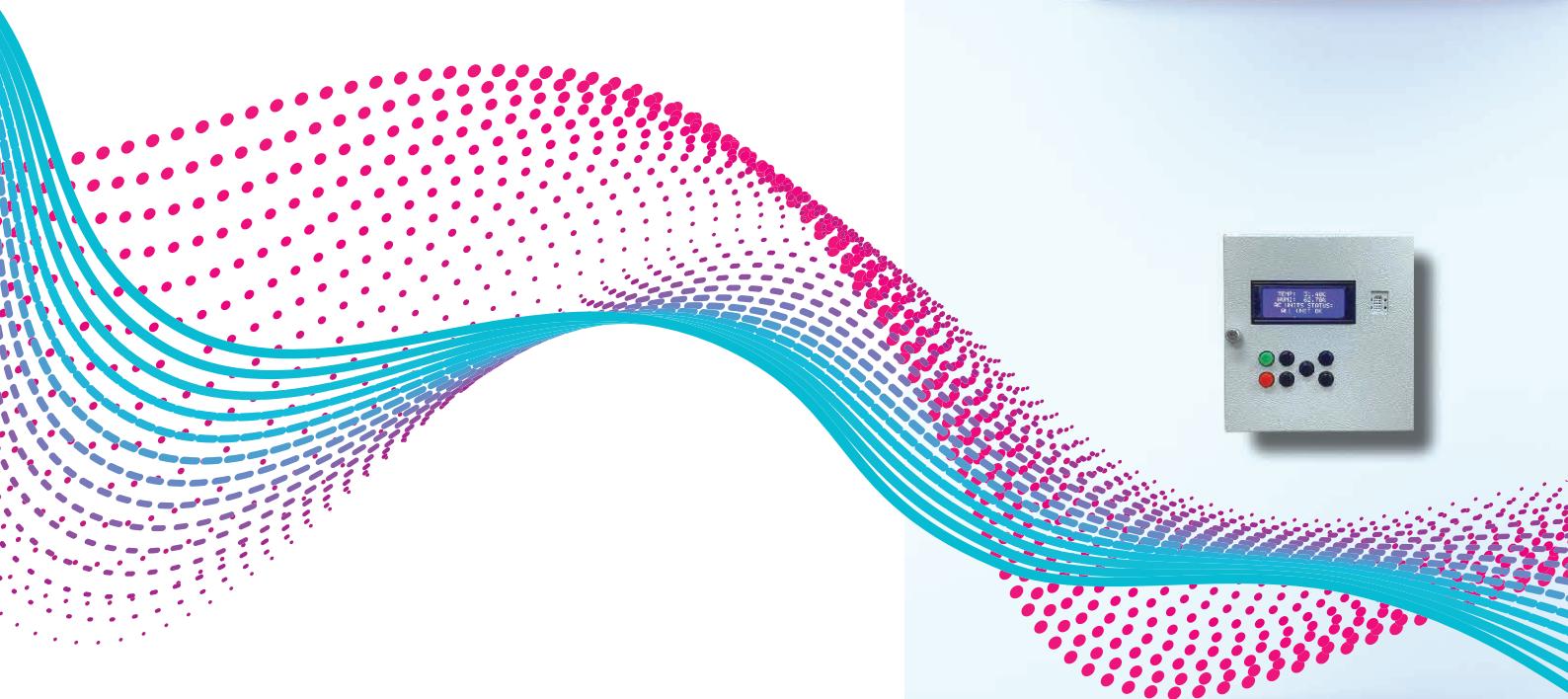


Taiace

SUSTAINABLE TECHNOLOGIES

# SMART COOLING OPTIMIZATION UNIT



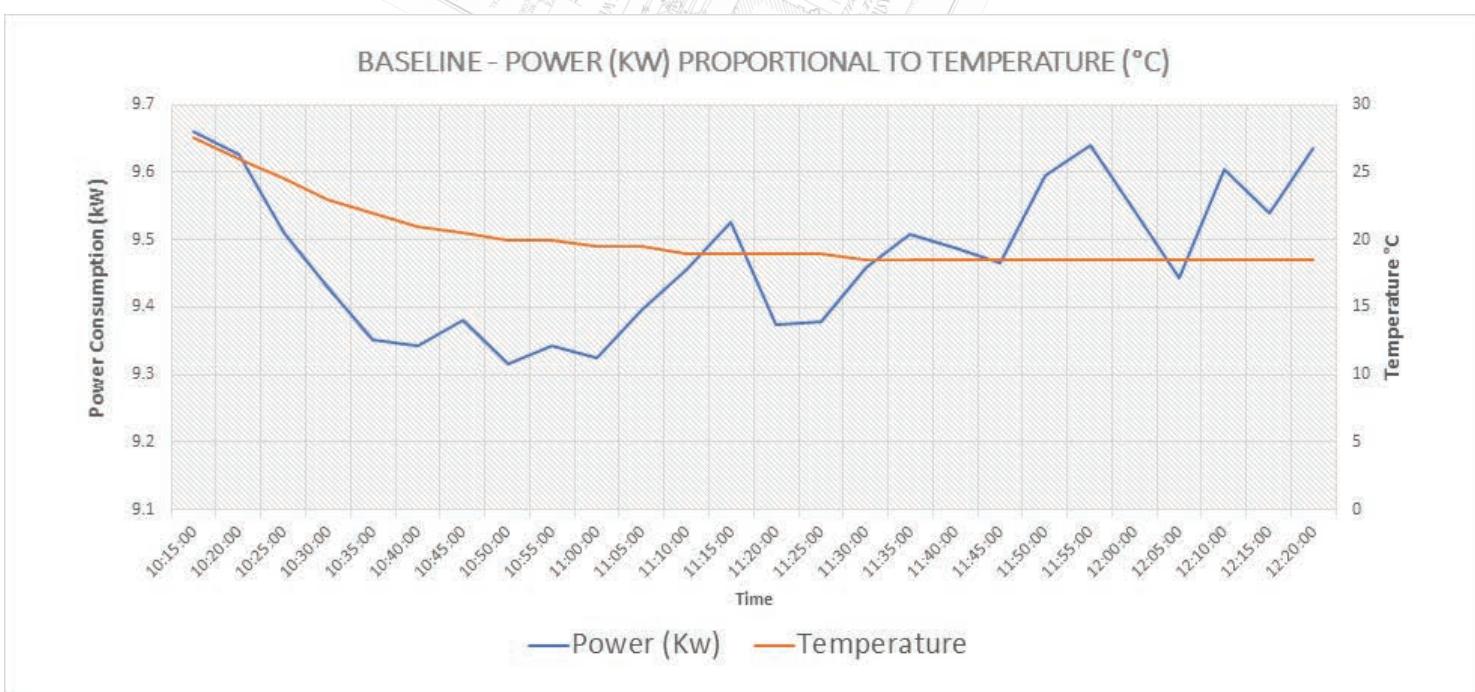
### The Conventional Way, How it Work? Is it Save Energy?

In conventional condition, the existing air-conditioner is operated by a timer and thermostat. The disadvantage of this application is, the thermostat is unable to detect the actual room temperature due to the position of thermostat is impractical or thermostat is corrupted. As a result, the operation of existing air-conditioner will continue to operate without stopping.

