M4 Smart-Sensor System
Our leading-edge M4 smart-sensor camera: Ahead of the curve and poised for the future.

Equipped with a formidable dual-core processor, the M4’s bright LED light-ring indicator can be configured remotely to display thousands of colors to indicate occupancy status and parking space type (i.e. regular, premium, handicapped, etc.). Poised for future advances via firmware upgrades, its attractive housing has a seal rating of IP64, keeping detrimental dust and water away from the advanced electronics.
The most advanced camera-based guidance system in the parking industry.
Parking technology far beyond guidance: With core business intelligence.

With traditional ultrasonic parking systems, the sensor monitoring the space can only determine one thing: whether the space is occupied or not. So for years, parking systems were counted on to do only one thing: the tracking of empty spaces in order to provide parking guidance.

By contrast, a Park Assist camera based M4 smart-sensor system puts processing intelligence right at the parking-space level. Each individual sensor has the ability to stream surveillance video to a video management system, while also sending rich data for our integrated License Plate Recognition (LPR) and occupancy tracking.

We embedded a brain right in the sensor: Adding to the beauty of the system.

The streamlined layout of a Park Assist installation is as functional as it is aesthetically pleasing. M4 smart-sensors with dual cameras are installed above the driving lane to monitor a pair of spaces on each side. This unique vantage point provides the IP-based cameras with an unobstructed view of the parked vehicles – while providing parkers with clear sight lines for easy guidance and navigation.

Since each smart-sensor is equipped with a dual-core processor, the sleekly designed M4 delivers unprecedented performance with superior detection and surveillance. Due to the combined processing power of the multiple M4s, the core server doesn’t have to carry the load for the whole system, creating scalable capacity for multi-functionality and future expansion.
99% accurate and continually verified.

With an ultrasonic system, the process for verifying system accuracy is both difficult and unfeasible. The only way is by assigning people to physically walk the garage, while manually recording the results. A process that is tough enough to execute, never mind to repeat frequently.

With Park Assist, the core system regularly gathers a smart-sensor image from every parking space across an entire site, at a specific point in time. Each image is reviewed by a third-party monitoring service, which uses live inspectors to manually verify whether that space is occupied or not. To ensure the accuracy of the inspectors themselves, test images are also inserted in the stream at random junctures.

Using the collected data from this doubly-verified process, Park Assist system analysts regularly provide the facility manager with a detailed report – proving the accuracy of the system in a tangible way.

Built-in fault tolerances to ensure system integrity and reliability.

The continual dialogue between the M4 smart-sensors and the core system ensures overall reliability as well.

The core server continually searches the daisy-chained installation for compromised smart-sensors – sending an immediate alert if a sensor needs to be replaced. Signals continue to pass downstream through a compromised M4’s Ethernet switch until the sensor is replaced – a process that takes just a few minutes. Upon power-up, the system is restored to 100% functionality.

In addition, the smart-sensors are able to compensate for any momentary connection glitches. If the data connection is temporarily lost, the autonomous M4s continue to function – storing interim events in their flash memory until they can reconnect with the core server. They also synchronize regularly with public time servers, ensuring the accurate time-stamping that is crucial to the system and the data it generates.
Why M4 Smart-Sensors over Ultrasonic:

There is really no comparison between a Park Assist camera based M4 Smart-Sensor System and one using outdated ultrasonic technology. Driven by core business intelligence, our customized guidance-and-beyond solutions heighten performance and profitability – while elevating the overall parker experience.

<table>
<thead>
<tr>
<th>LED Capabilities</th>
<th>Ultrasonic</th>
<th>M4 Smart-Sensor</th>
<th>Superior Product</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>2 colors per unit (red/green or blue/green)</td>
<td>RGB-based signaling lights can be remotely changed to virtually any color.</td>
<td><strong>M4</strong></td>
</tr>
<tr>
<td>Parker Experience</td>
<td>Basic guidance and wayfinding only.</td>
<td>Next-generation guidance includes our seamless wayfinding continuum – along with Park Assist’s exclusive Find Your Car™ feature.</td>
<td><strong>M4</strong></td>
</tr>
<tr>
<td>System Control</td>
<td>System controls limited to basic guidance.</td>
<td>A wealth of features to increase revenues, streamline operations, enhance surveillance and more – accessed through the Park Assist Software Suite.</td>
<td><strong>M4</strong></td>
</tr>
<tr>
<td>Revenue Enhancement</td>
<td>Requires the installation of costly gate systems and the loss of valuable parking spaces.</td>
<td>The ability to institute premium and conditional parking rates through our Park SelectRate software extension, without the need for added equipment.</td>
<td><strong>M4</strong></td>
</tr>
<tr>
<td>Installation Ease</td>
<td>A complex installation that requires complete shutdown of the parking facility.</td>
<td>Installed quickly, section by section, with no disruption and minimal effect on daily operations.</td>
<td><strong>M4</strong></td>
</tr>
<tr>
<td>System Look-and-Feel</td>
<td>Cluttered two-conduit design impairs visibility. Requires substantially more conduit/wire for a comparable installation.</td>
<td>Modern streamlined single conduit design with superior sight lines. Installed with a minimized amount of conduit/wires.</td>
<td><strong>M4</strong></td>
</tr>
<tr>
<td>System Upgrades</td>
<td>Outmoded technology with no significant upgrades available.</td>
<td>Software-based system with steady stream of upgrades.</td>
<td><strong>M4</strong></td>
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Our seamless wayfinding continuum: The ultimate in sitewide guidance.

