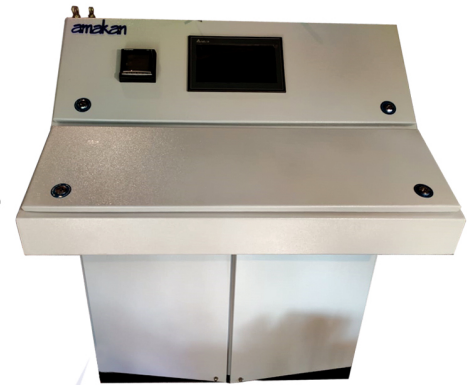


OPTROL SYSTEM

CONCEPTS OF OPTROL SYSTEM

WHAT IS SANCTIONED DEMAND :

From electricity supplier fixed amount of power needs be purchased and the amount of the power will be decided by the company. For that amount of power which is being sanctioned, the company has to pay some money. This is usually called "Demand charge". The sanctioned amount can be seen in monthly electricity bill. Basically this sanctioned demand is in the unit of KW or KVA .



WHAT IS LOAD FACTOR :

The amount of power which is being booked by the Organization and the total power consumed by that plant, percentage of the fraction is called load factor. For example:

Total amount of sanctioned demand : S

Amount consumed : C

Load factor : $(C / S) * 100\%$

From that theory it is clear that closer to 100% means better utilization of power.

This above mentioned load factor calculation may vary from one electricity supplier to another electricity supplier but the basic idea is same.

NECESSITY OF RECTIFYING LOAD FACTOR:

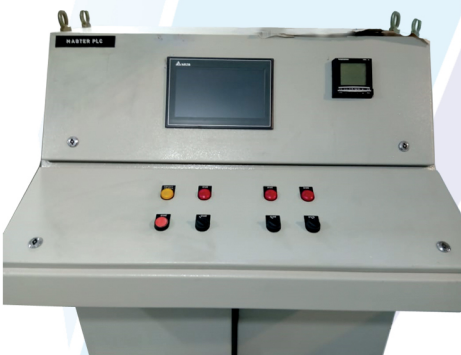
After purchasing the contract power company has to pay the full contract demand money irrespective of using the power or not. Above that for using each unit (Kwh) company has to pay the money the amount being used which is not too high. For a steel manufacturer, if they can use the maximum power then the power undoubtedly will be used for manufacturing purpose. So their productivity will go high. That means it translate to an equation where maximum load factor equals maximum productivity for that particular sanctioned demand.

WHAT IS DEMAND PENALTY:

After fixing the demand for one particular company electricity board counts that power in for their production and for that company pays the demand charge. But if company uses the power after their sanctioned demand company has to pay the penalty charge for every unit as it was not intimated to electricity board by the company. That penalty value is higher than the demand charge. Every steel manufacturer tries to avoid that penalty charge as the amount is significantly high. Penalty charge may vary from one electricity board to the other.

WHY LOAD MANAGEMENT SYSTEM :

Load management system is a control system where it controls the total power of the plant and it will not let the power go beyond the sanctioned demand. It will allow using the full in-hand power without exceeding the contract demand. It can control the demand in an time basis cycle i.e 15 mins, 30 mins etc. This system can be treated as instantaneous KVA controller.



FUNCTIONALITY OF LOAD MANAGEMENT SYSTEM:

Load management system can be treated as a demand controller. That means it will control the total consumption by controlling the furnace power and it will not let the power exceed above the sanctioned demand. Sanctioned power can be utilized to the fullest but at the same time within the maximum demand. This system can act as an instantaneous demand controller which will control the maximum demand immediately.

UTILISATION FACTOR:

Even though equipments are for power, the system has continuous loads, instantaneous loads, variable loads which demands lesser running capacity or under rated capacity operations. For furnace it includes the melt rate, charge rate, etc., to yield in between 85% to 93%. With load management we can understand the system and bring a consistent utilization factor.



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