

PRINCE OF WALES DRIVE

BATTERSEA · LONDON SW11

HEATING & COOLING CONTROLS USER MANUAL



CILANTRO

MEP ENGINEERING CONTRACTORS

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0. INTRODUCTION

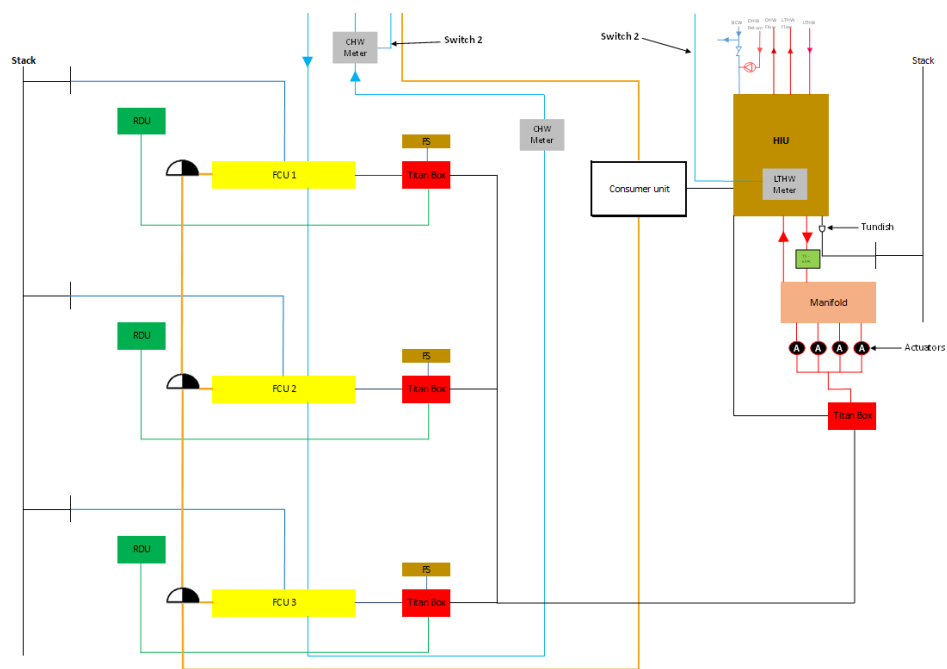


Figure 1. APARTMENT HEATING AND COOLING INTERFACE

THE HEATING AND COOLING CONTROL SYSTEM IS DESIGNED TO PROVIDE YOU WITH A COMFORTABLE LIVING ENVIRONMENT. THE FOLLOWING SYSTEMS ARE INSTALLED TO ACHIEVE THIS:

- HEAT INTERFACE UNIT (HIU) WHICH ACTS AS A BOILER WITHIN YOUR APARTMENT TO PROVIDE HOT WATER FOR DOMESTIC USE AND UNDERFLOOR HEATING (UFH).
- FAN COIL UNITS (FCU'S) WHICH PROVIDE COOLING BY USING CHILLED WATER FROM PLANT OUTSIDE THE APARTMENT.

1. HEATING AND COOLING CONTROLS (RDU)



HEATING AND COOLING CONTROL WITHIN THE APARTMENT IS MANAGED BY THE ROOM DISPLAY UNIT. THE RDU WILL ACTIVATE THE SYSTEM AUTOMATICALLY (OR MANUALLY) IN ORDER TO REACH AND MAINTAIN YOUR DESIRED TEMPERATURE.

FCU's (Fan Coil Units) and the UFH (Underfloor heating) are interfaced within the one system and are controlled using the RDU.

There are three modes of environmental control to select from - Auto, Cooling and Heating.



1. Auto Mode - The system will activate underfloor heating or FCU comfort cooling services automatically, in order to achieve and maintain the desired temperature.
2. Heat Mode - The system will control UFH services only.
3. Cool Mode - The system will control FCU comfort cooling services only.
4. Off - Turn off the system.
5. Temperature Control - Increase and the decrease desired temperature.
6. Fan Speed Control - Manually adjust FCU fan speed (Low / Medium / High). Note: fan speed relates to FCU comfort cooling services only.

