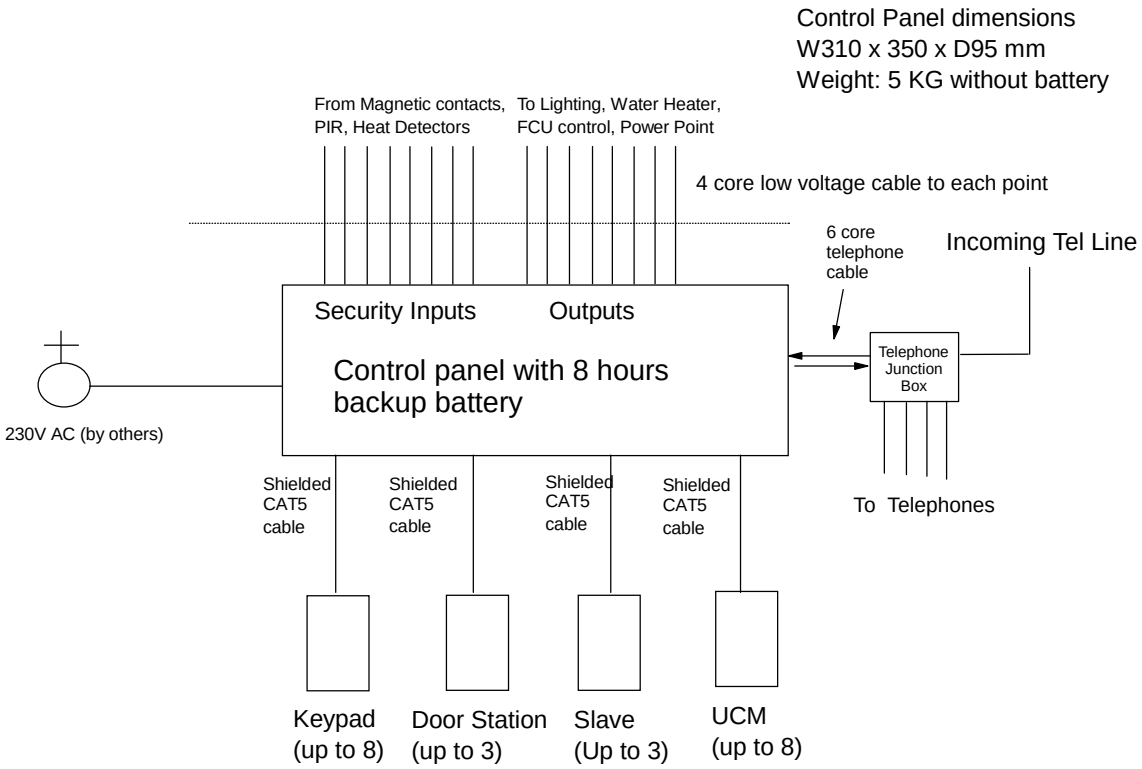
Comfort Wiring Guide

Control Panel Connections



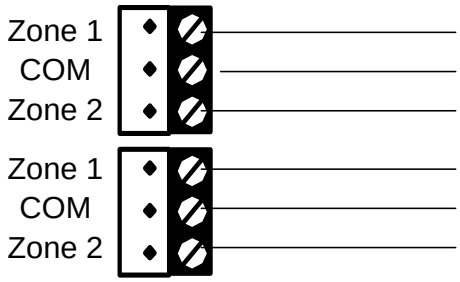
Physical

Comfort panel: 310 x 350 x 95 mm. Includes mains transformer and space of 7AH 12V battery (not provided) Battery backup will backup the system for 8 hours. Requires 230V 13A power point.
Keypad: 85 mm x 160 mm x 35 mm, Material ABS matte finish, colour: gray
Power Consumption: 10W idle
Power Point Module: 150 mm x 150 mm x 80 mm plastic enclosure

Alarm (Input) and Output Points

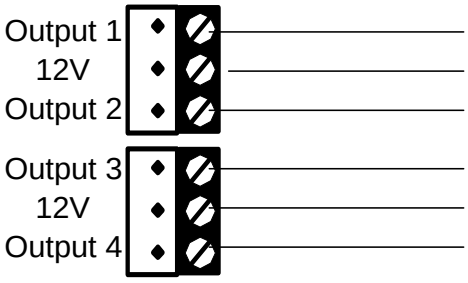
Use a 4 core security cable for each Alarm Input (zone) and Output point. Multistranded 7 x 0.2 mm is recommended. Two of the wires are used, the other 2 are for spare in case of future wiring open circuit and high resistance problems. Alarm Points terminate to plug in terminal blocks on the Comfort panel, with two Input points per terminal block.

