LUIS
TECHNOLOGY

CAMERA MONITOR SYSTEMS
FOR USE WITH CONSTRUCTION EQUIPMENT

G

STAIN-LESS STEEL

HD

IP 69K

MOVING SAFELY

LUIS

luis.de

DELIGHTED CUSTOMERS
OUR VALUE PROPOSITION

Dear business partner,

As an owner managed company, we value trust, fairness and cooperation in our working environment. We are committed to making certain that you are delighted with our products and services.

We work in partnership with our customers. Our headquarter in Germany continuously develops and enhances the best possible solutions for each application, including bespoke, customer-specific solutions manufactured on request and available in small batches if required. We offer professional consultations focused on delivering solutions – the fundament for a productive cooperation. To ensure the consistently high quality of our products, we conduct extensive tests both prior to initial launch and once production has started. Additionally, we affirm our quality commitment with a 48 months warranty. As a dynamic company with a streamlined organisation structure, we always aim to offer the best cost-benefit ratio.

We look forward to collaborating with you to find solutions for your specific requirements.

Sincerely

Dr. Matthias Feistel   Martin Groschke

Qualitätsmanagement
ISO 9001
www.dekra-siegel.de
DEKRA
zertifiziert

TOP
100
top100.de
Top-Innovator
2021

A NETWORK OF PROFESSIONALS
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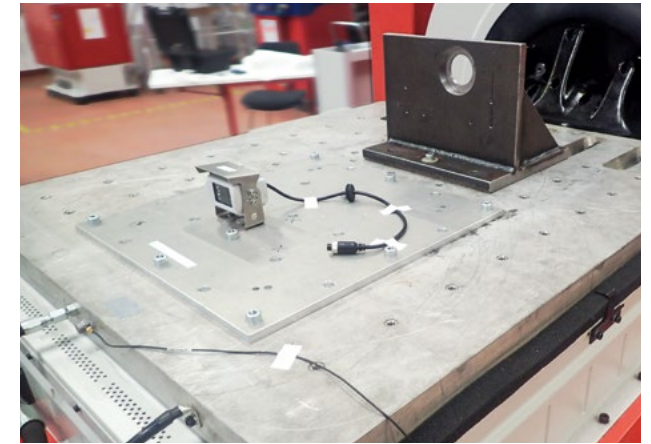T + 43. 1. 865 16 40
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LUIS CAMERA MONITOR SYSTEMS
FOR USE IN CHALLENGING ENVIRONMENTS

LUIS products have been developed for use in challenging environments. We only choose components that meet this requirement and pass our strict quality controls.

In particular, our cameras feature robust stainless steel brackets and tops. The sturdy casings are made from die cast aluminium and are moulded inside, with glued screws and panes. LUIS cameras have a protection rating of IP69k – the highest available for water and dust resistance. LUIS cameras can also withstand vibrations of 10–2000Hz and shocks of up to 100G without suffering a loss in performance and remain operational in a temperature range of -40°C to +85°C.
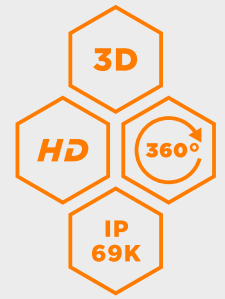
LUIS GUARANTEE 48 MONTHS

ENGINEERED IN GERMANY

QUALITY FEATURES

› Sturdy casing made from die cast aluminium

› Robust stainless steel frames and tops

› Moulded camera casing with glued in screws

› Protection rating IP69k (certified in accordance with ISO 60529:2014)

› Shock resistant up to 100G (certified in accordance with ISO 16750-3:2012)

› Vibration resistance range 10 to 2000Hz (certified in accordance with ISO 16750-3:2012)

› Temperature resistance range -40 to +85°C (compliant with ISO 16750-3:2012)

› Operating voltage 9 to 32V

› CE, ECE R10 (E-Mark), RoHS and REACH certified

LUIS 3D HD 360°
SURROUND VIEW PROFESSIONAL
HIGH-PERFORMANCE 360° SYSTEM

3D
HD **360°**
IP 69K

QUALITY FEATURES

› High resolution

› 3D representation of the vehicle to improve orientation

› Multiple viewing modes depending on travel mode

› Easy and fast auto calibration

› Camera with protection rating IP69k (compliant with ISO 60529:2014)

