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## 1 GENERAL INFORMATION

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The LGX01 Logic Engine is a Programmable Automation Controller which can replace Programmable Logic Controllers (PLCs) and with the ability to interface to most Home automation Systems like KNX, C-Bus, Z-Wave, Modbus, Crestron, Lutron and many others. LGX01 has 8 inputs and 8 outputs expandable to 96 I/O. 32 Time Programs allow for the scheduling of automation responses. Each of the open-collector outputs can be used to drive relays or send infrared signals to IR Emitters to control appliances like Airconditioners and AV equipment. Inputs can be connected to switches, motions sensors or Current Sensors, and each Inputs On and Off state changes can be used to trigger automation Responses.

The LGX01 is the same as a Comfort Security/Automation system without the alarm, telephone, and Voice announcement, recording and playback functions.

A wide range of interface modules include IRIO (Intelligent Remote Input/Output) modules, Temperature Sensor Modules TSM01, and UCM interfaces to C-Bus, KNX, Z-wave etc. The plug-in Ethernet interface ETH03 allows programming by the Configurator software tool as well as access by the Comfort Android and iOS apps to control any automation function in the LGX01

## Specifications

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### PCB Size

- 130 x 110 mm

### Inputs

- 8 Inputs expandable to 16 with Local Expansion Module (LEM) and 96 with Slave Expansion Modules (SEMs).
- Surge/Over voltage protection for each zone

### Outputs

- OP03 submodule with 8 open collector outputs on main board, expandable to 16 with Local Expansion Module, and 96 with Slave Expansion Modules. OP03 is supplied with LGX01
- Each output can drive external relay or infrared emitters for Infrared remote control.
- Programmable Pulsed or Latched output activation.
- Infrared codes can be sent to any output.
- Maximum combined output current of 600 mA for all 8 outputs, 150 mA max for any one output.
- Over voltage and Surge-protected outputs.

### LAN/USB Interface

- Plug in LAN Interface (ETH03) or USB (USB01) submodule for Configurator programming or iOS/Android Apps. ETH03 or USB01 are not supplied and must be ordered separately. This means that a separate UCM is not necessary.

### Power Supply

- Wall Mounted Universal Power Supply 90 to 264 VAC Input, 12VDC 1 Amp output with EU or UK plugs, end stripped and tinned. Negative wire has gray stripe

# *LGX01 Installation Manual*

## **Auxiliary Supply Outputs**

- 12V unswitched output for powering external devices and RS485 modules.
- 12V programmable switched supply (S12V)
- Note: Both switched and unswitched auxiliary supplies and 8 Outputs have a combined continuous current limit of 1A.

## **Memory**

- Nonvolatile memory maintains configuration during total removal of power

## **Other Features**

- Time Synchronisation with Internet Time servers via ETH03 (optional)
- 32 Time Programs
- 1024 Programmable Responses with If/Then/Else conditions. Configurators Response wizard allows programming of Responses for any application.
- 64 User-programmable Timers for programming
- Sunrise/Sunset Times depending on location or City with automatic Daylight saving Time change.
- Control Menu for Comfort iOS/Android apps with 8 Control Groups, each Group with 10 Control Keys, each Control Key with 10 Actions.

## **RS485 Bus**

LGX01 is a Bus master on an RS485 Bus. This allows any LGX01 module to be installed in the network including UCM/KNX, UCM/CBUS, UCM/Zwave, UCM/USB, UCM/ETH03, UCM/Universal, IRIO, HIO, TSM.

## **Ordering Information**

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- LGX01 : Logic Engine PCB (xxx x 130 mm) with wall mount universal power supply 12V 1 Amp DC
- ETH03 - Plug-in submodule for LGX01
- LEM01-M2 - Local Expansion Module (8 inputs, 8 Outputs)
- LEM02-M2 - Local Expansion Module (8 inputs, 0 outputs)
- EN01 - Metal Enclosure for LGX01, LEM and UCM 310 x 350 x 95 mm
- KT05 - Wallmount Tabel 7 inch screen
- SEM01C - Slave Expansion Module with built-in battery charger
- SEM02C - Slave Expansion Module (requires 12V external supply)
- UCM/ETH03 - Universal Communications Module with IR Learner with Ethernet interface for Configurator programming.
- UCM/USB - Universal Communications Module with IR Learner and USB interface for Configurator upload/download
- UCM/CBUS2 - C-Bus Interface Module
- UCM/KNX2 - KNX Interface Module
- UCM/GSM4 - GSM Interface for SMS control of Automation
- UCM/Universal - with Rs232, RS485 or Ethernet interfaces for 3rd party products.
- CSM03/PCB - Dual Current Sensor PCB supports 2 CSM03-CT sensors
- CSM03-CT - Current Transformer, 2 CSM03-CT are connected to 1 CSM03-PCB
- IRIO01 - Intelligent Remote I/O with 8 inputs and 8 outputs. Up to 15 IRIO in a system
- HIO01 - Hotel Input/Outputs. Up to 15 HIOs in a system
- TSM01 - Temperature Sensor Module. Up to 15 TSM01 in a system.
- TWS01 Single Lighting Control Module (for two way switching)
- TWS02 Dual Lighting Control Module (for two way switching)

## *LGX01 Installation Manual*

- IR01W Infrared transmitter cable assembly for short range (round led)
- IR03W Infrared transmitter cable assembly for short range (stick-on emitter)
- ZTS01 Zone Test Switch for simulation of inputs.
- LP01 12 V lamps for testing output control

## **Documentation**

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### **LGX01 Manual**

This manual includes the specifications, installation, setup, wiring requirements, testing/commissioning, troubleshooting, and FAQs.

### **Programming with Configurator**

Shows how to use the Configurator software tool to program Comfort and Logic Engine. Discusses the programming concepts, techniques and programming strategy.

### **Action Codes Reference**

A Complete list of Actions and how they are used. Action codes are commands for Comfort and Logic Engine. These are assembled into Responses (sometimes called "Macros") to produce multiple operations. Master these and you can make your Comfort/Logic Engine do what no other system can. Action Codes can be specified in Configurator's Response Wizard

You can get the system up and running with the default settings, but it is likely you will want to do some of the clever things which attracted you to Comfort/Logic Engine in the first place. You will need a good grasp of Action Codes and how they are used in Responses.

## **Internet**

### **Cytech Technology Web site**

Our Web site at <http://www.cytech.biz> has all the manuals and other documentation, FAQs, applications, brochures, as well as software which can be downloaded. Other sections include News, Features, Products, Distributors, and an interactive demonstration.

### **Comfort User Groups**

Join our user forum at

<http://www.comfortforums.com>

This user group is a forum for discussion, comments, problems, new product announcements and technical support for Comfort Users

- **THE PRINTED MANUAL MAY NOT BE THE LATEST VERSION. ALWAYS CHECK WWW.CYTECH.BIZ FOR THE UPDATED VERSION OF THIS MANUAL**

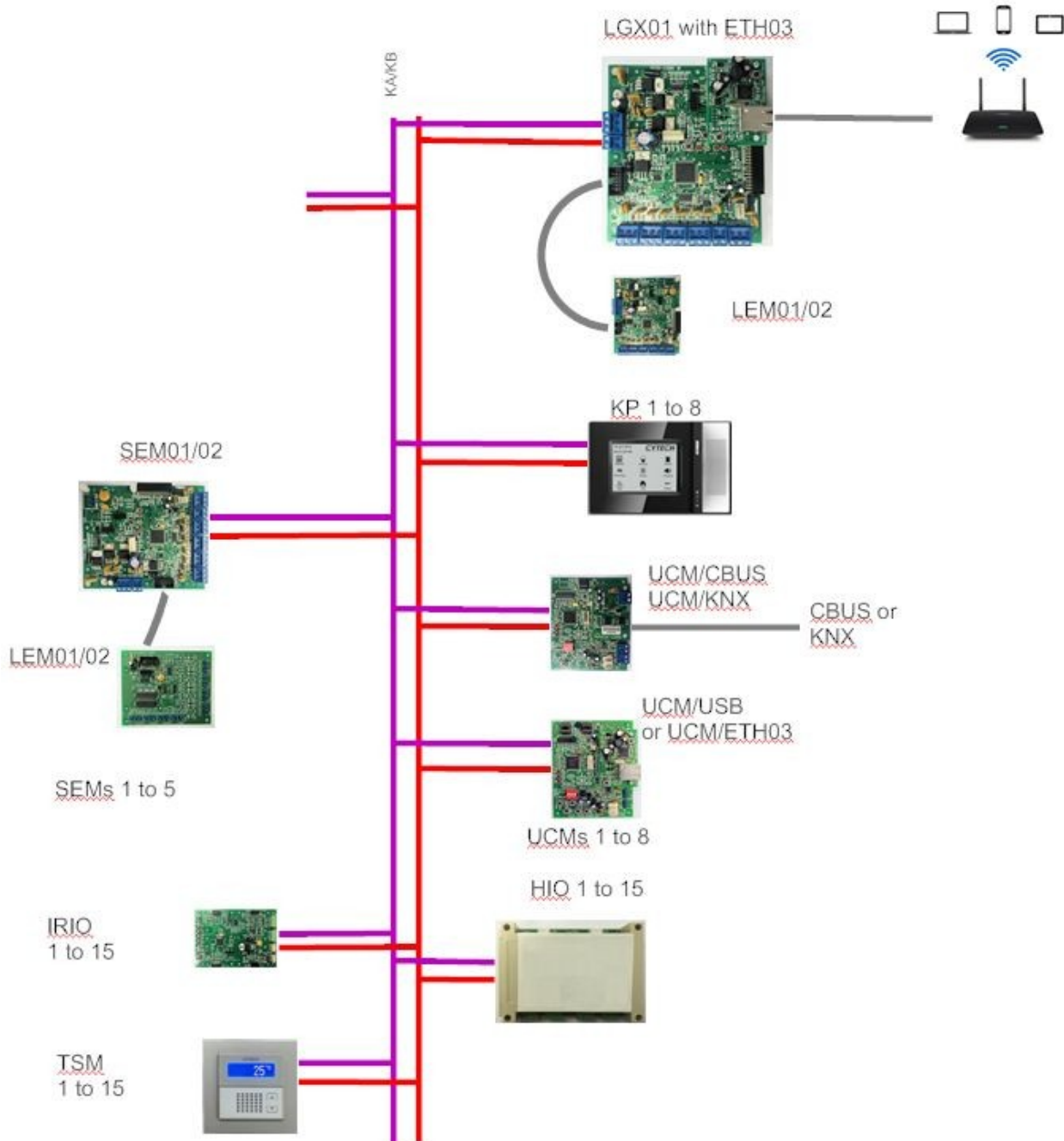
## LGX01 Features

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The table below shows the features of LGX01

| Model                                      | LGX01                      |
|--------------------------------------------|----------------------------|
| File System Memory (U4)                    | File System 36 (256 k)     |
| Max Inputs                                 | 96                         |
| Max Outputs                                | 96                         |
| Control Menu Groups                        | 8                          |
| Control Devices per Group                  | 10                         |
| Control Actions per device                 | 10                         |
| Commands on Home Control Menu              | 800                        |
| Time Programs                              | 32                         |
| Sunrise/Sunset times, Daylight saving      | Yes                        |
| User Sign-in Codes                         | 16                         |
| Zone Types                                 | 31                         |
| IR Code Memory (Send)                      | 8192 bytes (typ 250 codes) |
| Responses                                  | 1,023                      |
| Codes per Response                         | 8                          |
| IR Receive Codes                           | 128                        |
| RC01 Rooms/Scenes                          | Yes                        |
| Counters                                   | 256                        |
| Flags                                      | 64                         |
| User Timers                                | 64                         |
| Comfort Protocol by RS232, Ethernet, RS232 | Yes                        |
| SEM01                                      | 5                          |
| RIO01                                      | 15                         |

## LGX01 Architecture



The above diagram shows how LGX01 can be expanded in relation to its architecture.

The LGX01 has 8 inputs and 8 open-collector Outputs with. A Local Expansion Module provides another 8 inputs and 8 outputs (LEM01) or 8 inputs (LEM02) in the same enclosure, to give a maximum of 16 Inputs and 16 Outputs. The Outputs are open-collector transistors, capable of driving 12V relays or infrared transmitter LEDs.

The Slave Expansion Module (SEM01 with its own power supply, or SEM02 which requires an external power supply) provides another 8 Inputs and 8 Outputs. A Local Expansion Module can be connected to the SEM to provide another 8 inputs

## *LGX01 Installation Manual*

and 8 outputs (LEM01) or 8 inputs (LEM02) in the same enclosure, to give a maximum of 16 Inputs and 16 Outputs with the Slave.

Up to 5 Slaves (SEM) with their own Local Expansion Module can be connected to the Main Comfort/Logic Engine panel for a maximum of 96 Inputs and 96 (open-collector) Outputs.

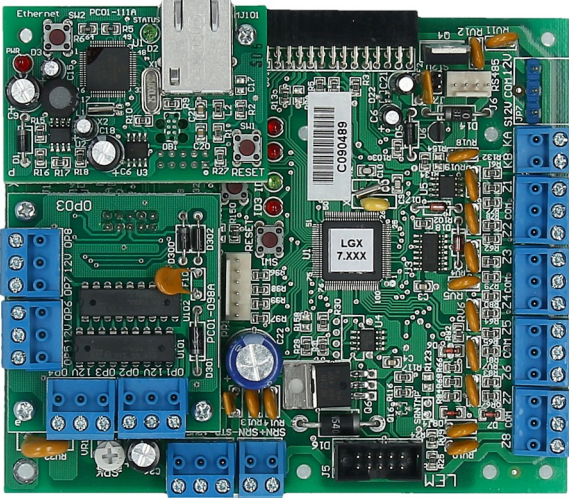
Intelligent Remote Input/Output Modules (IRIO) automation module. Each IRIO has 2 slots for automation submodules. Refer to IRIO manual for details.

The ETH03 submodule can be plugged in direct to LGX01 to allow connection to a LAN to allow Configurator programming or access by iOS/Android apps. This means a separate UCM/USB or UCM/Eth03 is not needed., although another UCM/USB or UCM/ETH can be connected

Other types of UCM include UCM/KNX2 for interface to the KNX bus, UCM/CBUS2 for interface to Schneider C-BUS. Up to 8 UCMs can be connected to a Comfort/Logic Engine system.

## 2 INSTALLATION

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*LGX01 Logic Engine with ETH03 plug in*

### Key Components

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- OP03 - Output submodule with 8 outputs, plugged in to J2A (OP03) connector. The OP03 submodule may be removed for exchange.
- U1 - Microcontroller. This IC contains the firmware for all of LGX01's embedded behaviour.
- U4 - System configuration Nonvolatile Memory (NVM). This is where all downloaded Programming information for a system setup is stored.

### LED Indicators

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- ID1, ID3, ID4 Red LED - No function
- ID2 Green LED - Turns on when Power is applied and system is in operation.

### Connections

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- Z1/COM/Z2 (JP3) - Inputs 1, 2 Centre ground (3 way terminal block)
- Z3/COM/Z4 (JP4) - Inputs 3, 4 Centre ground (3 way terminal block)
- Z5/COM/Z6 (JP5) - Inputs 5, 6 Centre ground (3 way terminal block)
- Z7/COM/Z8 (JP6) - Inputs 7, 8 Centre ground (3 way terminal block)
- S12V/COM/12V (JP7) - 12V Auxiliary and Switched Supply (3 way terminal block)
- KA/KB (JP8) - RS485 connection to keypads, UCMs, IRIO, HIO, TSM and other RS485 modules (2 way terminal block)
- OP1/12V/OP2 (JP11) - Output 1, 2, centre 12V common (3 way terminal block)
- OP3/12V/OP4 (JP12) - Output 3, 4, centre 12V common (3 way terminal block)
- OP5/12V/OP6 (JP13) - Output 5, 6, centre 12V common (3 way terminal block)
- OP7/12V/OP8 (JP14) - Output 7, 8, centre 12V common (3 way terminal block)
- LEM (J5) - LEM Connector for ribbon cable.
- RS485 (J6) - 4 way connector for RS485 modules eg UCM, SEM for short distance only using 4 way cable (WA485)

## LGX01 Installation Manual

- TAMP/COM (JP1 ) - Not used.
- STR/12VF/SPK (JP10) - Not Used
- SRN+/SRN- (JP9) - Not Used.
- J1 28 way connector - Not Used
- J3 2 x 5 way header - for ETH03 or USB submodule
- PP1 1 x 6 way header - for UCM firmware programming cable only. Do Not connect in normal operation.

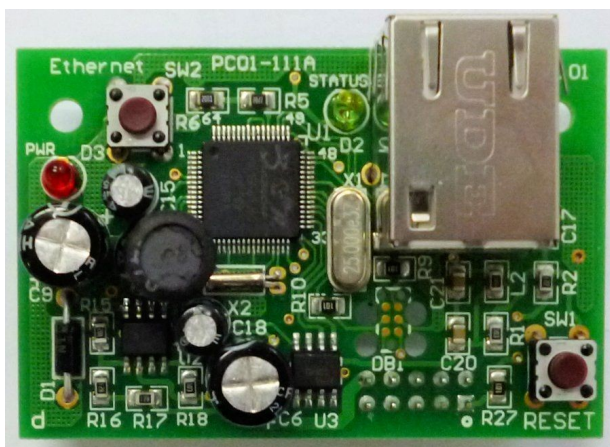
### Buttons

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- RESET button (SW1) - Resets LGX01 without affecting any programming settings
- ID (SW2) - Not Used

### Plugging in ETH03 Submodule

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*ETH03 Submodule*

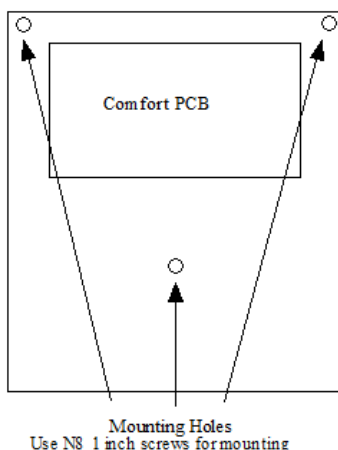
The ETH03 submodule shown above is an optional module that can be plugged in to LGX01's J3 (2 x 5 way) connector/header. The ETH03 come with plastic standoffs for mounting and screwing the submodules onto the LGX01. The ETH03 RJ45 port is connected to the LAN. The ETH03 also allows control by Comfort iOS and Android apps.

### Location and Mounting of LGX01 (in EN01 Enclosure)

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The system should be mounted in a dry area, with access to an AC Mains power source.

Do not remove printed circuit boards from the cabinet as they are sensitive to electrostatic discharge and may be damaged with incorrect handling.



Mount the enclosure securely to a brick wall using Number 8 - 25 mm long screws to

## LGX01 Installation Manual

the 3 mounting holes as shown in the diagram above. Do not switch on or connect the backup battery until all other wiring is complete. Take precautions against damage by static discharge by using an antistatic wrist strap tied to a suitable earth point.

### Current Consumption

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The table below shows typical quiescent current consumption of LGX01 and its modules. This is meant as a guide only as current consumption may vary.

| Module           | Quiescent Current (milli-amperes) |         |
|------------------|-----------------------------------|---------|
|                  | Typical                           | Maximum |
| LGX01 Controller | 50                                | 60      |
| LEM              | 10                                | 12      |
| UCM              | 70                                | 84      |
| SEM01/SEM02      | 45                                | 54      |
| RIO              | 15                                | 18      |
| KT03             | 80                                | 96      |

### Cable Routing / Requirements

---

The minimum cable type to be used for switches and sensors should be 6-core alarm cable (7/0.2mm). This has a resistance of approximately 8 ohms per 100 meters.

