www.orlaco.no

ΕN







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**Excavator** 

**Vibratory Soil Compactor** 

14

Select

machine

your

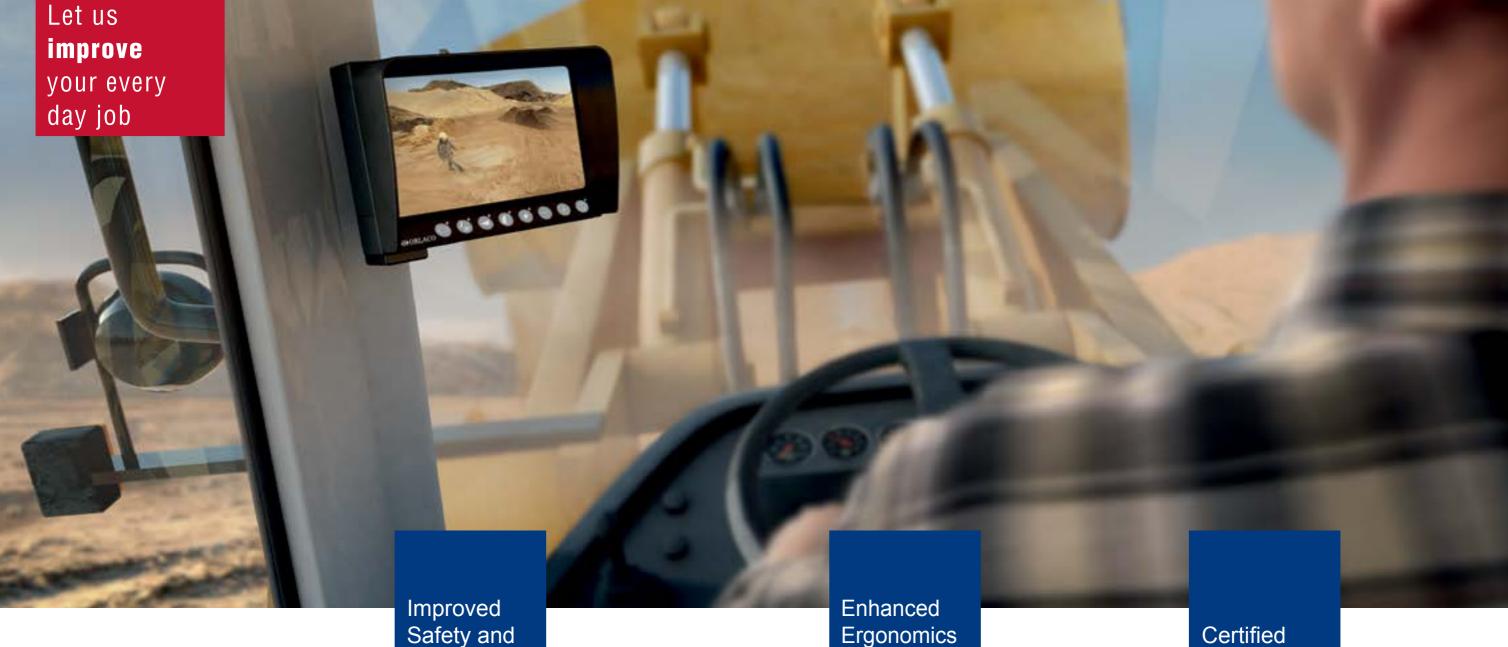
# Why Orlaco?

Welcome to the Orlaco product catalogue. We are personally committed to bringing you the best camera and monitor solutions possible. To help create safer and more secure workplaces around the world. Our professional team has spent over twenty-five years designing and manufacturing a variety of certified, reliable and complete camera display solutions that effectively eliminate the blind spots around vehicles, machinery and vessels. We are confident that the options offered in this catalogue will not only help you to improve the safety, security and efficiency of your fleet, but also to enhance the ergonomics and comfort for your operators. That is what Orlaco stands for. We invite you to share your ideas and experiences with us.

On behalf of the entire team, Henrie van Beusekom Executive Director Orlaco



That's why!