Input Connections



The center point in each 3 way terminal block is Common. The common wires of two adjacent zones may be connected to this.

Output Connections



The Center point in each output terminal block is 12V common. The outputs are open collector transistors which pull to ground when activated.

Keypads and Door Stations

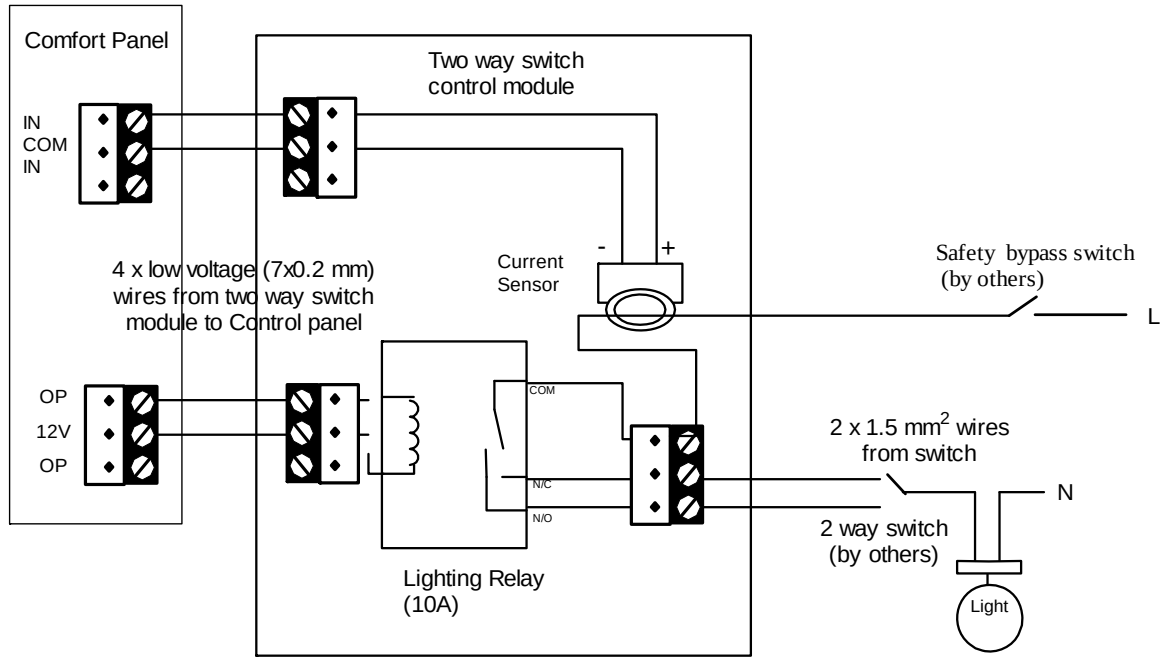
Shielded CAT5 cable is required for each keypad (star connection). . Telephone cables are not acceptable as they do not provide immunity from noise and interference from adjacent power lines and electrically noisy equipment.

Slave Expansion Panels and Universal Communications Module (UCM)

2 twisted pairs are required for each Slave or UCM, with 1 pair left as a spare.. CAT 5 cable is recommended. Telephone cables have been used in many installations, but may not provide immunity from noise and interference from adjacent power lines and electrically noisy equipment

2 Way Switch Circuit for Lighting

This scheme uses lighting relays to switch lights. Please check with the local authorities if this is permitted in your area



A TWS Module is located next to the Comfort control panel, containing a Current sensor and mains-rated lighting relay. The Live wire to the light is passed through the coil of the current sensor as shown in the above connection diagram

4 low voltage wires are needed from the Control panel to the Two way switch control module.

2 mains wires are needed from the two way switch control module to the switch. The Live wire from the supply is passed though the current sensor coil before connecting the terminal block shown.

