



## WLM-Cooling



OJ WATERLINE CONTROLS

# WLM Heating and Cooling Systems

- All the latest generation WLM2-xFS and -xBA masters can switch to a cooling function in addition to heating.
- Cooling kits are available as optional purchases that include (i) a WLH humidity sensor and (ii) a WLAC switch module. Without the WLAC module the master will not operate as a cooling control. For the WLM-BA master, the cooling kit also contains a water sensor ETF 1899A, which should be installed on the return pipework from the floor and which enables the master to calculate the dewpoint levels within the area. WLM-FS masters have this component as standard issue.
- WLAC enables the client to select a heating or cooling function, and all room sensors within the system will act in the appropriate mode. If an automatic switchover is provided by a BMS system, this input must be connected through the WLAC module (2-wire volt-free connection).
- WLH detects room humidity and enables the master to calculate the dewpoint level within the building (more than one WLH can be used if required). When the air dewpoint gets close to a level where condensation will form on surfaces, the master will adjust the settings of the system as follows:
  1. FS masters: The mixing valve will be closed to increase the temperature of the water within the system.
  2. BA masters: The thermal actuators will be closed so that the floor surfaces will increase in temperature.
  3. Provision is also made, via a dip switch selection, to switch ON a de-humidifier.
- Cooling water can be provided by heat

pump or by a chiller incorporated into the system. WLM masters have the ability to send the signal to start these devices as follows:

1. For heat pumps, the X relay (terminals C1 and C2, volt-free) can be used as a start signal for the heat pump to switch to Cooling mode.
  - a) If the heat pump is to be used directly in response to room demands of the WLM system, then the master must be set for Cooling mode (dip 5 OFF, dip 6 ON).

- On the FS master the X relay is energised when a demand occurs and when the mixing valve has opened to above 20% (2V dc), or has not closed to less than 10% (1V dc).

- On the BA system, the X relay is energised whenever there is a demand.

- b) If the heat pump is to be permanently engaged once cooling is selected, the master is set for Cooling Alternative (dip 5 & 6 ON).

This applies to both WLM FS and BA systems.

- NB Consult with the heat pump manufacturer to ascertain the correct method of use, and for electrical requirements. A relay or contactor may be needed to switch the heat pump load.

2. For chiller applications, isolating valves will be required on the primary pipework to separate heating and cooling supplies (see diagram overleaf). Isolation can be achieved via 2- or 3-port valves. OJ Electronics provides an additional module (K-Mod) which will open and close these valves, and provide two separate electrical signals, one for a chilled water circulation pump, and one (with delayed start) for the chiller. The K-Mod is powered from the WLM master and switched by the WLM-X relay. It is important that for this application, the dip switches of the WLM master are set for the Cooling Alternative mode (dip 5 & 6 ON).

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