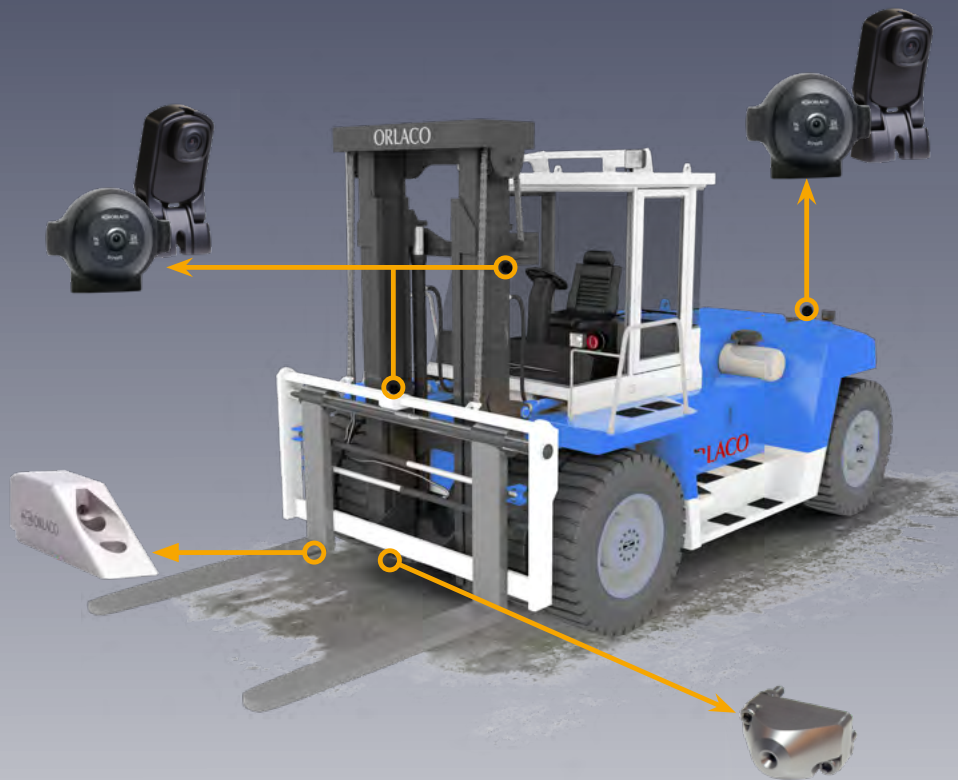


griptech

CAMERA SYSTEMS

analogue and digital camera systems





Why get a camera system?

If camera technology serves safety and efficiency, the user must see its advantage „clearly and distinctly“.

That’s why Orlaco, as a supplier to Griptech, focuses on the best image quality, so that drivers do not have to put extra strain on their eyes, but can quickly engage with this support through high image sharpness and colour depth. Orlaco camera systems realise images with an invisible delay and without image jerkiness. This relieves the user and reduces fatigue. The monitor features a light-refracting display and a protection class that is the same for all common monitors. A light sensor automatically adjusts the backlight to the environment. All components are tested during series production for vibration, shock resistance and the standard EMC test according to automotive regulations.

Sophisticated HD digital technology

Orlaco develops high-resolution HD digital technology for all intensive and demanding environments. The new HD cameras correspond to the versatile fields of application of industrial trucks and, in addition to the high flexibility of use, also offer all automotive requirements under continuous load. The image quality ensures unrestricted acceptance for work-supporting aids by all users. Thanks to the newly developed digital mast cable, the HD cameras can now also be used on fork carriers or attachments.

Griptech can install camera systems at your site by our own technicians. At the factory, we integrate the camera technology on the TeleKOOIforks and also on our attachments.

Everything from one source!

