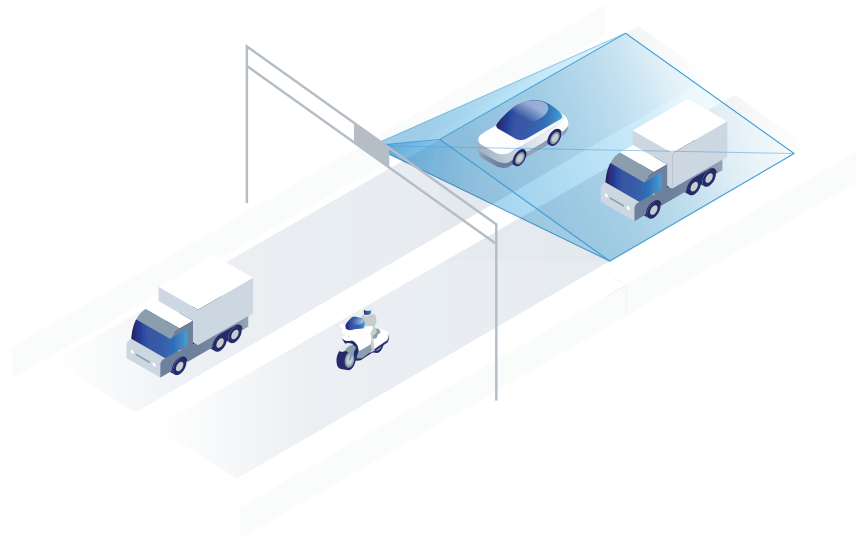




# Software-Defined Lidar Solution for Automated Tolling

Perception sensors define the reliability and performance of automated tolling systems. However, current technologies, such as cameras, radars, and loops have significant limitations. Cameras and radars often struggle to detect vehicles reliably in low light or adverse weather conditions and misclassify 2-axle vs. 4-axle vehicles. They are unable to provide highly accurate depth information, lack the resolution needed to accurately classify objects at range, and have difficulty tracking vehicles when last-second lane changes occur prior to entering a tolling area. To put it simply: cameras, radars, and loops are unable to meet today's challenge of optimizing traffic flow while ensuring people and goods move safely.



## AEye's 4Sight™ M Addresses Perception Sensor Challenges

4Sight™ M is a software-defined lidar sensor that leverages AEye's Intelligent Sensing Platform to enable perception to better locate, identify and track objects over time. It is specifically designed to complement the use of existing cameras, radars, and loops in automated tolling, bridging the gap between the applications of today - and opportunities of tomorrow.

- ✓ **Enables** faster, more accurate and reliable perception
- ✓ **Performs** in all lighting and weather conditions
- ✓ **Extends** sensing capabilities of existing tolling applications - avoid revenue leakage
- ✓ **Ensures** that better decisions are made – minimal error for maximum yield

## AEye's 4Sight™ for Automated Tolling

The 4Sight™ perception engine provides accurate real time detection generating the most actionable and precise data to support a wide range of automated tolling applications.



Vehicle speed



Vehicle type classification



Vehicle tagging



Vehicle timestamp



Vehicle trajectory



Lane information



Vehicle dimensions



Up to 6 lanes per sensor

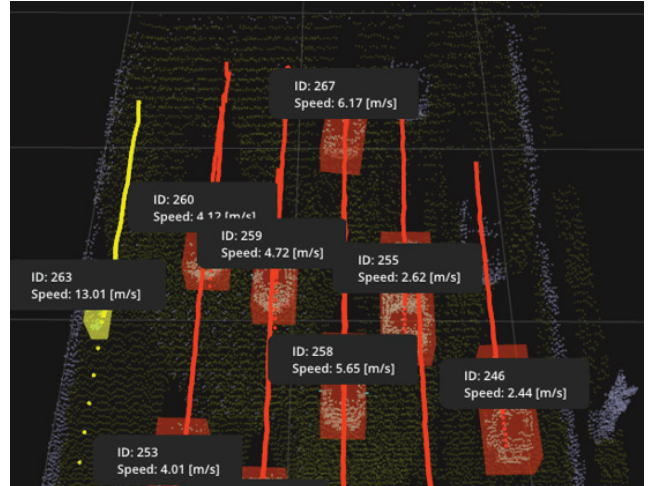
## Unique Features

- ✓ Library of unique performance modes specifically designed and optimized for any tolling application
- ✓ Up to four returns to greatly improve data collection in adverse weather
- ✓ Highest depth information data quality to improve perception speed and accuracy
- ✓ High frame rate to detect vehicles at high speeds