Unable to detect the actual room temperature due to the position of thermostat

Temperature Sensor Problem

**The operation of an air conditioner (non-inverter) without a smart cooling optimization system**

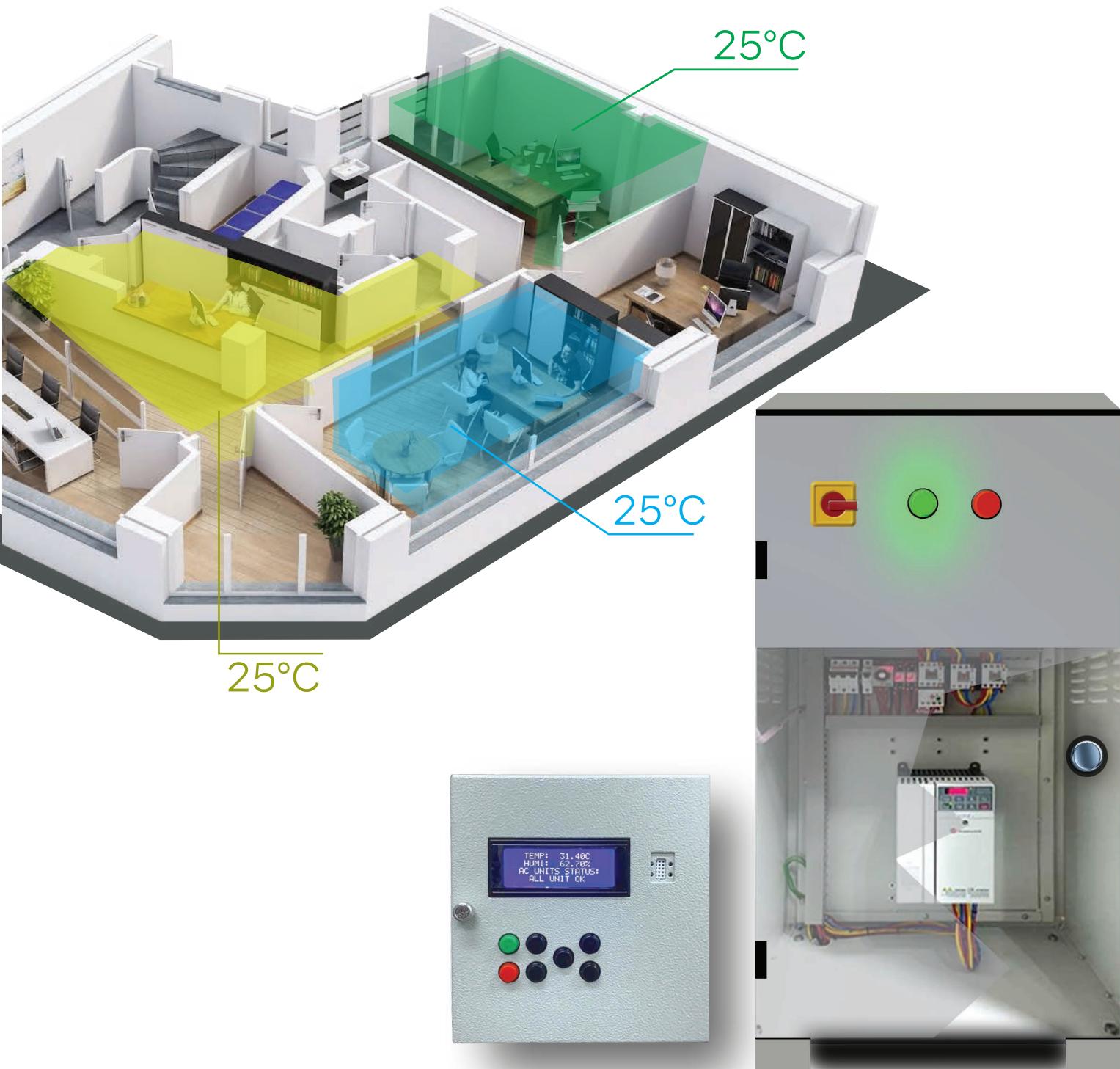


The graph above shows that an air condition continues to operate even the room temperature is decreased causing the energy bill to increase. It is because the air-conditioner is unable to detect the actual room temperature due to the thermostat location is not practical or the thermostat is faulty.