A safety bypass switch should be connected as shown to switch off power to the light when servicing

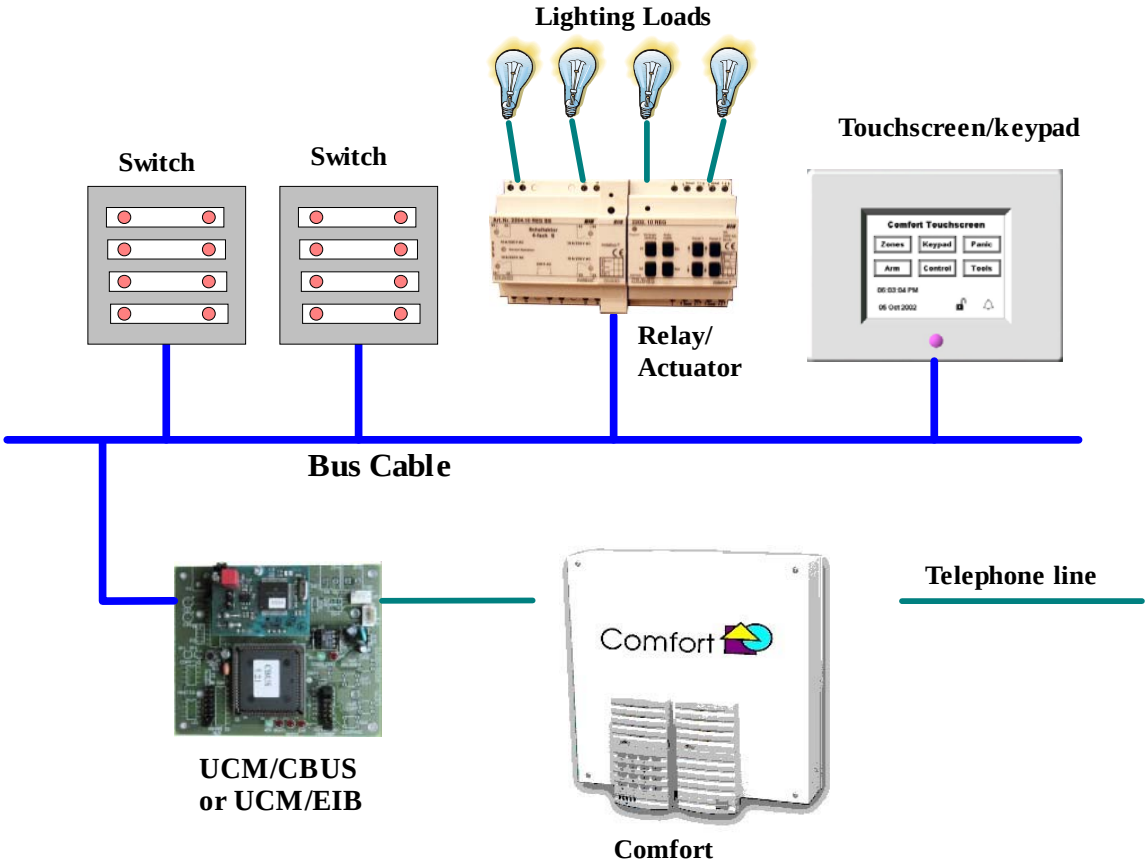
Wiring Guide

Two Way Switch to Lighting Module: 3 x 1.5 mm electrical wires

Lighting Module to Comfort HA Control panel: 4 x 0.5 mm low voltage wires

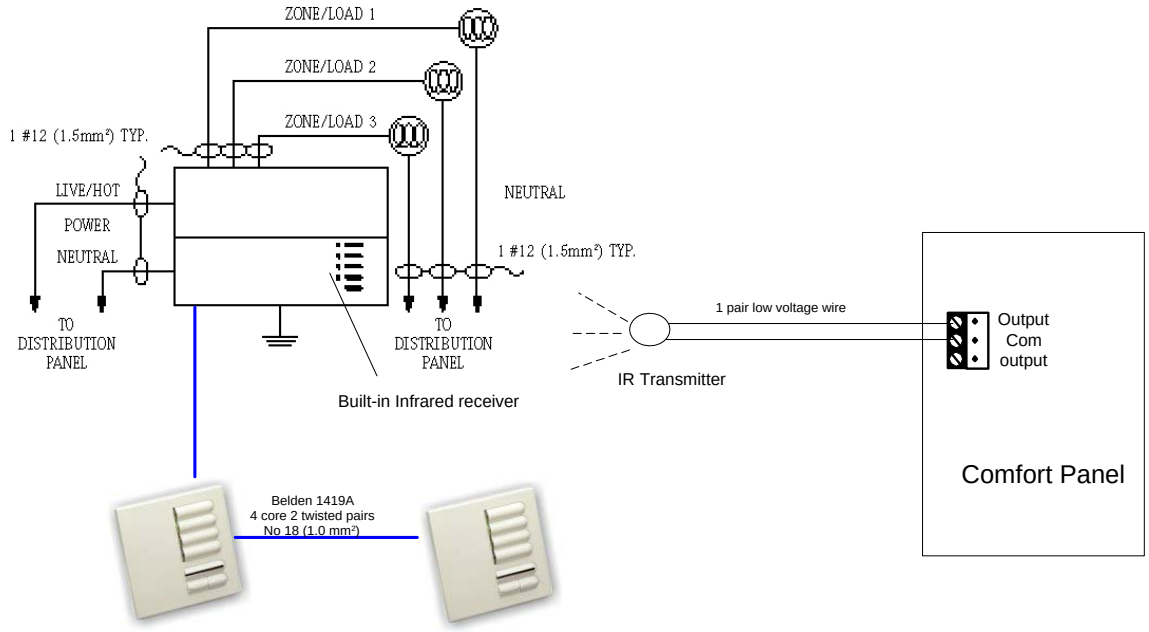
Interface with EIB/C-Bus Lighting Systems

The EIB (European Installation Bus, also called Instabus or i-Bus) and Clipsals C-Bus are two well known bus lighting systems commonly used in Europe and Asia. Comfort can be integrated with either of these system by connecting the 2-wire Bus cable directly to the UCM/EIB or UCM/C-Bus. Comfort provides Telecontrol, Internet control, intruder alarm, voice messaging, 16 time programs and a logic engine for the EIB and C-Bus. EIB and C-BUS switches can be programmed operate appliances linked to Comfort like air-conditioners and home entertainment equipment, and to arm or disarm the security system.



The EIB Bus is a specially customised cable supplied by the EIB manufacturers and the CBUS cable is a standard CAT 5 cable.

Interface with Lutron Lighting System



The Lutron Lighting System controller comes with a built-in Infrared receiver. This can be used by Comfort to control all the scenes within Lutron. Two wires from any of Comfort's outputs are run to the Infrared Transmitter Module (IRM01). Two pairs of wires should be run so as to provide a spare pair.. Comfort has Lutron remote control codes in its library