› Temperature resistance range –40 to +85°C (compliant with ISO 16750-3:2012)

› Operating voltage 9 to 32V

› A system version including (AI-based) 360-degree person detection in real time is currently in development

LUIS PROFESSIONAL HD CAMERA
ROBUST, HIGH-RESOLUTION CAMERA

› 1/3" CMOS sensor with 600 TV lines (CVBS) resp. 1920 x 1080 pixels (AHD)
› Viewing angle 105° horizontal
› Automatic backlight compensation
› Robust casing made from die cast aluminium with sun blind and camera base made from stainless steel

› Protection Rating IP69k
› Shock resistant up to 100G
› Vibration resistant up to 10G
› Night vision range up to 15m
› Operating temperature range -40 to +85°C
› Integrated heating
› Operating voltage 9 to 32V

LUIS R7-S COMPACT STAINLESS STEEL CAMERA
SHUTTER COVER TO PROTECT THE LENS

› 1/3" CMOS sensor with full HD (1080p) or optionally 600 TV lines (PAL, NTSC)
› Viewing angle 120° horizontal (optionally also 70° or 130°)
› Electronic shutter cover protects the lens against staining
› Robust casing made from die cast aluminium with sun blind, shutter

and camera base made from stainless steel
› Camera features include mirror mode
› Protection Rating IP69k
› Shock resistant up to 100G
› Vibration resistant up to 10G
› Night vision range up to 15m
› Integrated heating
› Operating voltage 10 to 32V

LUIS WIDE ANGLE CAMERA 170° FULL HD
OFFERING AN EXCEPTIONALLY WIDE FIELD OF VISION

› 1/3" CMOS sensor with full HD (1080p)
› Viewing angle 170° horizontal
› Fisheye correction
› Robust casing made from die cast aluminium with powder coating
› Night vision range up to 15m

› Protection Rating IP69k
› Shock resistant up to 100G
› Vibration resistant up to 6G
› Operating voltage 12V

LUIS BALL AND SIDE VIEW CAMERA
SUITABLE FOR USE AS A LATERAL OR REAR CAMERA

› 1/3" CMOS sensor with full HD (1080p) or optionally 600 TV lines (PAL)
› Viewing angle 120° horizontal
› Automatic backlight compensation
› Robust casing made from die cast aluminium
› Protection Rating IP69k
› Night vision range up to 15m

› Operating temperature range -30 to +70°C
› Integrated heating
› Operating voltage 12V (optionally 24V)
› Freely adjustable angle
› Also available as NTSC and front-facing version

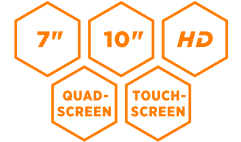# LUIS TOUCHSCREEN MONITORS
HIGH FUNCTIONALITY AND OUTSTANDING IMAGE QUALITY

The new LUIS 7" and 10" touchscreen monitors combine maximum functionality with a sleek, robust design. We have used our 20 years of know-how and experience to develop this range of touchscreen monitors with the aspiration to create a market-leading model.

Particular characteristics include high resolution and brightness. The monitor automatically identifies the linked camera from its signal. Images from AHD and classical analogue cameras (CVBS) are displayed simultaneously. The menu offers a choice of multiple (split) views as well as camera triggers. These can be set individually and saved in specific driver profiles.

Additional monitor functions can be integrated via four freely programmable keys and four I/O outputs.