The quality and customer-friendliness of a parking facility are often overlooked at many properties. However, the parking experience can be used to elevate the first impression for valued guests and visitors, to set their expectations for the remainder of the visit, and to enhance a property’s overall brand-building strategy.

The Park Assist approach to guidance is to remove all stress and uncertainty from the process. The overarching goal is to provide a seamless and stress-free experience for each parker – from initial entry to an open space – while improving overall traffic flow throughout a facility or across an entire property.

Next-generation guidance at every key decision point.
Through the unique synergy of our camera based M4 smart-sensor system and customizable wayfinding signage, parkers are treated to a higher level of guidance and convenience from the moment they arrive – along with valuable followup guidance at every key decision point.

Parking search time reduced up to 44%. Reducing fuel usage and CO₂ emissions.*
Through the combination of our advanced wayfinding signage and the bright signaling LEDs on our smart-sensors, search time is reduced by as much as 44% – an average time savings of 76 seconds per parker – when a facility is over 75% occupied. For a 2,500-space garage, this can result in a yearly savings of up to 52,100 gallons of fuel and 459,000 kg of related CO₂ emissions.

The resulting reduction in a parking facility’s carbon footprint is no small consideration. This focus on sustainability is something Park Assist continues to strengthen, through our active involvement in the Green Parking Council.

*According to an Arup study commissioned by Park Assist for the 2,513-space parking facility at Westfield Century City Shopping Centre in Los Angeles. Comparative data was recorded one month before and one month after the installation of a Park Assist camera based smart-sensor system.
Signs upon arrival: For properties with multiple parking areas, a multi-facility sign announces the number of available spaces at each garage or lot. This continually updated information enables parkers to decide on the best facility to park in at any given moment.

Secondary signage within a chosen garage: Once a parker has decided to park in a specific garage, a dedicated sign displays the number of available spaces on each level.

Directional interior in-aisle pointers: Once a parker has committed to searching for a space on a particular level, these signs enable a parker to make on-the-spot decisions (left, right or straight) based on the number of available spaces.

Signaling color-coded LEDs on the smart-sensors: This is where the M4s – which have been providing up-to-the-second occupancy data to the core system all along – really kick in to finish the wayfinding process. In addition to green (open) and red (occupied), these bright, clearly viewable LED indicators can be programmed to display thousands of colors to denote special-purpose spaces – i.e. blue for handicapped, purple for premium, and so forth.

Our optional Park Finder car location feature: Through our Park Finder software extension, we even offer an exclusive Find Your Car™ feature to complete the loop. This enables returning parkers to find the exact location of their vehicles upon exit by simply typing in the license plate number at a touchscreen kiosk or on a smartphone app – and/or when inserting their parking tickets at a pay station.
Facility beyond all expectations: The multifaceted Park Assist advantage.

The M4 is a great example of how we continue to improve and expand the functionality of our smart-sensor driven technology. The actionable data gathered by our system-with-a-brain enables operators to maximize space utilization and ROI, increase revenue, streamline costs, enhance safety and security, and more.

Today, there are more reasons than ever for enterprises and organizations to leverage the core business intelligence of this revolutionary guidance-and-beyond technology. Key operational advantages, which span across the gamut of industries and genres, include:

Maximized usage through next-generation guidance. For new and existing facilities. Without parking guidance technology, it’s common for parking spaces to go unused during high-occupancy periods. Since parkers are quickly and efficiently led to open spaces throughout a facility, our next-generation Park Assist guidance system is crucial for obtaining maximum usage per square foot. This can save millions in construction costs for a new facility. It can also postpone or eliminate the need to expand or replace an existing facility.

Precise global monitoring across multiple facilities.
Our latest generation of smart-sensor cameras provide a 99% accuracy rate for occupancy monitoring. And while ultrasonic sensors are limited to occupancy monitoring – with unverifiable results – our camera-based systems both see and sense what is truly going on. This is a key element in the ability of our system’s core intelligence to provide precise cloud-empowered monitoring of multiple facilities.

Using sophisticated software algorithms, all Park Assist smart-sensors across the globe are regularly verified by a third-party monitoring service. This enables us to immediately discover sensor issues, often before the operator-in-charge does. And to provide Park Assist system owners with a real-time alert if even a single smart-sensor goes down – anywhere in the world.
Expanded surveillance from a unique vantage point.

While our M4 smart-sensor cameras are already identifying vehicles and monitoring occupancy, our Park Surveillance software extension can also capture streaming surveillance video whenever motion is detected in or around a space. Or continuously, if desired. An expanded level of security and crime deterrence that would otherwise be cost-prohibitive.

Streamlined design-conscious installation. With no disruption to daily operations.

With the ultrasonic parking technology offered by our competitors, you need to shut down your facility for what is a complex installation. By contrast, a Park Assist M4 smart-sensor system is quickly installed, section by section, with no disruption and minimal effect on day-to-day operations.

A next-generation technology platform: Always ready for the next plateau.

At Park Assist, business intelligence is more than a concept. Parking technology is about far more than guidance. And we’re always looking for new ways to extend the functionality of our ever-evolving suite of API-driven applications.

For more information about the M4 smart-sensor system detailed in this brochure, call Park Assist at +1 877 899 PARK (7275) or email us at info@parkassist.com.
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A member of the TKH Group

Park Assist is proud to be an active member of The Green Parking Council – a national 501(c)(3) organization providing leadership and oversight for the green conversion of parking facilities to sustainable, environmentally responsible assets.