Better visibility:

- Faster storage and retrieval of pallets, especially when used with high racking
- Safe manoeuvring between racks
- Accident prevention through travel range monitoring
- Easy on the eyes due to the unique image quality

Higher efficiency:

- Avoidance of personal injury, damage to racks, the vehicles and the goods

Higher efficiency:

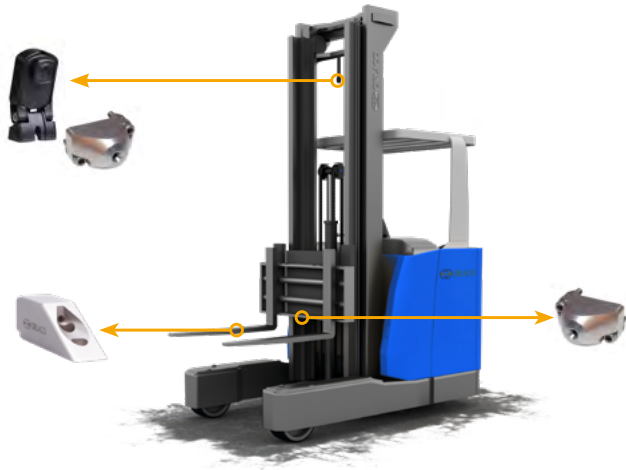
- Faster access to the goods increases the turnover of goods
- Less staff and vehicle absenteeism, due to lower risk of accidents

Better ergonomics:

- Back-friendly posture of the vehicle driver, which supports less staff absenteeism

Quality:

- In addition to ISO 9001, Orlaco has implemented IATF 16949:2016: The quality certificate in the automotive industry
- The most important automotive-specific quality techniques, such as 8D, FMEA, SPC, MSA, APQP, are also applied.
- Computer-controlled test procedures ensure 100% consistent image quality.



Better visibility means working more safely, ergonomically and efficiently!

Monitor

Our monitors offer the highest component quality in high-quality housings that are characterised by their compact design. The high-quality RAM mount and different mounting plates ensure quick and uncomplicated installation. Up to 5 cameras can be switched manually via a monitor or via control signals. The cable outlet can be rotated 180° without much effort.

Camera

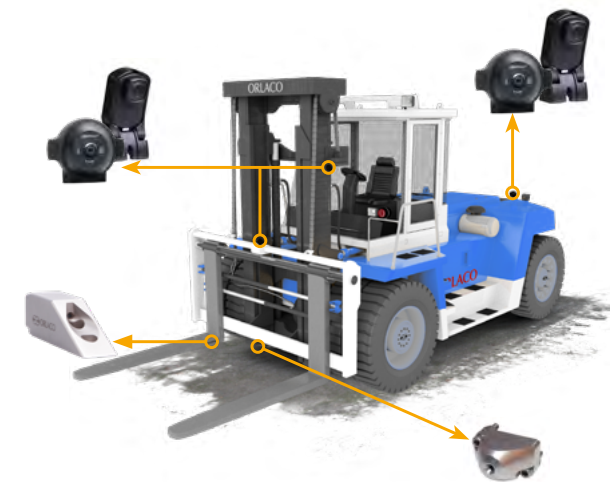
The different viewing angles of the cameras allow the best adjustment for your application. With the compact cameras, the round design allow for optimal alignment and also quick alignment in retrospect. With a 2mm lens hole, we achieve 52° horizontal viewing angle, which is unique and offers the highest protection in tough operating conditions.

Signaltransmission

In addition to the clearly favoured mast cable, we also offer other types of transmission such as cable line drums, spiral cables or radio systems. Due to the many years of development of mast cables and the value of our experience, we always recommend mast cable installation or a combination with spiral cable. The lower purchase costs and non-existent maintenance effort as well as no loss of image quality due to irradiation confirm us in our opinion.

For many forklift types we also offer multi-function mast cables in order to use the rollers located in the mast or to exchange them for an existing mast cable. In this case, the functions on the fork carriage are taken over by our cable.

Griptech is the only manufacturer that can supply attachments including integrated camera systems directly from the factory and also assemble them under all warranty aspects.



Fork camera CFMC

With stainless steel housing

The fork tine camera is usually screwed onto the side of the fork tine. The housing is only 25mm high and 30mm wide. The small size in combination with the 2mm lens glass considerably reduces the risk of damage. The lens module is built into the housing at an angle of 10° to bring the other fork tine into view.