**Shielded Twisted pair (STP) CAT 5 cables are required for UCMs, Keypads, IRIOs and other RS485 bus modules .**

Where spare conductors are available in multicore cable runs, they should be used to double-up the 12V power supply cables to the each control station to reduce circuit resistance and further improve current performance. Ensure that all RS485 communication lines and detection circuit cables are kept away from mains supply cables.

### Input Terminals Z1-Z8 (JP3 - JP6)

---

Each Input may be Normally Closed (NC) or Normally Open (NO). Any unused Inputs should be programmed as Zone Type 0 with the inputs left open.

There are no Zone Shunts or End of Line Resistors in LGX01.

#### Current Sensor Module

Use CSM03-CT current Tranformer and CSM03-PCB Current Sensor Pcb to monitor AC current for appliances and lights. Refer to the CSM03 manual at [http://www.cytech.biz/csm\\_manual.html?category\\_id=118](http://www.cytech.biz/csm_manual.html?category_id=118)

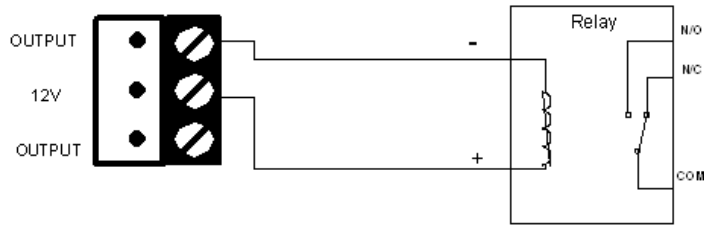
### Output Terminals OP1 - OP8 (JP11-JP14)

---

Each of the 8 outputs may be connected to infrared LEDs, indicator LEDs or external relays. Each output is an open-collector transistor output (pull to ground) capable of supplying 200 mA, but total current from these outputs together with the switched (S12V) and unswitched auxiliary power (12V) terminals should not exceed 500 mA, and protected by a resettable fuse (F2). If higher current is required, an external supply may be used instead of the 12V terminals. (see Supplementary Power Supplies)

#### Connection to Relays

Connect relays to outputs according to Figure 2.14. Relays should be connected between the 12V terminal and the output terminal. They should be located near to the enclosure.



**Figure 2.14 - Output Connection to a Relay**

### **Two Way Light switching**

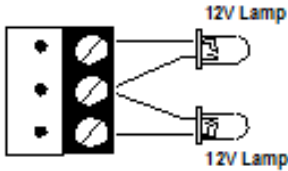
Use TWS01 or TWS02 Lighting Control Module to connect to Lighting switches, see the TWS manual [http://www.cytech.biz/tws\\_manual.html](http://www.cytech.biz/tws_manual.html)

## Connection to Infrared LEDs

There are 3 types of IR transmitter modules which can be connected to the outputs; IRM01 for longer distances (up to 8 meters range), IR01W or IR03W for short range transmissions (up to 1 meter range) The manuals for IR transmitters can be downloaded from [http://www.cytech.biz/infrared\\_transmitter\\_manual.html](http://www.cytech.biz/infrared_transmitter_manual.html)

## Using Test Lamps for Output Testing

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**Figure 2.18- Output Connection to Test Lamps**

A valuable tool for testing output programming are 12V lamps connected to the Output terminal Blocks. Unlike LEDs, these lamps do not have polarity, and can be connected directly to the Output terminals without the need for a series resistor. These lamps take around 80 mA current so they impose a real load on the outputs, similar to relays.

## 12V Auxiliary Supply Outputs (12V and S12V)

---

12V and GND supply 12V to devices which require power e.g.. motion detectors. The S12V terminal provides 12V to external devices which require resetting when activated, e.g.. smoke detectors.

**LGX01 can be programmed to turn off S12V when needed, either when the system is disarmed or when the system is being armed. Latched Smoke detectors and Shock detectors need to be reset when the system is being armed.**

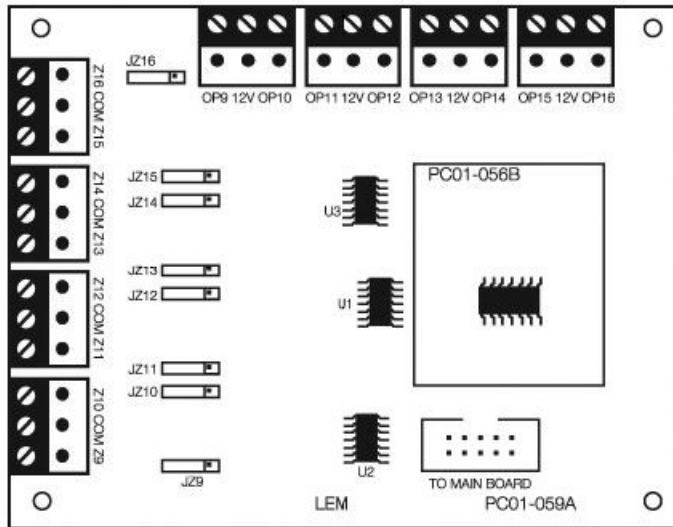
Total continuous current from these and the Output 12V terminals should not exceed 1 A. These terminals are current limited by resettable fuses.

## Resettable Fuses

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The auxiliary and battery supplies are protected by two positive temperature coefficient (PTC) resettable fuses of 1A and 2.5A respectively. If either rated maximum current is exceeded then the DC supply will be interrupted until the fault is removed. This type of protection is slower acting than a conventional fuse taking between 0 and 30 seconds to act depending on the severity of the overload. The voltage is restored once the fault is removed by disconnecting the load and the fuses cool down, which can take a few seconds

## Local Expansion Modules



**Figure 2.22 - LEM01B**

- The LEM01B has 8 inputs and 8 outputs.
- The LEM02B has 8 inputs with no outputs. LEM02B is plugged in on the LGX01 PCB
- The LEM03 has 16 inputs and no outputs.

If the LEM03 can be connected to LGX01 without SEM01 Slaves, or to the last SEM01 ID in the system

The Local expansion modules are connected locally to the LGX main panel or Slave expansion Panels via a short 10-way ribbon cable to socket J5. The board is mounted within the main panel using the four fixing posts and screws provided.

## Quick Start Power-On Checklist

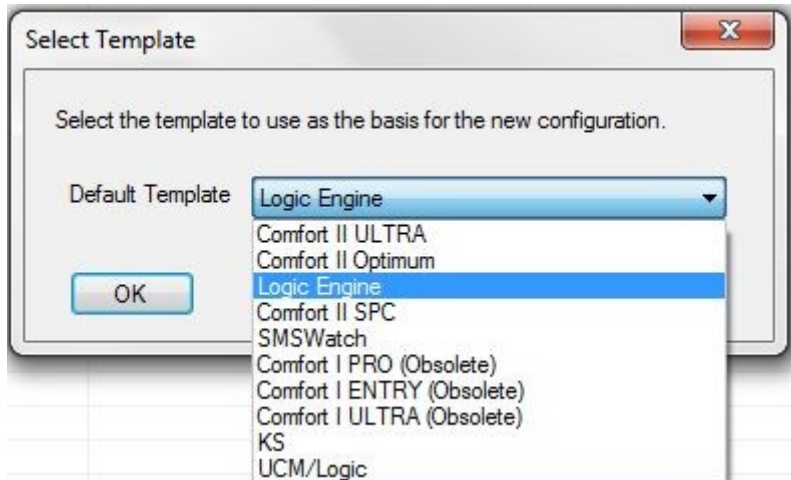
- Connect an electrical mains cable to the transformer terminal blocks. Connect the mains cable to a mains plug or to a fused spur (unswitched socket).
- Turn on the mains power. The keypad should beep briefly. Observe the red and green LEDs on the PCB during the self-testing cycle. Both LEDs should turn on when power is first applied. After a second, the red led should turn off, then the green LED which should blink off and on again. This indicates that the Voice system and the U4 EEPROM has been checked and is the correct file system.
- After a few seconds, the keypad should say "Security Off"
-

## *LGX01 Installation Manual*

- The Green LED on the Comfort board should be on steady, and may start blinking if there is a phone trouble. The RED led should be off indicating the system is not armed.
- Measure the functional resistance of each sensor/detection circuit before connection to the Comfort Zone input.
- Switch off Comfort before installing the Local Expansion Module LEM01 connected by the flat cable
- Terminate all zone wiring into the respective Zone Terminal Blocks on the Main board or Local Expansion Module (LEM) and label accordingly. Connect detector 12V supplies to the auxiliary 12V output terminal block.
- The system is ready for programming, Connect the UCM05 used for programming via the 4 way cable to the white RS485 4 pin header on Comfort. **The UCM Programming cable should NOT be connected.** The UCM red (D9) and green (D10) LEDs on the UCM should both be blinking rapidly, showing that there is communication with Comfort.
- To program using Configurator software, refer to "Programming with Configurator". For programming by Engineer Menu using keypad or telephone refer to "Engineer Menu Programming" Programming using Configurator is highly recommended except for very simple configurations. **Remember to set Date and Time.**

### 3 PROGRAMMING

To start a new configuration, go to File> New and select Logic Engine from the drop-down list as shown.

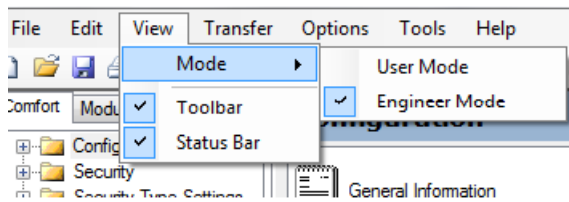


The Logic Engine template should load. On the bottom right of the status bar, Logic Engine and File System 36 should be seen.



#### Engineer Mode/User Mode

User Mode (from Configurator 3.8) is for operation of Comfort while Engineer Mode is for Programming of Comfort.



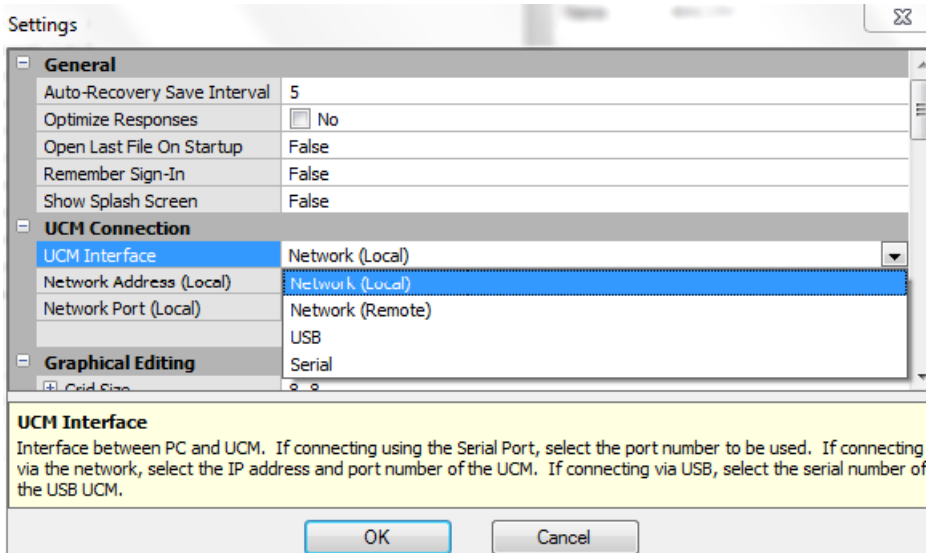
Go to View > Mode to select Engineer or User Mode. Select Engineer Mode for programming of Comfort. User Mode shall be described later.

#### Connecting to LGX

You can program LGX off-line, i.e. without being connected to Comfort. When you wish to transfer the program to Comfort using the plug in ETH03 submodule, or a separate UCM/USB, UCM/ETH03, see [http://www.cytech.biz/pc\\_interfaces.html](http://www.cytech.biz/pc_interfaces.html) The UCM Manual shows how to connect to Comfort and the PC for each type, and can be downloaded from [http://www.cytech.biz/ucm\\_manual.html](http://www.cytech.biz/ucm_manual.html)

To connect to Comfort, go to menu Options > Settings. Look for UCM Interface in UCM Connection as shown below;

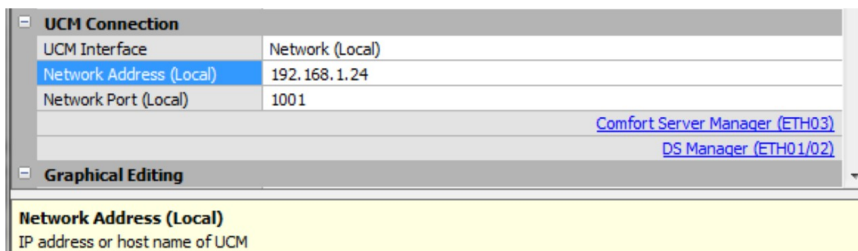
## LGX01 Installation Manual



In UCM Interface, select Network (Local or Remote), or USB from the drop-down list depending on which type of UCM you have. (RS232 is seldom used now). If you have the ETH03 submodule plugged into the LGX01, select Network Local.

If you select Network (Local), enter the local IP address and Port of the ETH03. To assign an IP Address and Port for the UCM/Ethernet in your network, click Comfort Server Manager (for UCM/ETH03). This allows you to change the default IP address and port. See UCM Manual for more details.

- **When you run Comfort Server Manager, it will check with the Cytech server if it is the latest version and if not, it will prompt if you want the latest software to be downloaded. This requires an Internet connection.**

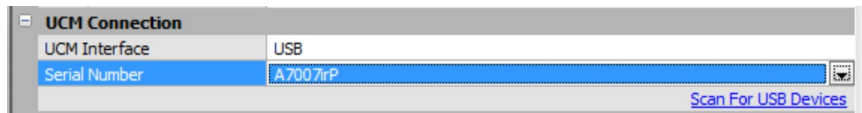


For ETH03, you can enter the Network (Remote) IP address and Port for remote (Internet) access to LGX01

Click on the Comfort Server Manager to open the software to set the IP address and Port for UCM/ETH. This IP address and port must correspond to the UCM IP Address and Port in the UCM Connection above. Go to the Forum at <http://www.comfortforums.com/forum113/3695.html> for Comfort Server Manager instructions or <http://www.comfortforums.com/forum113/3402.html> for DS Manager instructions.

If you are programming using a separate UCM you select USB, select the Serial Number in the drop down list. If the USB driver has been installed the serial number of the USB interface will be visible in the list. If the USB serial number is not seen, do Scan for USB Devices and check the USB serial number again.

# LGX01 Installation Manual



If the USB serial number is still not seen, there may be a problem with the USB driver. Try uninstalling the USB driver according to instructions at <http://www.comfortforums.com/forum73/2431.html>

If you select Serial, then select the COM port on the computer.

The connection properties are saved in the Comfigurator cclx file so when the file is loaded, the same connection is used. This is very useful especially if you use the UCM/ Ethernet, as the Local and Remote IP address and port are saved so you do not need to enter the numbers every time. The UCM Connection in use is always shown on the status bar. For example: the screen below shows Local Network connection with IP address 192.168.1.87 Port 1001 is active.

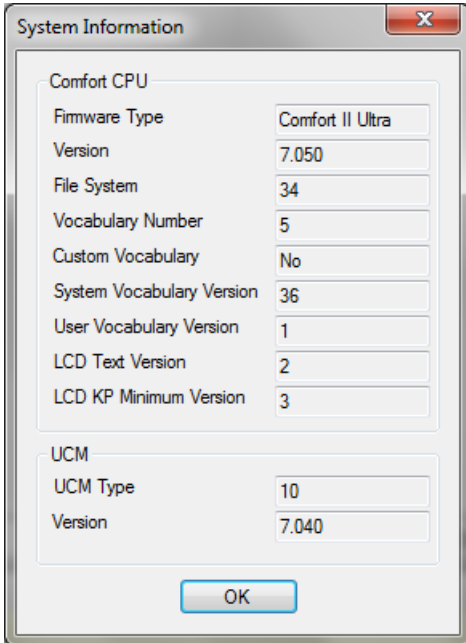


It is recommended that UCM I/O Monitor be shown (Show / Hide button is in the same row as **UCM I/O Monitor** header). The screen shows the data transferred between Comfigurator and the UCM. There is also Event Box (shown in red to display important alarm events occurring). This is shown in the screenshot above.

## Transfer > System Information

Once the UCM Interface has been selected, the next step is to go to Transfer Menu > System Information to read the basic system information from Comfort. Enter the sign-in code (default: 1234) when prompted and the System Information screen is shown (typical).

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This shows that Configurator is successfully connected to LGX via the UCM.

The fields shown have the following meaning:

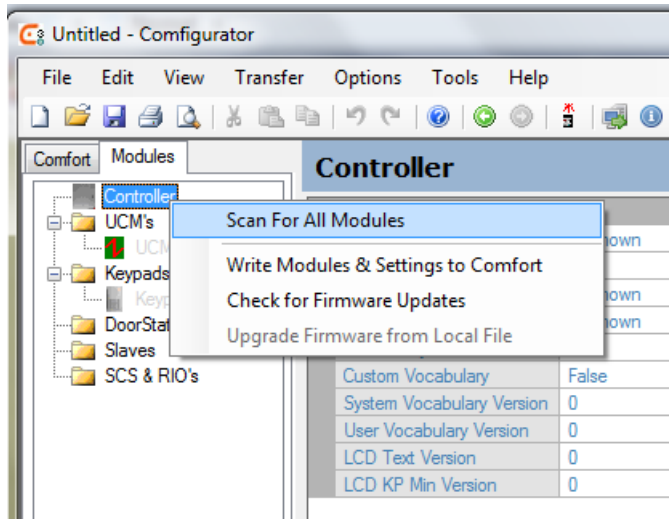
- Firmware Type: Shows the Comfort Model, Comfort II Ultra in this case
- Version: Firmware version of Comfort, 7.050
- File System: Data structure in the nonvolatile EEPROM memory (U4) which contains the programmed configuration information, 34 in this case
- Vocabulary Number: Not Applicable to Logic Engine
- Custom Vocabulary: Not Applicable to Logic Engine
- System Vocabulary Number: Not Applicable to Logic Engine
- User Vocabulary Version: Version of the User word list
- LCD Text Version: The version of the text displayed on the LCD Keypads
- LCD KP Minimum version: shows the KP04 or KP05 minimum firmware version
- UCM Type: the UCM Type used to connect to Comfort. UCM/USB, /232 and /Ethernet all are Type 10

This information is saved with the cclx file in Configuration > System Information, as shown below. This information saved in the file is useful for documentation and history purposes and for troubleshooting.

