

Monitor 7"LEDD

Installation manual
Manual No. IM0973260 A 01

11/2012
English

Art. No: 0208203
0208232
0208371
0208390
0208422
0208440



Monitor 7" LEDD



Safety

In order to guarantee safe operation, these safety instructions must be read before you start using this equipment.

- Do not open the enclosure. This can cause damage, short-circuiting or electrical shocks.
- Do not expose the equipment to extreme temperatures. This can cause deformation of the enclosure or damage to internal components.
- Repairs may only be made by the manufacturer.
- The equipment must be installed as shown in this manual.

Before you start using this equipment, please read this manual carefully and follow all instructions. This installation manual describes the installation of the equipment, outlines the connection options and explains how to put the equipment into operation. We recommend that you keep this manual in a safe place for reference purposes.

If you have any questions or issues concerning the operation of this equipment, consult the relevant section in the manual or contact the Orlaco Products BV Service department.

The camera/display systems from Orlaco comply with the latest CE, ADR, EMC and mirror-directive regulations. All products are manufactured in accordance with the ISO 9001 quality management system, IATF 16949 quality automotive and ISO 14001 environmental management systems



Do not apply voltage to the output power of the monitor!

Contents

	page
1. LEDD variants	3
2. Monitor placement	3
3. Basic system installations	4
3.1 EMC	5
4. Technical specifications	6
5. Assembly, connections and data LEDD	7
6. Maintenance and cleaning	13
7. Disposal	13
8. General terms and conditions	13
9. Version details	14

1. LEDD variants

LEDD Art. No.	Special feature	Mask	Video Cable	Housing / Bracket	Power Cable	Page
Monitor 7" LEDD					2	
0208203		Sun mask	2 metre 4 pin female	w/o bracket	2 metre	7
Monitor 7" LEDD Serial					6	
0208232		Sun mask	6 metre 7 pin female	w/o bracket	6 metre	8
Monitor 7" LEDD CAN SRD					6	
0208371		Sun mask	6 metre 7 pin female	w/o bracket	6 metre	9
Monitor 7" LEDD PL					6	
0208390*		Sun mask	6 metre 4 pin female	w/o bracket	6 metre	10
Monitor 7" LEDD PL					1 D	
0208422*		Sun mask	1 metre 6 pin female D	w/o bracket	1 metre 8 pin male D	11
Monitor 7" LEDD Serial					2	
0208440*		Sun mask	2 metre 7 pin female	w/o bracket	2 metre	12

*Dedicated OEM product, not for sale!

2. Monitor placement (guideline)

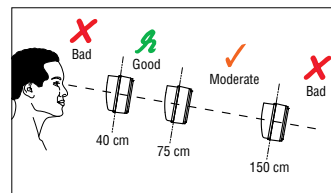
The correct placement of the monitor depends on the type of the vehicle.
Please take note of the following guidelines when installing the monitor.

Obstruction of the field of vision

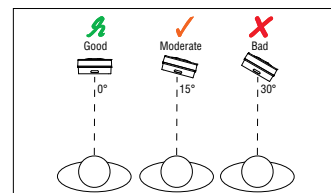
The monitor must be placed in such a way that the field of vision of surrounding traffic and the work area is obstructed as little as possible.

Obstruction of the operation

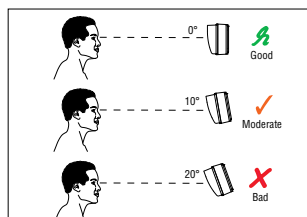
The monitor may not obstruct the basic operation within the vehicle.