Shovels, excavators and dump trucks are examples of complex machines that require clear vision which allows the operation to progress smoothly and safely. Machines are increasingly becoming further advanced with elevated demands on efficiency and output. Still, it is people that are required to handle this equipment correctly. Operators have minimal vision around the vehicle. It is essential to solve large blind spots in a professional matter. This is where Orlaco's camera monitor solutions will help to improve operational efficiency and safety.

Efficiency

An operator is required to follow what is occurring around his machine. Frequently he must maneuver into a contorted position. Machines are reversing repeatedly. The operator is obliged to turn his body to overview the operation, possibly leading to short or even long term ergonomic injuries. By viewing the Orlaco monitor located on the dashboard, the driver can maintain correct posture and work more comfortably. The driver feels safe, secure and in control of the machines environment, reducing stress and providing comfort.

and Comfort

Certified Quality

At Orlaco, quality is never taken lightly. We keep a clear and persistent focus on customer satisfaction. A focus that is maintained throughout the manufacturing process of our quality products, which are custom designed in various formats. We are able to uphold our level of quality by providing detailed servicing. To top it all off, we have secured the highest achievable automotive certification: TS16949. At Orlaco, we invest in continuous improvement in order to secure a long term, satisfied customer base. We believe that compatibility in products, systems, and operations is the key element to creating reliable partnerships. All our products are controlled and clearly documented to give our customers a zero-defect product with operation that works right, every time.

Why Orlaco Why Orlaco

# Earth moving sight solutions





Clear view on a certain process when direct vision is not possible. This can also be used in combination with Rearview. (RT6610 - page 17)





Camera setting: Horizontal line mark.
This option shows a reference line on the monitor.

Rearview

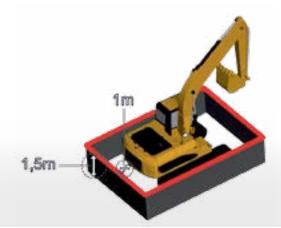


RC2100 - PAGE 16

Not only safe reversing, but also good vision when turning the machine. This can also be used in combination with Toolview (RT6610 - page 17) or Sideview. (RS6410 - page 17)







**1** INFORMATION

ISO 5006: 2006 Earth-moving Machinery Directive. The red line must be clearly visible to the operator.



SC2200 - PAGE 16

0000000



Sideview

If you are continually turning, you cannot always see what is happening next to the machine. A Sidecam is then the solution. This can also be used in combination with Rearview. (RS6410 - page 17)

Vision solutions Vision solutions **Material Handler** Wheel loader 9



Rearview



Not only safe reversing, but also good vision when turning the machine. This can also be used in combination with Toolview. (RT6610 - page 17) or Sideview (RS6410 - page 17)



SC2200 - PAGE 16

If you are continually turning, you cannot always see what is happening next to the machine. A Sidecam is then the solution. This can also be used in combination with Rearview. (RS6410 - page 17)









TC2300 - PAGE 17

Toolview provides good visibility to look over a load or the bucket.







RadarEye setting: Transparent visualization of the radar-zones on the display. (standard preset setting)

Rearview



RC2100 - PAGE 16

Not only safe reversing, but also good vision when turning the machine.

Recommendation: Add RadarEye to increase safety & efficiency. (see page 24-25)





**Toolview** 

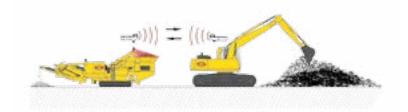


TC2300 - PAGE 17

Clear view on a certain process when direct vision is not possible. For additional ease of use and safety, we also supply a video transmitter-receiver system. This allows the operator of, for instance, an excavator, to see what is happening at a distance and to always be aware of the status. To achieve this, the Toolview Set must be extended with a Spectrum Scanner. (see page 26)







10 Articulated dump truck Off-highway truck 11



Camera setting: Graticule. This option shows a graticule for a Rearview camera on the monitor.