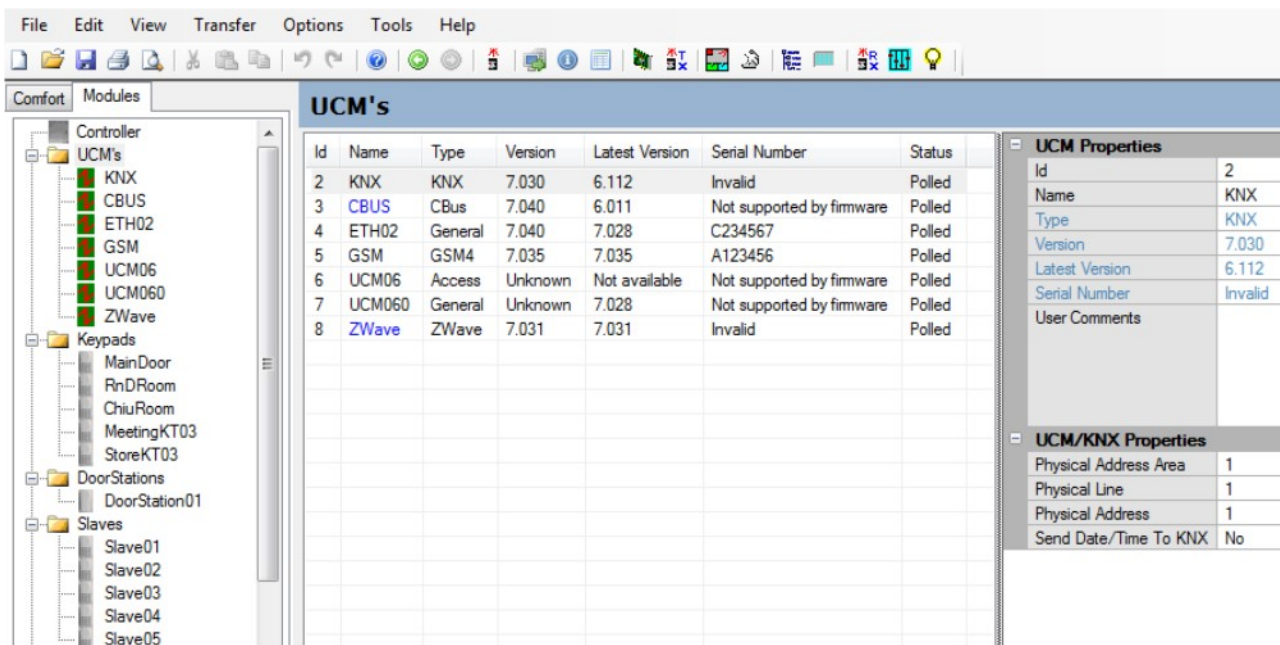
### Scanning for Modules

This allows the Comfort Modules to be detected and the firmware and type displayed. Go to the Modules tab, right click on one of the folders (UCM, Keypad, Door Station, Slaves, RIO/SCS) and select Scan for All Modules.

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The scanning process takes a few seconds. The results of the scanning are shown below (example):



This view shows the modules that have been discovered on the Comfort Bus where each of the modules must have its ID set correctly without conflicts with other IDs of the same type. Refer to the individual module instruction manuals on how to set the IDs.

The scanning results shows Type, Version, Latest Version, Serial Number, and Status for each module.

Type means the module type

- UCMs - General, Cbus, Cbus2, KNX, KNX2, Zwave, GSM4, Universal, Dupline etc
- Slaves - There are no Slave Types
- Door stations - There are no Door station Types
- Keypads - KP03/KP04, KP04A, KP06, KP06A, KT03
- SCS/RIO - SCS, RIO, IRIO
- Sensors - TSM01
- HIO - HIO01
- Version means the firmware version of the installed module.
- Latest Version means the latest released firmware. This information requires an

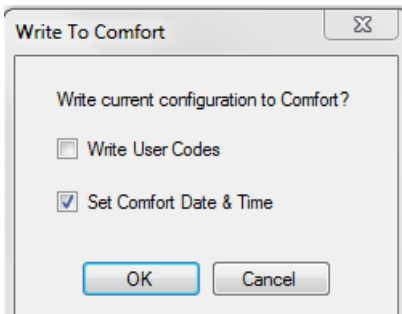
## LGX01 Installation Manual

Internet connection. The Firmware can be upgraded as described in the Upgrading Section.

- Serial Number is the serial number of the module; minimum firmware version needed.
- Status means the scanned status, either Polled, Not Found, or Not Polled. Not Found (in red) means no module was found at the id. Not Polled means the ID is on the bus but not polled by Comfort due to its settings. This should be fixed after a write to Comfort.

### Write to Comfort (PC -> Comfort)

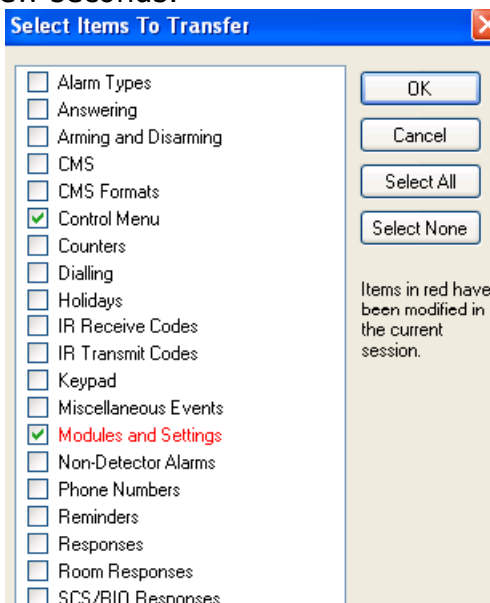
You are now ready to write the program for the first time to Comfort. Go to Transfer Menu > Write to Comfort. There will be a dialog box which asks whether to synchronise date / time with Comfort and whether to write user codes.



Check the date/time and start the write. Do not select Write User Codes. See the section below on Write and Read User codes for a better way to write user codes. This takes about 30 seconds with a progress bar visible. After the write process completes, Comfort is automatically reset, and you will hear "Security Off" on the keypads. You are now ready for testing and debugging. You will probably require several rounds of testing, modification and writing before you get it completely right. Make sure that you test everything as thoroughly as possible on the bench and on site before leaving the customers premises.

### Selective Write

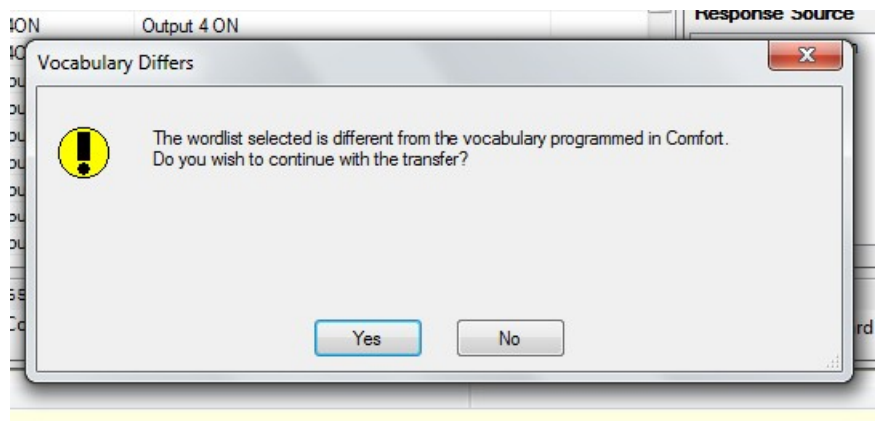
Transfer > Write Selective... writes only changed items to Comfort instead of writing the whole configuration and resets Comfort if necessary. The screen below appears. Note that the first time you do it in a session, it takes longer, about 20 seconds for the screen to appear. This saves time over a full write as a selective write may take only a few seconds.



- **When starting a Write or Selective Write to Comfort, you may see the error message below. This means the wordlist in Configurator does not match the one in LGX01.**

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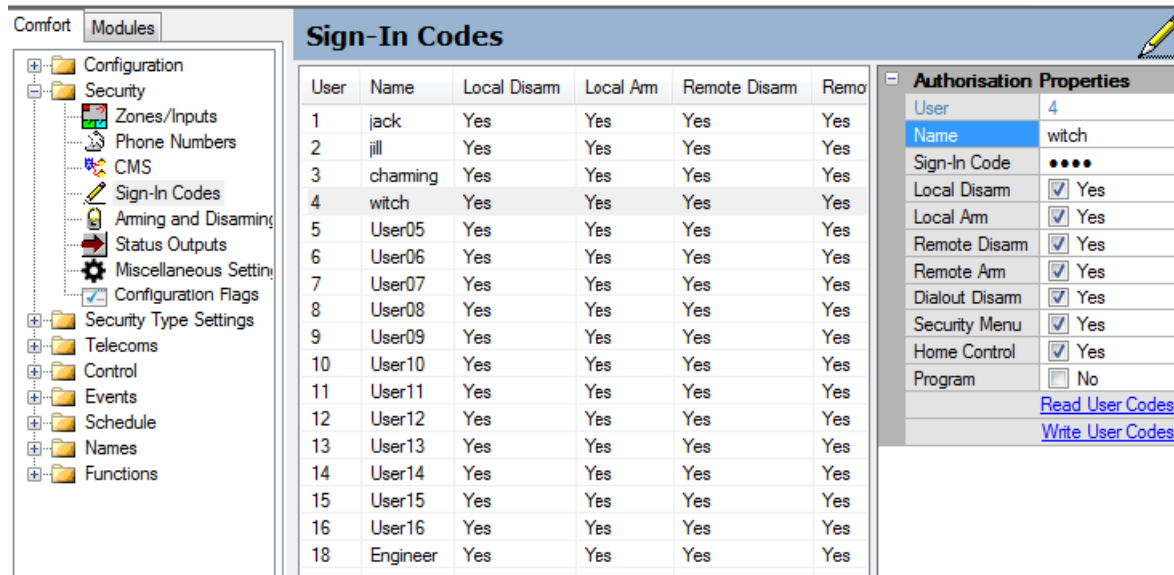
**This is because LGX01 has no wordlist as it has no voice. Ignore the message and press YES to continue to Write.**



### **Write/Read User Codes**

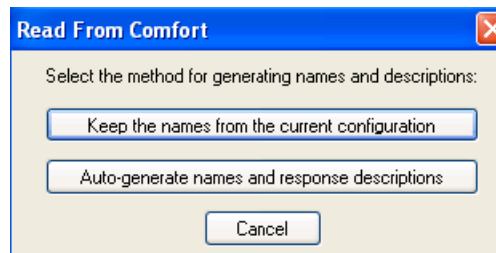
In the Security > Sign In Codes screen below, there is a button to Write User Codes and Read User Codes. Use this screen when you want to write and read user codes.

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## Read from Comfort (Comfort -> PC)

Reading from Comfort transfers the configuration from Comfort's nonvolatile EEPROM (U4) to Configurator. When Reading a program from Comfort to PC, the names and descriptions of the Responses are lost, as these names are not stored in Comfort. The Response names and descriptions are only stored in the Configurator file.



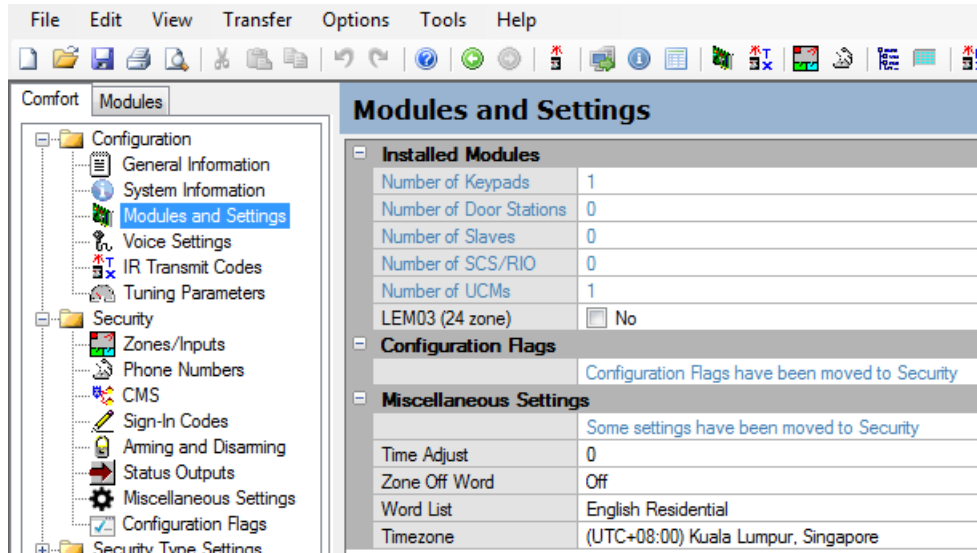
The options "Keep Names from the current configuration" and "Autogenerate names and Response Descriptions". It is recommended to use the 2nd option as this will generate reasonable Response Descriptions and names from the Actions for each Response. This is useful when taking over a Comfort installation and the original configuration file is not available.

The "Keep Names" option should be selected only when the original cclx file is available where the Responses have not changed.

## 4 GENERAL SETTINGS

### Modules & Settings

In Configurator, go to Configuration > Modules and Settings. The screen below will appear.



In this screen, the Number of Keypads, Door Stations, Slaves (SEM01 or SEM02), UCMs, SCS/RIO, TSM, HIO are shown. This screen is read only and the numbers are automatically obtained by Scanning the Modules as described in the last section.

#### Zone Off Word

Not applicable to LGX01

#### Word Lists

This is not needed for LGX01 as there is no voice announcement, unlike Comfort.. This can be left blank or any of the wordlists can be selected eg English Residential.

#### Timezone

This specifies the time zone of Comfort's location. This is used when writing the current date and time to Comfort, and is useful if you are accessing Comfort remotely from a different time zone (via UCM/Ethernet)

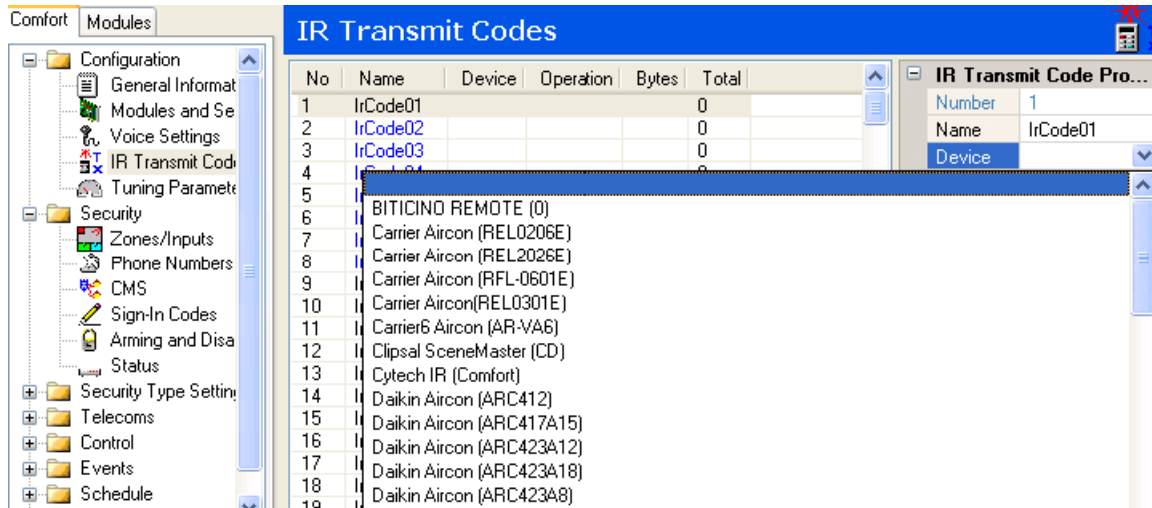
### Voice Settings

Not applicable to LGX01

### IR Transmit Codes

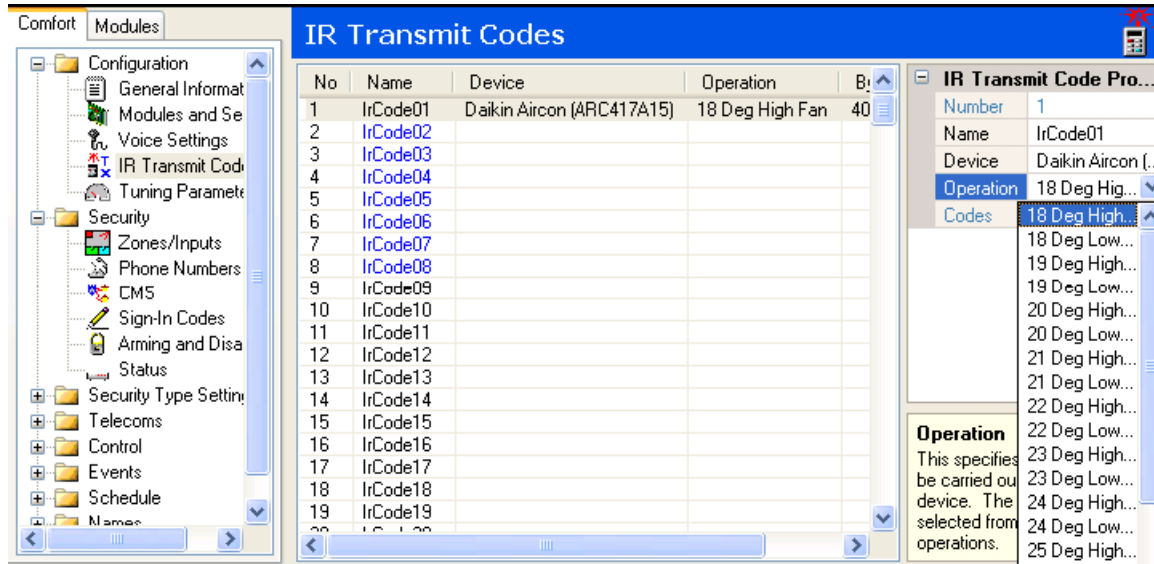
The IR Transmit codes screen selects the infrared codes which are to be used by Comfort to send through its Outputs. Go to Configuration > IR Transmit Codes.

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Each IR code can be assigned to one of the infrared signals in the Comfort IR Library. Select an IR Code number and click on the "Device" box to reveal a drop-down list of available devices, as shown above. Select a device from the list. Next click on the "Operation" box to show a list of operations available for this device.

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Select an operation from this list. Each of the IR codes can select 1 infrared signal.

Do not leave unused IR codes in the middle of IR codes that are defined. For example, you should not leave IR Code 2 blank if IR codes 1 and 3 are defined, as IR codes after the undefined code will be ignored.

The "Bytes" column shows how many bytes of data required for the IR signal. The "Total" column shows how many bytes are used for all the IR codes assigned so far.

Once the IR codes are defined, they can be sent from any Output using the Infrared action code. An Infrared Transmitter (IRM01 or IR03W) is connected to the output to allow infrared signals to be transmitted.

