value) allows the last counter value received from the UCM C! Command into any counter address to be obtained, to be used in a Response. Counter Responses are used for activating Responses from C-BUS and EIB UCMs.

Ctr No	Location	Response	Comments	Ctr No	Location	Response	Comments
0	1277			64	1341		
1	1278			65	1342		
2	1279			66	1343		
3	1280			67	1344		
4	1281			68	1345		
5	1282			69	1346		
6	1283			70	1347		
7	1284			71	1348		
8	1285			72	1349		
9	1286			73	1350		
10	1287			74	1351		
11	1288			75	1352		
12	1289			76	1353		
13	1290			77	1354		
14	1291			78	1355		
15	1292			79	1356		
16	1293			80	1357		
17	1294			81	1358		
18	1295			82	1359		
19	1296			83	1360		
20	1297			84	1361		
21	1298			85	1362		
22	1299			86	1363		
23	1300			87	1364		
24	1301			88	1365		
25	1302			89	1366		
26	1303			90	1367		
27	1304			91	1368		
28	1305			92	1369		
29	1306			93	1370		
30	1307			94	1371		
31	1308			95	1372		
32	1309			96	1373		
33	1310			97	1374		

Ctr No	Location	Response	Comments	Ctr No	Location	Response	Comments
34	1311			98	1375		
35	1312			99	1376		
36	1313			100	1377		
37	1314			101	1378		
38	1315			102	1379		
39	1316			103	1380		
40	1317			104	1381		
41	1318			105	1382		
42	1319			106	1383		
43	1320			107	1384		
44	1321			108	1385		
45	1322			109	1386		
46	1323			110	1387		
47	1324			111	1388		
48	1325			112	1389		
49	1326			113	1390		
50	1327			114	1391		
51	1328			115	1392		
52	1329			116	1393		
53	1330			117	1394		
54	1331			118	1395		
55	1332			119	1396		
56	1333			120	1397		
57	1334			121	1398		
58	1335			122	1399		
59	1336			123	1400		
60	1337			124	1401		
61	1338			125	1402		
62	1339			126	1403		
63	1340			127	1404		

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Table 37C - User Flags

User Flags are a programming device. Flags have one of 2 values 1 (ON) or 0 (OFF), Flags are set to 1 or 0, or checked using action using action 132. Flags are used for conditional branching of Responses. There are 64 User Flags in Comfort II OPT

FLAG	In Responses	Comments	FLAG	In Responses	Comments
1			33		
2			34		
3			35		
4			36		
5			37		
6			38		
7			39		
8			40		
9			41		
10			42		
11			43		
12			44		
13			45		
14			46		
15			47		
16			48		
17			49		
18			50		
19			51		
20			52		
21			53		
22			54		
23			55		
24			56		
25			57		
26			58		
27			59		
28			60		
29			61		
30			62		
31			63		
32			64		

Table 38 - User Authorization Settings

Each of the 8 User Codes may be assigned authorization for Local Disarm, Local Arm, Remote Disarm, Remote Arm, Disarm on Alarm only, Security Menu (User Menu 3) Access, Home Control Menu (User Menu 4) Access, and Program Authorization. These User authorizations settings can also be programmed in the Comfigurator software.

User Authorizations for each user are set using Locations according to the table below. For example, to set user 5 to allow Home Control, Local arm and disarm only, add the values under Home Control (64) Local Arm (2) and Local Disarm (1). The sum obtained (64+2+1 = 67) is entered into the location for User 5 (2106).

When assigning Control Station Function Keys (next section) ,each of the above access privileges may be applied to the Response on each Function key. This involves the use of action code **99** followed by the cumulative weights shown in Table 38. which set the type of authorization level allowed to enter certain menu types or perform arm/disarm functions.

User	Location	Local Disarm	Local Arm	Remote Disarm	Remote Arm	Alarm Disarm	Security Menu	Home Control	Program	Value
		Add 1	Add 2	Add 4	Add 8	Add 16	Add 32	Add 64	Add 128	
1	2086	1	2	4	8	16	32	64	128	255
2	2087	1	2	4	8	16	32	64	0	127
3	2088	1	2	4	8	16	32	64	0	127
4	2089	1	2	4	8	16	32	64	0	127
5	2090	1	2	4	8	16	32	64	0	127
6	2091	1	2	4	8	16	32	64	0	127
7	2092	1	2	4	8	16	32	64	0	127
8	2093	1	2	4	8	16	32	64	0	127
9	2094	1	2	4	8	16	32	64	0	127
10	2095	1	2	4	8	16	32	64	0	127
11	2096	1	2	4	8	16	32	64	0	127
12	2097	1	2	4	8	16	32	64	0	127
13	2098	1	2	4	8	16	32	64	0	127
14	2099	1	2	4	8	16	32	64	0	127
15	2100	1	2	4	8	16	32	64	0	127
16	2101	1	2	4	8	16	32	64	0	127

