

Does anybody ever listen to the building owners?



Big Data, Internet of things, the cloud. This is all exciting information but they want to operate their facility and make money.

The owners want to know how much their mechanical system, their lighting system and their plug loads etc. are costing them. In order to make intelligent business decisions they want to know the costs.

The owner wants answers and with the ecMech system the following could be the Owner asking a questions to the chief engineer.



Chief Engineer we are producing 1 ton (12,000 BTUs/Hr) of AC at a of cost of \$.54/Ton that is higher than usual, why.

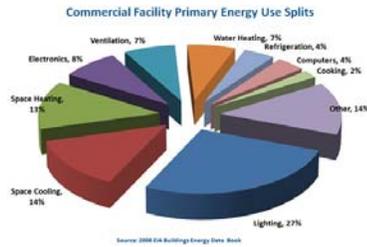
Yes, I'm aware of the increase in cost per BTUs the analytical software brought this to my attention and it also indicated that we may have a low refrigerant charge indicated from the abnormal temperature differences, flow and amperage readings. I have a technician currently doing a diagnostic evaluation based on information received from the ecMech systems software alarms.

Owner asking a question

Chief engineer should we clean our cooling tower and condensers again?

Answer. The cost too clean the tower and condensers will provide us with a return on investment in 1 year from the reduced cost of BTUs. But, adding additional water treatment devices will

eventually reduce our cleaning frequencies and costs. I will provide you with a cost analysis tomorrow morning.



With the ecMech

Not only do they know the cost per BTUs but they also know the cost of the water consumption, fan costs and pumping costs associated with producing the BTUs. The owner may consider changing to an all air system versus a water system someday. Now they have the information to make business decisions with their mechanical system.

Tapping into existing computerized control systems is difficult and they don't have all the data required by the owners. Amperage is seldom monitored but without it we can't get the operating cost of the equipment. Amperage also provides us with diagnostic opportunities for predicting and identifying problems. Water flow sensors, building pressurization sensors etc. are often not included in typical DDC control systems.

With the inexpensive costs of wireless sensors the ecMech system adds new sensors and duplicate sensors providing for an independent monitoring system that not only checks mechanical equipment but also provides valuable information on the existing computerized control system. Why connect into an existing control system without verifying the sensors accuracy.

Providing a independent monitoring and data gathering system provides numerous advantages and eliminates any doubts that the ecMech system is interfering or altering the existing DDC control system. It just keeps it clear and simple.

Sincerely,

George Fincher

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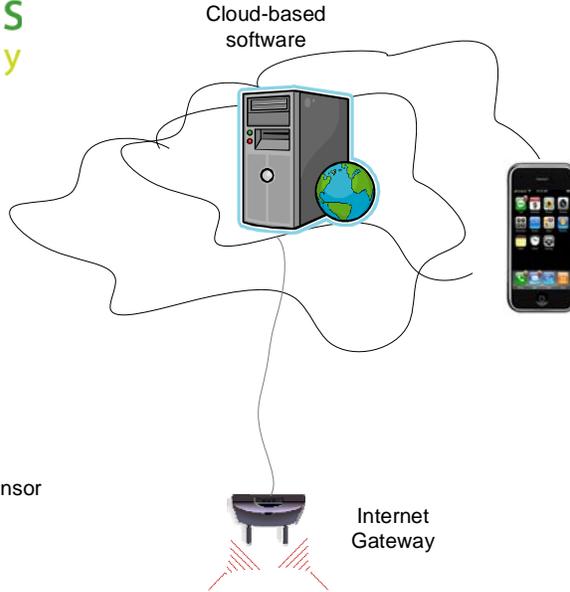
ecMech

Monitoring/Predictive Alarms/HVAC Costs

ecMech system wirelessly monitors amperage of all your fans, pumps, chillers and boiler's providing an economical opportunity to discover the cost of operating your mechanical system. Temperatures, GPM, CFM and pressures can be conveniently added to the system.

