PT ANUGERAH MAKMUR MAHATARA

GreenPlanet (DCD) Gen3

REAL- TIME ENERGY MANAGEMENT
FOR REAL-TIME ENERGY SAVING

Intelligent Energy Solutions

DEMAND CONTROL DRIVES
Green Planet

ENERGY SAVE

MONEY SAVE

EARTH SAVE

The Most Innovative Modern Technology For Managing Energy Consumption of Centralized Air Conditioners in Commercial Buildings, Shopping Malls, Hospitals, Airports, Hotels etc.

About DCD

Understand the facts about DCD and how you can lower consumption and increase energy efficiency.

SuperGreen DCD ™ solutions are helping businesses profit from significant energy cost savings, we also help organization go green, and create a competitive advantage. From small businesses through to hypermarkets, data centers, telecom facilities, cold storage warehouses, shopping malls, commercial buildings, hotels etc Allow **SuperGreen DCD™** to help you improve the energy efficiency of your air conditioner andsave you money

If your building uses centralized air conditioning system, you could be wasting money unnecessarily through inefficient pumps, cooling towers and air handling unit control. Most systems are either oversized for their application, running needlessly at constant speed, or being throttled or damped to meet variations in output for your chillers. The net result is around 45% of energy consumption wasted. And with air conditioners accounting for an estimated 75% of energy used in buildings today, that is a lot of potential you can tap into and add to your profit margins.

AI TECHNOLOGY

SuperGreen DCD (Demand Control Drive) ™

ARTIFICIAL INTELLIGENCE THE NEXT DIGITAL FRONTIER

ARTIFICAL INTELIGENCE ASSISTED HVAC MANAGEMENT SYSTEM CAN OPTIMIZE YOUR CENTRALISED AIR CONDITIONING SYSTEM PERFORMANCE IN REAL TIME TO ACHIEVE THR BEST ENERGY SAVING RESULTS

AUTOMATED DECISION-MAKING

- Let Green Planet DCD AI manage your HVAC efficiency decisions in a more efficient and quicker manner than humanly possible.
- Machine intelligence determines the best performance without loss of room comfort.
- Inefficient chilled water and air distribution systems can lead to significant energy wastage.
- Unexpected failure of those systems can result in significant capital outlay.
- But these outcomes can be avoided by focusing on the optimization of chilled water and air distribution systems in the first place

GOING BEYOND INSIGHTS

- Introducing technology that improves daily operations reveals a tremendous potential for energy savings and operational improvements of your hvac system.
- An engineered approach to optimizing both your chilled water and air distribution allows your systems to respond more effectively to demand, and to deliver energy where it’s needed – all without sacrificing savings or building comfort

GreenPlanet

Abstract

WHAT MAKES MODERN TECHNOLOGY DIFFER FROM TRADITIONAL TECHNOLOGY

IN general, the cooling towers (Water Cooled) or Compressors (Air Cooled) of the air-conditioner is installed outdoors, while the evaporator is installed indoor or with the heat exchanger of the chiller, As the outdoor and indoor temperatures are not fixed, they vary with Weather, Climate and Human Traffic, the performance of the air conditioner, changes accordingly, as such modern methods like Green Planet DCD is absolutely necessary to provide the necessary performance at a lowest energy cost.

TRADITIONAL METHOD 1

One common traditional method which some engineers apply is to install an inverter on the wall and wire it to the motor at a fixed speed. Which means they will figure out a demand which may be required during a hot weather and peak human traffic conditions. The frequency is usually slightly lower than 50Hz. But this weather and large human traffic conditions only occur smaller percentage of the time through the year, resulting in a small percentage in energy saving and it may be a cheap way of embarking on energy efficiency program, but there is very little Economic Value in the investment.