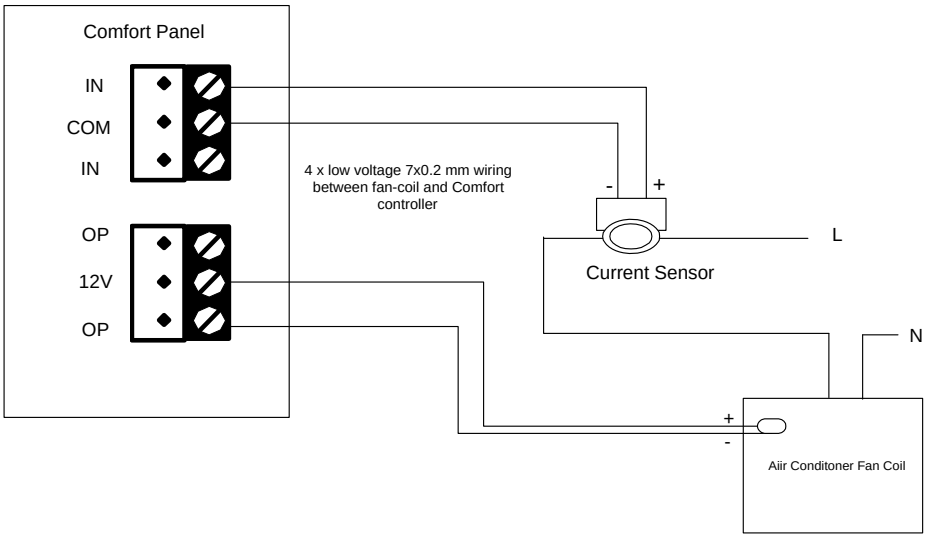
Wiring Guide

Live and Neutral wires from the DB are connected to the Grafik Eye panel. Standard 1.5 mm electrical wires are connected from each zone on Grafik Eye to the lighting loads.
Low Voltage Data cable from Grafik Eye to Activators (switches): Belden 1419A, 4 core 2 twisted pairs. Daisy chain from Grafik Eye to Activators
From Comfort HA Panel to Lutron Grafik Eye: 2 pairs x 0.5 mm cable (1 pair spare)

RS232 Interface to Lutron

Comfort is able to control the Lutron Homeworks lighting system via RS232 Interface. The Comfort UCM Interface is required to send RS232 signals to Lutron. The control is only one-way as no status is received. If status is required, Current sensors can be used

Control of Air-conditioner by Infrared Signals



Wiring Guide

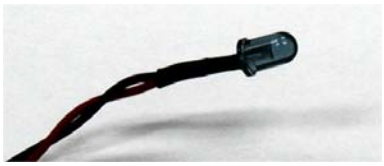
Current Sensor to Control Panel: 2 x 0.5 mm low voltage wires. It is advisable to have 1 pair of wires spare.

The Current Sensor is mounted near the fan coil, so that the live wire of the fan coil goes through the coil of the current sensor. There is no interruption of the current or electrical connection to the live wire. The Current Sensor senses current flowing in the airconditioner live wire to determine if the appliance is on or off for Telecontrol

IR. Transmitter at Aircon fan coil to Comfort HA Control panel:

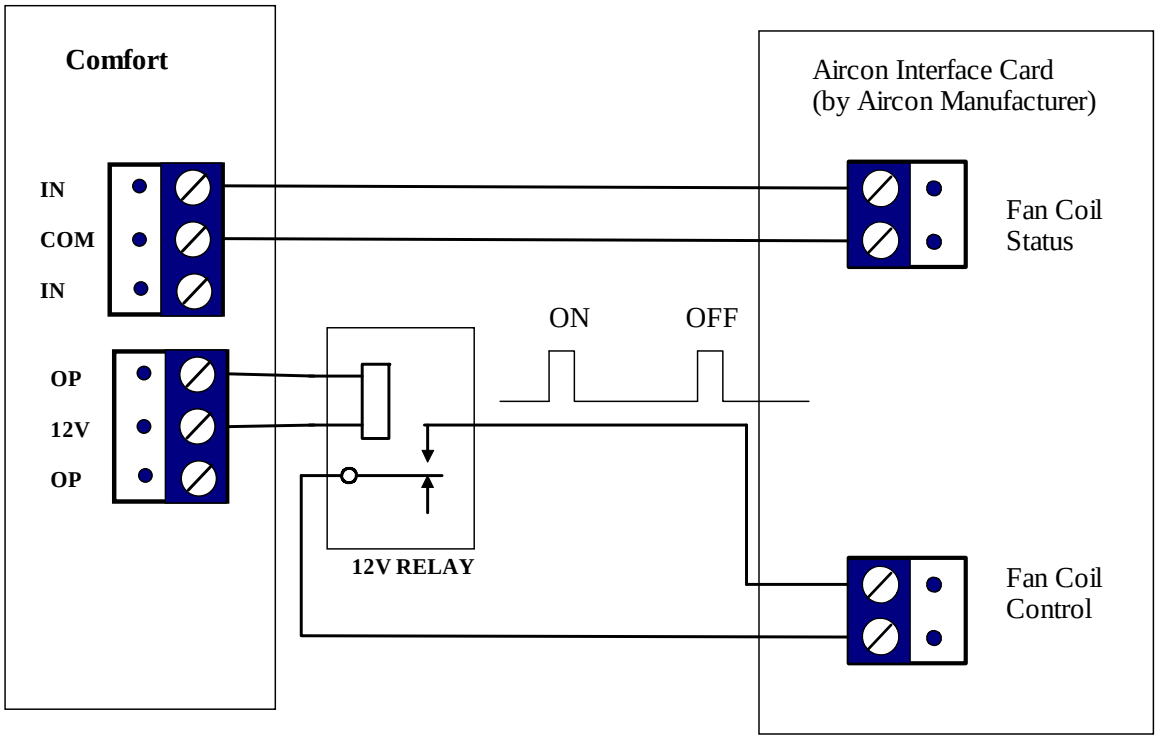
Use separate twisted pairs (CAT 5 recommended) between the IR transmitters and Comfort. DO NOT run IR cables side by side and DO NOT run several IR signals together within the same CAT 5 cable as it is possible for IR signals from one wire to be induced into another cable which is close by, even for twisted pairs.