### Tuning Parameters

Not applicable to LGX01

## 5 PROGRAM ZONE/INPUTS

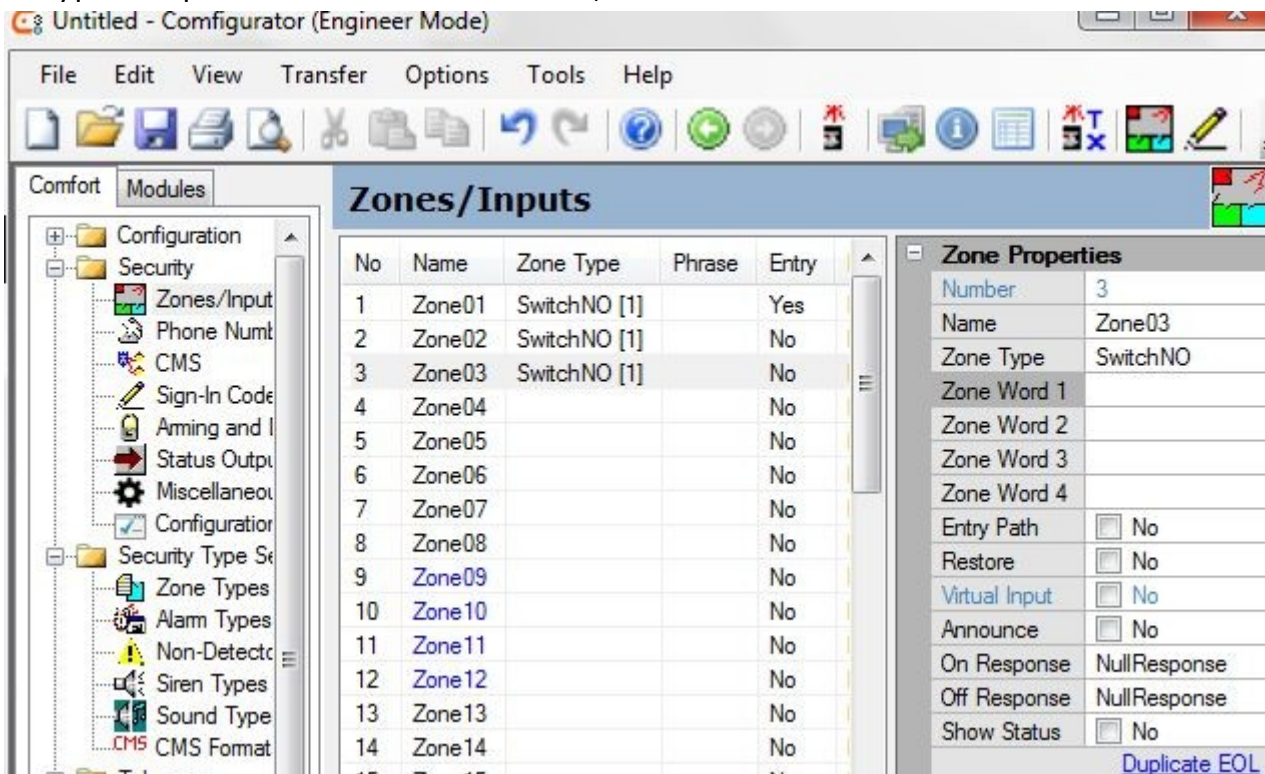
Zones/Inputs can be connected to Switches for On/Off commands, Dry contacts from equipment for status, Motion sensors, or CSM03 Current sensors for detecting AC Current in appliances, or any other dry contact /relay output.

The numbering of Inputs is according to the table below for up to 96 Inputs. Output numbering also follows the same assignment

| Input/Output No | Location           |
|-----------------|--------------------|
| 1 to 8          | Comfort Main Panel |
| 9 to 16         | LEM on Main Panel  |
| 17 to 24        | Slave SEM ID 1     |
| 25 to 32        | LEM on SEM ID 1    |
| 33 to 40        | Slave SEM ID 2     |
| 41 to 48        | LEM on SEM ID 2    |
| 49 to 56        | Slave SEM ID 3     |
| 57 to 64        | LEM on SEM ID 3    |
| 65 to 72        | Slave SEM ID 4     |
| 73 to 80        | LEM on SEM ID 4    |
| 81 to 88        | Slave SEM ID 5     |
| 89 to 96        | LEM on SEM ID 5    |

Go to Security > Zones

A typical Inputs Screen is shown below;



Each Input/zone has the following characteristics;

- Name - Enter up to 16 characters to describe the Zone/Input. This is the text used for the Zone in the Comfort iOS or Android app.
- Zone Words 1 to 4. These fields can be left blank as LGX01 has no voice to announce the zones.
- 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. The available zone types are SwitchNO (Switch Normally Open) and SwitchNC

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- (Switch Normally Closed) depending on whether the input is normally open or normally closed.
- The Entry path setting - Not Used.
- Restore - Not Used.
- Virtual Input - This is a read-only field. The field is checked is the zone is virtual, which means that a sensor from another system like KNX, C-Bus or Zwave is being used as the Input instead of the physical zone connected to Comfort. The physical input will be ignored in this case.
- Announce - Not Used.
- The On Response is activated when the input is switched to the ON state, ie Closed for a Normally Open input and Open for a Normally Closed input.
- The Off Response is activated when the input is restored ie Opened for a Normally Open input and Closed for a Normally Closed input.
- Show Status - Check the box to show the real time state of the Zone, ie On or Off

The On Response selects the Response to be activated when the zone becomes active (i.e. Open for a Normally Closed input or Closed for a normally Open Input). Leave this at Null Response if no response is required. To select a Response, you can click on the On Response field for the zone to open Select a Response window.

The screenshot shows the 'Zones/Inputs' configuration window. It contains a table with columns: No, Name, Zone Type, Phrase, Entry, Restore, and Virtual. The table lists zones 1 through 25. Zones 1 and 2 are 'FrontDoor' and 'KitchenDoor' respectively, both of type 'EntryDoor [2]' and 'DoorWindow [1]'. Zones 3 through 25 are generic 'Zone' entries. The 'Entry' column for zones 1-2 is 'Yes', while for zones 3-25 it is 'No'. The 'Restore' and 'Virtual' columns are all 'No'.

Below the main table, the 'On Response' field for a selected zone is active, opening the 'Select a Response' dialog. This dialog has a table with columns: No, Name, and Description. It lists 10 responses: 'NullResponse' (No 0), 'Output1ON' (No 1), 'Output1OFF' (No 2), 'Output2ON' (No 3), 'Output2OFF' (No 4), 'Output3ON' (No 5), 'Output3OFF' (No 6), 'Output4ON' (No 7), 'Output4OFF' (No 8), and 'Output5ON' (No 9). The 'NullResponse' is currently selected.

On the right side of the 'Zones/Inputs' window, there are additional settings for the selected zone: 'Zone Type' (Door/Window), 'Zone Word 1' (Kitchen), 'Zone Word 2' (Door), 'Zone Word 3', 'Zone Word 4', 'Entry Path' (checkbox No), 'Restore' (checkbox No), 'Virtual Input' (checkbox No), 'Announce' (checkbox No), 'On Response' (NullResponse), and 'Off Response' (NullResponse).

Select the Response required. If the desired Response is not available from the standard set of default Responses, a new Response can be created by pressing the NEW Tab at the bottom of the Select Response window and using the Response Wizard which shall be described later. Do the same for Off Response. The Off Response is activated when the Zone is restored, e.g. door or window is closed.

### Changing Input/ Zone Numbers

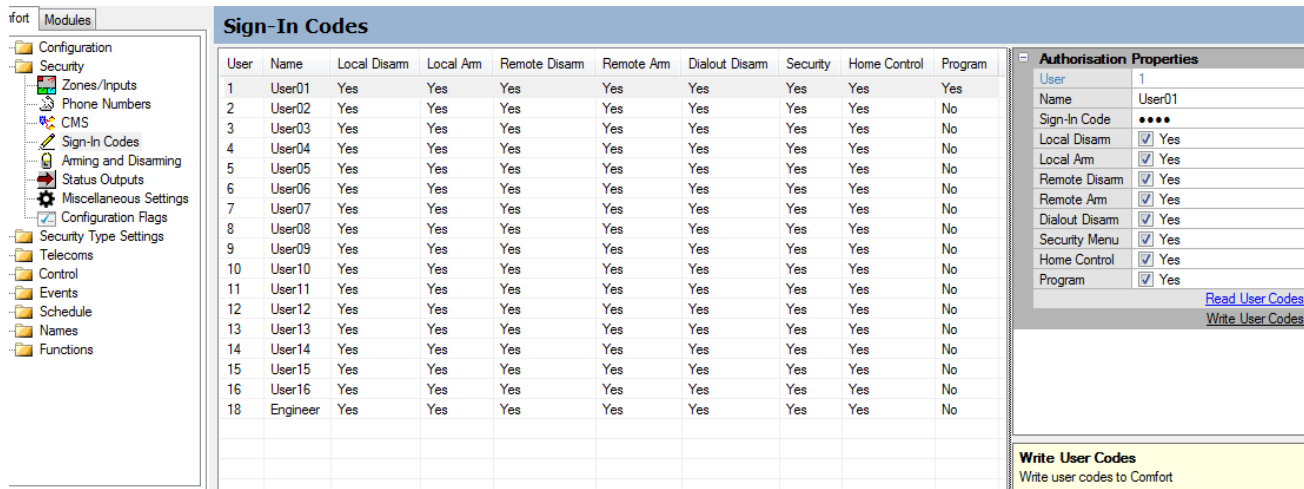
You can change the Input/Zone Number of any Zone by Dragging/Dropping the zone to another slot. Position the mouse on the selected zone and drag it to the

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new slot. This is useful when the electricians have connected the wires from a sensor to the wrong zone number.

## Sign-In Codes

16 Users with their own sign-in codes can be specified. User 18 is the Engineer code.



| User | Name     | Local Disarm | Local Arm | Remote Disarm | Remote Arm | Dialout Disarm | Security | Home Control | Program |
|------|----------|--------------|-----------|---------------|------------|----------------|----------|--------------|---------|
| 1    | User01   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | Yes     |
| 2    | User02   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 3    | User03   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 4    | User04   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 5    | User05   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 6    | User06   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 7    | User07   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 8    | User08   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 9    | User09   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 10   | User10   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 11   | User11   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 12   | User12   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 13   | User13   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 14   | User14   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 15   | User15   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 16   | User16   | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |
| 18   | Engineer | Yes          | Yes       | Yes           | Yes        | Yes            | Yes      | Yes          | No      |

**Authorisation Properties**

User: 1

Name: User01

Sign-In Code: \*\*\*\*

Local Disarm: ☒ Yes

Local Arm: ☒ Yes

Remote Disarm: ☒ Yes

Remote Arm: ☒ Yes

Dialout Disarm: ☒ Yes

Security Menu: ☒ Yes

Home Control: ☒ Yes

Program: ☒ Yes

[Read User Codes](#)

[Write User Codes](#)

**Write User Codes**

Write user codes to Comfort

### User

This is the user number 1 to 16

### Name

An optional name may be assigned to the sign-in to provide a meaningful description. It may be up to 16 characters (A-Z, a-z, 0-9, - or \_).

### Sign-In

This is the sign-in code, which may be up to 6 digits.

### User Authorization

These authorisation settings are not used in LGX01

### Read User Codes

Click this to read the existing user codes from the Comfort system.

### Write User Codes

Click this to write the changes on user codes to the Comfort system.

## **6 PROGRAMMING RESPONSES**

### **Responses and Actions**

---

A Response consists of a series of Action Codes, each of which performs a specific function, like turning an output on or off, sending an Infrared code to an output, or arming and disarming the security system. Responses may be assigned to Zone Trigger and Restore, Time Programs, Alarm Types, Control Menu, Security Mode Responses, Keypad Responses, etc. Comfort II Optimum has a maximum of 128 Responses, while Comfort II Ultra has 1023 Responses.

Action Codes are commands in Comfort's programming language which tell Comfort what to do. For example, Output Output001 On is a command for Output 1 ON. Other examples of action codes:

IR Code IrCode01 To Output004 - Send IR Code 1 to Output 4

The list of Action Codes and their meaning and usage can be found in the booklet "Action Codes Reference" in Help > Action Code Reference, which will link to the Cytech Website ([http://www.cytech.biz/action\\_codes\\_reference.html](http://www.cytech.biz/action_codes_reference.html))

A Response consists of one or more action codes. For example a Response to turn on Outputs 1, 2 and 3 would be:

Output Output001 On

Output Output002 On

Output Output003 On

This Response switches on 3 outputs

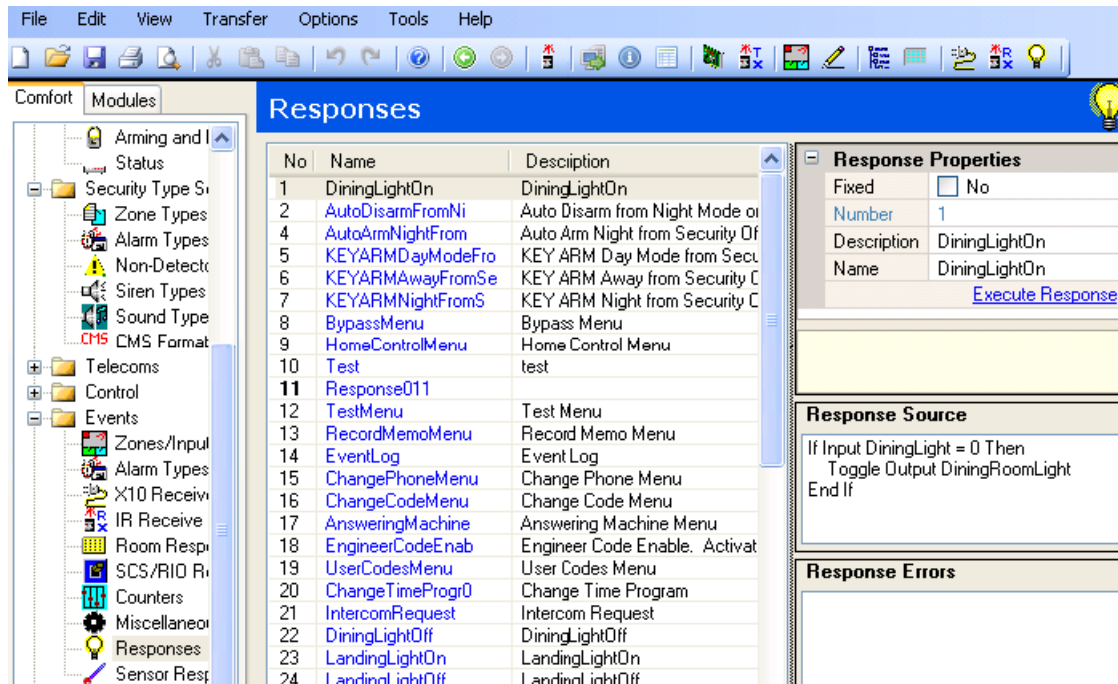
Although Comfort II Ultra has a maximum of 1023 Response numbers, in practice the maximum Responses will be less than 1023 Responses because if Responses exceed 8 bytes of action codes, the next Response Number is used. Comfigurator will automatically handle the numbering of Responses as they are created or edited.

### **Using the Response Wizard**

Comfigurator has a Response Wizard which helps to design Responses by allowing you to select Actions and their parameters in an easy way.

In Comfigurator, select Events > Responses to open the Responses screen as shown below.

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The Response number is on the left. If the number is in **bold**, it means that the Response number is fixed, and will not be affected when you add and delete responses. The advantage of fixing Responses is so that you know the number when using a keypad to check or change programs. To either fix or unfix a Response, right click on the response and select Fix Response or Unfix Response. The option to Fix and Unfix ALL Responses can be found on the Edit Menu.

The window below the Responses shows the actions of the highlighted Response in CCL (Comfort Configuration Language),

```
If Input DiningLight=0 Then
    Toggle Output DiningRoomLight
Endif
```

To add a new Response, right click anywhere on the Response line and select **Add Response**

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| Responses |            |              |
|-----------|------------|--------------|
| No        | Name       | Description  |
| 1         | Output1ON  | Output 1 ON  |
| 2         | Output1OFF | Output 1 OFF |
| 3         | Output2ON  | Output 2 ON  |
| 4         | Output2OFF | Output 2 OFF |
| 5         | Output3ON  |              |
| 6         | Output3OFF |              |
| 7         | Output4ON  |              |
| 8         | Output4OFF |              |
| 9         | Output5ON  |              |
| 10        | Output5OFF |              |
| 11        | Output6ON  |              |
| 12        | Output6OFF |              |
| 13        | Output7ON  |              |
| 14        | Output7OFF |              |
| 15        | Output8ON  |              |
| 16        | Output8OFF |              |
| 17        | IR1Output1 |              |
| 18        | IR2Output1 |              |
| 19        | IR3Output2 |              |
| 20        | IR4Output2 |              |

The Add New Response window is shown

| Add New Response           |                        |
|----------------------------|------------------------|
| <b>Response Properties</b> |                        |
| Number                     | 26                     |
| Description                | This is a new Response |
| Name                       | ThisIsANewRespon       |

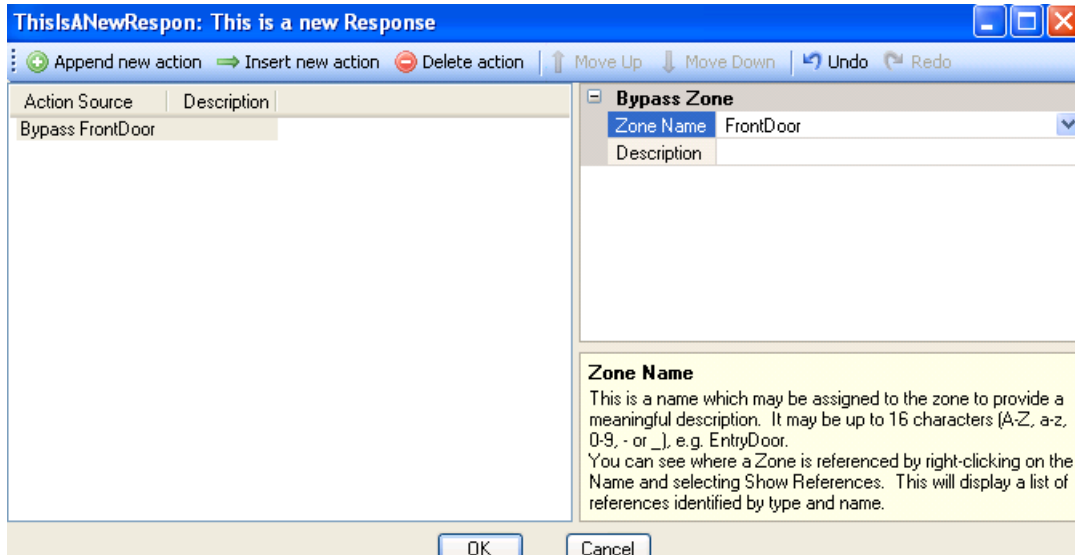
| Name                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| This is a name which may be assigned to the Response to provide a meaningful description. It can be up to 16 characters (A-Z, a-z, 0-9, - or _). You can see where a Responder is referenced by right-clicking on the Name and selecting References. This will display a list of references identified by type and name. |

OK Cancel

Enter a Description for the Response. Pressing the ENTER key will automatically generate a Name for the Response, which is the Label for the Response. Press OK

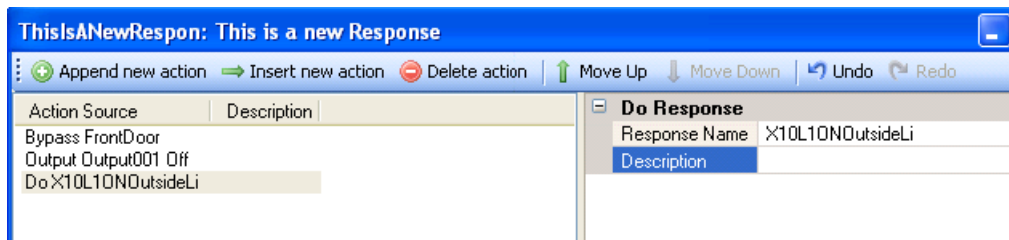
| ThisIsANewRespon: This is a new Response                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div> <div> Append new action Insert new action Delete action Move Up Move Down Undo Redo </div> </div>                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <div> <div> Action S Security Keypad DoorStation Input Output Counter Sensor Flag Do X10 Schedule Test Miscellaneous If </div> <div> 34 X1 35 X1 36 X1 37 X1 38 X1 </div> </div> | <div> <div> Bypass Zone Cancel Entry Delay Change Entry Delay Change Mode (Autoarm) Do Alarm Type, report User Do Alarm Type, report Zone Engineer Sign In Enable Perform Engineer Reset Exit Terminator Force Arm If Arming Keyswitch Arm Limit Dialout To Phone Settings Omit Input Require Engineer Reset To Arm Set Authorization Codes For Keypad Menu Skip Alarm For Zone Start Entry Delay Unbypass All Unbypass Zone </div> </div> |

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The categories of Actions are shown. Each of the categories tabs will open a new window where all the actions belonging to that group are displayed, for example, if you click on Security, the actions relating to Security will appear.

