camea

Why Use Our CAMERA SYSTEM?

Weigh-In-Motion • Dimension-In-Motion • Speed Enforcement • Traffic Counters • Smart Cameras

CAMEA Culture

IN #BRNOREGION
SINCE 1995

R&D ORIENTATION

COOPERATION WITH UNIVERSITIES

CONTINUOUS IMPROVEMENT AND CUSTOMIZATION

MINIMUM OUTSOURCING & FULL CONTROL

TOP QUALITY PRODUCTS

EXPERT INSTALLATION

CAMEA Environment

COMPLEX DATA

CONTINUOUS SUPPORT

CAMEA Customer Solutions

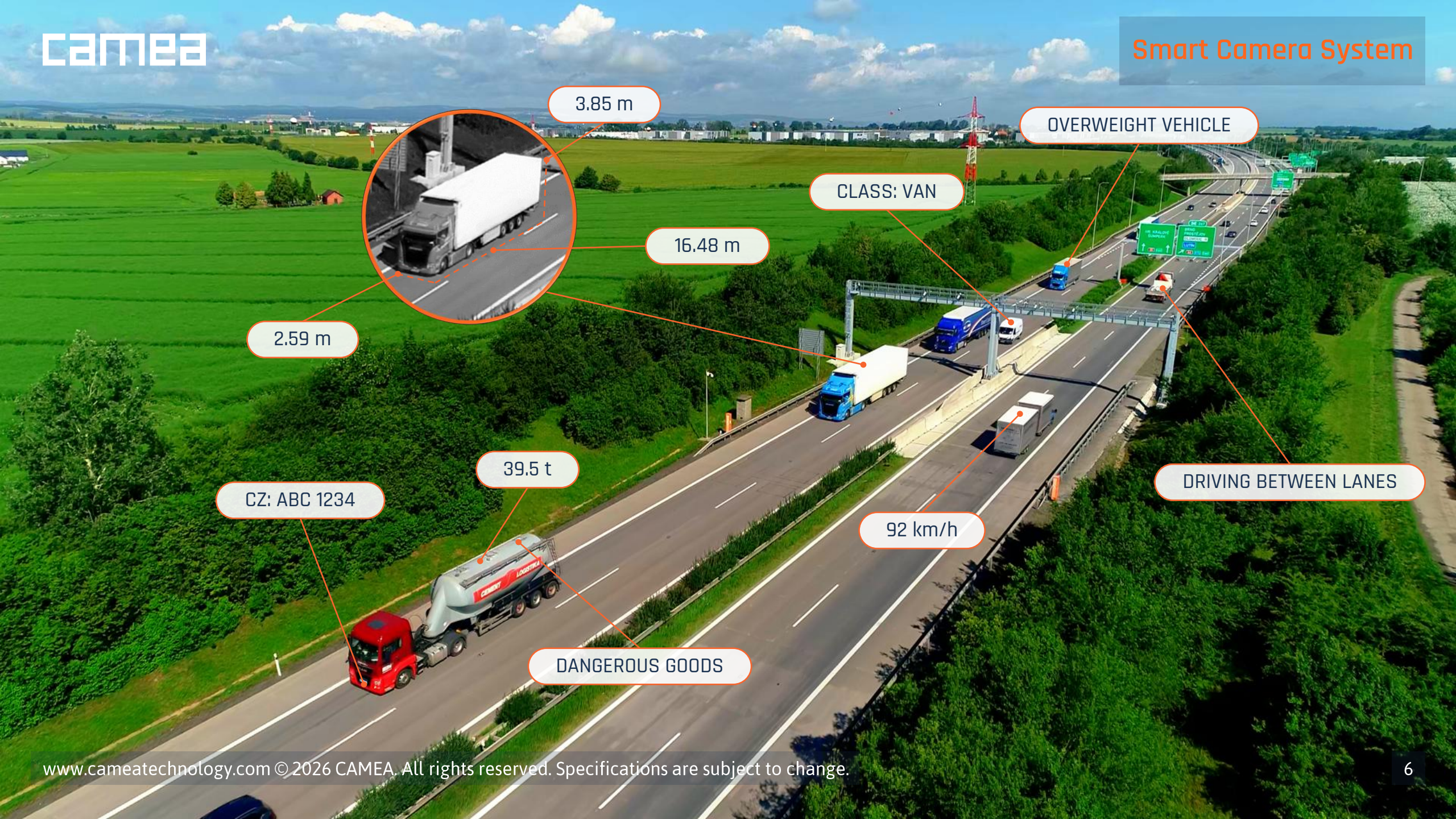
Turn-Key

Custom Design

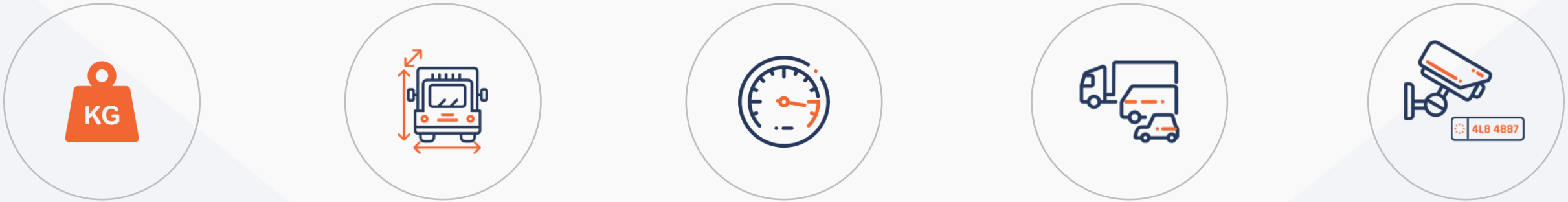
CAMEA OEM

CAMEA – Direct Enforcement Expert

Smart Camera System



CAMEA Intelligent Transportation Systems (ITS)



SCALABLE PLATFORM

- Various sensor technologies, counts and combinations
- Upgradeable from simple to the most complex solutions

SYNERGISTIC EFFECT

- Improving performance by combining output data of multiple ITS
- Sharing components for high cost-efficiency

CAMEA Smart Camera System

Top video detection built on 25+ years of enforcement experience.

Trainable for Superb Accuracy

Versatile Use for Multifunctionality

Compact Design to Save Costs

2 Types to Fit All Needs

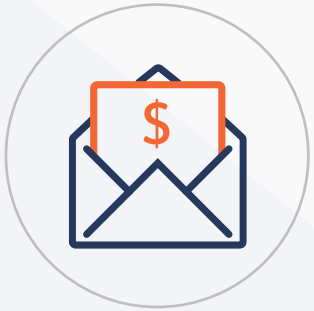
Standard Camera (UC-D2)

- Processing done on a CPU or server
- Suitable for:
  - Installations with multiple cameras that can be processed on a single CPU/server
  - Installations with an existing CPU (used for example for WIM)

Smart Camera (UC-SCA)

- Embedded processing using neural networks
- Low-power
- Suitable for:
  - Standalone installations with savings on extra components

Precise Time Management



Certified Time Management for Enforcement

- Accurate GPS time synchronization
- NTP support

Validation of Time for Enforcement Applications

- Timestamps are validated for time-critical applications (e.g., Speed Enforcement)
- Records with inaccurate time are marked as invalid but can be used for statistics purposes or further processing

Advanced Image Sensor

Wide Range of Resolutions (3 to 12 MP)

- Multiple lanes monitored by a single camera
- Up to 2 full traffic lanes + road shoulder (with driving between lanes)

High Sensitivity

- High-quality images even at low light levels and worsened conditions