Current Sensor



Infrared Transmitter

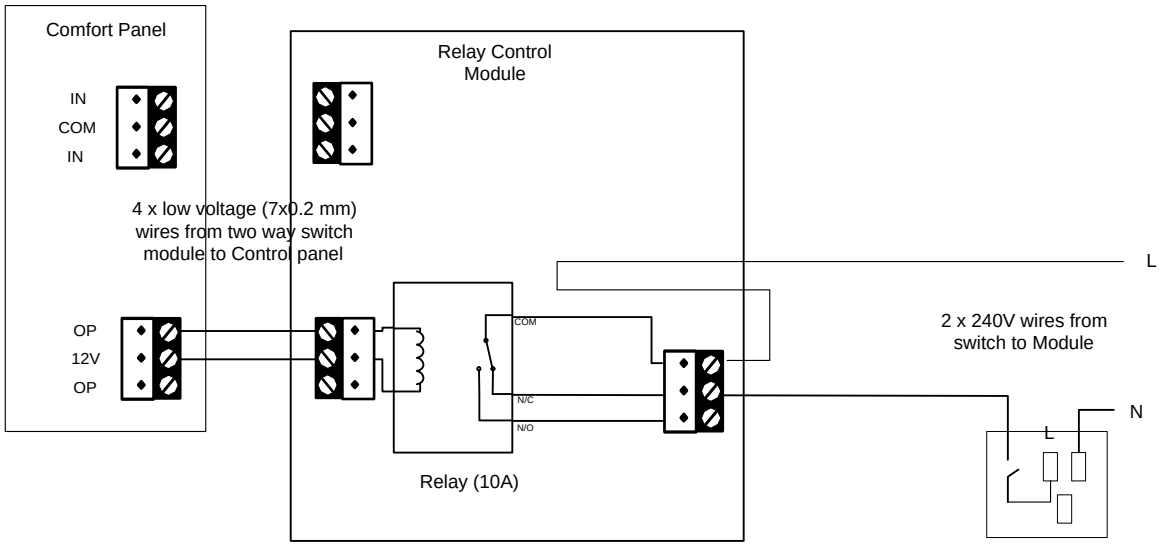
Aircon Control by Interface Card



This applies when the airconditioner manufacurer has an interface card for external control and status monitoring. A Comfort output supplies a pulse to a relay which provides a dry contact to activate the fan coil on/off control. Each pulse of the normally open dry contact wil toggle the fan coil control. The interface board provides a normally dry contact whoch indicates the state of the fan coil, Open for Fan coil off and Closed for fan coil on. This dry contact is connected to an Input on Comfort
To turn on the Fan Coil, Comfort checks that the Fan Coil is off, and sends a pulse to turn on the fan coi, and vice versa to turn off