Clicking a specific action to select it. You may be asked to select parameters of an action e.g. the zone number, depending on the action.



In this way a series of Actions can be selected and added to the new Response.

## References to Responses

The Name of the Response identifies the Response in Comfigurator when it is referenced from an event. The responses which are referenced from any Event will have their names in **blue**. Response 101 to 107 in the screen below are referenced. To find out where the Responses are referenced is from right-click on the Response and select "Show References" as in the screen below.

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| Responses                                                                                                                                                                                                                                                    |                   |                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------|
| No                                                                                                                                                                                                                                                           | Name              | Description                  |
| 19                                                                                                                                                                                                                                                           | Airconditioners   | -----                        |
| 31                                                                                                                                                                                                                                                           | AllACOFF          | All ACs OFF (part 1 of 2)    |
| 33                                                                                                                                                                                                                                                           | AllACOFF1         | All ACs OFF (part 2 of 2)    |
| 28                                                                                                                                                                                                                                                           | AllACON           | All ACs ON (part 1 of 2)     |
| 30                                                                                                                                                                                                                                                           | AllACON1          | All ACs ON (part 2 of 2)     |
| 82                                                                                                                                                                                                                                                           | AllLightsOFF      | All Lights OFF (part 1 of 4) |
| 323                                                                                                                                                                                                                                                          | AllLightsOFF1     | All Lights OFF (part 2 of 4) |
| 86                                                                                                                                                                                                                                                           | AllLightsOFF2     | All Lights OFF (part 3 of 4) |
| 88                                                                                                                                                                                                                                                           | AllLightsOFF3     | All Lights OFF (part 4 of 4) |
| 75                                                                                                                                                                                                                                                           | AllLightsON       | All Lights ON (part 1 of 4)  |
| 77                                                                                                                                                                                                                                                           | AllLightsON1      | All Lights ON (part 2 of 4)  |
| 79                                                                                                                                                                                                                                                           | AllLightsON2      | All Lights ON (part 3 of 4)  |
| 81                                                                                                                                                                                                                                                           | AllLightsON3      | All Lights ON (part 4 of 4)  |
| 282                                                                                                                                                                                                                                                          | AllStoreAirconds  | All Store Airconds Off       |
| 306                                                                                                                                                                                                                                                          | Announce Temp     | Announce Temperature         |
| 137                                                                                                                                                                                                                                                          | Announce Time     | -----                        |
| 12                                                                                                                                                                                                                                                           | Answering Machine | Answering Machine Menu       |
| 121                                                                                                                                                                                                                                                          | Answering Machine | -----                        |
| 74, 52, 74, 55, 74, 59, 194, 2, 0, 2, 88, 0, 255                                                                                                                                                                                                             |                   |                              |
| scroll   Hide   Logout   Command:                                                                                                                                                                                                                            |                   |                              |
| <div> Response Wizard<br/> Edit Response Manually<br/> Edit Action Codes<br/> Add Response<br/> Duplicate Response<br/> Delete Response<br/> Auto-Generate Name<br/> Show References<br/> Graph References<br/> Export Scenario<br/> Execute Response </div> |                   |                              |

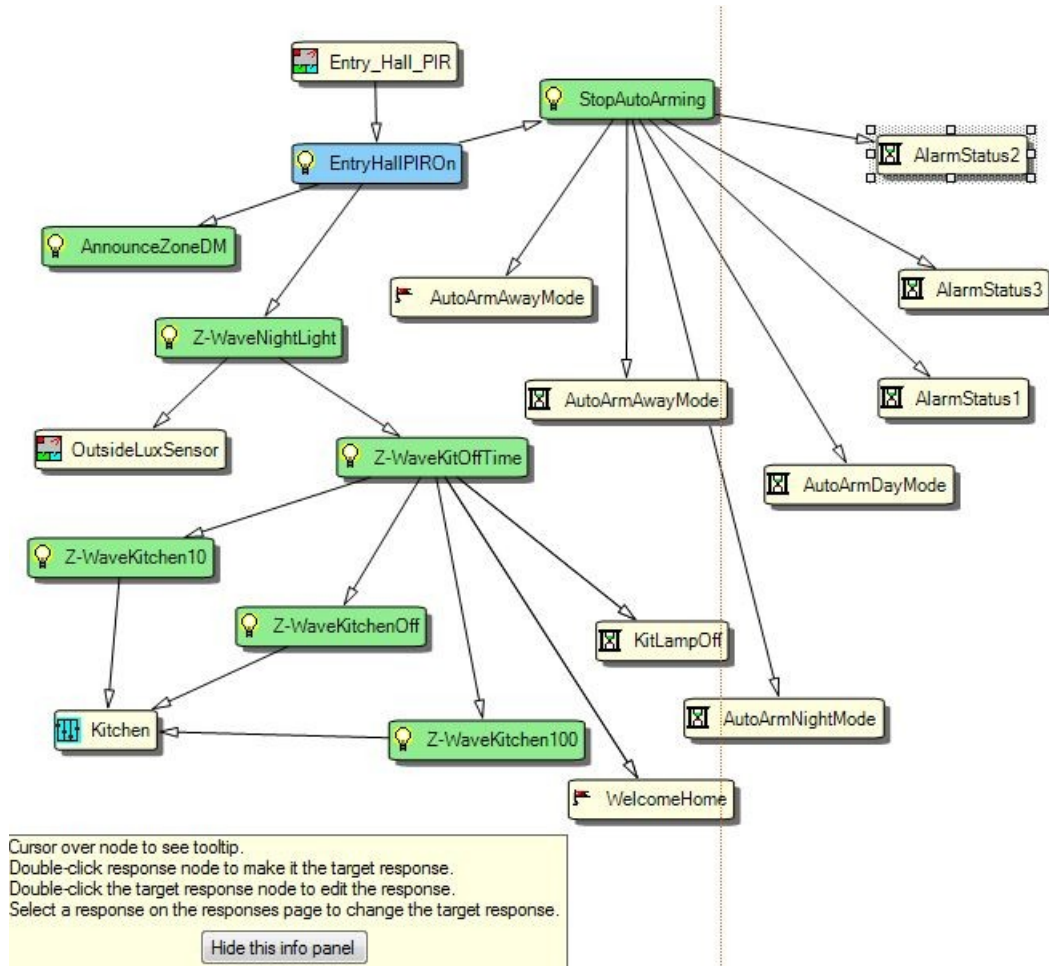
In this example below Response 63 “auto disarm from Night Mode” is referenced from Time Programs 3 and 4.

|    |                    |                                            |      |     |
|----|--------------------|--------------------------------------------|------|-----|
| 56 | Momentary switch K | Momentary switch Keyarm/Disarm to Night r  | Name | Aul |
| 59 | AnnounceZoneIfFI   | Announce Zone if Flag 16=0                 |      |     |
| 60 | MomSwAway          | Momentary switch Keyarm/Disarm to Away i   |      | E   |
| 63 | AutoDisarmFromNi   | Auto Disarm from Night Mode only and not i |      |     |
| 65 | X10AllUnitsAOff    | X10 All Units A Off                        |      |     |
| 66 | X10AllLightsAOff   | X10 All Lights A Off                       |      |     |
| 67 | DoorphoneChime     |                                            |      |     |
| 68 | AutoArmAway        |                                            |      |     |
| 69 | AutoArmNightFrom   |                                            |      |     |
| 70 | KEYARMVocationMo   |                                            |      |     |
| 71 | KEYARMDayModeFro   |                                            |      |     |
| 72 | KEYARMAwayFromSe   |                                            |      |     |
| 73 | KEYARMNightFromS   |                                            |      |     |
| 75 | ChimeSirenCondit   |                                            |      |     |
| 78 | AllOutputsX10AOf   |                                            |      |     |
| 79 | PulseOutput11Sec   |                                            |      |     |
| 80 | PulseOutput11Sec   |                                            |      |     |

| References To Response AutoDisarmFromNi |               |
|-----------------------------------------|---------------|
| Type                                    | Name          |
| Time Programs                           | TimeProgram03 |
| Time Programs                           | TimeProgram04 |
|                                         |               |
|                                         |               |
|                                         |               |
|                                         |               |
|                                         |               |
|                                         |               |

Graph References is a powerful way to trace references to Responses, Zones , Counters, Flags, and Alarms

# LGX01 Installation Manual



Being able to trace references to any Response is a great help when troubleshooting Comfort's programmed behaviour.

## Execute Responses

Responses

| No | Name             | Description          |
|----|------------------|----------------------|
| 14 | Output7OFF       | Output 7 OFF         |
| 15 | Output8ON        | Output 8 ON          |
| 16 | Output8OFF       | Output 8 OFF         |
| 17 | IR1Output1       | IR 1 Output 1        |
| 18 | IR2Output1       | IR 2 Output 1        |
| 19 | IR3Output2       | IR 3 Output 2        |
| 20 | IR4Output2       | IR 4 Output 2        |
| 21 | IR5Output3       | IR 5 Output 3        |
| 22 | IR6Output3       | IR 6 Output 3        |
| 23 | IR7Output4       | IR 7 Output 4        |
| 24 | IR8Output4       | IR 8 Output 4        |
| 25 | Output1ON        | Output 1 ON          |
| 27 | EntryAlertRespon | Entry Alert Response |

Response Properties

Fixed

☒ Yes

Number

20

Description

IR 4 Output 2

Name

IR4Output2

[Execute Response](#)

Response Source

IR Code IrCode04 To Output002

You can "Execute" a Response by pressing the link shown above in each Response. This means that the programmed actions will be activated by Comfort. This is a useful tool to test your programming. Comfort must be connected for this to work.

## Assigning Responses to Events

Once the desired Response has been created, or if it already exists as a default or predefined response, it can be assigned to any Event. For example, to have Output 1 turn on when the Main door (Zone 1) is opened, go to Security > Zones. Zone 1 On Response should point to the Response which turns on Output 1. Select Zone 1 On Response as shown below. Click on the ... Button to the right.

| No | Name           | Zone Type      | Phrase       |
|----|----------------|----------------|--------------|
| 1  | FrontDoor      | EntryDoor [2]  | Front Door   |
| 2  | Landing        | PIRAway [18]   | Landing Mo   |
| 3  | DiningMovement | PIRAway [18]   | Dining Mov   |
| 4  | KitchenWindow  | DoorWindow [1] | Kitchen Wir  |
| 5  | DiningWindow   | DoorWindow [1] | Dining Winc  |
| 6  | Zone06         |                |              |
| 7  | DiningLight    | SwitchNO [8]   | Dining Light |
| 8  | LandingLight   | SwitchNO [8]   | Landing Lig  |
| 9  | Zone09         |                |              |
| 10 | Zone10         |                |              |
| 11 | Zone11         |                |              |
| 12 | Zone12         |                |              |
| 13 | Zone13         |                |              |
| 14 | Zone14         |                |              |
| 15 | Zone15         |                |              |
| 16 | Zone16         |                |              |

|               |                                         |
|---------------|-----------------------------------------|
| Number        | 1                                       |
| Name          | FrontDoor                               |
| Zone Type     | EntryDoor                               |
| Zone Word 1   | Front                                   |
| Zone Word 2   | Door                                    |
| Zone Word 3   |                                         |
| Zone Word 4   |                                         |
| Entry Path    | <input checked="" type="checkbox"/> Yes |
| Restore       | <input type="checkbox"/> No             |
| Virtual Input | <input type="checkbox"/> No             |
| Announce      | <input type="checkbox"/> No             |
| On Response   | NullResponse                            |
| Off Response  | DialArmAway                             |

A Response Window will open.



| No | Name             | Description                                       |
|----|------------------|---------------------------------------------------|
| 0  | NullResponse     |                                                   |
| 1  | DiningLightOn    | DiningLightOn                                     |
| 2  | AutoDisarmFromNi | Auto Disarm from Night Mode only and not in Alarm |
| 4  | AutoArmNightFrom | Auto Arm Night from Security Off only             |
| 5  | KEYARMDayModeFro | KEY ARM Day Mode from Security Off                |
| 6  | KEYARMAwayFromSe | KEY ARM Away from Security Off                    |
| 7  | KEYARMNightFromS | KEY ARM Night from Security Off or Day Mode       |
| 8  | BypassMenu       | Bypass Menu                                       |
| 9  | HomeControlMenu  | Home Control Menu                                 |
| 10 | Test             | test                                              |
| 11 | Response011      |                                                   |
| 12 | TestMenu         | Test Menu                                         |
| 13 | RecordMemoMenu   | Record Memo Menu                                  |
| 14 | EventLog         | Event Log                                         |
| 15 | ChangePhoneMenu  | Change Phone Menu                                 |
| 16 | ChannelCodeMenu  | Channel Code Menu                                 |

Select an existing Response from those listed. If the Response you want does not exist, create a new Response by pressing the "New" tab on the bottom of "Select a Response" screen. Click on the "No" Column to sort the Responses by number and click on the "Name" Column to sort by Name. Select a response by clicking on it and pressing OK. The Zones screen should now look like this;

| No | Name      | Zone Type     | Phrase     | Entry | Restore | Virtual |
|----|-----------|---------------|------------|-------|---------|---------|
| 1  | FrontDoor | EntryDoor [2] | Front Door | Yes   | No      | No      |
| 2  | Zone02    |               |            | No    | No      | No      |
| 3  | Zone03    |               |            | No    | No      | No      |
| 4  | Zone04    |               |            | No    | No      | No      |
| 5  | Zone05    |               |            | No    | No      | No      |
| 6  | Zone06    |               |            | No    | No      | No      |
| 7  | Zone07    |               |            | No    | No      | No      |
| 8  | Zone08    |               |            | No    | No      | No      |
| 9  | Zone09    |               |            | No    | No      | No      |
| 10 | Zone10    |               |            | No    | No      | No      |
| 11 | Zone11    |               |            | No    | No      | No      |
| 12 | Zone12    |               |            | No    | No      | No      |
| 13 | Zone13    |               |            | No    | No      | No      |
| 14 | Zone14    |               |            | No    | No      | No      |
| 15 | Zone15    |               |            | No    | No      | No      |
| 16 | Zone16    |               |            | No    | No      | No      |

|                        |                                         |
|------------------------|-----------------------------------------|
| <b>Zone Properties</b> |                                         |
| Number                 | 1                                       |
| Name                   | FrontDoor                               |
| Zone Type              | EntryDoor                               |
| Zone Word 1            | Front                                   |
| Zone Word 2            | Door                                    |
| Zone Word 3            |                                         |
| Zone Word 4            |                                         |
| Entry Path             | <input checked="" type="checkbox"/> Yes |
| Restore                | <input type="checkbox"/> No             |
| Virtual Input          | <input type="checkbox"/> No             |
| Announce               | <input type="checkbox"/> No             |
| On Response            | Output10N                               |
| Off Response           | NullResponse                            |

The selected Response name should be in the On Response field. Any Response can be assigned to an Event in this way. The same Response can be assigned to multiple events.

## Delete Unreferenced & Unfixed Responses

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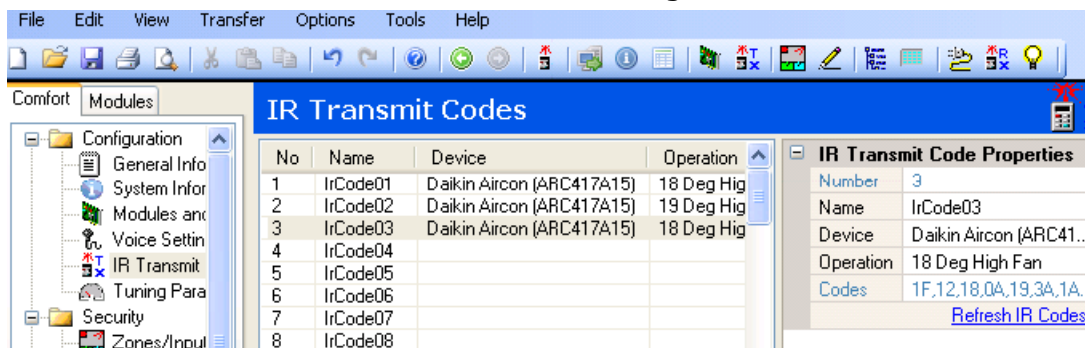
Edit > Delete Unreferenced & Unfixed Responses will delete all Unreferenced (Unused) or Unfixed Responses from the Response list so as to reduce the clutter caused by unused Responses. Fixed Responses are seen in the Response Window with the Response number in **bold**. A Response can be fixed or unfixed in the Response Property on the right pane. There is also an EDIT Menu option to Fix or Unfix all Responses. Referenced Responses are shown in **Blue** in the Response window.

### More on Programming Responses

#### Infrared Transmissions from Outputs

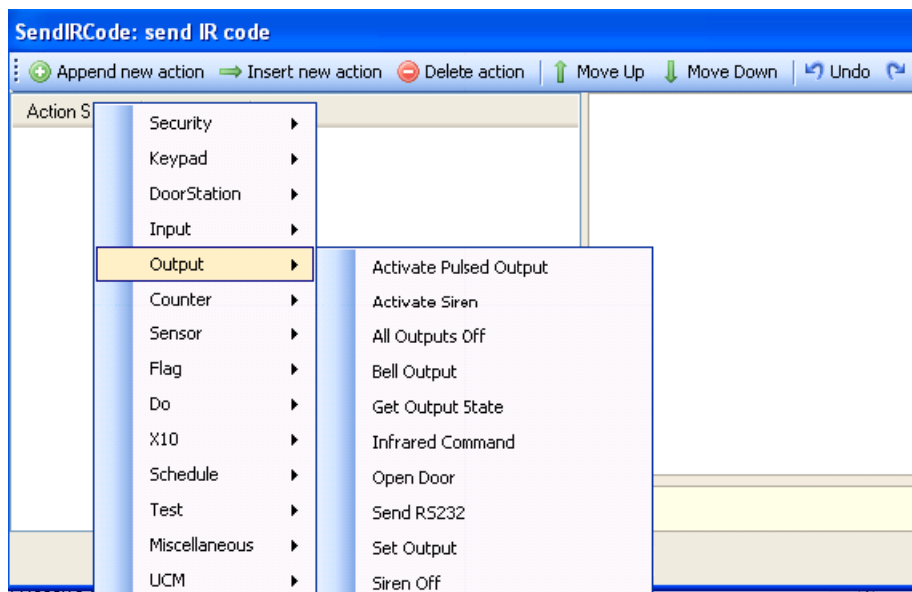
Any Infrared code defined in Configuration > IR Transmit Codes can be sent from any Comfort Output (with an infrared Transmitter Module eg IR01W or IR03W). Note that new IR codes can be learned using the UCM/USB, or Ethernet which have build in a IR Learner and using Configurator Tools > IR Learner. This is described in the UCM Manual from [http://www.cytech.biz/ucm\\_manual.html](http://www.cytech.biz/ucm_manual.html)

The IR Transmit codes should be selected in Configuration > IR Transmit codes

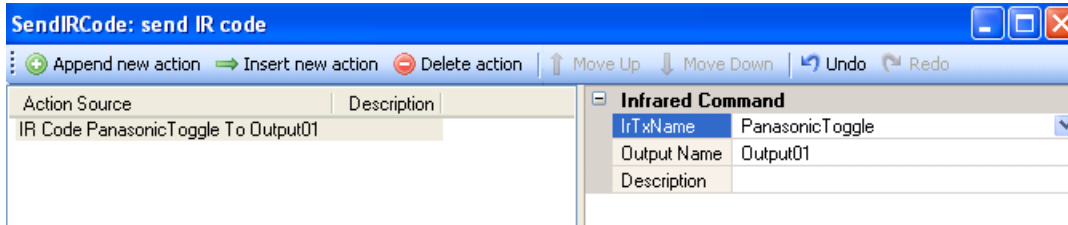


Create a new Response using Add Response

Select Output from the tabs on the left. A new window opens showing the Output actions available. Select Output > Infrared Command.