#### Rearview



Not only safe reversing, but also good vision when turning the machine. This can also be used in combination with Sideview. (RS6410 - page 17)

**Recommendation:** Add RadarEye to increase safety & efficiency. (see page 24-25)





# Sideview



SC2200 - PAGE 16

If you are continually turning, you cannot always see what is happening next to the machine. A Sidecam is then the solution. This can also be used in combination with Rearview. (RS6410 - page 17)





#### Roundview



AR6500S / AR6500M - PAGE 18

The Roundview Set guarantees good all round vision.

The set consists of a Rearcam, Frontcam and two Sidecams.

AR6500S: 7" monitor, One image per camera on monitor. AR6500M: 12" monitor, Quad image on monitor.

**Recommendation:** Add RadarEye to increase safety & efficiency. (see page 24-25)



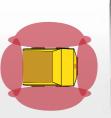




Multiview Box setting: Quad image (Monitor 12")









Surround view
Please contact
Orlaco for more
information

12 Telehandler Scraper 13



#### Toolview



TC2300 - PAGE 17

Clear view on a certain process when direct vision is not possible. This can also be used in combination with Rearview. (RT6610 - Page 17)





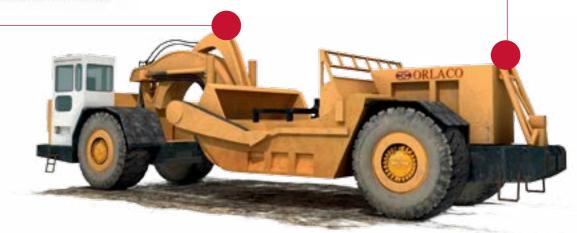
#### Rearview



RC2100 - PAGE 16

Not only safe reversing, but also good vision when turning the machine. This can also be used in combination with Toolview. (RT6610 - Page 17)





# **Motor grader**

#### Rearview

Bulldozer



RC2100 - PAGE 16

Not only safe reversing, but also good vision when turning the machine. This can also be used in combination with Toolview. (RT6610 - Page 17)





#### Toolview



TC2300 - PAGE 17

Clear view on a certain process when direct vision is not possible. It can also be used in combination with Rearview. (RT6610 - Page 17)







14 Vibratory soil compactor Skid steer loader 15



#### Rearview



Not only safe reversing, but also good vision when turning the machine.

#### Recommendation:

Add RadarEye to increase safety & efficiency. (see page 24-25)









Rearview



RC2100 - PAGE 16

Not only safe reversing, but also good vision when turning the machine.





Backhoe loader





**SETS** 









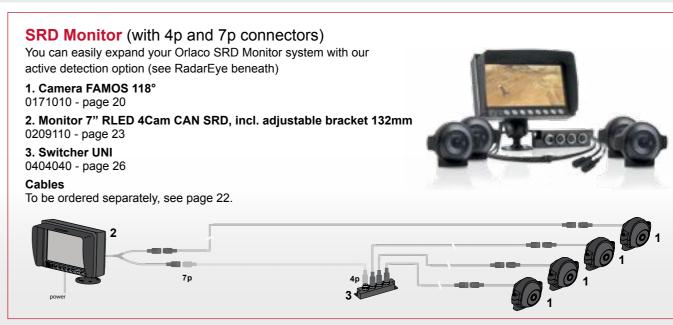


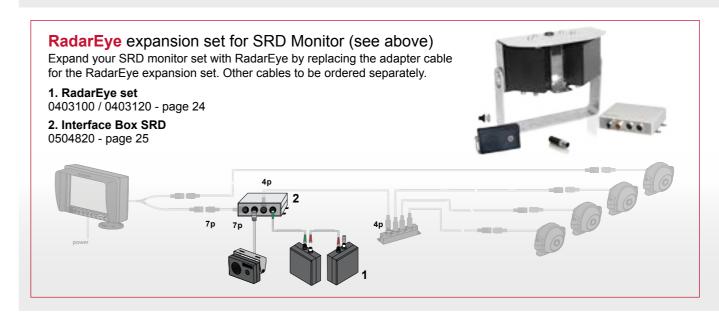












# Or design your system yourself

Step 1: Select your camera

Step 2: Select your desired cable

Step 3: Select your monitor

Step 4: Select the required options

It is also possible to configure your system online on our website: www.orlaco.com