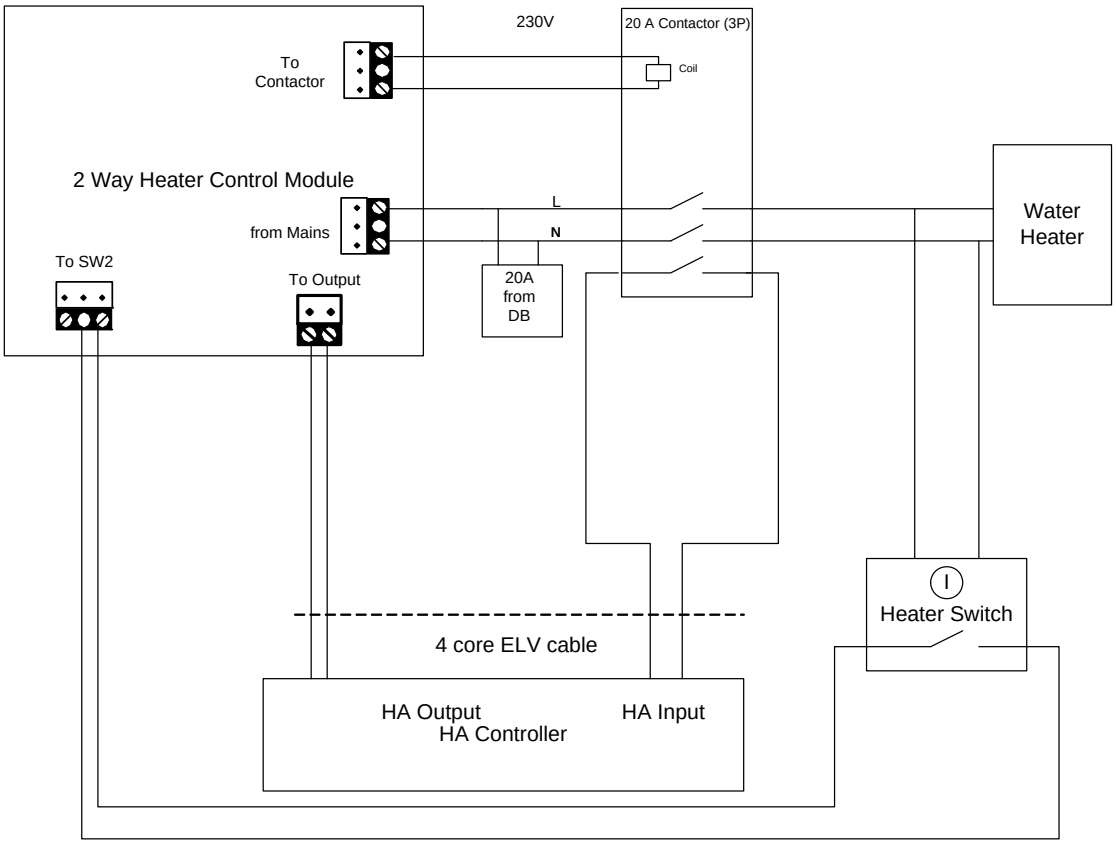
In both methods two twisted pairs connect each fan coil to Comfort. One Input and one output is needed in both cases. The IR method is able to control the temperature and fan speed as the IR signal contains that information. For the Interface card method, the fan coil is turned on at the previous temperature and fan speed as when it was on last time

Control of Power Point



Note that a 10A relay is used for the power point, and not 13A. It is recommended that a warning notice be placed on the power point as to current limitation. High current or heat producing appliances (cookers, boilers, kettles) **should not** be switched by home automation.
The manual switch on the power point is not a 2 way switch. It can be used to switch off the power point (override). In order for the automation control to work, the switch should be in the ON position