› LUIS 7 inch or 10 inch colour TFT monitor with touchscreen
› Optionally: quad split screen
› Resolution 1280 x 768 pixels (7 inch) or 1280 x 720 pixels (10 inch)
› Brightness 500cd/m2
› Operating voltage 9 to 32V
› Selectable LED warning stripes (red/green)

› Automatic switchover PAL/NTSC and AHD/CVBS
› 4 video inputs with audio function
› Integrated loudspeaker
› 4 freely programmable keys
› 5 I/O inputs and 4 I/O outputs available for user-selected additional functions

LUIS PROFESSIONAL MONITOR
HIGH FUNCTIONALITY AND OUTSTANDING IMAGE QUALITY

› 7 inch TFT display
› Optionally: quad split screen
› High resolution 1024 x 600 pixels
› High brightness of 500cd/m2
› Auto-dim function
› Integrated loudspeaker
› 3 video inputs

› Operating voltage 9 to 32V
› 4 I/O inputs
› Tested in accordance with UNECE-R118
› Burn-resistant casing in accordance with FMVSS 302

LUIS PROFESSIONAL WATERPROOF MONITOR
FOR INSTALLATION IN OPEN DRIVER CABINS

› LUIS professional monitor as a waterproof version
› Protection rating IP68
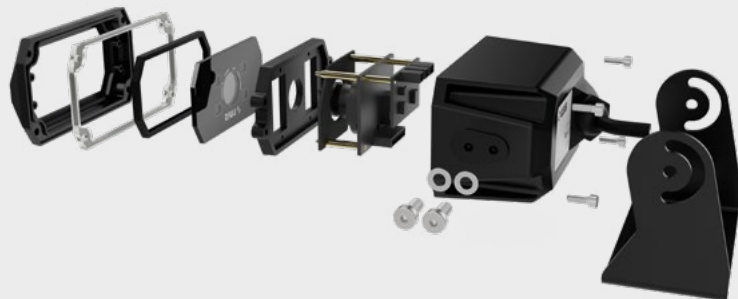
› Eligible for grants by BG Bau, among others

LUIS DIGITAL CAMERAS
FOR USE IN CHALLENGING ENVIRONMENTS

At our Hamburg headquarter, we develop camera systems to meet the demanding specifications for use in utility vehicles and mobile work machines.

Our digital camera portfolio includes a great variety of camera types. Our LVDS cameras transmit raw data at speeds of up to several Gigabit per second, allowing for loss-free processing of the uncompressed image. Our ethernet cameras are available as a Fast Ethernet (100BASE-TX) and as a BroadR-Reach (100BASE-T1) version. Compressed (H264/MJPEG) and processed (e. g. with white balance etc.) images are transmitted with low latency. All cameras are tested in accordance with the demanding automotive requirements for temperature resistance, dust protection, watertightness as well as vibration and shock resistance as defined under ISO standards.

In addition to our cameras, we can develop proprietary and bespoke applications and solutions tailored to our customers' individual requirements.

LUIS ETHERNET CAMERA TX
POWERFUL FAST ETHERNET CAMERA

- › Sensor 1/3″ CMOS
- › Resolution 2 MP (1080P)
- › Viewing angle 110° horizontal (others on request)
- › Fast Ethernet 100BASE-TX
- › 100 Mb/s
- › Latency < 200 ms
- › Video out H264 and H265

- › IEEE 802.3, IP, TCP, HTTP, RTSP
- › Night vision up to 10 m
- › Temperature -30 to +70 °C
- › Water and dust proof IP69k
- › Heater (optional)
- › Microphone (optional)
- › DC 12 V / 24 V / IEEE 802.3af POE

LUIS ETHERNET CAMERA TX ULTRA
LOW LATENCY FAST ETHERNET CAMERA

- › Sensor 1/3″ CMOS
- › Resolution 1.2 MP
- › Viewing angle 90° or 130° horizontal (others on request)
- › Fast Ethernet 100BASE-TX
- › 100 Mb/s
- › Latency < 100 ms
- › Video out MJEPG, H264

- › IEEE 802.3, IP, TCP, HTTP, RTSP
- › Night vision (optional)
- › Temperature -40 to +85 °C
- › Water and dust proof IP69k
- › Shockproof up to 100 G
- › Heater (optional)
- › DC 12 V / 24 V / IEEE 802.3af POE

LUIS BROADR-REACH CAMERA ULTRA
LOW LATENCY ETHERNET T1 CAMERA

- › Sensor 1/3″ CMOS
- › Resolution 1.2 MP
- › Viewing angle 90° or 130° horizontal (others on request)
- › BroadR-REACH 100BASE-T1
- › 100 Mb/s
- › Latency < 100 ms
- › Video out MJEPG, H264

