



Large Car Rental Company Selects Ventev Outdoor Enclosure Systems to Extend Wi-Fi Coverage to Parking Lots and Garages

Executive Summary

Client: Leading U.S. Car Rental Company

Client Goals: Deploy 802.11n wireless network outdoors to improve customer experience and reduce operating expenses.

- Extend WLAN from indoor network to parking lots and garages to reduce customer wait times and obtain precise fuel measurements to lower vehicle maintenance costs
- Protect indoor access points from harsh weather conditions, theft and tampering
- Ensure quick, easy installation and interoperability with other devices

Product Solutions:

PoE Enclosure- TESSCO No. 503088



- Heating and cooling system engineered to allow safe operability in harsh outdoor environments
- Protects indoor access points from rain, snow, ice, theft and tampering
- Fully-integrated solution requires minimal installation time. Both access point and environmental controls powered on a single PoE line.

Patch and Omni Antennas- See next page

One of the world's best known car rental brands recently chose Ventev's Outdoor Enclosure System as a key component of a major corporate initiative to improve customer experience and reduce operating expenses. With a reputation for customer loyalty, this F1000 company chose to invest in the latest technology to improve its operations.

Specifically, the company focused on two main projects. First, they wanted to improve user experience when returning the car. Second, they wanted to lower maintenance expenses when servicing the returned vehicles. Both projects called for deployment of the 802.11n wireless network in the outdoor environment. With offices all over US, this solution had to support extreme weather conditions, both hot and cold.

To improve the customer's experience when returning the car, the objective was to reduce the time customers had to spend at the drop-off area. The requirement was to build a new wireless network that allowed car rental employees to print receipts at the drop-off area, vs. the indoor counter, via handheld devices. The devices would connect to the back office servers via Wi-Fi/wireless link thus minimizing time that customers have to spend at the drop-off area and optimizing staff productivity. The result — a win-win situation for both satisfied customers and more efficient staff.

The second project focused on reducing operational expenses after the car was dropped off. Via wireless link, car rental employees could measure gas levels more precisely, thus determining the exact amount needed to fill the tank, and therefore how much the customers owed for the car rental. By performing more exact measurements, the company could save millions of dollars a year. Additional measurements helped the company perform necessary preventive maintenance.

Once the engineers at the car rental company selected the architecture and the radio vendors for the Wi-Fi network, they looked at how to deploy these radios outdoors. Several factors needed to be addressed:

- Can the enclosure, housing the radio, withstand extreme weather conditions?
- What type of antennas need to be used to optimize the coverage? Where should the antenna be placed?
- How to power the radio/Access Point and heating/cooling components?
- How to design the grounding system? How to protect the solution against lightning?
- How to mount this Access Point enclosure system?
- And of course, how to minimize the deployment cost?

After looking at several options, the company chose Ventev's Outdoor Enclosure System. Specifically, they selected the fully-integrated PoE-powered enclosure system. This innovative solution features a small form factor that allows it to

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blend inconspicuously into the environment, and offers maximum protection for indoor-rated access points.

Additional PoE product features:

- Both access point and environmental controls powered on a single PoE line.
- Full integration of coax jumpers, AP backplate, grounding system, and lightning and surge protection within the enclosure

External Patch and Omni antennas were added to enhance the performance of the network and ensure seamless coverage and capacity throughout the area.

Ventev's Outdoor Enclosure System and external antennas allowed the company to eliminate issues in the field and deploy the network quickly, resulting in further, significant savings. The company plans to implement the solution in locations throughout the country.

2.4/5 GHz 6/7 dBi Patch Antenna TESSCO No. 333918

Features three integrated 2.4 GHz patch antennas and three integrated 5 GHz patch antennas in one enclosure, making it an ideal and aesthetically pleasing antenna to support demanding indoor or outdoor applications in next generation IEEE 802.11n wireless communication systems. Includes Universal Articulating Mount for an easy and flexible wall/mast mount installation.



2.4/5 GHz 6 dBi Indoor/Outdoor Omni Antenna TESSCO No. 356602

The 6 dBi indoor/outdoor MIMO omnidirectional antenna has dual-band leads, each cable supports both 2.4 and 5 GHz. The rugged enclosure makes this antenna ideal for outdoor, warehouse or manufacturing environments where it must withstand exposure to moisture and dust. Includes an L-Bracket for mast and or wall mounting.



AP PoE Power System Enclosure Specifications

Dimensions (W x L x H)	12" x 10" x 6"
Enclosure Material	Polycarbonate
Color	Grey
NEMA Rating	3
Environmental Temp Range	-4 to 121° F
Heating	15 Watt (heat)
Cooling	49 CFM DC fan
Lightning Arrestors	Range: DC 0-6 GHz Impulse: 20 KA (Wave 8/20 µs)
PoE Surge Suppression	Discharge Current: 10 KA Peak Pulse: 100 A (10/1000 µs)
Input Power	30W PoE (Midspan PoE Injector Included)
RF Connections	RPSMA
Weight	14 lbs
Warranty	Manufacturer's warranty on components. 1 year on workmanship.