Application topic: Exhaust and supply fans Control in a mechanical room.

Case description

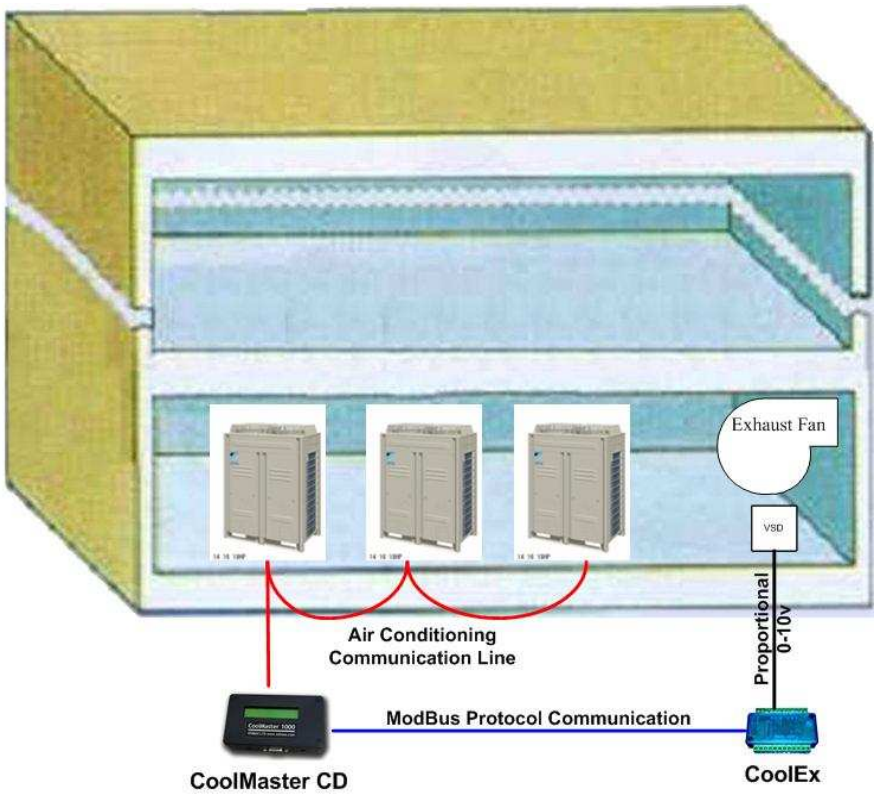
Due to lack of space, the VRF outdoor units are placed sometimes inside closed mechanical rooms. In those cases the air volume inside the room is circulated by an exhaust and supply external fans.

Task

The fan speed of VRF outdoor unit is always changing due to the capacity demand. That's the reason why the exhaust and supply air fans have to be able to change their air flow. Usually they are controlled by a VSD that have to be controlled by the required air volume change in the mechanical room.

Solution

In order to provide the required solution we connect CoolMaster in conjunction with CoolEx. CoolMaster reads the exact fan speed from all outdoors at each point of time. This data is translated by CoolEx to an analogical signal (0-10v) and is supplied to the VSD of the exhaust fan.



Application topic: Backup Operation.

Case description

There is a need in certain spaces to have a 100% backup for the air conditioning. In this case 2 indoor units installed in the required space. Only one works (never both at the same time). Each indoor unit belongs to a different refrigerant circuit.

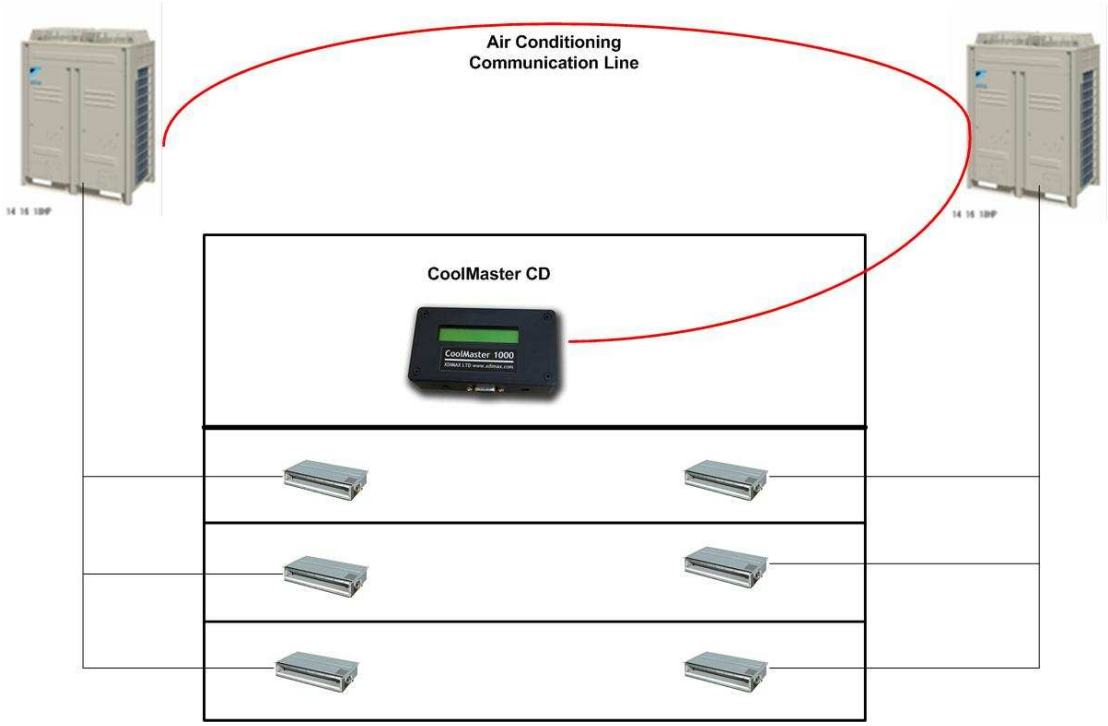
Task

There are 2 operation tasks for such a system:

1. When one of the indoors is malfunctioning, the second indoor has to start working automatically.
2. The master (or the leading system) has to be switched each certain period of time. For example each month.

Solution

In order to provide the required solution we connect CoolMaster. One of its commands enables to define backup of paired indoor units. Another command changes the leading system after certain time period, which can be defined by the user.



Application topic: Electrical heaters control

Case description

There are some cases where there is a requirement for electrical heaters that must work along with the indoor units and supply supplemental or backup heating. Original VRF controls does not support this option.

Task

End user must be able to operate the indoor unit in heating with electrical heater. In this case, the indoor must work in the "Fan only" mode, and power, supplied to the electrical heater must be controlled by the difference in the set point temperature and the temperature measured in the room.

Solution

In this case we use CoolConverter that is connected to local thermostats by Modbus. When "Auxiliary heating" mode is selected on local thermostat panel, the CoolConverter changes the operation mode of the required indoor unit to a "Fan" mode, and local control panel starts controlling the electrical heater. The local control panel controls the heater (by on/off , analogical or PWM signals) due to the difference between the measured temperature in the room and the user defined set point temperature.