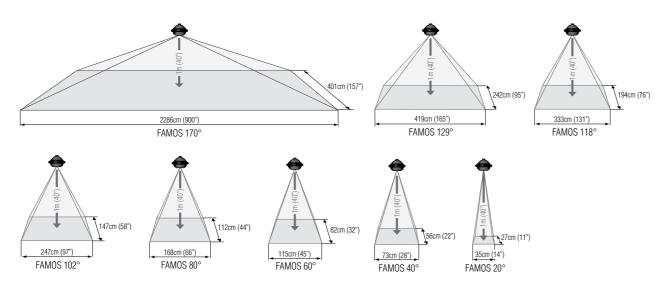
Whatever you select, the system can be easily installed and is plug-and-play.

Note: For two or more cameras a switcher, 4Cam RLED Monitor or MultiView Box and additional cables are required. Contact us for support.

# The qualifications of our AMOS and FAMOS Compact Cameras

- · Next generation CMOS sensor
- Light sensitivity 0.05 lux
- camera is running and active
- · Impact and vibration proof
- · Operating temperature between -40°C to +85°C
- Integrated Safety ticker to show that Heated lens glass, therefore no problems with condensation or frost
  - · Fixed lens

- · IP68 dust- and waterproof according to IEC 60529
- The camera has a 0,5m cable including a waterproof molded 4p connector male



# Cameras FAMOS

Туре	Art. no. PAL	Art. no. NTSC
20°	0171060	0171160
40°	0171050	0171150
60°	0171040	0171140
80°	0171030	0171130
102°	0171020	0171120
102° MIRROR	0171220	0171240
118°	0171010	0171110
118° MIRROR	0171210	0171230
129°	0171000	0171100
170°	0171070	0171170

- · Chemically hardened lens
- · Automotive molding-filled housing, watertight IP69K according to DIN 40050-9
- Improved EMC-standards
- · Optimized impact- and vibration-resistance

# **Camera FAMOS MIRROR SW1**

Camera with mirrored image and guiding lines.

Туре	Art. no. PAL	Art. no. NTSC
102° MIRROR	0171250	0171260

#### **Cameras AMOS Communicator**

Camera with additional features: PAL / NTSC setting, digital zoom, guiding lines, fisheye correction, mirror/flip settings and text features.

Туре	Art. no. PAL / NTSC
69°	0135830
118°	0135810
129°	0135800

- · Chemically hardened glass
- Nitrogen-filled housing, watertight IP69K according to DIN 40050-9



# **Cameras AMOS IR LED**

Day/Night camera including 15 High Power Infrared LEDs 850nm.

Туре	Art. no. PAL	Art. no. NTSC
69°	0146200	0146220
118°	0146210	0146230

#### **Cameras AMOS IR LED Communicator**

Camera with additional features: PAL / NTSC setting, digital zoom, guiding lines, fisheye correction, mirror/flip settings and text features.

Туре	Art. no. PAL/NTSC
69°	0146800
118°	0146810



### Cameras AMOS ATVC Set (All Time Vision Camera)

Self cleaning camera system by a rotating glass tube and fluid.

Туре	Art. no. PAL	Art. no. NTSC
118° MIRROR	0400160	0400260

- Including control unit for Input/Output ATVC
- Excluding water pump with 6 liter reservoir (3500810)
- Excluding water hose (2270140)
- Excluding extension cable camera to Input/Output ATVC



# **Cameras CPH**

Robust camera for mounting on a vulnerable position.

Туре	Art. no. PAL	Art. no. NTSC
51°, 0,2m cable	0199710	0199740
51°, 0,6m cable	0199700	0199730



For Zoom-, Thermal image- or Pan & Tilt cameras, please visit www.orlaco.com.