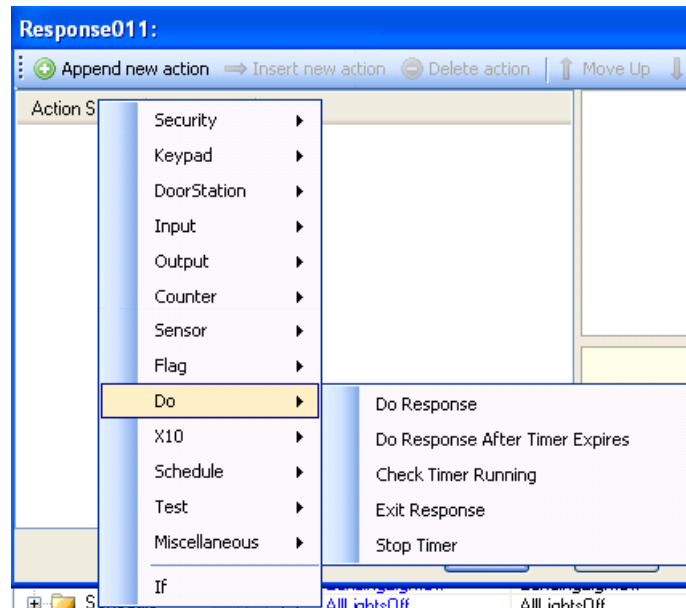


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The right of the screen shows two boxes, "IRTxName" and "Output Name". Select the IR Code name to be used, and the Output number to send the IR signal from. Outputs 1 to 64 and RIO outputs 129 to 248 can be selected, provided the required number of Slaves (SEM) and LEM (Local Expansion Modules) or RIO01s are connected.

### Do Response



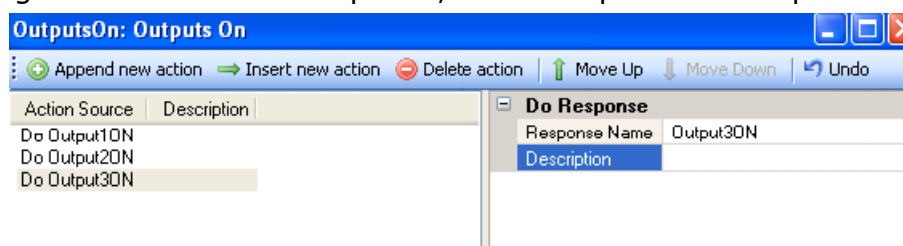
The Action **Do Response** allows a Response to call another Response, just like a subroutine in computer programming. For example we may want a Response to turn on 3 outputs - 1, 2 and 3. Select the response to edit or create a new response in the usual way.

To turn on Output 1, select Response 1 "Output 1-ON".

Click OK to go back to the Select Action window and click OK again to go back to the Response Wizard. You should see "Do Output1-ON [Output 1 ON]" as the action which has been defined.

Select DO again and select Do Response, select response 3 "Output 2-ON". Click OK to go back to the Select Action window and click OK again to go back to the Response Wizard.

Select DO again and select Do Response, select response 5 "Output 3-ON".



This allows you to make use of previously defined Responses and combine them in a larger Response. This is a very useful and powerful programming tool.

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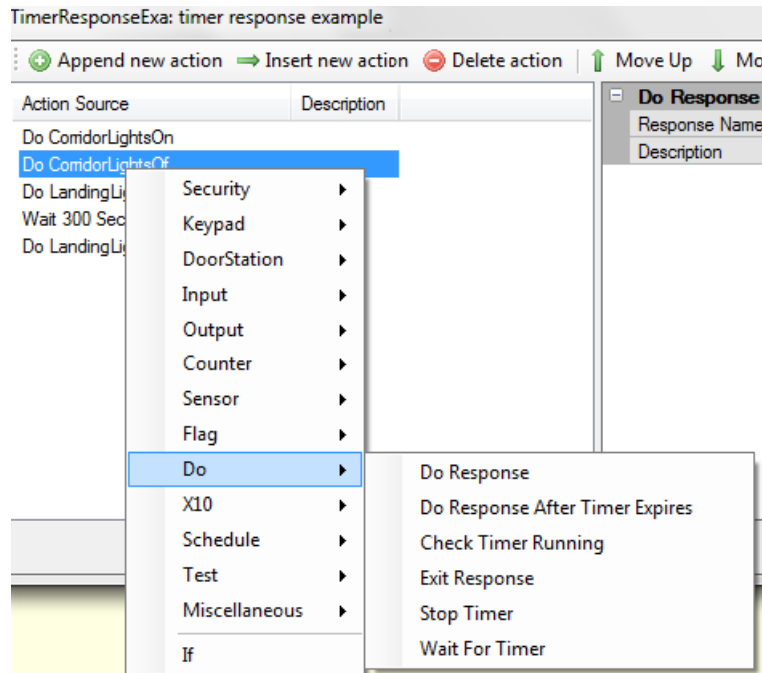
## User Timers and Responses

Comfort II Ultra has 64 User Timers which can be used to create timed delays of 1 second to 65278 seconds between actions. For example, to add a delay of 5 minutes after Do Response Corridor Lights On;



Select "Do " Category, and "Wait for Timer" action. The "Wait for Timer" action parameters are shown below.

Select the timer delay and the timer number.



The above response switches on Corridor Lights, waits for 60 seconds, switches off corridor lights, switches on Landing Lights, waits 300 seconds then switches off Landing Lights. Note that Landing Lights and Corridor Lights on and off are in Responses.

The "Wait for Timer" action does not hold up other responses or activity in Comfort. If an Alarm or zone activity takes place during the timed delay, these are handled immediately.

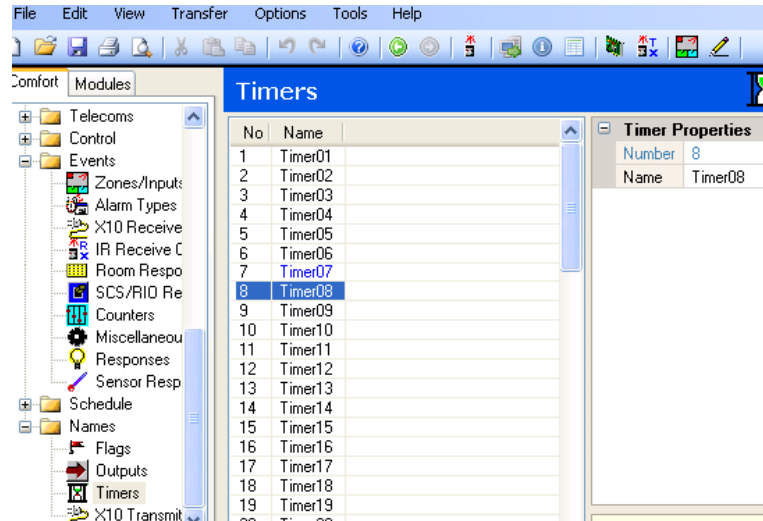
## Stop Timer

You can stop any timer which is running using the Stop Timer Action. In the above example, when the timer is running, if another event causes the Stop Timer 1 action, the following actions after the wait for timer action to turn off the light would not be activated.

## Timer References

Go to Names > Timers to see the screen shown below. The Timers which are used by Responses are shown in blue. The Timers in black are not currently in use.

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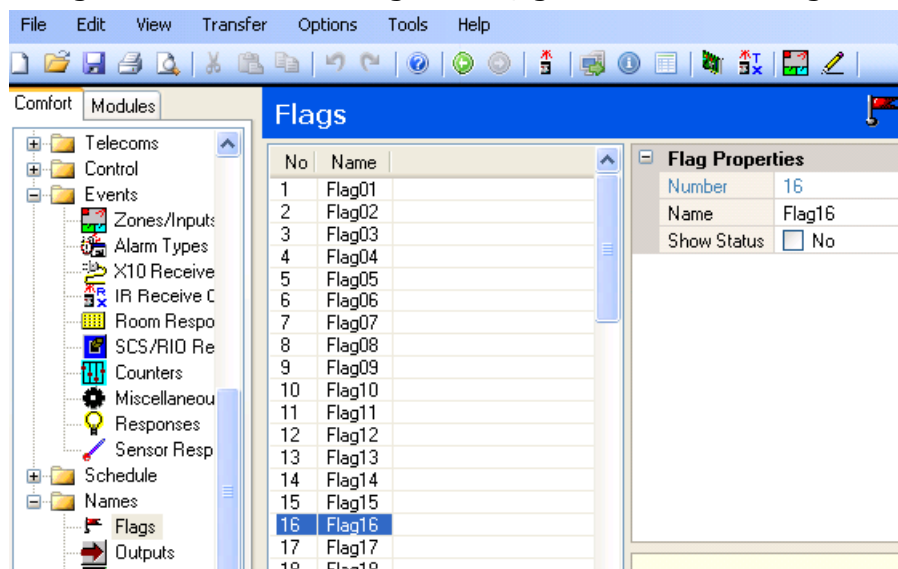
To see where the Timer is used, right-click on the Timer and select **Show References** or **Graph References**

- **Timers can be dragged and dropped in order to change the Timer number. The references to the timers are automatically changed. This saves time in programming when a different timer number must be used for any reason.**

## Flags

Flags are true/false or on/off indicators for use in conditional IF/THEN programming within Responses. A Flag can have two states, TRUE (ON) or FALSE (Output). In Comfort II Ultra the number of flags supported is 255. Action 132 (Set Flag, Clear Flag, Toggle Flag, Check Flag) is used to handle flags. The state of Flags (on/off) can be announced in the Home Control Menu by selecting Feedback Type = Flag.

To see which flags are used in a configuration, go to Names > Flags.



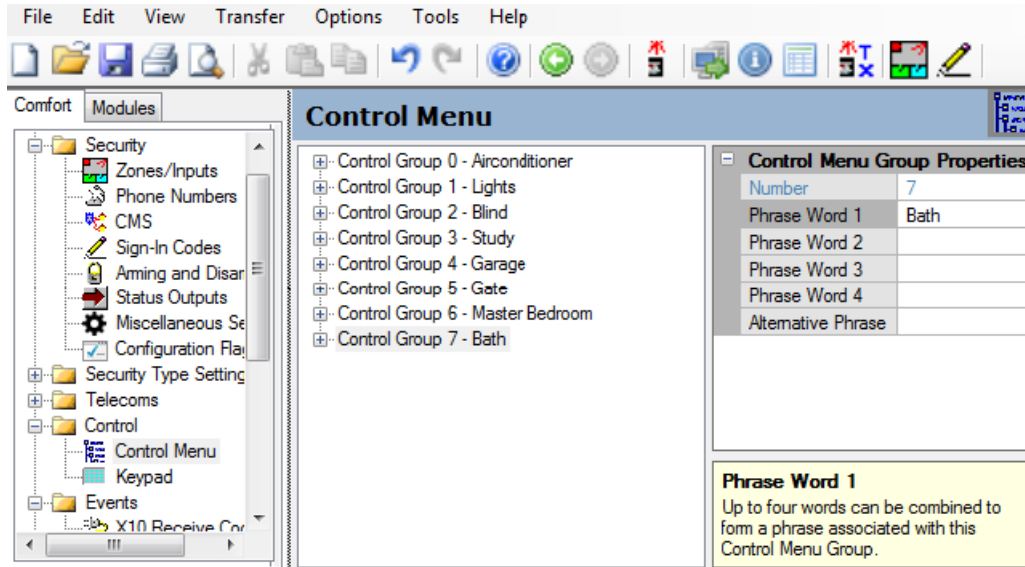
The Flags which are used or referenced by Responses or Control Menu, are shown in blue. To see the references, right click on the Flag and select **Show References** or **Graph References**.

Show Status checkbox - when checked, Configurator will show the real time Flag status, i.e. on or off.

- **Flags can be dragged and dropped in order to change the Flag number. The references to the timers are automatically changed. This saves time in programming when a different Flag number must be used for any reason.**

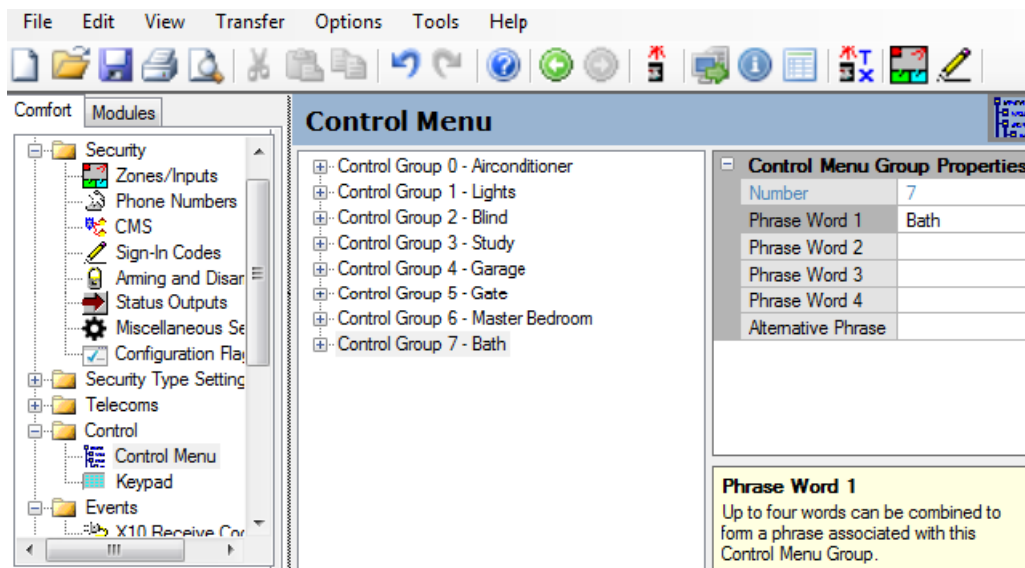
## 7 CONTROL MENU

The purpose of the Control Menu is to allow Control of appliances using the Comfort iOS and Android apps.

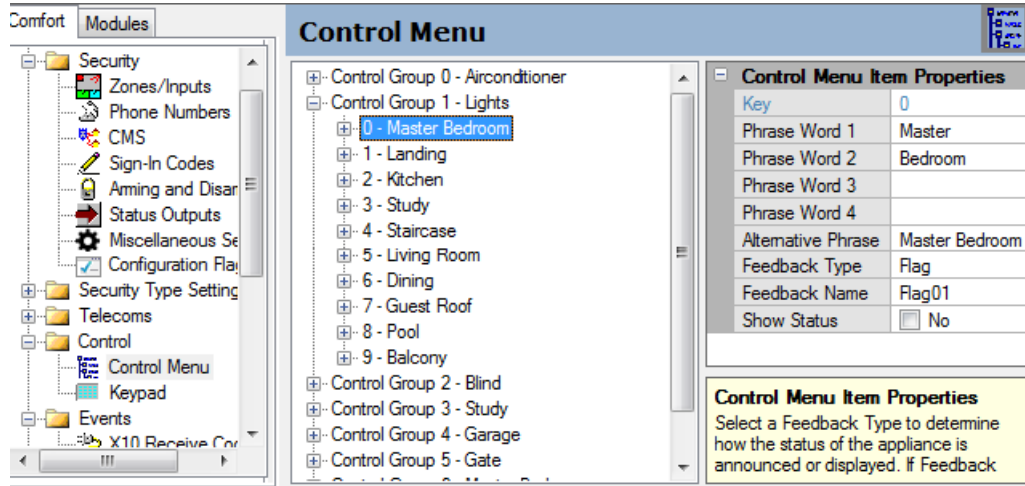


### Control Menu Structure

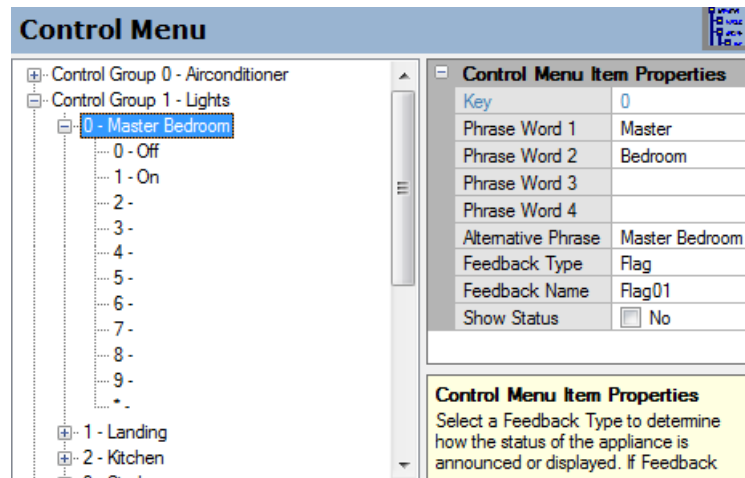
The Control menu can be organized into 8 Control Groups, for example, as shown below;



When one of the groups say "Lights" is selected, another level of control keys is selected, e.g.



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



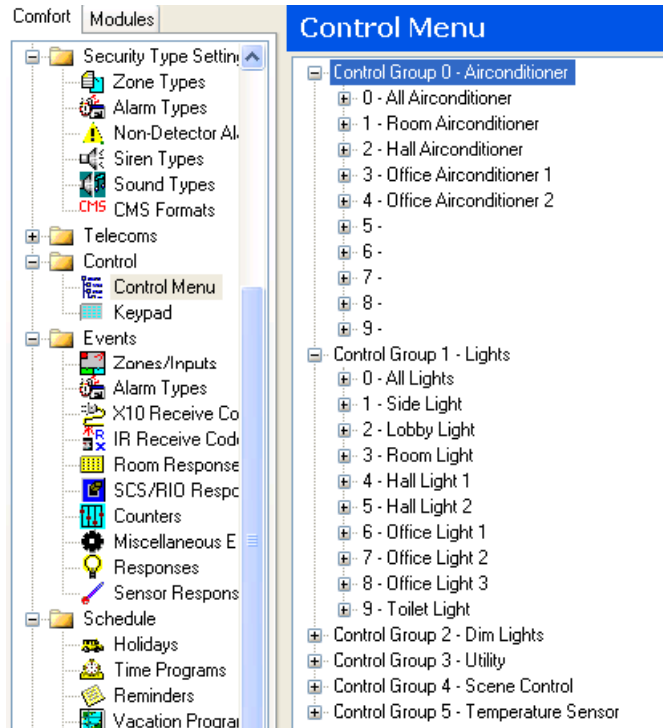
This selects the operation intended for the device, i.e. on, off, dim, bright, high, cool etc. This Control Menu structure will be seen in the Comfort app to allow easy selection of the appliance to be controlled

## Control Menu Programming

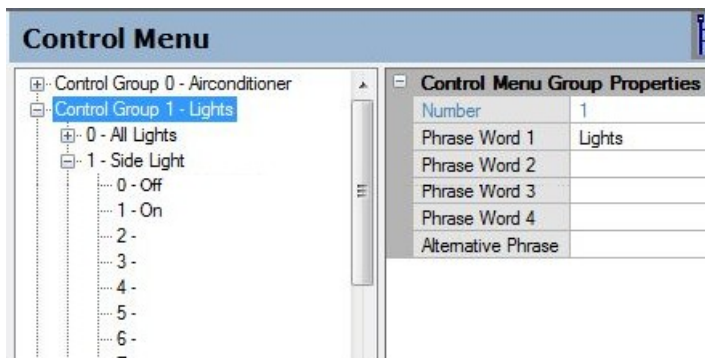
To program Control Menu, select Control > Control Menu. The Control Groups will be displayed, for example see the screenshot below.