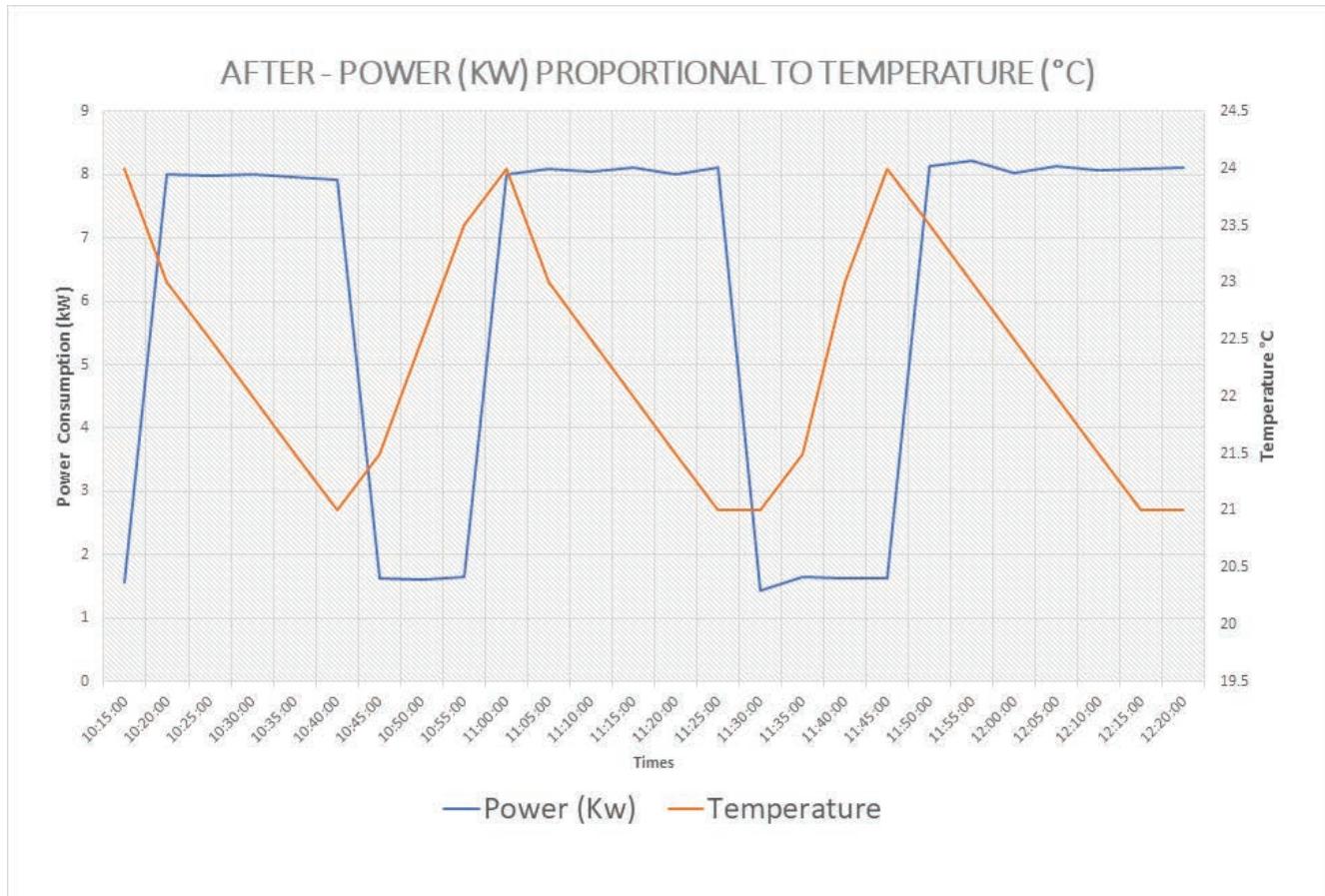
# A NEW ERA

## SMART COOLING OPTIMIZATION UNIT

The existing air-conditioner are able to operate more efficiently by using Smart Cooling Optimization Unit. It able to operate as an inverter compressor and the operation is based on the desired room temperature.



## Operation of an air conditioner (non-inverter) with a Smart Cooling Optimization System



The graph above shows that after installing the cooling optimization system, the operation of the air-conditioner is running once the temperature is increasing and stop once it reaches a certain temperature (Temperature Boundary Setting).

The graph above shows that after implementing the cooling optimization system, the air-conditioner compressor will operate once the temperature rises and then it will be turned off if the temperature reaches a certain reading (Temperature Boundary Setting).

The air-conditioner is able to run according to the desired room temperature because of the desired room temperature being detected by the main controller and the main controller will instruct the VFD to regulate or turn off the compressor operation. As a result, the installation of a cooling optimization system will contribute to energy savings and save the electricity bill.

## CONTROLLING OPERATION

### START AND STOP COMPRESSOR

The main controller will detect the actual room temperature and will instruct the compressor to operate if the room temperature is higher than the set back temperature and will instruct to stop the compressor if the room temperature is lower than the set point temperature.