**Products Products** 

# The advantages of Orlaco cables

- All cables are specially developed by Orlaco
- · Special cables are available for various circumstances such as severe off-road conditions
- · Resistant to oil and petrol
- Watertight cable connectors
- Operating temperature -40°C to +85°C



This cable offers good protection against severe conditions. This is due to the additional internal galvanised braided steel wire armor. Attention: if cable is constantly moving as on a boom or hinged construction, please use the dynamic cable.

For EMC 100V/m

# Including 4p molded connectors:

0303342	1,5m	0303352	3m	
0303472	5m	0303362	7,5m	
0303372	9m	0303482	11m	
0303492	16m	0305021	20m	
0305011	28m			

# Dynamic cable

Suitable for dynamic use, for instance for a Toolcam mounted on an arm or dipper stick, an excavator boom or in the between the moving part of an articulated dumptruck.

· Soft cover with small bend radius

# Including 4p molded connectors:

0304371	0,5m	0304281	1m
0305341	3,5m	0304341	5m
0304381	6m	0304391	8m
0304431	9m	0304441	10m
0301811	11m	0304451	12m
0301731	15m	0301831	20m

#### Including 7p connectors:

0304460	3m	0304470	4m
0304480	5m	0304490	8m
0304560	9m	0304570	10m
0304580	11m	0304590	17m

#### Multi cable standard

This standard cable can be used if no special requirements like mechanical protection or dynamic movement of the cable is needed.

#### Including 4p molded connectors:

1m	0301870	2m
3m	0301880	5m
7,5m	0301930	8m
9m	0301900	11m
16m	0301940	21m
40m		
	7,5m 9m 16m	3m 0301880 7,5m 0301930 9m 0301900 16m 0301940

### Including 7p molded connectors:

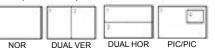
0304420	0,5m	0304260	2m
0304410	6m	0304610	11m
0304620	16m	0305030	21m

# The possibilities offered by Orlaco LED monitors

- Automotive 7inch TFT liquid crystal display module, LED backlight
- · Operating temperature between -40°C to +85°C
- · Impact and vibration resistance meet the stringent requirements
- Power protected against:
- Induction voltages
- Load dumps
- Over- and undervoltage

- Mirror image setting
- · High resolution pixel WVGA 800xRGBx480
- · Brightness automatically adjusts to the ambient light
- Option of a marker line per camera on the screen for the optimum determination of distance
- · Integrated sun visor
- IP67 according to IEC 60529

- Full On-Screen-Display (OSD) in 12 languages
- Input Voltage 12...60V/DC +/-10%
- · Watertight molded connectors
- Multiple view options for 12" monitor









Standard bracket





Monitor 12" RLED (Incl. 190mm bracket)

# **Monitors RLED**

Туре	Video cable / connector	Power cable	Bracket	Art. no.
7"	2m / 4p female	2m open wired	132mm	0208603
7" 4Cam	2m Y-split / 4p female	2m open wired	132mm	0208612
7"	4m / 4p female	4m open wired	standard	0208681
7"	4m / 4p female	4m open wired	132mm	0208672
7" Serial	6m / 7p female	6m open wired	132mm	0208632
7" CAN SRD	6m / 7p female	6m open wired	132mm	0208871
7" 4Cam CAN SRD	2m Y-split / 4p-7p female	1m open wired	132mm	0209110
12"	4m / 4p female	4m open wired	190mm	0411000
12" 4Cam	2m Y-split / 4p female	2m open wired	190mm	0411040
12" 4Cam Serial	2m Y-split / 4p female	2m open wired	190mm	0411170
12" Serial	6m / 7p female	6m open wired	190mm	0411130
12" CAN	6m / 7p female	6m open wired	190mm	0411200
12" CAN SRD	6m / 7p female	6m open wired	190mm	0411300

4Cam Cable can be used to easily extend your system to display two cameras on one monitor or up to four cameras

per monitor in combination with a Switcher. (see page 26)

CAN Two dedicated wires are suitable for CAN bus communication. CAN SRD Specially designed for RadarEye systems. (see page 24-25)

Serial For serial connection (Zoom cameras, MultiView box).