1.1 Controlling the system:

- The system works on the basis of a desired/target temperature (known as a 'set point'), which is entered/adjusted at the RDU.
- The RDU has an in-built sensor, which takes live in-room temperature readings. This allows the system to automatically enable/disable heating and/or cooling services to suit the set point.
- The system incorporates a time schedule feature. From a Timed-Off condition to a Timed-On condition, the RDU defaults to Auto Mode and its selected temperature for that timed period. This time schedule can be overridden ON or OFF.
- From a Timed-Off condition to an Override-On condition, the RDU defaults to Auto Mode and the default temperature.
- Upon initial start up, the RDU reverts to its last occupancy condition (On or Off) and in an on condition defaults to the last known Mode (and its selected Temperature for that timed period).

NOTE: SETTING OF A TIME SCHEDULE TO SUIT SEASONAL CONDITIONS IS HIGHLY RECOMMENDED. TURNING THE HEATING & COOLING ON/OFF MANUALLY AT THE RDU IS MUCH LESS EFFICIENT.

Underfloor Heating Limit

The UFH control regime incorporates floor sensor inputs to monitor the underfloor temperature. If the temperature in living areas rises towards an underfloor high limit (27°C) the system will disable heating services until the measured floor temperature has returned to an acceptable temperature (25°C).

Remote Control

When connected to a Broadband router via an Ethernet connection, the system allows the user to adjust their comfort settings and set up comprehensive time schedules for RDU touch screens on the network via the Titan Products Remote Access App download.

The Titan Products App is available for download via the Apple App Store and the Google Play Store for Android devices.



2. Heating, Cooling Units and Maintenance

2.1 HEATING SYSTEM

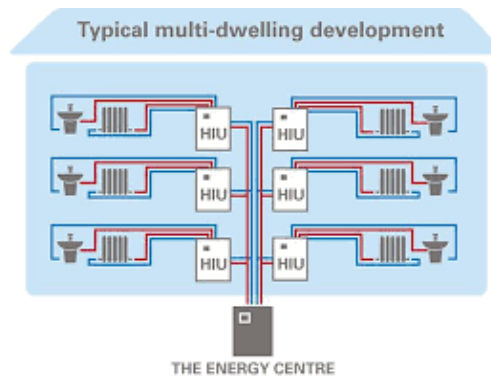


Figure 4. District Heating Schematic

Heating is achieved through a District Heating installation. The boilers are in the basement of the building and supply heating flow and return to the different apartments.

Within each apartment, Cilantro Engineering has installed a Heat Interface Unit (HIU) that will interchange heat with the district heating system and provide this heat to the apartment.

The apartments are equipped with underfloor heating, making the floor surface into a big radiator. Underfloor heating is more energy efficient and capable of maintaining the temperature more efficiently than conventional systems.

HIU Manufacturer: SAV Systems

Model: VVX-I-R-FI-UFH

Location: Utility Cupboard



Figure 5 Heat Interface Unit

HIU'S PROVIDE HEATING AND DOMESTIC HOT WATER TO INDIVIDUAL PROPERTIES WITHIN A MULTI DWELLING DEVELOPMENT (SUCH AS A BLOCK OF APARTMENTS, OR A LARGER DISTRICT HEATING SCHEME) SERVED BY CENTRALISED HEATING PLANT. HEAT INTERFACE UNITS ALLOW CONNECTION TO A CENTRALISED HEAT NETWORK, WHILST STILL GIVING INDIVIDUAL OCCUPANTS CONTROL OVER THE TEMPERATURE IN THEIR PROPERTY AND ALLOWING INDIVIDUAL METERING AND BILLING.

