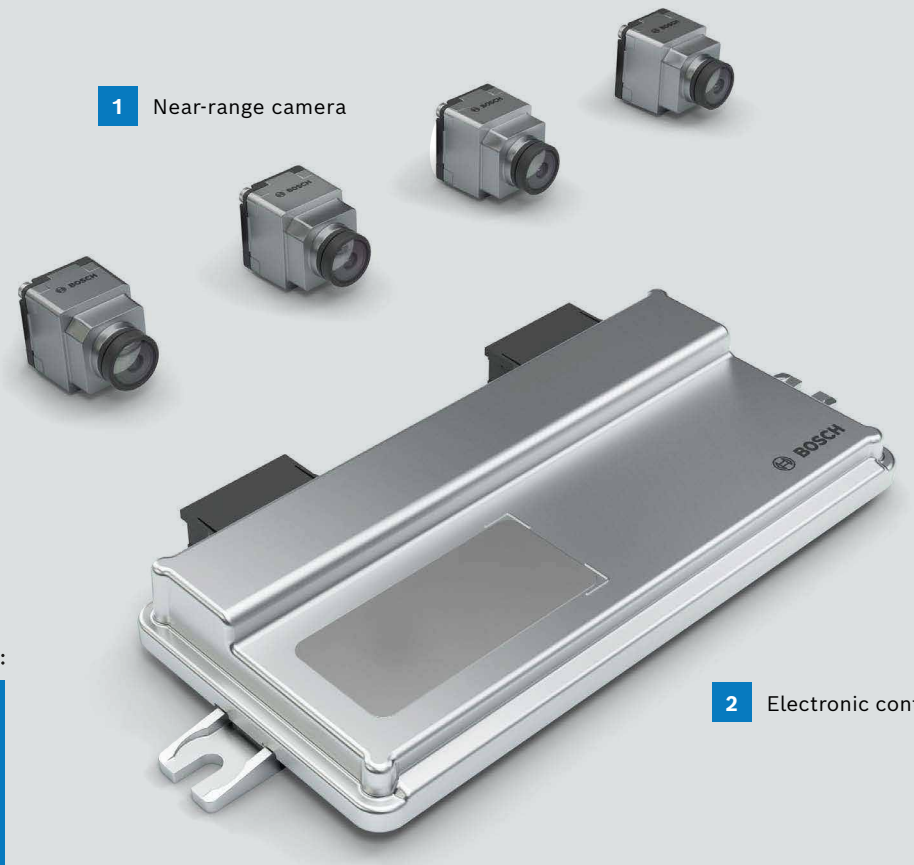
Multi-camera system for industrial trucks and off-highway vehicles

Video-based driver assistance systems

PRODUCT BENEFITS

- 360° surround view in tight situations
- Realistic display of the vehicle and its surroundings in different perspectives
- Driving lane indication serves as maneuvering and positioning support
- Optimally matched components in one system as a retrofit solution for small and medium-sized customers
  - Retrofit solution based on high-quality, robust state-of-the-art digital technology with a vehicle top view resolution of 1,280 x 800 pixels



Further information:

Invented for life

BOSCH

innovative functions for more comfortable maneuvering

pioneering image processing with 360° surround view

TASKS
The multi-camera system from Bosch for industrial trucks and off-highway vehicles facilitates precise maneuvering in tight situations. Four cameras are combined into one system to create a 360° surround view of the vehicle's current surroundings.

TOP VIEW
An efficient algorithm is used to generate a natural image for the driver from the image data. The multi-camera system from Bosch uses four compact near-range cameras to calculate a top view in order to view the entire surroundings of the vehicle up to 8 × 8 m. The driver receives a realistic image of his/her own vehicle as the current surroundings are displayed in real time.

DRIVING LANE INDICATION
Based on steering-angle and driving direction signals, a driving lane is displayed. The color of the driving lane is adjustable in order to increase its visibility on different surfaces.

AUTOMATIC ZOOM
Optionally, the field of view is automatically adjusted based on the current driving speed. This helps to obtain a better overview of the surroundings while driving fast, and a more detailed view when maneuvering in tight situations.

COLOR ADJUSTMENT
The brightness and white balance of the images are automatically adjusted to produce a uniform output image.

AUTOMATIC CALIBRATION
If the alignment of the camera is disturbed by external influences and the camera does not shift more than ± 3 ° in each axis, this shift is compensated by the system.

SPLIT SCREEN
In split-screen mode, the screen optionally displays two images at the same time, e.g. top view and panorama view.

PANORAMA VIEW
In this mode, the field of view of the front or rear camera is opened up to 180 °.

FRONT, SIDE AND REAR VIEW
The images of the front, side and rear camera can be depicted in full or split screen. Switching between the different views is possible based on the vehicle signals. Alternatively, the images of each camera can be selected manually for display.

VIRTUAL PANNING
Dependent on the steering angle, the camera can pan digitally. This allows the driver to receive a display only of the area relevant to him/her.

COMPENSATION OF DEFECTIVE HARDWARE
If one or more cameras should fail, the field of view of the remaining cameras is enlarged in order to display the greatest possible area.

EASY DIAGNOSTICS AND CALIBRATION PROCEDURE
A simplified diagnostics and calibration procedure makes it possible to adapt the system to different vehicle variants.

TECHNICAL CHARACTERISTICS

Field of view (effective) and resolution	
Field of view camera, horizontal	≥ 185°
Field of view camera, vertical	≥ 120°
Field of view system, horizontal	360°
Top view zoom level	8 × 8 m
Max. resolution	WXGA (1280 × 800 pixel) (adaptable, depending on customer's display)
Interfaces	
Video out	Automotive Ethernet (IEEE100BaseT1, H.264)
Electricity	
Supply voltage control unit	9–16 V
Supply voltage camera	8 V via control unit
Power consumption	≤ 14 W (control unit + 4 cameras)
Environmental conditions	
Control unit	IP5K
Camera	IP6K7K
Lens	IP6K9K
Operating temperature	–40 °C bis 80 °C
Mech. load	Up to 500 m/s² for control unit and camera (according to standards in the automotive industry)

© Robert Bosch GmbH 2023. All rights reserved, also regarding any disposal, exploitation, reproduction, editing, distribution, as well as in the event of applications for industrial property rights.