- › IEEE 802.3, IP, TCP, HTTP, RTSP
- › Night vision (optional)
- › Temperature -40 to +85 °C
- › Water and dustproof IP69k
- › Shockproof up to 100 G
- › Heater (optional)
- › DC 12 V / 24 V / IEEE 802.3af POE

LUIS ETHERNET CAMERA 180°
LOW LATENCY FAST ETHERNET CAMERA 180°

- › Sensor 1/3″ CMOS
- › Resolution 1.2 MP
- › Viewing angle 180° horizontal
- › Fast Ethernet 100BASE-TX
- › 100 Mb/s
- › Latency < 100 ms
- › Video out MJEPG, H264

- › IEEE 802.3, IP, TCP, HTTP, RTSP
- › Night vision (optional)
- › Temperature -40 to +85 °C
- › Water and dustproof IP69k
- › Shockproof up to 100 G
- › Heater (optional)
- › DC 12 V / 24 V / IEEE 802.3af POE

LUIS DIGITAL TRANSMITTER SET
HIGH RELIABILITY AND LOW LATENCY

› Wireless connection for camera
  and monitor
› Stable, low-interference digital
  wireless technology
› End-to-end encryption
› Simple pairing

› Waterproof casing (IP65)
› I/O for operation based on
  travel mode
› Low transmission latency (<200ms)
› Operating voltage 9 to 32V

LUIS PROFESSIONAL WIFI TRANSMITTER
VIDEO TRANSMISSION TO ANDROID AND IOS DEVICES

› Transmission of camera image to any
  WiFi enabled smartphone, tablet or
  navigation system (Android or iOS)
› End-to-end encryption
› Robust, water- and dustproof casing
  (IP69k)

› I/O to automatically activate app
  (Android only)
› Low transmission latency (<200ms)
› Operating voltage 9 to 32V

LUIS PORTABLE BATTERY
FOR ENHANCED VERSATILITY AND EASY UPGRADES

› High-performance battery
  (8700mAh)
› Compatible with LUIS camera
  models and wireless modules

› Robust, waterproof casing
› Magnetic backside for simple,
  versatile mounting/installation
› Battery life 14 hrs (160mA@11.1V)

LUIS QUAD MULTIPLEXER
FOR UP TO 4 CAMERAS

› Display for and management of up
  to 4 cameras at a time
› TV System PAL, NTSC
› Display on up to 2 monitors at a time
› Camera operation via remote control
  or optionally via trigger cables
› Optional activation of distance lines
› Loop function to display camera
  images in an infinite loop

› Mirror function for each camera
› Operating temperature range
  -20 to +70°C
› Operating voltage 12 to 32V
› Compatible with all rear view
  cameras and monitors

MOBILE DATA RECORDING
DATA PRIVACY COMPLIANT AND COST-EFFICIENT

LUIS's products and services for mobile data recording range from hardware and compatible software, assembly and installation to administration and cloud services. We will find the right solution for your individual requirements. All our solutions are data privacy compliant. Functionality includes pixelization of faces, password management and event logs.