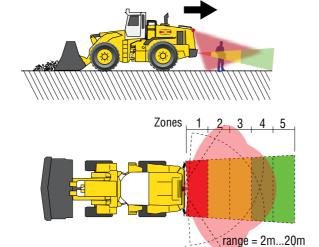
# RadarEye unites visibility and active detection



Orlaco has developed this radar unit in addition to the camera-monitor systems. By combining the vision solution with an active signaling system, RadarEye offers additional safety and efficiency.

RadarEye is an integrated active view system designed to detect and see objects in zones obscured from the driver's view. The radar system detects stationary as well as moving objects in a designated coverage area. With this view system the driver is actively warned with audible tones that increase in rate as objects come closer. When an object is detected it can be seen on the monitor and the driver can respond immediately. This prevents damage to the drivers truck and any other equipment he may reverse into. The radar units have a rugged design, are shockproof, waterproof and is not influenced by the environment, such as snow, rain, mud and or temperature changes.

- · RadarEye can be used on various machines
- RadarEye is capable of visualizing the radar-zones on the display. As soon as an object enters the zone it will activate colored dots (default setting) or a transparent visualization (standard/custom preset settings) to make the driver aware of the potential danger
- 2...20m detection area, divided in 5 equally sized segments
- Separation distance: 1-4m (configurable)
- Antenna beam horizontal: 70°(typ.), vertical: 11°(typ.)
- Operating temperature between -40°C to +85°C
- Obstacle reaction delay 50ms
- Orlaco Monitor CAN SRD is required (see page 23)
- · RadarEye can be extended with multiple sensor and camera units for all around detection and visibility
- · Please contact Orlaco for advice and installation





Check our demo RadarEye videos on the



# RadarEye Sets

#### 0403120 Set SRD Corner Rear

Active Rearview system for corner mounting.

- · Including SRD sensors, brackets and terminator
- Interface Box CAN/SRD/camera is required (0256010 or 0504820)
- · Not including cables, camera and monitor CAN SRD



#### 0403100 Set SRD Center Rear

Active Rearview system for center mounting.

- Including SRD sensors, bracket, cable master-slave (0301080)
- Interface Box CAN/SRD/camera is required (0256010 or 0504820)
- · Not including cables, camera and monitor CAN SRD

# RadarEye Interface boxes

#### 0256010 Interface Box CAN/SRD/camera

The Interface Box is designed to connect SRD sensors to camera and CAN SRD monitor.

### 0504820 Interface Box with Ext. speaker CAN/SRD/camera

The Interface Box is designed to connect SRD sensors to a camera, CAN SRD monitor and external speaker.

- Set consists of: External speaker and Interface Box
- Sound pressure speaker: 85dB (+/-3dB) distance 1m

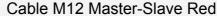


# RadarEye Cables

#### Cable M12 Green

Connection cable between Interface box and master SRD sensor or connection cable between slave SRD sensor and next SRD sensor.

0301050	5m	0301060	10m
0301070	15m	0301120	20m
0301130	25m	0301140	30m



Connection cable between master SRD sensor and slave SRD sensor.

0301080	0,25m	0301020	1m
0301030	4m	0301040	8m
0301090	16m		



# RadarEye Brackets

#### 0401330 Bracket SRD Sensor Corner Rear

Mounting bracket for SRD Sensor for corner mounting.

- · Stainless steel
- · SRD sensor not included

#### 0401320 Bracket SRD Sensor Center Rear

Mounting bracket for SRD Sensor for center mounting.

- · Stainless steel
- · SRD sensors not included

#### RadarEve Parts

Please contact Orlaco for advice.

### 0004310 SRD sensor CAN Horizontal

Short Range Detection (SRD) sensor for integration in active view system (RadarEye).

· Connectors position: Side

#### 0004320 SRD sensor CAN Vertical

Short Range Detection (SRD) sensor for integration in active view system (RadarEye).

Connectors position: Top / Bottom

#### 0350110 M12 Terminator 120 Ohm

120 Ohm resistor for terminating CAN bus.









**Products Products** 



#### **Switchers**

Input and power supply for three cameras and in combination with a Y-split cable: four cameras.