- Thanks to big pixel size

B&W and Color Versions

- Depending on application

Multiple Lighting Options

Embedded Lighting

- Primarily designed for license plate detection and reading
- Can be also used for vehicle outline (the license plate cannot be read)
- Embedded infrared or white light

External Lighting (Flash)

- Up to 4 external lighting units can be connected and synchronized
- Can be used individually with various flash durations to light the scene (license plate, vehicle outline and driver's face all visible in 1 image)
- Flash confirmations for validity

Embedded Lighting

Different usage based on the intensity

License Plate Reading

The driver and the outline may not be visible

Vehicle Outline and Driver

The license plate is not visible

External LED Flash

Single Flash

- The driver is visible
- The license plate is not visible

Multiple Flashes

- Both the driver and the license plate visible
- Various flash durations to light the scene

White vs IR Light

White Light (Color Night Image)

- The color of the vehicle is visible
- The blue strip on the license plate is visible

IR Light (B&W Night Image)

- The vehicle is in B&W
- The blue strip is not visible

Common White Light Disadvantages

White light can be disturbing or dangerous

Visible light may blind drivers

Flashing may cause a stroboscopic effect

Continuous illumination has a high power consumption

Advanced White Light Control

Make the brightness appear as low-intensity to the drivers

While using maximum brightness for a very short period to get the best images

Significant consumption reduction

Advanced Image Capture Control

Advanced Illumination Control

Sequence of images

Multi-Exposition

Adjustments Based on Sun Position

Prediction of shadows

Prediction of glare

Smart Camera Behavior

Changes in brightness or exposure based on quality of recognition

Sequence of Images

Automatic sequence of images based on an external trigger (SW or HW)

1st image used for ANPR

2nd image for vehicle outline and driver

Multi-Exposition

Periodic pre-set sequence with various flash durations, exposures and gains

Higher brightness for abrased license plates (sandblasted)