Key	Response		Code Required?			Function
	Location	Response	Yes/No?	Location	Add	
0	Use	50	No	1817		Engineer Sign In Enable, do Alarm 30
1	Eng Menu 4,4	41	Yes			Bypass Zone Menu
2	(Control Station)	42	No			Home Control menu
3	Otation)	43	No			Test Menu
4		44	No			Record Memo Menu
5		45	No			Event Log
6		46	Yes			Change Phones Menu
7		47	Yes			Change Sign in Code
8		53	No	1818	1	Intercom
9		52	Yes		2	Time Program Menu
*		49	Yes		8	Answering Machine menu
F	1811	0	Yes		4	
#	1813	51	Yes		16	User Codes
Away	1814	28	No		32	Arm to Away Mode
Night	1815	24	No		64	Arm to Night Mode
Day	1816	26	No		128	Arm to Day Mode

Table 39 - Keypad Control Station Menu (Engineer Menu 4,4)

Function Keys 0 to 9 and * can be programmed using Engineer menu 4,4. Function Keys Away, Night, Day, #, F functions must be programmed using Locations (Engineer menu 7,4,1). To program F, #, and one touch keys for CODE required, Add the values in the ADD column if a code

To program F, #, and one touch keys for CODE required, Add the values in the ADD column if a code is required, including those for the 8,9,* keys for Location 181

Table 40 - Word List (E24)

Word	No	Word	No	Word	No	Word	No
NUL	0	Back	2	Downstairs	16	High	31
1	145	Balcony	3	Dressing	106	Holiday	201
2	146	Basement	4	Drive	18	Home	202
3	147	Bath	47	Duress	187	Hot	19
4	148	Battery	209	End	188	Hundred	203
5	149	Beam	5	Enter	189	HVAC	128
6	150	Bedroom	6	Entertainment	72	Indoor	108
7	151	Bell	178	Entry	190	Infrared	204
8	152	Blind	17	Erase	239	Intruder	205
9	153	Breakfast	99	Event	191	Jacuzzi	28
10	154	Breakglass	7	Exit	192	Key	206
11	155	Bright	84	Failure	193	Kitchen	32
12	156	Bypass	179	Family	194	Lamp	81
13	157	Call	180	Fan	65	Landing	67
14	158	Camera	9	Fence	20	Laundry	129
15	159	Care	181	Fire	195	Lawn	137
16	160	Carporch	117	First	196	Left	75
17	161	Ceiling	102	Flood	21	Level	8
18	162	Cellar	127	Floor	90	Library	125
19	163	Chandelier	98	Foot	113	Light	34
20	164	Change	182	Force	240	Lights	33
30	165	Channel	103	Fountain	101	Living	35
40	166	Check	246	Fountain	135	Lobby	94
50	167	Children	79	Foyer	107	Location	253
60	168	Cinema	109	Front	22	Lock	132
70	169	Close	70	Full	197	Loft	126
80	170	Code	247	Function	26	Lounge	69
90	171	Coffee	104	Games	91	Low	36
Action	172	Communicatn	183	Garage	23	Lower	95
Add	237	Control	184	Garden	24	Maids	74
Airconditioner	1	Cool	10	Gas	198	Main	120
Alarm	173	Corridor	11	Gate	199	Master	37
Alert	174	Curtain	12	Greeting	249	Mezzanine	134
All	85	Degrees	105	Ground	92	Mode	208
And	175	Delay	185	Group	200	Monitoring	207
Aquarium	59	Detector	13	Guest	93	Movement	121
Area	80	Dial	238	Hall	27	Music	38
Arm	176	Dim	83	Heat	136	Night	210
Attic	82	Dining	14	Heater	29	Nursery	110
Away	177	Door	186	Help	250	Off	211
Awning	89	Down	15	Hifi	30	Office	39

Word	No	Word	No	Word	No	Word	No
On	212	Shunt	71	Water	63		
Open	213	Side	48	Week	254		
Options	214	Siren	225	Welcome	235		
Output	122	Sleep	49	Window	64		
Outside	40	Smoke	50	Workshop	139		
PABX	252	SMS	226	Yard	100		
Panic	215	Speaker	123	ZERO	144		
Party	41	Sprinkler	51	Zone	236		
Path	216	Staircase	96	<terminator></terminator>	255		
Patio	140	Start	118				
Pelmet	97	Start	228				
perimeter	217	Station	227				
Phone	251	STOP	131				
Play	78	Store	52				
Pool	42	Strobe	229				
Porch	43	Study	53				
Powder	133	Switch	68				
Power	218	System	230				
Program	219	Table	86				
Projector	111	Tamper	231				
Pulse	241	Temperature	54				
Radio	66	Test	232				
Rain	44	Third	88				
Record	220	Time	245]	
Reset	221	Toggle	116				
Response	222	Toilet	73				
Restore	242	Trellis	119				
Reverse	243	Trouble	233				
Right	76	TV	55				
Roof	45	Up	56				
Room	46	Upstairs	57				
Rumpus	130	Utility	58				
Safe	223	Vacation	248				
Second	87	Video	60				
Scene	112	Volume	61				
Screen	114	Wall	115				1
Security	224	Warm	62				
Sensor	25	Warning	234]	
Settings	244	Wash	138				
Shower	124	Washing	77				

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