Features:

- ▶ Protection class IP69
- ▶ Delivery includes protective tube and 1,000mm connection cable
- ▶ Viewing angle 51° requires min. 0.05 lux
- ▶ The lens glass, which is just 2mm in size, considerably reduces the risk of damage
- ▶ Optionally incl. LED for poor lighting conditions
- ▶ AMOS Chip technology



Pinhole camera CPH

With stainless steel housing

This camera, with extremely small dimensions, can be mounted hidden and thus well protected

Features:

- ▶ Protection Class IP 69
- ▶ 50G Shock and 15G vibration resistant
- ▶ Viewing angle 51° requires 0.05 Lux
- ▶ Delivery incl. 500mm connection cable incl. plug
- ▶ The lens glass, which is just 2mm in size, significantly reduces the risk of damage
- ▶ AMOS Chip technology



Compact camera FAMOS

Specially designed for use on forklifts

The compact housing of the FAMOS camera, with Advanced CMOS Chip technology (advancement of the CMOS chip), offers many possibilities for positioning. The camera is shock and vibration resistant, 100% waterproof, has a heated lens glass and delivers the best possible image in all weather conditions. In addition, the built-in Safety ticker detects „frozen“ images so you can always be sure the camera is active.

Features:

- ▶ Shock resistance: 50G
- ▶ Vibration resistance: 15G
- ▶ Protection Class: IP69K according to DIN 40050-9
- ▶ Viewing angle: 20°, 40°, 60°, 80°, 102°, 118° or 129°, 170°
- ▶ Temperature: -40° to 85°
- ▶ Incl. 500mm cable length incl. plug
- ▶ IR-LED for night vision (viewing angle: 80° and 118°)
- ▶ Night vision: to 25m



distortion with common cameras

Corrected 102° by Orlaco Cameras

7" Standard Monitor

Picture diagonal of 175mm

The standard 7" RLED monitor (175mm diagonal) offers excellent image quality in combination with the Orlaco cameras. As a high-performance model, this monitor has been specially developed for intensive and mobile applications.

Features:

- ▶ Supply voltage 12-60 volts
- ▶ 12 watts at 24 volts
- ▶ Protection class IP67 according to IEC 60529
- ▶ Ambient temperature -40° to 85°
- ▶ Suitable for cold storage without closed cabin
- ▶ Robust aluminium/plastic housing
- ▶ Over and undervoltage protected
- ▶ Shock and vibration resistant
- ▶ Up to 4 cameras
- ▶ 430,000 pixels (800xRGBx480)
- ▶ Self-explanatory OSD menu in 15 languages
- ▶ Digital detail enhancement
- ▶ Light-refracting coating to avoid reflections
- ▶ Automatic backlight control by light sensor



12" Standard Monitor

Picture diagonal of 300mm

The 12.1" RLED monitor has been developed for the use on forklifts and offers a wide range of applications with many cable variants. This monitor combines a picture-in-picture function as well as double, triple or quadruple imaging. The picture-in-picture function, is simply attached by one monitor cable. The multiple image display requires a switcher or a view box.

Features:

- ▶ Supply voltage 12-30 volts
- ▶ 12 watts at 24 volts
- ▶ Protection class IP67 according to IEC 60529
- ▶ Ambient temperature -40° to 85°
- ▶ Suitable for cold storage without closed cabin
- ▶ Robust aluminium/plastic housing
- ▶ Over and undervoltage protected
- ▶ Shock and undervoltage protected
- ▶ Up to 4 cameras
- ▶ 785,000 pixels (1024xRGBx768)
- ▶ Self-explanatory OSD menu in languages
- ▶ Digital detail enhancement
- ▶ Light-refracting coating to avoid reflections
- ▶ Automatic backlight control by light sensor



GripView | comes with a fully integrated camera within the contour



GripView

The world's most efficient and safest storage and retrieval system

We combine proven and well-known features of our camera systems with an innovative and sustainable design. Due to the fully protected position of the camera within the fork, the camera is also suitable for a usage within a front loader. The GripView focuses your load handling process on the essentials and shows more details that matter. Your active contribution to reducing sources of danger!

Whether handling loads at height or transporting highly visibility-restricting goods, GripView significantly improves visibility. It is equally suitable for indoor and outdoor applications.