Various brightness for shadow transitions

Remote Configuration

Micro Pan-Tilt

Remote tweaking of the captured region

Remote Focus

Fine focus adjustments

Advanced Diagnostics

Self-Diagnostics

Continuous checks

Validation of results

Data consistency

SNMP Standard

Status reporting

Diagnostic information

Remote Diagnostics

Remote configuration and error checking

Remote Service and Updates

Remote maintenance and SW and FW updates

Various Outputs

4 Configurable HW Inputs and Outputs

- Up to 4 external lighting units OR
- Up to 4 HW triggers and many SW triggers by Ethernet

Various Data Output Formats

- Many standard protocols supported (FTP, HTTP - REST API, DB...)
- Custom proprietary protocol integration (CAMEA or customer protocols)

Local Storage

- Embedded local storage for smart cameras
- Based on CPU disk size for standard cameras

Unique Build

Rugged Housing

IP65 protection

Stainless steel (optional)

Sun Shade

Anti-glare

Protection against dirt (e.g., in tunnels)

Wide Temperature Range

-40 to +60 °C

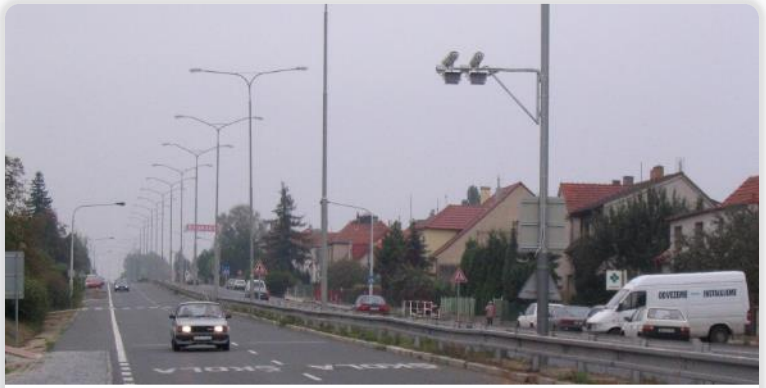
Multiple Lens Possibilities

Different focal lengths

Wide range of distances

Installation Variability

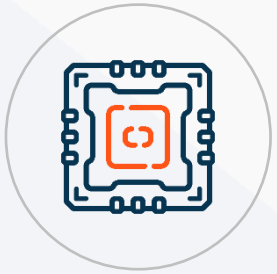
Middle of the Lane



Side of the Lane

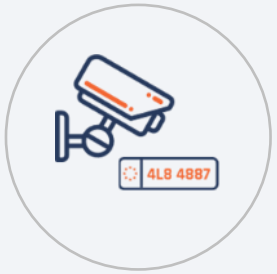
Edge of the Road

Excellent Performance



High Processing Power

- Complete traffic flow processing
- All vehicles in covered lanes

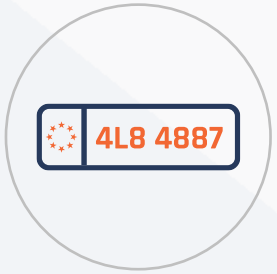


High ANPR Accuracy

- Detection rate up to 99+ %
- Reading accuracy up to 99+ %

High Maximum Vehicle Speed (up to 300+ km/h)

Numerous Applications in ITS



Automatic Number Plate Recognition (ANPR)

- High recognition accuracy even under challenging conditions (up to 99+ %)
- Country, state, province and plate type recognition with support of vanity plates

Transportation of Dangerous Goods (ADR Labels)

- Recognizing specifications of dangerous substances
- Particularly useful for the fire department in tunnels

Make and Model Recognition (MMR)

- Advanced vehicle classification with color detection
- Suitable for bus lanes or stolen vehicles and license plate search

Numerous Applications in ITS

Red Light Enforcement

- Detection and recognition of the traffic light phase
- Documentation of vehicles that run the red light
- Elimination of false red-light violations (vehicles that stop before the intersection)

Parking Zone Monitoring

- Reading license plates of parked vehicles with real-time data processing
- Verification of authorized or correct parking, parking violation detection
- Mobile system mounted on a vehicle that can move up to 45 km/h
- Reading any visible license plates of vehicles parked on both sides of the street

Numerous Applications in ITS

Traffic Sign Mapping

- Surveys and inventories of traffic signs and their state (broken, missing, etc.)
- Sign recognition, classification and exact location

Road Condition Surveys

- Mapping of road conditions (potholes, cracks, etc.) and markings
- Cost-effective and low effort usage for efficient maintenance

Vehicle Tracking, Traffic Surveys

- Tracing vehicle movement, stolen/wanted vehicle search
- Journey time estimations, origin-destination studies

CAMEA – Direct Enforcement Expert

950+
LANES

WEIGH-IN-MOTION

300+
LANES

WIM DIRECT ENFORCEMENT

600+
LANES

SPEED ENFORCEMENT

1,650+
LANES

ITS WORLDWIDE

CAMEA Prague City ITS