# Optimized for Automated Tolling

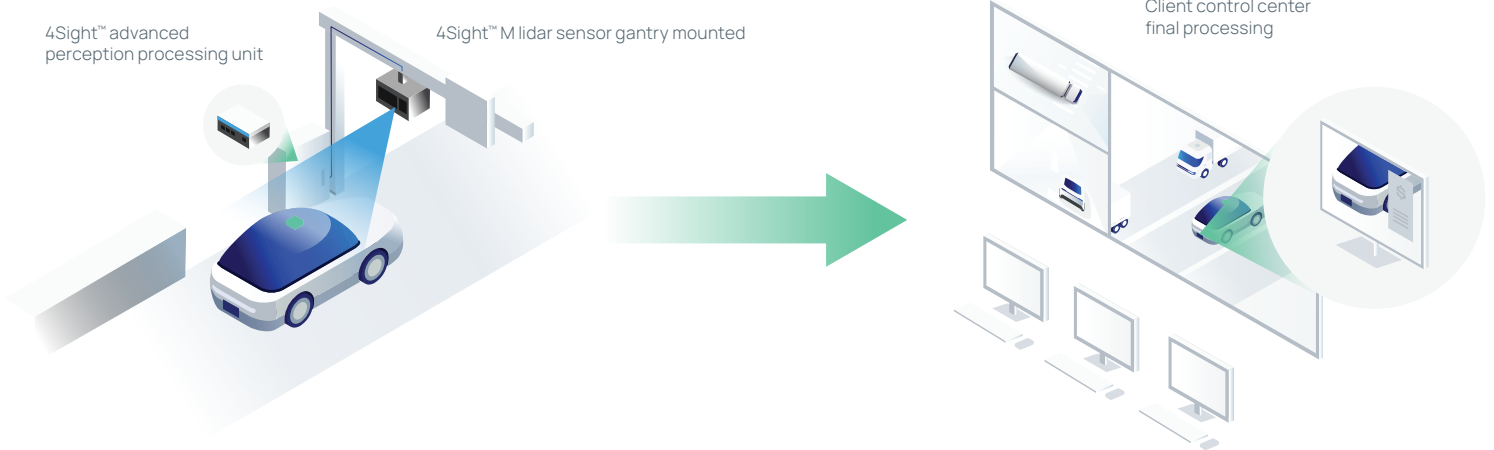
AEye's 4Sight™ perception solution defines the future of automated tolling performance.

- ✓ **Easy to use and deploy** – Easy to operate, low maintenance cost, simple installation, and commissioning.
- ✓ **Avoid development uncertainty** – Software-defined lidar sensor optimized for tolling application needs.
- ✓ **Optimize system cost** - The most advanced sensor technology to scale down existing sensing solutions.
- ✓ **Flexible integration** – High versatility regarding sensor height, pitch angle, number of lanes and type of data to extract.



4Sight™ M + perception in tolling application monitoring 6 lanes of incoming traffic

## System Architecture



### 4Sight™ M Key Specifications (Tolling)

- Detection range: 1m – 100m
- Angular resolution: 0.1° x 0.1° vertical (H&V)
- Field of view: 60° x 30° (H&V)
- Pre-configured frame rate: 20 / 30 / 50 FPS\*
- Certification: IP66K + IP67, IEC 60825-1
- Operating Temperature: -20°C to 65°C

\*At higher FPS resolution is reduced

Note: Specifications are configuration dependent. The AEye 4Sight™ M performance mode specifications shown here are for Automated Tolling applications only. For different applications, the sensor will have different specifications. For more information, please see the 4Sight™ M sensor datasheet.

### Interfaces

- 4Sight™ M Lidar Sensor:**  
Ethernet connection utilizing UDP packets.
- 4Sight™ Perception Unit:**  
Serial connection utilizing SDLC protocol and RJ45  
Ethernet connection utilizing NTCIP protocol

### Mechanical and Electrical Specifications

- Power consumption: 40W (60W with perception unit)\*\* @25°C
- Operating voltage: 12V-34V
- Storing temperature: -40°C to 85°C
- Dimension: 7.5cm x 17.4cm x 34.5cm
- Weight: 3.4Kg

\*\*Deployed separately from 4Sight™ M