Control group 0 must be defined if the Control Groups are to be used.

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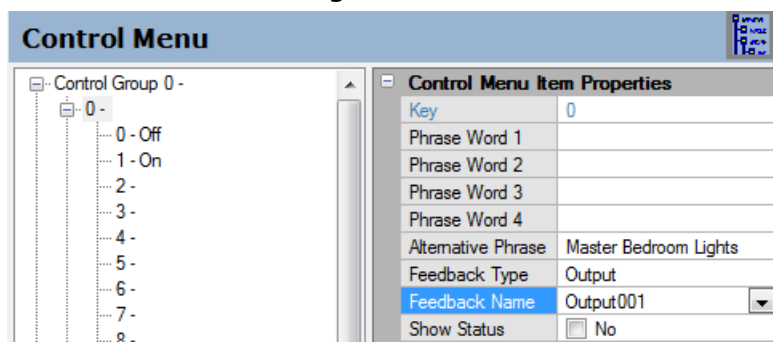
For each Control Group, leave the Phrase words blank as LGX01 has no voice.



The Alternative Phrase field must be used to enter the text description of the Control Group. The Alternative Phrase is used in the Comfort Apps and UCM/GSM4 text messages.

Once the Control group words have been selected, the next level of Control keys can be defined. In the Control Groups window, click on the "+" corresponding to the Control Group to display the Control Keys Level.

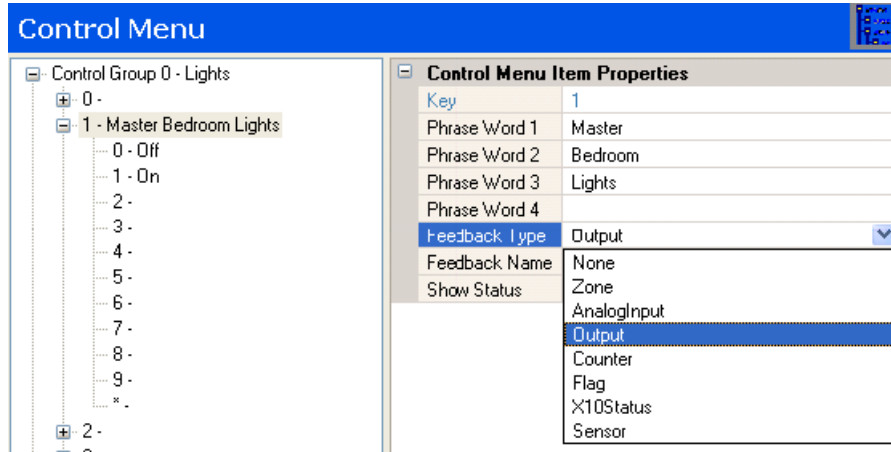
Each Control group consists of 10 control keys 0 to 9. For each control key which is to be used, leave the 4 phrase words blank. In the example below Control Key 1 is programmed as "Master Bedroom Lights" in the Alternative Phrase box.



## Control Menu Feedback

Each Control key is able to provide a feedback so that the state of the appliance can be seen on the app.. In our example, control key 1 is "Master Bedroom Light" controls Output 1. In the bottom right corner of the Control Menu screen, there is a box called "Feedback".

Click on the Feedback Type box to reveal a drop-down list with the values "None", "Zone/Input", "Analog Input", "Counter", "Flag", "X10 Status" and "Sensor". Since we want to get our feedback from an Output, select "Output" from this list.



The Feedback Name drop-down list shows all the Outputs by name. Select the desired output, in this case output 1. **Note that Output 1 need not be associated with Control Key 1.**

The control menu will show the state based on the words programmed in action keys 0 (off) and 1 (on).

The table below shows all the feedback types and the values applicable to each type.

For Feedback Type Zone/Input, the specified Zone/Input provides the feedback status. For example a Current Sensor Module (CSM) which detects the flow of AC current through a wire can be connected to the specified input to tell whether the controlled appliance is on or off.

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For Feedback type Analog Input, the analog value at the specified input provides the feedback as a value in the range of 0 to 255 corresponding to 0 to 5 Volts.

For Feedback type Output, the Output states provide the feedback. Comfort knows if its own outputs are in the on or off state.

For Feedback type Counter, the specified Counter provides the feedback in the range 0 to 255. In the app, this is represented by a slider.

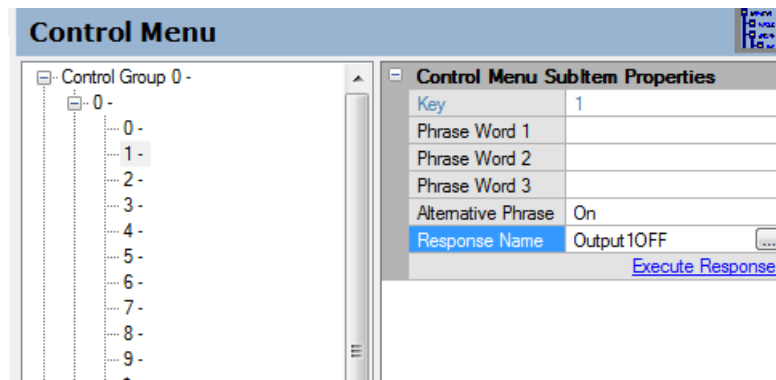
For Feedback type Flag, the specified Flag provides the feedback (on or off).

Feedback Types zone on/off, output on/off, and Flag On/off are binary, i.e. either on or off, and will take the words for action key 0 and 1. Feedback types analog input and counter are analog values ranging from 0 to 255 and will show the value (0-255) instead of on/off.

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.

### Action Keys

When the control keys have been programmed, the next step is to program the 3rd level of the Control menu, which is the Action keys. Click on the "+" next to the control key.

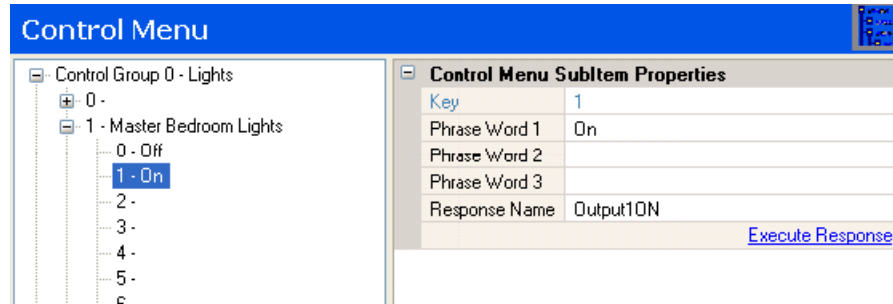


The screen above shows 10 Action keys 0 to 9, to be used for the "actions" to be performed for this control key. Leave the 3 phrase words blank as LGX01 has no voice. Enter the text for each action in the Alternative Phrase box, eg "Off", "On", "Up", "Down", "Open", "Close" etc.

**8 For Feedback Types Input, Output and Flag, the Action Keys 0 for off and 1 for On are automatically generated.**

**9 Note that Key 0 should be Off (inactive) and 1 should be On (Active) not the other way round, otherwise the feedback status will be wrong.**

For each action key, select a Response to perform the required action, by clicking on the Response Name field on the bottom right. This opens a Response window where the desired Response can be selected. In the example above, the Response selected is "Output1OFF". If there is no suitable response existing, create a new Response by selecting the NEW button at the bottom of the Select a Response Screen.



In the example above, action key 1 is programmed with word “On” and Response to turn on the Output 1.

## Notes on Control Menu Programming

- If the Control Menu is not programmed, (or more precisely, Control Key 0 and 1 is not programmed), the User Menu will be empty
- Make sure that for each group which is used, control key 1 has words programmed.

## Moving and Copying in the Control Menu

---

Control menus can be moved using Drag-and-drop and Copy/Cut/Paste. This saves a lot of time when you have to add a new control key and shift all control keys down to make way for the new control key.

For example, in the screen below, Hall Airconditioner can be moved from Control Key 2 to Control Key 5 by positioning the cursor in Key 3 clicking and holding the mouse and dragging it to Control Key 5.

This moves all the Action Keys in the Hall Airconditioner Control key (e.g Off, On,..) as well as the Feedback to the new Control Key.

The same result can be achieved by using Cut and Paste. Position the cursor at the Control Key and select Edit Menu > Cut, then move to the new Control Key and select Edit > Paste. To copy the Control Key, use Edit > Copy, and Edit > Paste at the new Control Key.

Drag-and-drop, Cut, Copy and Paste can be done on individual Action Keys in a Control Key instead of the whole Control key.

It is not possible to Copy, Cut and Paste Control Keys between files.

## **10       EVENTS AND RESPONSES**

---

The Events in LGX01 which activate Responses are described in this section.

### **Miscellaneous Events**

---

In the Events > Miscellaneous Events, other Events which can trigger Responses are shown. Some of these are applicable to the Comfort Alarm and Automation System and not for the LGX011 Logic Engine

#### **Startup Response**

This specifies a Response to be activated at system reset, or when Comfort is powered on.

#### **Hourly Response**

This specifies a Response to be activated every hour on the hour. If... Then... actions can be used to select a range of hours where this applies.

#### **Sunrise Response**

This specifies a Response to be activated at Sunrise, defined in Schedule > Sunrise/Sunset Times.

#### **Sunset Response**

This specifies a Response to be activated at Sunset, defined in Schedule > Sunrise/Sunset Times.

The following Events> Responses are not applicable for LGX01

- Security Mode Responses
- Open Door Response
- Open Gate Response
- Doorbell Response
- Phone Ring Response
- AC Restore Response
- Phone Trouble Restore Response
- Start Arming Response
- Offhook Response
- Onhook Response
- Door Station Voice On Response
- Door Station Voice Off Response
- X10 Received Responses

### **Counter Responses**

---

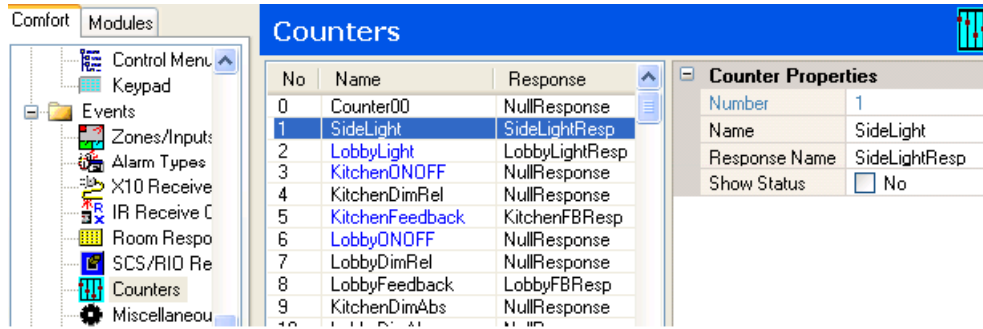
LGX01 Logic Engine has 255 Counters which can be used for temporary storage or

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counting of events. Counters are also used to receive information from external modules, like the UCM/KNX for interface with the KNX Bus, UCM/CBUS from Clipsal CBUS, UCM/ZWave for interface with Z-Wave switches. Changing counters by Comfort actions do not activate Counter Responses. Refer to the specific instruction manuals for these modules for full details of programming and installation.

To see the list of Counters and Responses, go to Events > Counters.

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The counters in Blue are referenced by Responses or Control Keys. To see where they are referenced, right-click on the Counter and select **Show References**.

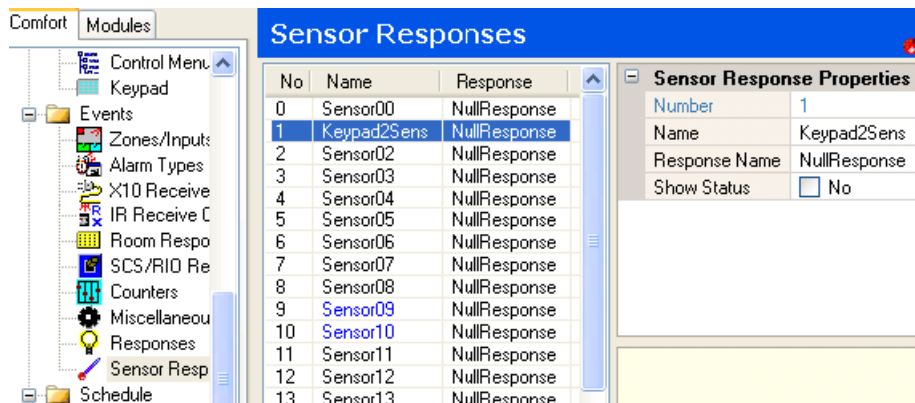
Show Status checkbox, if checked will show the real time value in the selected Counter. This is useful for troubleshooting and testing your programming.

**Counters can be dragged and dropped in order to change the Counter number. The references to the Counters are automatically changed. This saves time in programming when a different Counter number must be used for any reason.**

## Sensor Responses

LGX01 has 32 Sensors that can be synchronised with sensor values from external devices like KNX, Z-Wave, Velbus, and Universal UCMs. Refer to the specific instruction manuals for these modules for full details of programming and installation.

Go to Events > Sensor Responses.



Each Sensor can trigger a Response when the sensor value is changed by one of the UCMs. Sensors shown in blue are referenced by other elements. To see the references, right-click and select **Show References**.

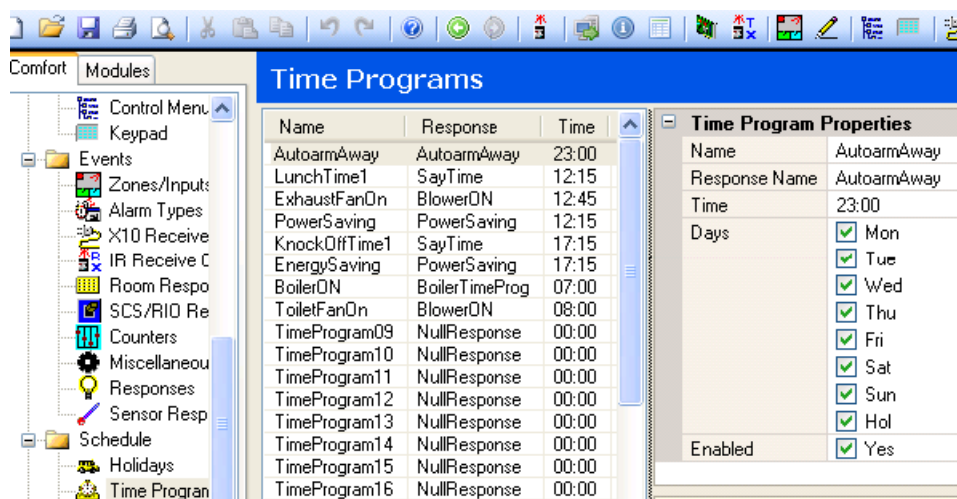
The "Show Status" checkbox will show the actual sensor values in Comfort.

- Sensors can be dragged and dropped in order to change the Sensor number. The references to the Sensor numbers are automatically changed. This saves time in programming when a different Sensor number must be used for any reason.**

## 11 TIME PROGRAMS

32 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.

To Program Time Programs, go to Schedule > Time Programs.



Each Time program consists of an Activation Time, days of the week when active, 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 above is programmed for 11:00 PM on Monday, Tuesday, Wednesday, Thursday, Friday to activate a Response which arms the security system to Away Mode and turns off the lights, air-conditioning and photocopying machine.

The "Enabled" box when checked, enables the Time Program. If not checked, the Time Program will be inactive. Time Programs can also be Enabled or Disabled in the Time Program Menu on the keypad. (Program Voice Menu 6)

### Holidays in Time Programs and Reminders

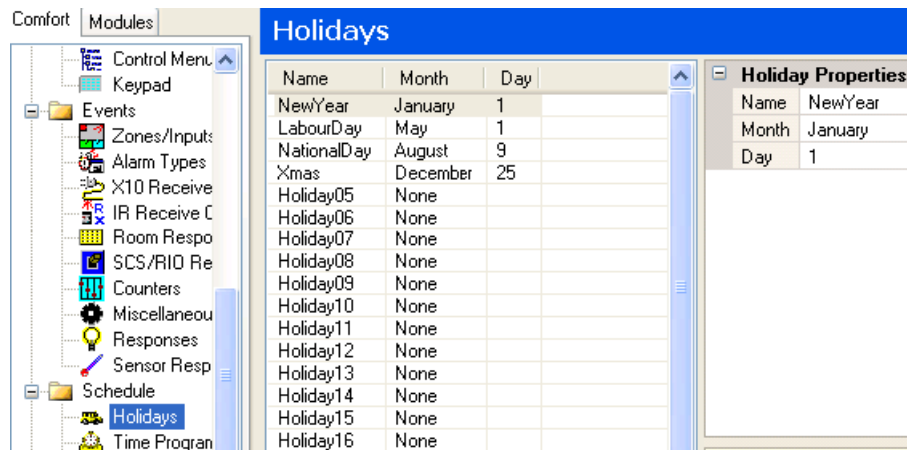
24 Holidays can be defined for the year. If a Time Program Day of week is ON for Holidays, it will be active on any of the defined Holidays. The application for this is when things should happen at a different time from normal days, for example when a shop opens later or closes earlier.

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 action code sequence

## If Holiday <>0 Then Exit Response

should be used to bypass the Response on holidays

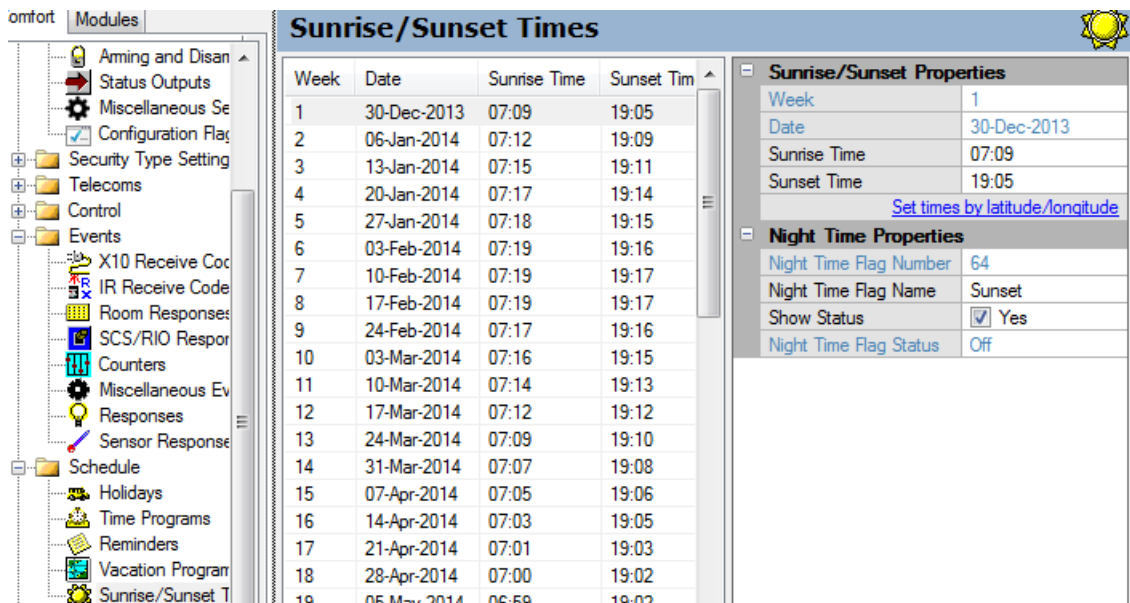
To define Holidays, go to Schedule > Holidays.