TRADITIONAL METHOD 2

Another method is almost identical as above but instead of fixed speed, the frequency is controlled dynamically with an analogue sensor usually known as PIC control. This method is more expensive than fixed speed and have a better energy saving capabilities, but comes with inherent disadvantage being analogue, the frequency after the decimal point fluctuates rapidly which is not good for the motor and generates RFI. Another traditional method (Method 3) is to link up all the AHU to a BMS system. This is the most expensive of all the traditional method.

COMPARISON

The control system for method 1 and method is analogue
Green planer DCD is digitally driven to eliminate all RFI and motor flux fluctuation

In traditional method, the VSD (Variable Speed Drive) is powered up 24 hours a day and will run the motor during a run signal
Green Planet DCD will totally shut down the drive and power up only when needed to run
The reason why Green Planet DCD can provide customers with a 3 years warranty and others only 1year

In traditional method, installation of the VSD will hang due to many reasons, (voltage spike, brown out, lightning, line strike (power pole strike) and many more. In all the mentioned cases, the VSD will stop functioning and will require human interference to shut down and restart.
Green Planet DCD will detect all this faults and auto reset in 20 seconds, without human interference

Features of Green Planet DCD that All Traditional Technologies Does not provide

1. **Proof of performance before customer buy which VSD installers don't provide, Green Planet DCD being a complete module by itself with built in custom control system and specialized software with self-learning system and sensors for HVAC system can be temporarily installed and performance measured.**

2. **Guaranteed 2 years return on investment and a 3 years warranty**

3. After the soft start is performed, the AHU is made to run at full speed to create a good air circulation, learn the time taken for the equipment to achieve its potential, measure the incoming and outgoing temperatures (Delta T) and lock into one of its algorithms related to current environmental condition within the space to be cooled. The parameter measured is critical in providing a best performance at a lowest energy cost,

4. Being designed and manufactured in Malaysia, customer is assured the best value for money, and after sales service

5. Alarms output in the event of serious motor fault. Non serious motor faults are automatically cleared

6. Ability to integrate with existing Building Management System and many more motor protections related features



APPLICATIONS

OUR MISSION IS TO PROVIDE COST-EFFECTIVE, SAFE AND ENVIRONMENTALLY RESPONSIBLE SOLUTIONS FOR REDUCING YOUR ELECTRICITY BILLS.

Demand Control drives within our product range offer an advanced optimization function that intelligently matches energy usage to your HVAC load to ensure your system operates at maximum efficiency.

We have solutions for:

- ✓ SPLIT UNIT AIR CONDITIONERS
- ✓ AIR-COOLED PACKAGE SYSTEM
- ✓ WATER COOLED PACKAGE SYSTEM
- ✓ COOLING TOWERS
- ✓ AIR HANDLING UNITS
- ✓ CAR PARK VENTILATION SYSTEM
- ✓ COMMERCIAL KITCHEN EXHAUST SYSTEM
- ✓ CHILLER OPTIMISATION











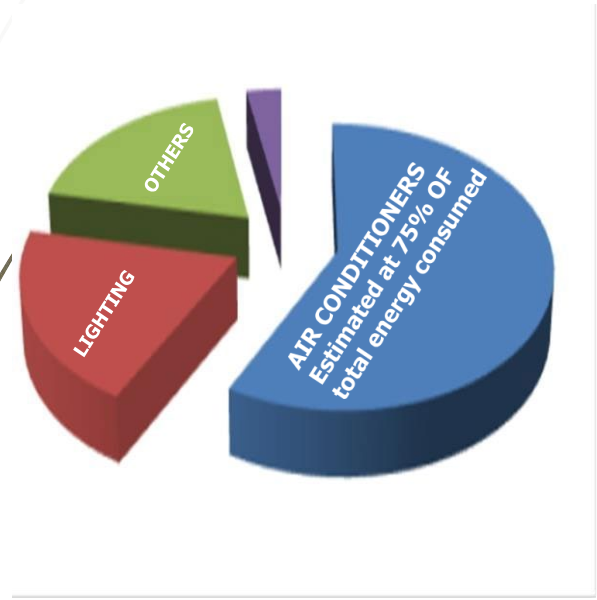


Potential Applications

F&B
Airports
Hospitals
Hotels
Shopping malls
Office buildings
Conference halls
Kitchens
Universities
Factories

Where do the energy savings come from?

