

Background

When Mercedes Benz of Sugar Land was evaluating a new solution to control their dealership facility's systems and provide consistent energy savings, they turned to TEMSCO to develop a customized system to meet their specific needs. The dealership had been using an older, less advanced system installed by another provider that gave limited control over the facility's HVAC and lighting systems, and management was not satisfied with the results they were getting. "We knew our existing energy management system was very inefficient," says Ken Enders, the President and Owner of Mercedes Benz of Sugar Land.

The Problem

Mercedes Benz of Sugar Land was using programmable thermostats to control the HVAC function, allowing anyone at the dealership to adjust the thermostats and create energy waste by not maintaining proper thermostat programs and temperature setpoints.

Exterior lighting at the dealership was being controlled by mechanical time clocks and a digital photocell. The mechanical time clocks need to be manually adjusted four to five times per year to maintain proper and efficient exterior lighting, a time-consuming process that often gets overlooked. All exterior lighting was being turned on at the same time with the single photocell, causing a demand spike on the dealership's electric bill.

Wall switches were used to control the interior lighting in the sales, service, and office areas, allowing for wasted lighting energy. Additionally, the dealership was not controlling air compressors, unit heaters or exhaust fans, allowing these devices to consume energy unchecked.

HVAC Controls Solution

Each HVAC unit was equipped with a TEMSCO ODYSSEY controller and digital sensors to efficiently control the unit. The sensors in the units allow the system to provide equipment pre-failure notifications to management and TEMSCO by monitoring the equipment's operating status and vital statistics continually, allowing for necessary repairs to be made before equipment breaks, mitigating costly and disruptive down time.

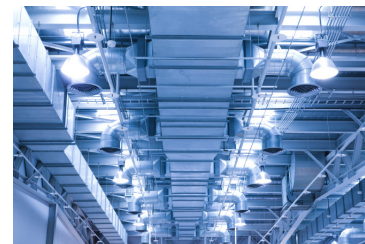
The digital space sensors replaced programmable thermostats. The space sensors allow individual users to adjust the temperature by a predetermined range, keeping the balance between energy savings and dealership comfort level intact. This gives the dealership owners piece of mind that energy dollars are not being wasted on unneeded heating or cooling.

The TEMSCO Solution

Mr. Enders engaged TEMSCO to provide a new energy management system that would give the dealership total control over their facility's systems, as well as provide real energy savings.

After analyzing the dealership's previous 36 months of energy bills to identify any abnormalities with utility billing, TEMSCO conducted an extensive onsite survey and engineering analysis to determine what energy consuming equipment needed to be controlled.

TEMSCO's engineering team, which consists of Certified Energy Managers, then designed a system that could be overlaid into the day-to-day operations of the dealership.





Lighting Controls Solution

TEMSCO designed an exterior lighting layout that included over seven levels of outdoor lighting. Installing an analog photocell capable of reading outside light levels with more accurate Foot Candle measurements eliminated the need for the less efficient mechanical time clock and digital photocell system. Additionally, TEMSCO enabled the use of “daylight harvesting” in the service drive area to automatically turn off the service drive lights when the outside light level provided enough natural lighting to illuminate the service drive each day.



Interior lighting is now enabled by either schedule or push button override. The interior lighting was broken out into two functions per location within the dealership, allowing for limited employee/work lighting and full/sales lighting to provide the aesthetics customers require for a spectacular car buying



Controls Solutions for other Equipment

TEMSCO also installed equipment to control exhaust fans, air compressors, gas pumps and unit heaters. The service area exhaust fans are controlled by CO2 sensor, allowing exhaust fans to be enabled and in use when CO2 levels increase, and disabled when levels are beneath the safety threshold. This enhances efficiency by keeping conditioned air in the service area when cars are not being operated and the CO2 level is low.

Being able to control the facility’s functions through the system’s online interface was particularly important to the dealership. “When TEMSCO gave us a guarantee of 12% savings as well as the variable and remote ability to control most of our energy needs via an online interface, the combination of those two was worth the investment to us,” says Mr. Enders.

The Result... Significant Energy Savings

According to Mr. Enders, “We have achieved an overall energy savings exceeding what was promised in the range of 15% – 18%, which for us is very significant.” **The total energy savings during the first 12 months after installation of the TEMSCO system was \$25,880.** “What is difficult to calculate is the savings you get from reduced wear and tear on equipment, HVAC, and shop equipment like compressors and lights that are running 20% less of the time.”

Mr. Enders notes that the dealership has not been surprised that the TEMSCO system has performed so well, delivering energy savings beyond the original estimate. “I was surprised at how flawlessly it has worked and how durable the system has been. Other than some very minor tweaks, the system is up and running day in and day out with no interruptions, consistently delivering savings.