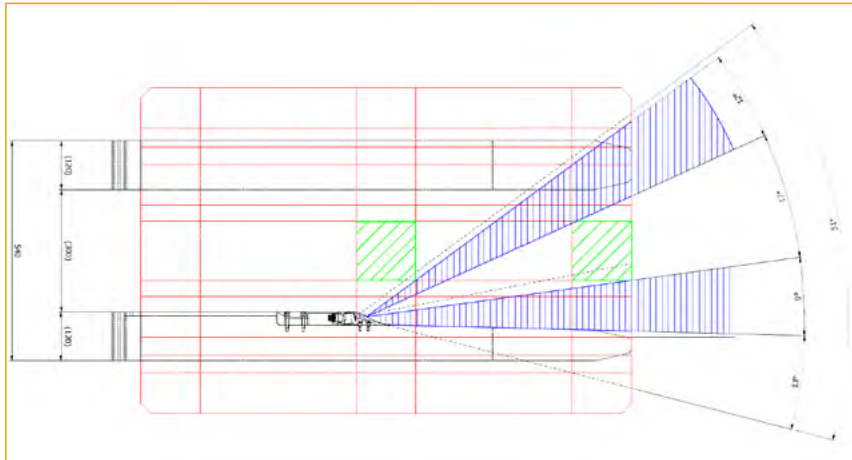
Camera features:

- ▶ Protection Class: IP 69
- ▶ Vibration resistance 50G
- ▶ Viewing angle 51°, requires min. 0,05 Lux
- ▶ AMOS Chip technology
- ▶ Optional version incl. LED for poor lighting conditions



Product features:

- ▶ Optimal positioning of the camera accompanied by significantly improved visibility conditions
- ▶ Sustainable protected components due to full integration in the contour
- ▶ Equally suitable for light and heavy-duty applications, such as the storage and retrieval of your goods in the warehouse, as well as in the outdoor area
- ▶ We guarantee outstanding image quality with an optimally coordinated combination of Orloco camera and monitor.



Whether handling loads at heights or transporting goods with severely restricted visibility: The GripView fork with integrated camera significantly improves visibility. Equally suitable for indoor applications (on the reach truck/E-front-loader), as well as for tough outdoor applications (classic front loader).



Picking the pallet with the GripView.



Picking the pallet with standard forks.



Entering the pallet with the GripView.



GripView in combination with the FPN Fork adjustment

Mast cable / Spiral cable

Maintenance-free and robust transmission type

Features:

- ▶ Combination solutions mast cable /spiral cable
- ▶ Suitable pulleys and tension springs available
- ▶ Special cables 6.2mm or 9mm in 11-core or 14-core
- ▶ Mast cable according to fork-lift truck manufacturer's specification
- ▶ Functions are retained, signal transmission camera is added
- ▶ High tensile strength and suitable for cold storage (up to -40°)



Cable drum

In original equipment manufacturer (OEM) quality

Features:

- ▶ 10m maximum extension length
- ▶ Delivery includes mounting bracket and swivel holder
- ▶ Suitable for cold storage version available
- ▶ Mounting position on fork carriage must be mounted independent of sideshift



Radio Transmission

For analogue signal transmission

Features:

- ▶ Quick installation
- ▶ Alternative solution to mast cable or cable drum
- ▶ Transmitter and receiver protected to IP 68



Switcher / View-Box

Connecting several cameras to one monitor

If visibility impairments require multiple cameras on a vehicle, the separate camera signals are routed to a safety edge or view box. Our service team will be happy to help you select the right system.

Split-Screen / Picture-in-Picture / Picture change

- ▶ Connection of two cameras via Y-splitter
- ▶ Split-Screen (PAP) and Picture-in-Picture (PIP) Function
- ▶ Picture switching via monitor and control signal

Picture switching of several cameras

- ▶ Connection via switcher of up to 4 cameras to one monitor
- ▶ Manual or automatic switching
- ▶ e.g. 3 cameras on fork carriage + 1 rear view camera

Multiple camera images on one monitor at the same time

- ▶ Connection of up to 4 cameras to one monitor via View-Box
- ▶ Display of images freely programmable (e.g. Picture-in-Picture)
- ▶ Only 1 cable via the mast



Analogue Camera systems incl. radar system



RadarEye

The active vision solution for collision avoidance

With RadarEye, the active vision system, you reduce damage and collisions. The integrated active vision system is designed to detect objects in areas that are not in the operator's field of vision. With RadarEye, you have the solution for safe and efficient operation.

Visual and audible warnings

When objects or people are detected in the danger zone, the system triggers an acoustic warning signal and switches to the relevant camera. The distance to the object is displayed on the monitor with coloured lines. An acoustic warning signal intensifies the machine operator's perception of the object or person in the danger zone. Both stationary and moving objects are detected by RadarEye. The radar units feature a robust construction that is waterproof as well as shock and vibration resistant. The system is not affected by weather conditions such as snow, rain or temperature fluctuations.