Nearly 70 percent of all commercial buildings electrical energy consumption goes into powering the air conditioning system. These HVAC systems are a must in every building, from pumps moving fluids to fans moving air to compressors, and every other component of an air conditioning that depends on rotational force to get its job done.



Typically, the air conditioning systems in buildings are designed for maximum occupancy and peak outside ambient temperature. This means that for the majority of time there is a large scope for running the systems at reduced load. DCD will manage that automatically

The future of energy efficiency

Two thirds of available energy efficiency potential remain untapped. A better world is created by engineering innovations.

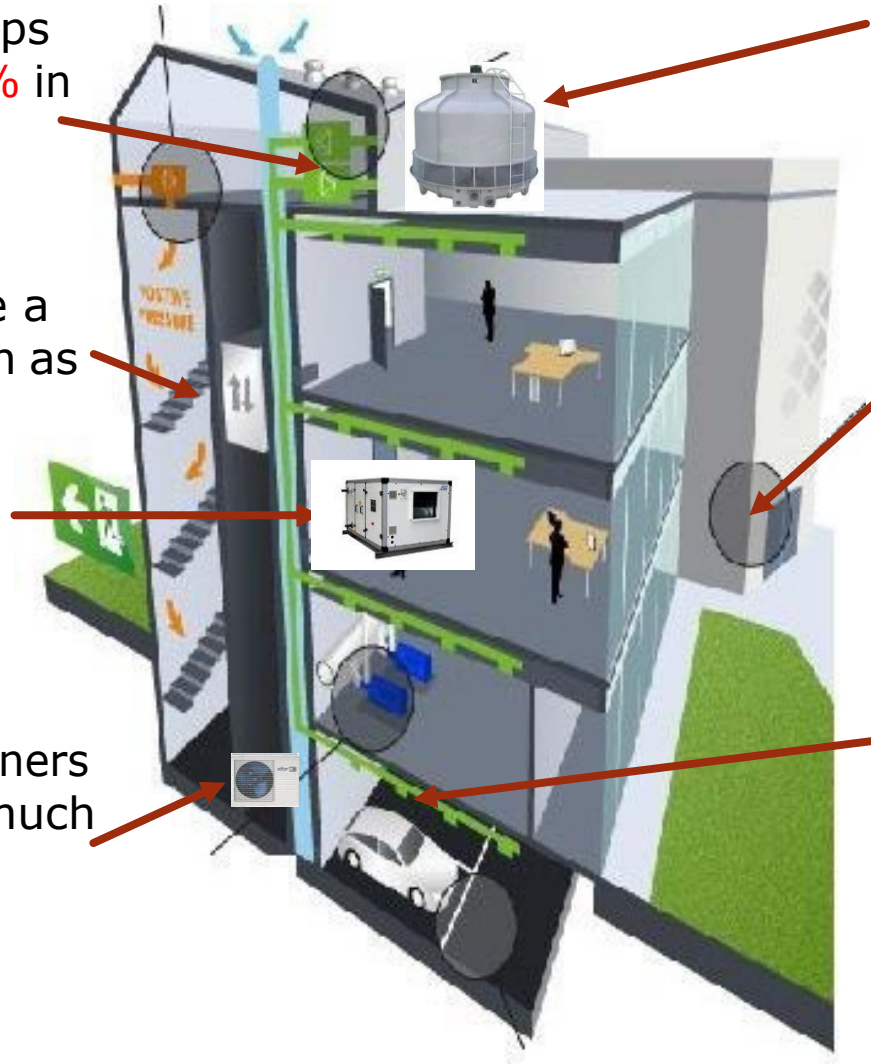
Where is the potential in a typical building?