2.2 COOLING SYSTEM

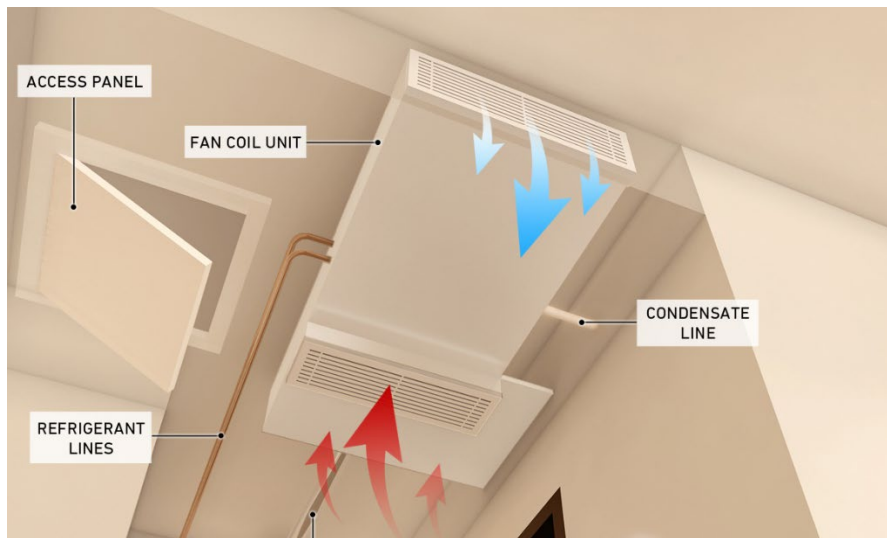


Figure 6 Cooling Schematic

The cooling system works similarly to the heating system. Chilled water is provided by landlords chillers and chilled water flow and return pipework goes from the chillers to each Fan Coil Unit in each apartment.

The Fan Coil Units (FCU's) will blow air through an internal radiator supplied with the chilled water to reduce the ambient air temperature. This process is known as comfort cooling.

Note: The comfort cooling system is not an air conditioning system.

FCU MANUFACTURER: Diffusion

MODEL: ATL Series

LOCATION: CEILING VOID

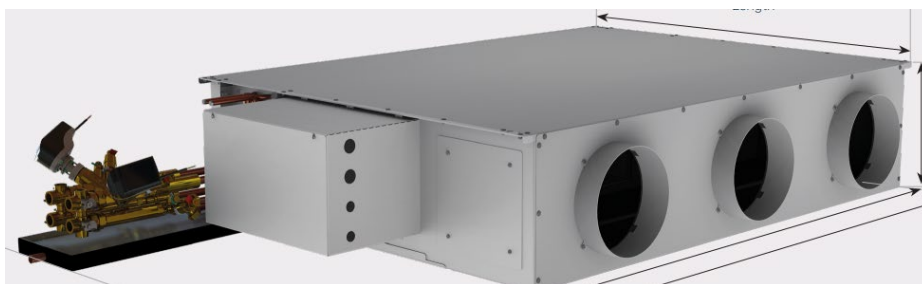


Figure 7 Fan Coil Unit

A FAN COIL UNIT (FCU) IS A SIMPLE DEVICE CONSISTING OF A HEATING AND/OR COOLING HEAT EXCHANGER OR 'COIL' AND FAN. IT IS PART OF A HVAC SYSTEM FOUND IN RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL BUILDINGS. A FAN COIL UNIT IS A DIVERSE DEVICE SOMETIMES USING DUCTWORK AND IS USED TO CONTROL THE TEMPERATURE IN THE SPACE WHERE IT IS INSTALLED OR SERVE MULTIPLE SPACES. IT IS CONTROLLED EITHER BY A MANUAL ON/OFF SWITCH OR BY A THERMOSTAT, WHICH CONTROLS THE THROUGHPUT OF WATER TO THE HEAT EXCHANGER USING A CONTROL VALVE AND/OR THE FAN SPEED.

2.3 ELECTRICAL UNDERFLOOR HEATING



Figure 9 Bathroom Electrical UFH

Apartment bathrooms are also provided with Electrical Underfloor Heating Mat (installed by others) which is not related to or served by the HIU.