· Cameras can be switched over automatically or manually

#### 0404040 Switcher UNI

- Waterproof IP54 according to IEC 60529
- 4p output for monitor

#### 0404060 Switcher Serial

- Waterproof IP67 according to IEC 60529
- 7p output for monitor
- · Only in combination with a Serial monitor
- Possibility to connect 1 serial Orlaco camera (AF Zoom)

#### 0404080 Switcher UNI IP67

- Waterproof IP67 according to IEC 60529
- 4p output for monitor



- Connect up to 4 cameras (PAL or NTSC) to a third party monitor
- Including 3,85m power cable
- Please contact Orlaco for the appropriate cables

# **Multiview split**

- · Stainless steel housing
- · Serial Orlaco Monitor needed

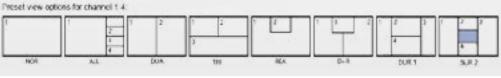
#### 0404110 MultiView box

• 4 camera inputs (4x Compact Camera)

#### 0404120 MultiView box

• 4 camera inputs (3x Compact Camera 1x AF-Zoom Camera)

Default channel 5-









# **Digital MPEG2 video recorder**

0000200 Easysolid Recorder

- CompactFlash storage
- Compact stainless steel housing
- Video loop function
- 10-36V/DC
- Automatic timestamp
- Including 32GB CF-card for max 72 hours of storage and CF-card reader



#### Video distributor

0407000 Orlaco video distributor

For connecting a second and third Orlaco monitor.

- 12V/DC
- · Cables and connectors are not included

#### **Push button**

8975760 Push button yellow

For manually switching between cameras.

# Joystick

### 0506500 Joystick

- · Built-in, IP40
- Operating temperature between -30°C to +75°C
- Telemanique

# Split cable (2m)

#### 0303781 Y-Split cable UNI RLED

- With two 4p female connectors (video) and open wire cable (power)
- For connections 2 to 4 cameras (with Switcher)

# Adapter cables

0304000	Interface ca	ble 4p i	female - 4	Ip female
---------	--------------	----------	------------	-----------

0304050	Interface ca	ıble 4p mal	le - 4p male
---------	--------------	-------------	--------------

	0304210	Interface cable	4p female - 7	'p mal	E
--	---------	-----------------	---------------	--------	---

0304220	Interface cabl	e 4p ma	le - 7p	femal
---------	----------------	---------	---------	-------

0303860 Interface cable 4p female - BNC

0303770 Adapter cable 4p female - Cinch

(if OEM monitor is used)



#### **Connectors**

### 1310841 Connector 4p female Gold

· Recommended for multi cable

# 1312001 Connector 4p male Gold

· Recommended for multi cable

#### 1310850 Connector 4p female PG9 Gold

· Recommended for dynamic and armored cable

# 1312050 Connector 4p male PG9 Gold

· Recommended for dynamic and armored cable

### 0357010 Bulkhead connector

- 4p
- Suitable for lead-through on bodywork







#### **Orlaco IP SmartView**

#### 0060310 Licence Smartview software

View and control of cameras over TCP/IP or a local computer

- Support H.264 digital video codec
- Multiple display settings (full, split, quadviews, 8 and 16 cams
- · Individual camera presets and master presets for controlling multiple PTZ simultaneously
- Sequential camera switcher
- · Motion detection
- Supplied on USB memory stick
- Please contact Orlaco for further information

# **Spectrum Scanner wireless video** transmitter & receiver

- · Including powercable and two adjustable brackets for transmitter and receiver
- · 8 video channels
- Full On Screen Display (OSD) functionality for system settings
- · Please contact your dealer for further advice

#### 0004061 RoundMax 150

- · Omnidirectional antenna with horizontal orientation
- Maximum range 150m (dependent on surroundings)







#### 0004091 LineMax 300

- · Directional antenna with vertical orientation
- Maximum range 300m (dependent on surroundings)