DCD for HVAC water pumps have a potential to save 35% in running cost

DCD for elevators have a potential to save as much as 50% in running cost

DCD for AHU have a potential to save 50% in running cost

DCD for split unit air conditioners have a potential to save as much as 20% in running cost



DCD control system for cooling towers have the potential to save on the average 45% in energy bills

DCD for kitchen exhausts have the potential to save 50% in running cost

DCD for car park ventilation system have a potential to save 45% in running cost

Cooling Tower Energy Management



Sensors will read the incoming, outgoing, water and the ambient air, temperatures in real time and the motor is driven according to current demand

The fan motor of the cooling tower is a large source of energy consumption. Installation of DCD, will result in significant energy savings.

DCD use electronics to adjust the input of power to the fan motor, varying the fan load in reference to the real demand.





Air Handling Unit Management

Energy efficiency the right balance between comfort, building performance and sustainability

Building air handling unit control is one of the challenges building owners have been facing for more than 50 years. The development of demand control drives benefits from our in-depth application know-how resulting from years of practical experience and extensive research work.

A high level of control accuracy optimizes the demand load and does away with unnecessary readjustments of the room temperature set point.

Water Pump Energy Management System

Flow rates can be controlled far more precisely and faster with Demand control drive systems than when using mechanical control concepts and can be adapted to the actual demand.

The advantage: A significantly higher degree of reliability for chill water flow systems. Further, DCD opens up enormous cost-saving potential. This is the reason that our DCD system often has a payback time of less than 2 years.



Customized control systems offer straightforward and flexible solutions for complex control tasks, such as those encountered in car parks. Car parks can be subdivided into several zones to monitor the level of carbon monoxide and the ventilation system.



Car Park And Kitchen Ventilation

Continuous monitoring of carbon monoxide levels enables DCD to drive the ventilation system according to demand.

Minimum ventilation during the periods of time the parking spaces are not used. In that case, the system is switched to maximum demand only if the CO limit is exceeded

Ventilation mode for the car park to be switched to full ventilation at fixed times, regardless of the present CO level. Sensor fail detection, which sets off an alarm and switches on ventilation if a sensor delivers lower CO values than would be expected in normal operation.



Features

DCD Features

1. Fully Automated, no user interference required
2. Sensors automatically calculates system efficiencies
3. LCD Display provide user with vital information related to environment and saving.
4. Custom designed sensors for Realtime data transmission to the control system
5. Digitally drive Siemens AC Drives to prevent high frequency fluctuation of frequencies
6. System protection against voltage spikes
7. System protection against voltage brownout (Auto reset in 15 seconds)
8. Data output for external remote equipment monitoring
9. Automatic shutdown and reset in the event of minor motor faults
10. Complete motor voltage and load parameter protection
11. Built in line Harmonic filters
12. Fully compatible with Building Management System (BMS)
13. Programable to function as a stand-alone function, similar to BMS
14. Customizable for customer's requested additional functions
15. Complete system housed in metal enclosure
16. Retrofit system without modification to existing system
17. Replace current electro mechanical control panel with solid state electronic
18. Filtered Ventilation system to maintain electronics clean and cool for long term operation
19. Alarm function in the event of serious motor fault
20. System fully protected with inbuilt circuit breakers

Implementation Work Flow



1

Select 1 Building for proof and paid concept

2

Do a walk-through audit for the building with centralized air conditioning system

3

Present Finding & Proposal for Energy Saving

4

Finalizing the commercial and technical Solutioning

5

Client issue a LOA and sign a supply agreement for Proof and Paid

6

Contractor implement the project and deliver as per contract

7

Replicate the process to other building

Energy Efficiency of HVAC Component Audit

Our Efficiency Audit (For Potential Customers) will provide you the facts and figures, including predicted payback times, total energy and monetary savings possible for each HVAC component.

The audit takes about 2 weeks (depending on the size of the site) and involves a guided tour of your HVAC system and measurement of energy consumption before and after installation of DCD.

Audit will be presented along with a commercial proposal





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