This secondary UFH system is separate to the main living areas/bedrooms installation and is served by its own temperature sensor. Control is by way of an independent set point on the RDU touch screen.

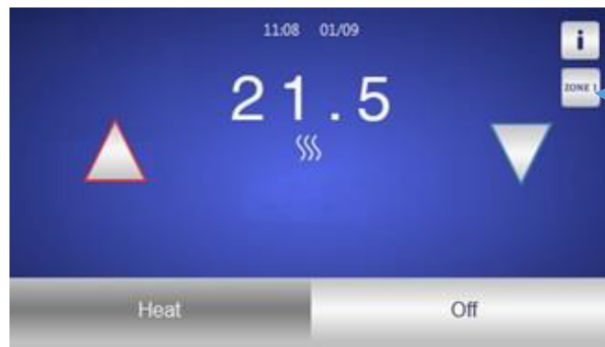


Figure 10 Bathroom Electrical UFH (Zone 2) Screen

2.4 MAINTENANCE

2.4.1 FCU Maintenance

Your new Diffusion fan coil units will operate for many years affording a comfortable, controlled living environment. This sheet provides useful installation guidelines, a trouble shooting table and a list of routine maintenance procedures.

ROUTINE MAINTENANCE SCHEDULE.

ITEM	Variable	6 monthly	Yearly
Motor		✓	
Fan Impeller			✓
Case internal surfaces			✓
Access Panels			✓
Air filters	✓		✓
Coil		✓	✓
Screw and Fixings			✓
Wiring terminations & condition			✓
Case external surfaces			✓

Condensate does not drain or the unit leaks	<ul style="list-style-type: none"> Is the air filter dirty - Dirty filters impede condensate flow Is the fan coil installed out of level
Controls do not work	<ul style="list-style-type: none"> Have the commissioning valve caps or pegs been removed? Has the set point temperature been reset correctly after commissioning? Is the sensor being "fooled" by an external temperature influence Have the controls not yet finished their start-up diagnostics routine.
Unit becomes noisier over time	<ul style="list-style-type: none"> Is the filter dirty

Air Filters

Filters must be properly maintained in order to ensure proper air cleaning efficiency

Dirty filters will reduce the air volume handled by the unit thus adversely affecting its performance. The length of time between cleaning of filters is dependent upon the condition of the air.

A nine-week cycle is normal; more frequent servicing may be required in some cases. Gently tapping and removing loose dust with a vacuum cleaner can clean synthetic filament pad filters.

Filters are suitable for washing in warm water with a mild detergent, rinse with clean water and allow to dry prior to re-fitting into unit.

The operational life expectancy before cleaning or changing the filter is dependent upon the condition of the air being treated and the specific unit volumetric performance.

All other FCU maintenance procedures detailed in the schedule above must only be carried out by a fully qualified and competent professional.

2.5.2 HIU MAINTENANCE

An annual service is required. It must only be carried out by a fully qualified and competent professional. The following should be included:

Strainers

Cleaning of strainers.

Meters

Checking of all operating parameters such as meter readings.

Temperatures

Checking of all temperatures.

Connections

Checking all connections for leakages.

Safety valves

The operation of the safety valves should be checked by turning the valve head in the indicated direction.

Venting

Checking that the system is thoroughly vented.

2.5.3 RDU MAINTENANCE

The heating and cooling control system is not subject to any planned maintenance procedures.

Should a maintenance visit be required, works to the system must only be carried out by a fully qualified and competent professional.

3 Manufacturer Contact Details

Room Display Units

Titan Products Limited

Tel: 0161 406 6480

Web: www.titanproducts.com

✉: sales@titanproducts.com

Heat Interface Unit

SAV Systems Limited

Tel: 01483 771 910

Web: www.sav-systems.com

✉: [Contact Form](#)

Fan Coil Units

Tel: 0208 783 0033

Web: www.diffusion-group.com

✉: diffusion@diffusion-group.com