Control of Storage Water Heater



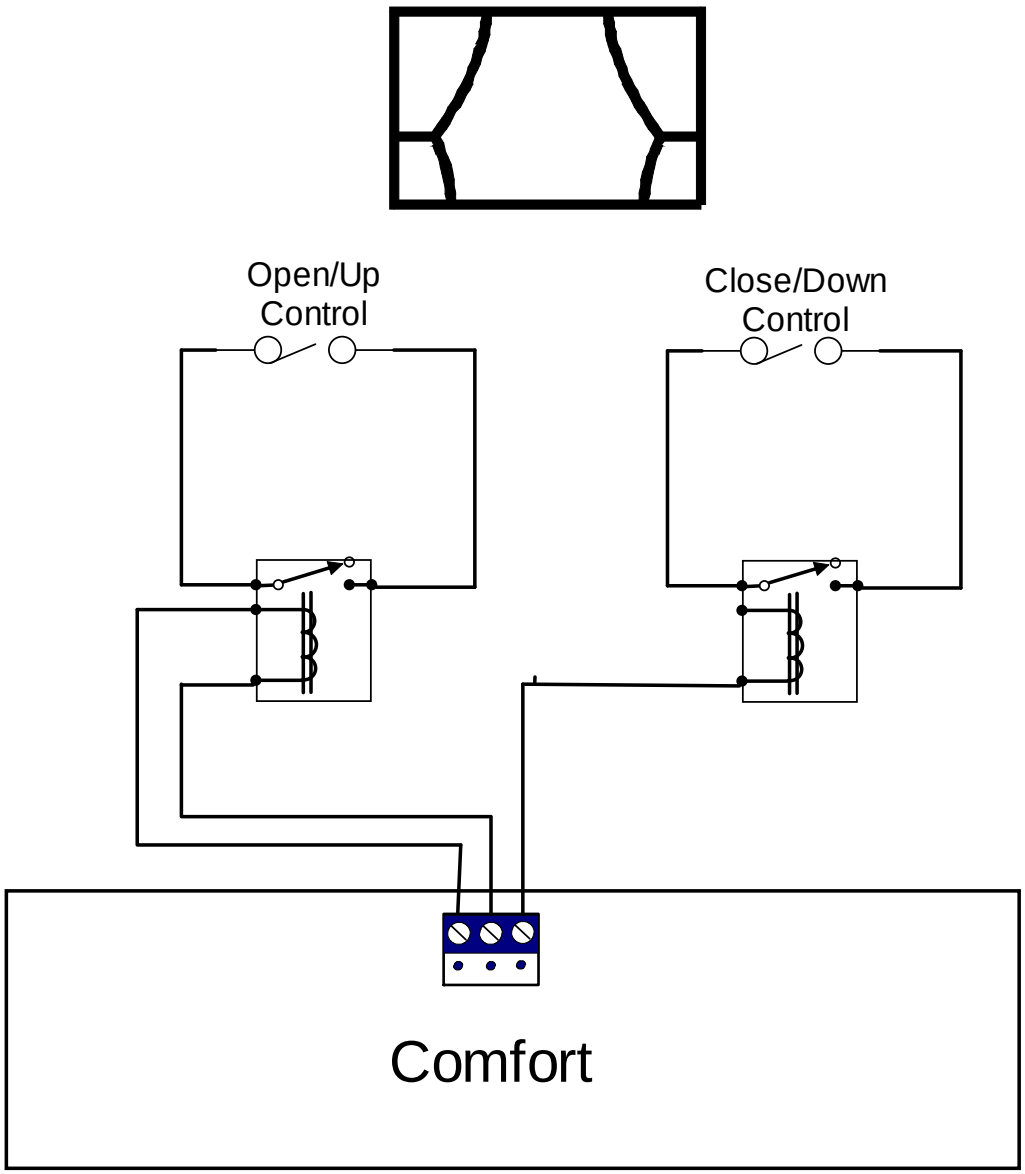
Control of water heaters requires a Heater Control Module and 20A Contactor. This is connected to the Heater switch by 2 x 230V wires and to the contactor coil via 2 x 230V wires. A 5A circuit supplies 230V from the DB. The contactor is has 2 pole + auxiliary contact rated at 20A. 4 low voltage wires are connected from the contactor and Heater control module to the Control panel. The Heater control Module and Contactor are housed in a Polycarbonate IP56 enclosure of dimensions 255 x 200 x 110 mm, which can be mounted near the water heater. The Heater switch shall be such that the indicator light and the switch are independent, as the light is connected to the heater power supply directly.

Wiring Guide

Heater Switch: Independent indicator light is required (not internally connected to the heater switch)
Heater Switch to Heater Control Module: 2 x 1.5 mm electrical wire
Contactor to Heater Control Module: 2 x 1.5 mm electrical wire
Contactor to Heater: 2 x 2.5 mm electrical wires
Electrical DB to Contactor: 2 x 2.5 mm electrical wires
Heater to heater switch indicator light: 2 x 1.5 mm electrical wires
Heater Control Module to Comfort HA Control panel: 4 x 0.5 mm low voltage wires

Control of Curtains

Comfort controls curtains using relays. Depending on the curtain motor there may be two relays, one to open, one to close.



Curtain Motor Connections

Each relay is connectedto an output on Comfort. The relay contacts are connected in parallel with the manual switch for the curtain motor or a suitable point determined by the curtain motor supplier. When the contact for Close/Down curtain is closed, the curtain will move in one direction. When the contact for Open/Up curtain is closed, the curtain will move in the other direction.When both contacts are open, the curtain will stop moving