User-friendly system

RadarEye can be retrofitted to almost any vehicle and functions as a stand-alone system. User-specific settings can be easily set up. These include the detection range and sensitivity of the 5 colour zones.

All sensors are manufactured according to the recognised standards IATF 16949 and ISO 9001 and in compliance with the CE marking.



HMOS DigiCoax CornerEye Camera

Maximum angle of view up to 270°

The HMOS CornerEye camera from Orlaco is an HMOS DigiCoax camera, with a special bracket designed for rear mounting on forklifts, reach stackers or other industrial vehicles. The 100% waterproof camera is equipped with an ultra-wide angle lens, which, in combination with state-of-the-art technology, provides a comprehensive field of view.

Angle of view lens:

› 180°

Maximum angle of view software supported:

› 270° incl. 500mm cable with plug



HMOS DigiCoax Kamera

industrial real time high definition digital camera

The HMOS camera from Orlaco is a compact, industrial real time high definition digital camera. Data transmission via DigiCoax cable and shielded plug. The 100% waterproof camera is housed in a special adjustable bracket that ensures the camera can be comfortably positioned.

Vibration resistance: 50G

Protection class: IP69K

Available viewing angles: 30°, 60°, 90°, 120°, 180°

incl. 500mm cable with plug



10" HLED Digital Monitor

HD TFT - LCD Monitor mit LED Backlight

Technical data:

- › Supply voltage 12V / 24V DC
- › 12 watts at 24 volts
- › 1,024,000 pixels (1280 x RGB x 800)
- › Protection class IP54 according to IEC 60529
- › Ambient temperature -40° to +85°
- › Suitable for cold storage without closed cabin
- › Robust aluminium/plastic housing
- › Cver- and undervoltage protected
- › Shock and vibration resistant
- › Digital detail enhancement
- › Self-explanatory OSD menu in 13 languages
- › Incl. RAM bracket

Also available as 7" HLED Digital Monitor



Free lift holder

The newly designed free lift holder offers the best possible mounting position for the camera with the flexible mounting plate on the upper crossbar, which allows off-centre movement, the freely shortenable tube and the freely adjustable heights. In addition, the camera can be adjusted horizontally to enable the viewing angle and thus a clear view during storage and retrieval.

Thanks to the flexibly adjustable free lift bracket, the camera can significantly improve visibility at fork blade height or below the forks when extending and retracting.

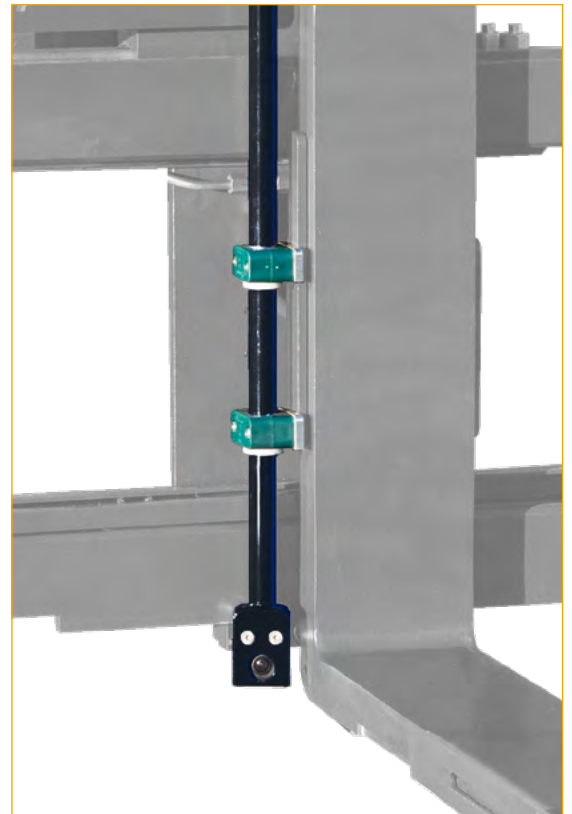


Fork-bend holder

Orlaco has been developing digital cameras and monitors for a long time. The result is excellent colour depth, contrast and a real-time image in HD quality.

By developing digital mast cables, we are now able to transmit the highest image quality from the fork carriage via the mast.

The slim design (only 27 mm deep) of the HMOS cameras and the wide range of viewing angles (30°, 60°, 90°, 120°, 180° and 270°) offer numerous application possibilities on the fork carriage of the fork tine and also as a free-lift camera.





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