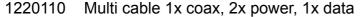


# **Power supply**

0004600 Power supply 9-36V

- · Maximum cable length 200m
- Power input 9-36V/DC
- Power output 12V/DC

# Cable per metre (without connectors)



1220170 Multi cable 1x coax, 5x wires

1220280 Multi cable armored 1x coax, 5x wires

1220350 Multi cable 2x coax, 5x wire

1220600 Dynamic cable 1x coax, 5x wire

1220900 Power cable 7x wire

1222000 Coax cable 75 OHM RG59

Any required connectors can be ordered separately. (page 27)

# **Mounting means**

# 0401260 Quick coupling Compact Camera

For moving the Compact Camera between various objects.

- · Including two attachment plates
- · Stainless steel
- · Compact Camera is not included



#### 0402360 Aerodynamic cover

Cover specially designed for the Compact Camera.

· Stainless steel

# 0402310 Aerodynamic cover + nozzle

Specially designed for the Compact Camera. The nozzle allows high pressure cleaning of the camera lens.

- · Hose and water tank are not included
- · Stainless steel

#### 0402320 Protective cover

Cover specially designed for the Compact Camera.

· Stainless steel housing



# Camera extension brackets

Specially designed for the Compact Camera. Matches the hole pattern of the Compact Camera bracket.

Stainless steel

0402250 Camera extension 155mm

0402270 Camera extension 250mm



# 0403310 Shock-absorbers for Compact Camera

In situations where shock absorption plays a major role, we recommend that the specially developed shock absorbers are used when installing the Compact Camera.



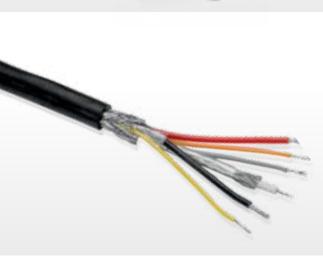
# 0402450 Camera Housing Dome

Ceiling mount for Compact Camera.

- · Aluminium housing
- · Including mounting hardware
- · Compact Camera is not included



**Products Products** 







#### 0401270 Camera bracket

Compact bracket specially designed for the Compact Camera.

- Cap can be resprayed in the color of the vehicle
- · Including mounting kit
- · Compact Camera are not included

0403400 Compact Camera magnet bracket For quick mounting of Compact Camera on steel profiles.

8400610 Compact Camera bracket Assembly set for Compact Camera.



2015700 Adjustable mounting bracket 3/8" UNC

• Length 131mm

2015500 Adjustable mounting bracket

• Length 132mm

2015600 Adjustable mounting bracket

• Length 190mm

2015510 Arm component 90mm

2015800 Arm component 144mm



2015750 Ball joint with connection plate



2015710 Ball joint 3/8" thread



2015900 Ball joint double

#### **ISO Certifications**

All Orlaco products are manufactured according to the latest *Quality Management System Standards*:

ISO/TS 16949 : 2009 ISO 9001 : 2008

Additionally, all Orlaco products are manufactured according to the latest *Environmental Management System Standard*:

ISO 14001: 2004







# **Type-Approval Certifications**

Regulations 10 and 46 are used to determine the Type-Approval for EMC and Indirect Vision (Mirror Directive). R46 describes mirror specifications for truck compliancy. Orlaco Frontview systems meet all these requirements. R10 describes the EMC behavior of the Orlaco Camera and Monitor systems.

#### **TÜV Automotive Certifications**

The European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) demands additional equipment. Orlaco Camera and Monitor systems and connection cables comply with these regulations.

# Compliance

Our Camera and Monitor systems are produced entirely in line with the **CE-marking** and the most recent applicable directives and product standards (e.g. **EMC**, **FCC**, **Machinery**, **R&TTE**). Orlaco products are compliant with **RoHS** and **REACH**.







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It is Orlaco's viewpoint that optimal vision around every vehicle and vessel should be the norm. It provides safety, less damage, comfort and efficiency. *Vision is our mission*<sup>®</sup>. A revealing mission. We develop professional vision solutions for every situation:

















Check our website for all our brochures (pdf).