BENEFITS

› Preservation of evidence in the
  event of damage

› Evidence of services rendered

› Safeguard against fraudulent
  damage claims

› Promotion of safe driving

› Deterrence of theft

› Geolocation/detection and
  wireless communication between
  base and vehicle
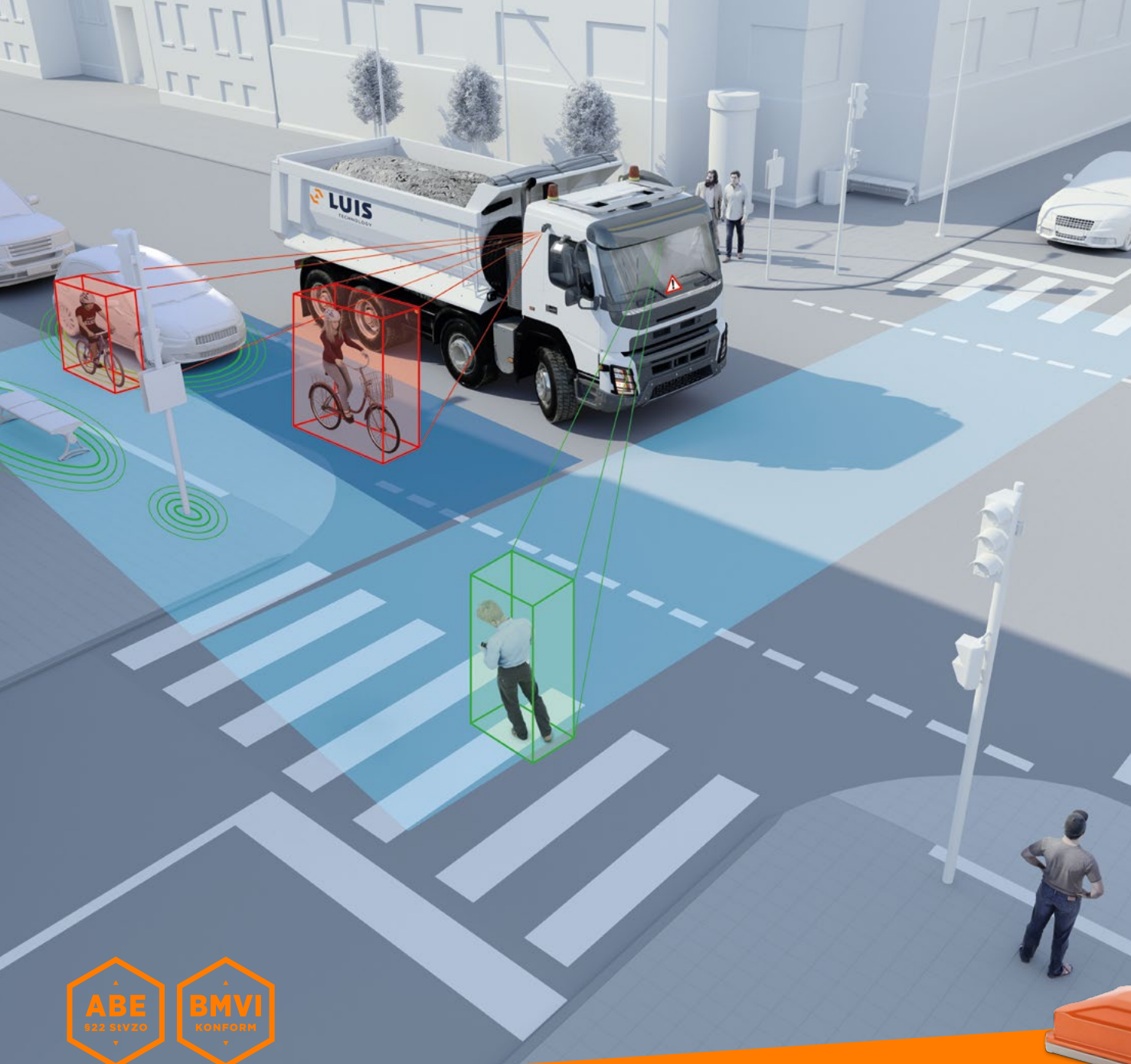
› Effective vehicle fleet
  management

SPECIFICATION

› Recording of up to 8 cameras and
  vehicle data simultaneously

› 4G module for real-time recording,
  live transmission and remote main-
  tenance

› Integrated modules: GPS, WiFi,
  G-Sensor and Motion Detection

› Hard disk storage with parallel re-
  cording on SD card as backup copy

› Data cannot be manipulated for
  reliable evidence

LUIS CLOUD PLATFORM

**LUIS offers a proprietary cloud plat-
form solution. The benefits for you:**

› No investment into server hardware

› Swift and versatile fleet integration

› Worldwide data access

› Remote maintenance with no
  vehicle downtime

› Minimal IT administration and
  expenditure

› Focus on core business

LUIS TURN DETECT ®

TURN ASSISTANT

BENEFITS

› Clear identification of static objects to minimize the number of false alarms

› Clear identification of cyclists even if concealed behind other objects such as parking cars