For each of the 24 holidays, a Month and Day can be specified. These holiday definitions are used for Time Programs and Reminder Messages.

## 12 SUNRISE SUNSET TIMES

LGX01 is able to determine the approximate Sunrise and Sunset times for any week of the year. Go to Schedule > Sunrise/Sunset Times as shown below.



| Week | Date        | Sunrise Time | Sunset Time |
|------|-------------|--------------|-------------|
| 1    | 30-Dec-2013 | 07:09        | 19:05       |
| 2    | 06-Jan-2014 | 07:12        | 19:09       |
| 3    | 13-Jan-2014 | 07:15        | 19:11       |
| 4    | 20-Jan-2014 | 07:17        | 19:14       |
| 5    | 27-Jan-2014 | 07:18        | 19:15       |
| 6    | 03-Feb-2014 | 07:19        | 19:16       |
| 7    | 10-Feb-2014 | 07:19        | 19:17       |
| 8    | 17-Feb-2014 | 07:19        | 19:17       |
| 9    | 24-Feb-2014 | 07:17        | 19:16       |
| 10   | 03-Mar-2014 | 07:16        | 19:15       |
| 11   | 10-Mar-2014 | 07:14        | 19:13       |
| 12   | 17-Mar-2014 | 07:12        | 19:12       |
| 13   | 24-Mar-2014 | 07:09        | 19:10       |
| 14   | 31-Mar-2014 | 07:07        | 19:08       |
| 15   | 07-Apr-2014 | 07:05        | 19:06       |
| 16   | 14-Apr-2014 | 07:03        | 19:05       |
| 17   | 21-Apr-2014 | 07:01        | 19:03       |
| 18   | 28-Apr-2014 | 07:00        | 19:02       |
| 19   | 05-May-2014 | 06:59        | 19:02       |

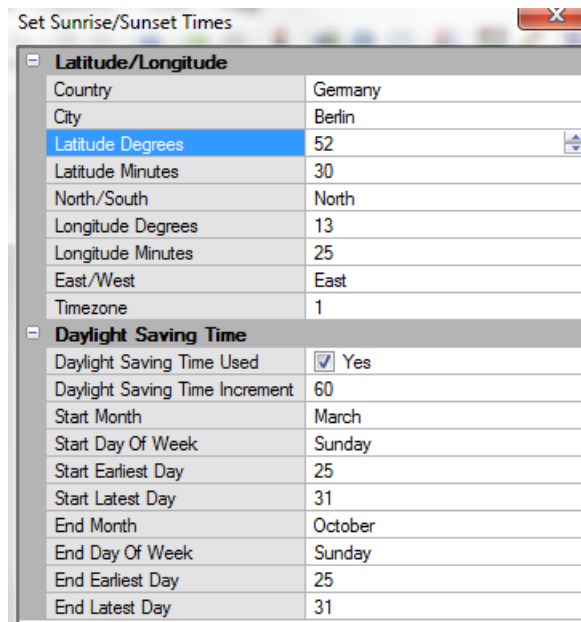
**Sunrise/Sunset Properties**

|                                                 |             |
|-------------------------------------------------|-------------|
| Week                                            | 1           |
| Date                                            | 30-Dec-2013 |
| Sunrise Time                                    | 07:09       |
| Sunset Time                                     | 19:05       |
| <a href="#">Set times by latitude/longitude</a> |             |

**Night Time Properties**

|                        |                                         |
|------------------------|-----------------------------------------|
| Night Time Flag Number | 64                                      |
| Night Time Flag Name   | Sunset                                  |
| Show Status            | <input checked="" type="checkbox"/> Yes |
| Night Time Flag Status | Off                                     |

In the right pane, click on "Set Times by Latitude/longitude" and select your country and city. If your city is not listed, select the closest city.



**Set Sunrise/Sunset Times**

**Latitude/Longitude**

|                   |         |
|-------------------|---------|
| Country           | Germany |
| City              | Berlin  |
| Latitude Degrees  | 52      |
| Latitude Minutes  | 30      |
| North/South       | North   |
| Longitude Degrees | 13      |
| Longitude Minutes | 25      |
| East/West         | East    |
| Timezone          | 1       |

**Daylight Saving Time**

|                                |                                         |
|--------------------------------|-----------------------------------------|
| Daylight Saving Time Used      | <input checked="" type="checkbox"/> Yes |
| Daylight Saving Time Increment | 60                                      |
| Start Month                    | March                                   |
| Start Day Of Week              | Sunday                                  |
| Start Earliest Day             | 25                                      |
| Start Latest Day               | 31                                      |
| End Month                      | October                                 |
| End Day Of Week                | Sunday                                  |
| End Earliest Day               | 25                                      |
| End Latest Day                 | 31                                      |

The Sunrise/Sunset table will show the sunrise and sunset times for your location for the week by date.

## *LGX01 Installation Manual*

At Sunrise, the Sunrise Response is activated, and at Sunset, the Sunset Response is activated.

The Night Time Flag is set between Sunset and Sunrise. This is useful in Responses when you need to test for Night time, eg

Zone Response:

```
If Night Time <>0 then  
  Do Response TurnOnLightFor5Minutes  
EndIf
```

In "Night Time Properties", you can assign a User Flag to the Night Time Flag. This allows you to check the status of the Night Time Flag. The "Show Status" box when checked will show the state of the Night Time Flag ie Off or On.

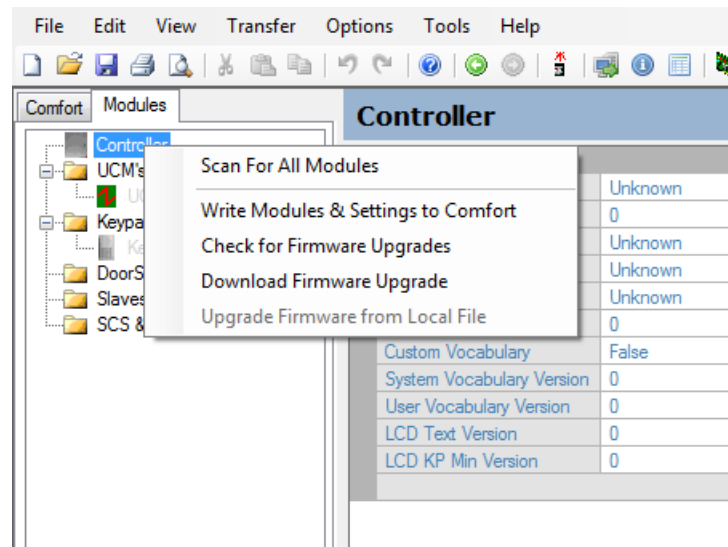
## 13 UPGRADING

Comfigurator and the UCM can be used to upgrade Logic Engine firmware.

### Upgrading Firmware

Firmware is the embedded software which controls the operation of Comfort, Slaves, UCMs, and Keypads.

Right-click on the selected module to upgrade firmware.



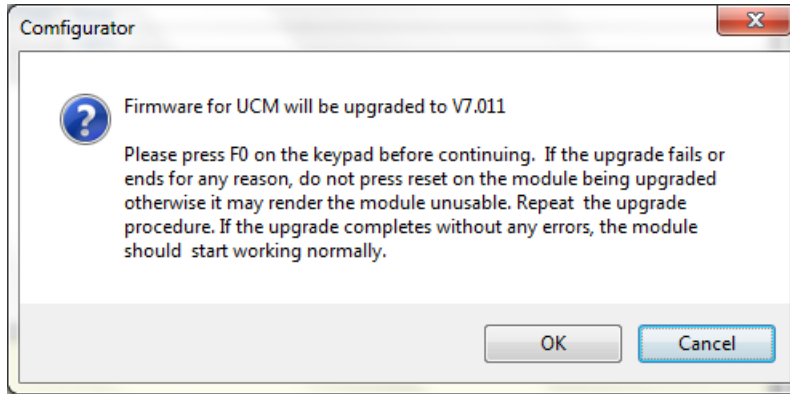
“Check for Firmware Upgrades” means if the firmware is not the latest on the Cytech Server the module firmware is upgraded. An Internet connection is required.

“Download Firmware Upgrade” means downloading the latest released version of a firmware to be saved in the computer to be used for Upgrading Firmware from Local File.

“Upgrade Firmware from Local File” allows you to upgrade the firmware by selecting a .cbf file on the hard drive. This is normally used for upgrading to Beta (test) firmware. This option is grayed out if a Module scan has not been done yet.

After selecting the upgrade option, a pop-up window will appear as below. Press F, 0 on any keypad to authorise the operation.

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Only LGX v6 and above and module firmware versions > 6 can be upgraded in this way. For firmware less than 6, please refer to the UCM Manual for instructions. This can be downloaded from [http://www.cytech.biz/ucm\\_manual.html](http://www.cytech.biz/ucm_manual.html)

- **Please note that a module can only be upgraded with firmware of the same type. For example, Comfort II Ultra can only be upgraded with Comfort II Ultra firmware, Slave (SEM) can only be upgraded with Slave firmware. UCM/USB and Ethernet share the same firmware. UCM/KNX, UCM/CBUS, etc have their own different firmware types. Each module can be upgraded with the same type of firmware e.g. UCM/KNX firmware cannot be "upgraded" to UCM/CBUS or UCM/232, USB or Ethernet.**

### Upgrading Comfigurator

---

When Comfigurator runs, it will check for the latest version on the Cytech server and prompt if you would like to download the new version. Also Help > Check for Updates will manually check for the latest version. This requires an Internet connection. It is recommended that you DO NOT do this unless the Comfort voice has been lost.

### Updating Default Files

---

Default files and templates include the settings loaded when you start a new template in Comfigurator for various models e.g. Comfort II Ultra, Comfort II Optimum. Comfigurator allows the set of defaults to be automatically downloaded from the Cytech server. Go to File > Update Defaults. An Internet Connection is required.

### Upgrading Comfort Server Manager

---

When you click Comfort Server Manager in Options > Settings to configure UCM/ETH03, Comfigurator will check if the current version is the latest, and if not, it will prompt you to download the latest software from the Cytech Server

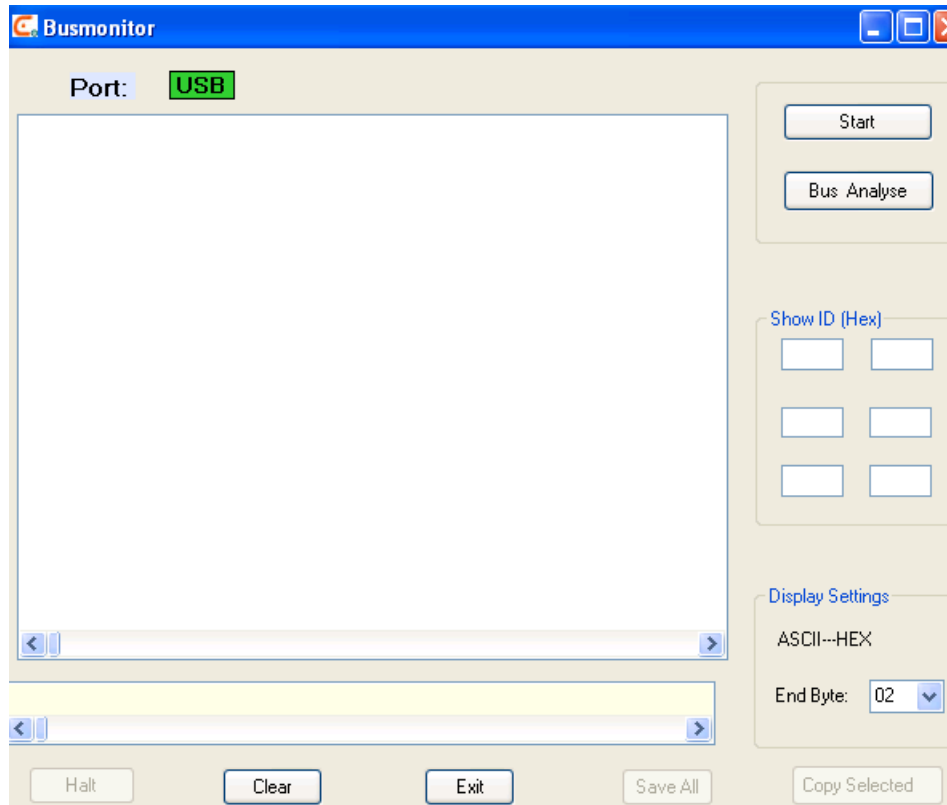
## 14 CONFIGURATOR > TOOLS

The Tools menu has 2 additional tools; Infrared Utility and Bus Monitor

### Bus Monitor

The Bus Monitor is a built-in tool in Configurator which monitors the communications on the Comfort RS485 Bus.

To launch Bus Monitor, go to Tools > Bus Monitor on the top menu bar.



The green PORT: text on the top right shows the connection method. This is set in Configurator.

There are 2 buttons on the top right, "Start" and "Bus Analyse."

Start will show only the communications that have content, i.e. excluding Polling and Null replies. There will be an activity bar on the top.

The "Bus Analyse" Button will show all the activity including polls and Null replies. The screen will quickly fill up with the bus activity.

Use the "Save All" button to save the information from the monitor. This is useful for debugging purposes and can be sent to Cytech technical support for analysis.

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The Boxes Show ID (Hex) are used to enter IDs of modules that need to be monitored. For example to monitor only Keypad ID 1, enter 41 in the 1st box. Only Keypad 1 activity will be shown.

### **Infrared Utility**

---

This allows Infrared (IR) signals from handheld remote controls to be learned via the UCM. This is fully described in the UCM Manual which can be downloaded from the Cytech website at <http://www.cytech.biz/firmware.html>

## 15 TROUBLESHOOTING

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It is our experience that 80 to 90% of the problems typically encountered are described here and can be solved according to the instructions give here. It is advisable to carry this guide around whenever going on site for installation, testing & commissioning, or troubleshooting.

### Troubleshooting Kit

---

When installing LGX01 or attending to problems on site, it is advisable to have the following tools in the tool kit:

- Multimeter for checking continuity and resistance.
- 12V Test lamps LP01 for checking outputs
- ZTS01 Zone Test Switches for input simulation
- Infrared LED with resistor wired up a long cable and terminated in terminal block. This can be connected directly to the output to check transmission of Infrared signals to remote-controlled appliances

### Startup Problems

---

When power is first applied or the Reset button is pressed, the system goes through a self-test sequence. Observe the red and green leds on the Comfort panel (not the Keypads). Refer to the Indicator LEDs table in the previous section The correct sequence should be:

- Both Leds turn on
- The Red LED goes off after 1 second, with the green LED remaining on
- The Green LED turns off after 5 seconds and immediately comes on again

If the above sequence does not happen, check the following:

#### **The Red and Green LEDs both remain on**

This means that there is an incompatibility between the Comfort firmware and the File System which has been downloaded to the U4 Nonvolatile Memory. To fix this, download a default file with the correct File System. In Configurator, select File > New. And select the correct template for the firmware. Check that the File System displayed on the lower right corresponds to Logic Engine File system 36. Write to Comfort using Transfer > Download (PC -> Comfort). There may be a warning message that the File System is incompatible with the Comfort version; ignore this and proceed with the download). However once the correct file system has been downloaded, do not ignore this warning as it means that you are about to download the wrong file system, which caused the problem in the first place.

#### **The Red and Green LEDs are Off**

This could mean

There is no power applied

U1 IC is faulty.

The UCM Firmware programming cable is connected to PP1. This cable should be connected between UCM and PP1 only for firmware upgrade operation. The

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cable can be left connected to PP1 in normal operation only if it is not connected to the UCM at the same time.

### System does not work

This is probably due to a short on one of the wires connected to the system or an external device drawing too much current, causing the power supply to shut down to protect itself. Unplug all the terminal blocks from inputs, outputs, 12V auxiliary out, and other terminals. It may be necessary to switch off and leave the power off for several minutes to allow the resettable fuses to cool down and reset. Check the correct sequence of red and green leds as described above when the power is switched on. Then connect one keypad and other devices one by one. This will help discover the cause of the short or excessive current.

### Support Resources

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Register on the Comfort Forums at <http://www.comfortforums.com>

### CE Marking (Europe)

This equipment complies with the requirements of the EMC Directive (89/336/EC) and the Low Voltage Directive (73/23/EC) provided that all equipment used also carries the CE Mark and the installation follows the instructions given in this manual. The equipment has been tested to EN55022 Part B; Conducted and Radiated Emissions.

### Safety Status of Connecting Ports

The following circuits are present within the equipment with the safety status specified in the table below:

| Connector                                                | Safety Status |
|----------------------------------------------------------|---------------|
| Box headers connected to Expansion Modules (J7,J5)       | SELV          |
| Terminal Blocks to Outputs, Zones, Bell, Strobe, speaker | SELV          |
| Terminal Block to Transformer Secondary                  | SELV          |
| Terminal Block with 12V supply for external circuitry    | SELV          |

## **Document Revision History**

- 31 July 2016 Initial release
- 20 January 2016 Updated
- 27 August 2020 Updated



## **Limited Warranty**

Cytech Technology Pte Ltd. provides a warranty for a period of 12 months from the date of purchase. This warranty covers defects in materials and workmanship under conditions of normal use by the original buyer only. In the case of any breach of such warranty, Cytech Technology Pte Ltd. shall either repair or replace the defective equipment upon return of the equipment to its repair center at the purchasers own expense.

This warranty does not apply to damages incurred in shipping, handling or other causes beyond the control of Cytech Technology Pte. Ltd. including but not limited to: alterations to the product, abuse, improper application, lightning, physical damage, mechanical shock, excessive voltage or extremes in temperature.

While the product is an advanced security and automation system, it does not offer guaranteed protection against burglary, fire or other emergency. Any Intruder alarm system is subject to failure or compromise.

Despite frequent testing and due to but not limited to all or any of the following; disruption in electrical supply or communications, criminal or accidental tampering, it is possible for the system to fail to perform as expected. Cytech Technology Pte Ltd. does not warrant that the product or system may not be compromised, or that it will in all cases prevent loss of property by Burglary, fire or otherwise, nor that it will in all cases give adequate warning or protection. A properly installed and maintained security system may only reduce risk of fire, burglary robbery or otherwise, but it is not a guarantee that these will not occur.

The warranty does not apply to firmware errors or bugs which do not have a serious or critical effect on the performance of the system.

Cytech Technology Pte Ltd. is not liable under any circumstances for any damages, loss of anticipated revenue, loss of time or any other losses resulting from the purchase, installation, use or failure of this product

## **Important Note**

The printed manual may not always be the most current version. Please check and download the latest version from <http://www.cytech.biz/manuals.html>

This manual is in A4 format. To print this manual as an A5 Booklet, on HP PCL printers select Page Scaling = Fit to Printable Area. Select Properties> Finishing Tab, Document Options = Print on Both Sides, Booklet Layout = Left Side Binding. Other printers may have different settings to achieve the same result..

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Forum.: <http://www.comfortforums.com>

Document Title: *LGX01 Installation Manual*  
Filename *LGX01Man.odt*

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RCB 199506853M