The operation of the compressor is based on the temperature setting at main controller. (Set point and Set back)



### MAXIMUM AND MINIMUM FREQUENCY SETTING (COMPRESSOR PROTECTION)

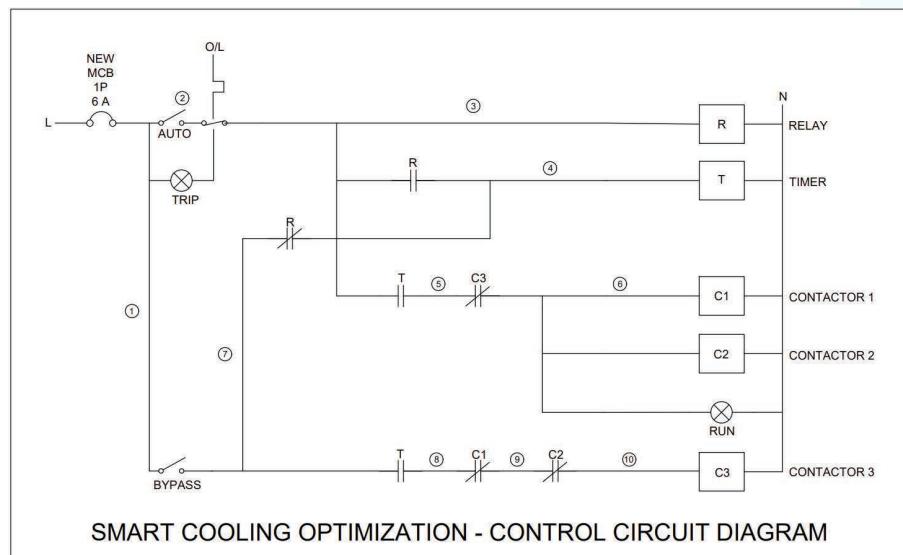
Minimum frequency 35Hz

Maximum frequency 50Hz

### SAVING / BYPASS MODE

Saving Mode : Air-Cond is operated using smart cooling optimization system