› Also suitable for transporter vans and when coupling/decoupling trailers

› Full functionality even in the dark

› Swift installation

› Vehicle type approval has been obtained; the system is eligible for grants

› Optional extension with a front camera to identify crossing pedestrians and help prevent accidents

FUNCTIONALITY

› Camera- and software-based turn assistant

› Wide angle camera captures a wide viewing angle to the side and rear of the vehicle

› Algorithm-based image analysis in real time

› Activated based on speed, use of direction indicators or turning angle of the steering wheel (optionally)

› Further I/O trigger outputs, e. g. for activation of side marker lights

AVAILABLE OPTIONS AND ACCESSORIES

› A choice of 7, 8 or 10 inch monitor

› Steering angle sensor

› Mounting bracket for camera

› Optional extension with a rear view camera

› Display of lateral camera image when reversing

› LED warning light (in the planning stage)

› Optional extension with a front camera to monitor front field of vision VI

› Optionally available for vehicles with right-side steering (detection to the vehicle's left)

MOVING SAFELY

ABE §22 StVZO

BMVI KONFORM

LUIS VIRTUAL MIRROR
DIGITAL MIRROR REPLACEMENT IN A NEW DIMENSION

The LUIS Virtual Mirror is a digital mirror replacement system, in which mirrors are replaced by high-resolution digital cameras and monitors. Thanks to an enlarged field of vision and the use of high sensitive sensors which provide a significantly better visibility in the dark and against the light, safety is increased compared to conventional mirrors. Thanks to the compact design and the respective positioning on the cab, damage can be reduced and aerodynamic improved.

The viewing areas are displayed in combination on just one monitor per side in the cab. The environment can thus be grasped more quickly and hazardous situations better assessed. By superimposing overlays or using a digital zoom or changing the image section depending on the maneuver, the machine can be handled more efficiently.

The virtual mirrors are available in long and short arm versions for cabs with/without overhang. We also offer individual designs and adaptation to the respective machine in small series.

The system is currently under development. Functional samples on request.

LUIS SMART TRACK
GPS TRACKING SOLUTIONS

The LUIS SMART TRACK system enables tracking and viewing of vehicle data remotely. In addition to a simple and cost-effective solution for the localization of vehicles and other »assets« such as construction equipment and machinery (»LUIS SMART TRACK BASIC«), we also offer a powerful solution that can process a wide range of sensor data, is IoT-capable and also offers a digital tachograph (»LUIS SMART TRACK PRO«). Inputs/outputs offer versatile -use scenarios for vehicle fleets of all types.

LUIS FLEET PORTAL

› **TRACKING**
With the real-time view of your vehicle locations and vehicle data you can view the status of your fleet at any fleet at any time.

› **MAP VIEW**
Find your fleet of vehicles quickly and easily on the map view and plan further orders based on the plan other jobs in the vicinity nearby.

› **GEOFENCING**
Points of interest to be created individually Interests allow you to always be informed when a vehicle in vehicle enters or leaves a specific location or leaves.

› **REPORTING**
From the simple daily report, to logbook to the reporting of freely freely definable exception messages you can execute and export various and export them.

› **INTEGRATION OF HW**
The LUIS Fleet Portal supports the LUIS GPS trackers, the LUIS Fleet an extensive list of other hardware other hardware products such as temperature sensors, beacons and many more. The list of supported hardware is continuously extended.

› **OPEN INTERFACES**
The connection of existing applications is supported by open interfaces or APIs are supported.

EMBEDDED AUTOMOTIVE AI PLATFORM
DEEP LEARNING SOLUTIONS THAT FIT YOUR REQUIREMENTS

RECOGNIZING OBJECTS AND PEOPLE

Classification of objects in real time, e.g. of persons. We use our high-performance networks based on many millions of annotated data.

PREDICT DIRECTION OF MOVEMENT

Predicting the movement of people and objects e.g. to predict when they will enter a predefined zone to issue warnings as early as possible or warnings to calculate the time to collision.