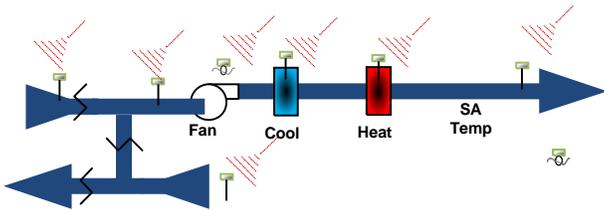
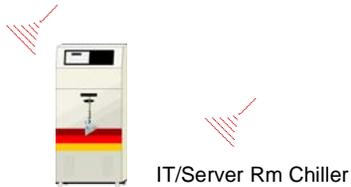
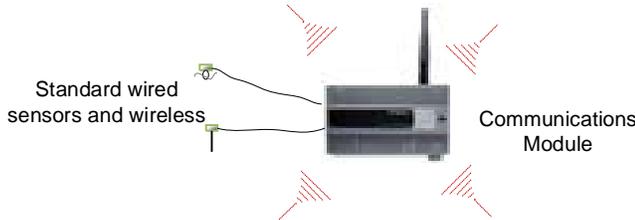
- Provides valuable HVAC costs enabling you to manage your energy and improve efficiency.
- Predicting a failure instead of alarming on an emergency breakdowns. Protecting your equipment from failing and not paying the high costs of emergency breakdowns.
- Reducing your existing maintenance labor costs.
- ecMech can be rented/leased or purchased.
- Your existing maintenance costs are reduced because of the time to diagnose and operational tests etc. are no longer required.
- Your system is monitored every minute and it does not interfere with your existing control system.
- Diagnose existing inefficiencies and malfunctioning controls.
- You may have state-of-the-art DDC controls operating your HVAC system and still be wasting a considerable amount of money because of the operator errors.
- Sometimes there's no incentive to reduce the HVAC costs by the operator, because there's no way of knowing if the operator is operating the system inefficiently or not.
- Validates improved operator efforts to control energy costs with the HVAC system.
- You must know where you're spending it to efficiently reduce it.

Proprietary information

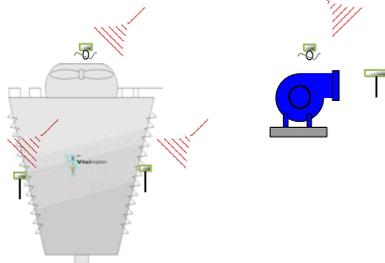


Legend

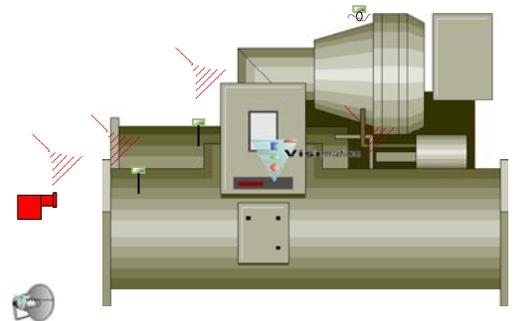
-  Battery/24V wireless temperature/pressure or humidity sensor
-  Battery/24V wireless amperage sensor
-  Battery/24V wireless video/sound
-  Mechanical room alarm horn



Rooftop A/C unit



Tower water usage and treatment



Chiller and Boiler Monitoring



The ecMech is like having a Invisible Maintenance Man

Analytical Software/Predictive alarm's before breakdowns

- low on refrigerant
- poor air flow
- high and low temperature abnormalities
- hi refrigerant temp
- poor water flow
- heating system monitoring points
- fan system monitoring points
- pump and fan amperage
- air side economizer efficiency
- etc. etc. etc.

Breakdowns Alarms

All critical monitoring points

Energy Management Accounting

- Cost/Ton- HVAC of operation
- HVAC/Minute/Costs to Operate
- Heating System costs
- Gas Cost/Min.
- Alarms on inefficient costly operation
- Cost\$/CFM/Min, Cost\$/GPM/Min, Cost\$/AC-BTU/ Min, Cost\$/Heating-BTU/Min
- Total HVAC Cost\$/Min HVAC Cost\$/Sq.Ft/Min, HVAC Cost\$/Zone/Min

Repair and Maintenance History Log

Input via cell phone/laptop etc. by visible human maintenance/repair person

Alarms

- Text & email
- Maintenance Rm Alarm Horn