Bypass Mode : Air-Cond is operated using existing system

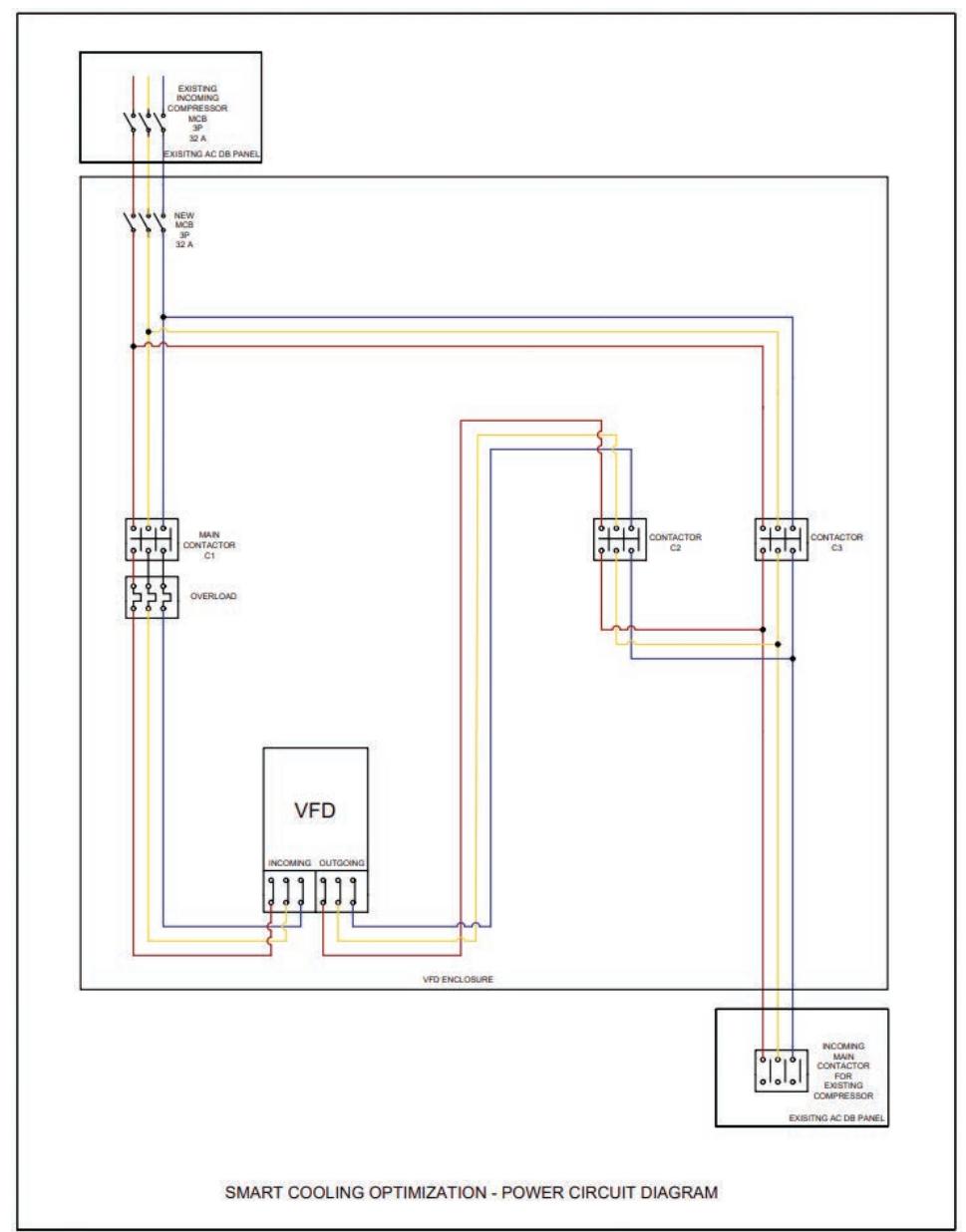
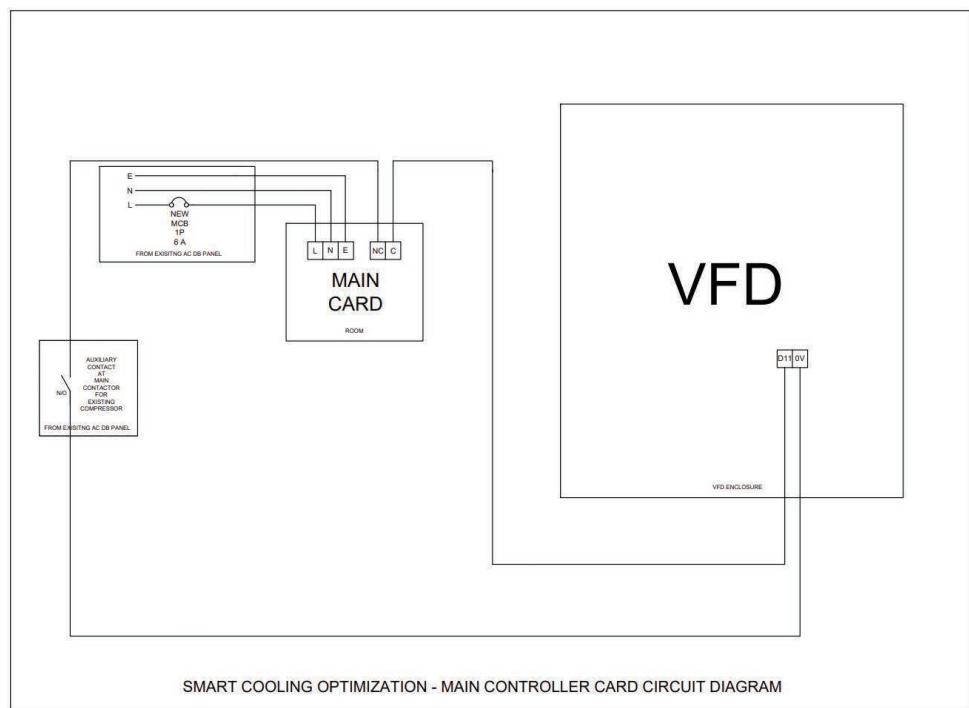


MAIN CARD  
CONTROLLER DISPLAY



VFD AND CONTROL CIRCUIT







# SMART COOLING OPTIMIZATION UNIT

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