CALCULATE DISTANCES (2D AND 3D)

Calculation of distances between objects using the known camera position. For precise positioning, 3D data can also be assessed and the exact position of an objects can be determined.

3D OBJECT DETECTION AND POSITIONING

We use 3D ToF (Time of Flight) cameras, to detect objects and to precisely estimate the position. The positioning accuracy is so high that objects can then, for example, be gripped. Coordinates passed on to the gripping system, for example.

MARK DWELL TIME

The lenght of stay-algorithm marks objects, e.g. with a different color of the bounding- box as soon as they exceed a certain dwell time.
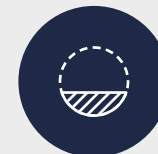
LISTENING TO ANOMALIES

The detection of anomalies is based on an acoustic basis. Via a MEMS and our acoustic AI application deviations from normal operation can be detected at an early stage and further processed.
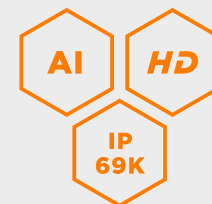
DEFINE ZONES

Marking of objects entering a defined area (e.g. dangerous areas around a vehicle or the working area of a machine).

SEGMENT OBJECTS

Pixel-precise detection and marking of defects, irregularities and objects or measuring the fill level.

LUIS EMBEDDED VISION
AND ARTIFICIAL INTELLIGENCE

We are developing robust AI systems to allow for embedded machine vision and real-time AI applications. Accelerated computing power of up to 21 TOPS allows for the analysis of multiple high-resolution camera feeds with low latency or the implementation of sophisticated robotics and automation applications for utility vehicles and mobile work machines. The fanless and maintenance-free AI edge systems from LUIS are based on NVIDIA processor modules. They have a protection rating of IP67/69 and meet stringent requirements in terms of shock, temperature and vibration resistance.

Our aim, and that of our subsidiary LUVIS AI GmbH, is to develop machine vision, classic image processing and artificial intelligence applications for the mobile work machines market. There are numerous potential applications – increasingly including automated or partially automated work processes. All applications are embedded, meaning they are operated from the device itself and require no background server. A comprehensive toolchain of software, simulation algorithms and in some cases pre-trained neural networks is available for each individual application.

OEM CUSTOMIZATION AND ODM DEVELOPMENT
INDIVIDUAL SOLUTIONS ALSO IN SMALL SERIES

OEM CUSTOMIZATION

LUIS also offers OEM customization for specific requirements – even in small series.

ODM DEVELOPMENT

LUIS also offers customized ODM development according to your specifications. The possibilities of an ODM development range from the modification of the camera or monitor housing, software programming (e.g. for monitor, app, client software) up to the complete redesign of a camera/monitor system according to your ideas.

The ODM development is based on your specifications.

YOUR OPPORTUNITIES

› Additional features of the camera like heating, microphone or voltage transformer

› Alternative lens with specific aperture angle

› Change of the image reflection (front insert) or the TV system (NTSC/PAL)

› Modification of the connector plugs or open cable ends

› Individual cable length

› Customized auxiliary lines (design and vehicle-specific measurement)

› Individual customer logo or customer-specific start screen

› Individual housing color of the camera

› Customized outer packaging and/or instruction manual

› Custom software and AI networks

INSTALLATION & SERVICE
WE INSTALL AT YOUR SITE

Systems and installations all in one hand – this is how we inspire our customers every day. Our service technicians are on the road all over Europe to carry out installations, test installations, training courses and consultations on your site. In order to respond in the best possible way to the most varied and vehicles in the best possible way, each installation is individually coordinated with you in advance. No matter whether special or refuse collection vehicles or construction machinery – we find the best possible solution. We take time for you, your ideas and your challenges. With us you speak personally with experts in the fields of commercial vehicles, hardware – especially electronics, optics and mechanics – software and artificial intelligence.

In addition, we maintain a broad service partner network. On our website you will find a competent service partner near your location.

PLEASE REFER TO

› www.luis.de/montage/
› www.luis.de/servicepartner/

MOVING
SAFELY ▲

WE ARE HAPPY TO HELP!
YOUR CONTACT

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LUIS GUARANTEE
48
MONTHS