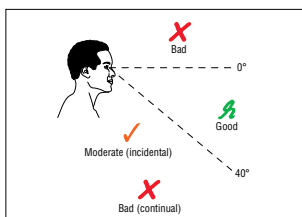
Viewing distance



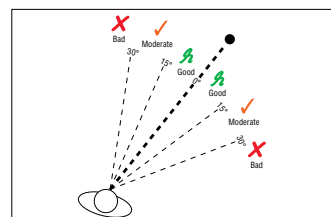
View point on the monitor



View point on the monitor



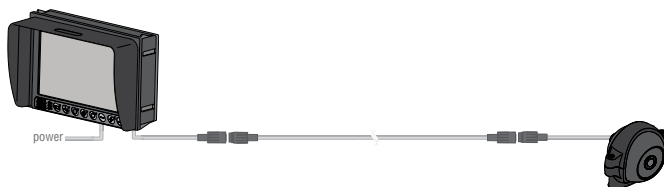
Posture



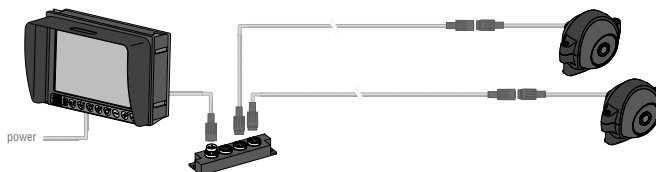
Viewing direction of the monitor

3. Basic system installations

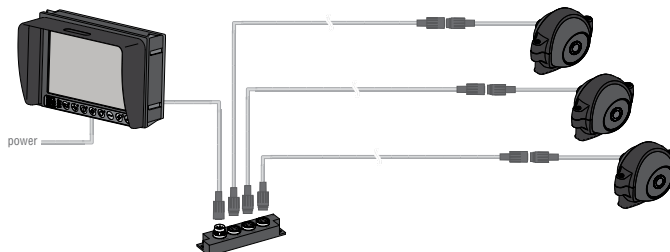
One Camera System



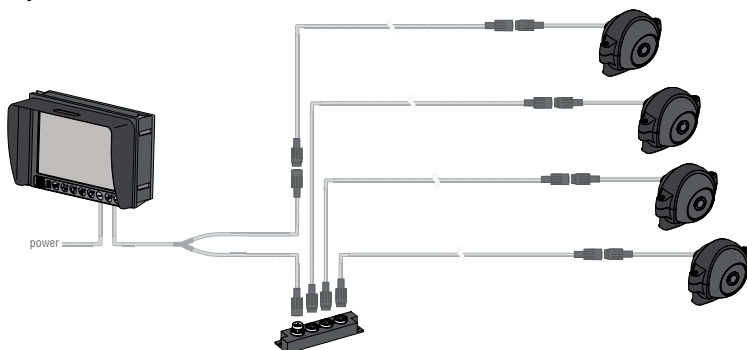
Two Camera System



Three Camera System



Four Camera System



3.1 Electromagnetic compatibility installation instructions (EMC).

Preferred installation

Installation especially for forklifttrucks.

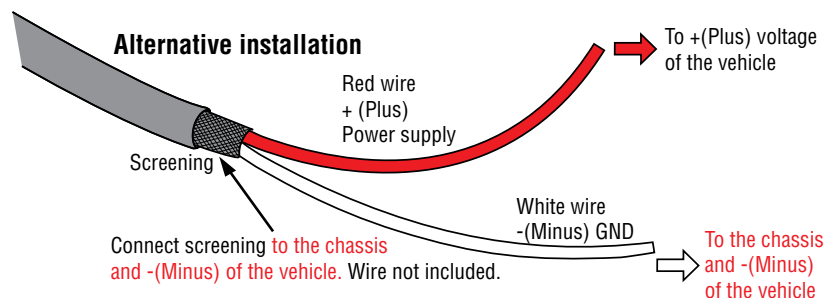
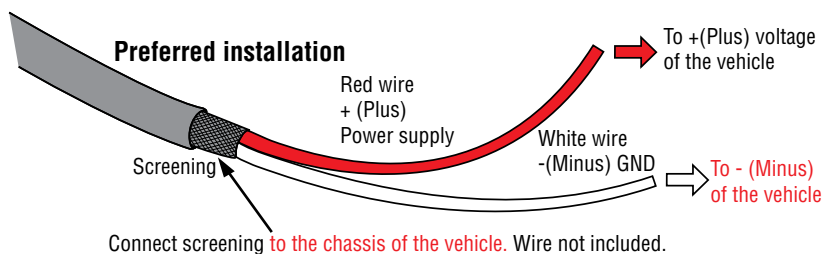
Warning! On vehicles with separated powerwiring like electrical forklifttrucks no other installation is allowed, the screening may **NOT** in any way be connected to the battery:

Color/wire	Function	Vehicle connection:
Red wire	+(plus) powersupply	+(plus) voltage of the vehicle (12..60V/Dc, 5A fuse)
White wire	-(minus) GND powersupply	-(minus) of the vehicle
Screening powercable	Eliminate EMC disturbances	Chassis of the vehicle

Alternative installation

If no separate 0V/minus is available on the vehicle and the minus of the battery is connected to the chassis of the vehicle; connection is as follows:

Color/wire	Function	Vehicle connection:
Red wire	+(plus) powersupply	+(plus) voltage of the vehicle (12..60V/Dc, 5A fuse)
White wire and Screening powercable	-(minus) GND powersupply and EMC	Chassis of the vehicle combined with -(minus) of the vehicle



4. Technical specifications

Type	Automotive 7inch TFT liquid crystal display module LED backlight.
Resolution	WVGA 800xRGBx480 pixels.
Viewing	70° horizontal and 60° vertical (@ CR≥10).
LED Life Time	30000 Hrs.
Typical performance	Center luminance of white: 600cd/m2, Contrast ratio 650:1, Response time 5 ms (Tr).
Software menu **	Full On-Screen-Display (OSD) functionality in 15 languages: English, Dutch, German, French, Czech, Hungarian, Italian, Polish, Portuguese, Spanish, Turkish, Swedish, Finnish, Danish, Norwegian.
ABC mode	Improved Auto Brightness Control (ABC) including one-touch day/night setting and adjustable minimum and maximum levels for automatic control.
Operating temperature	-40°C ..+85°C.
Storage temperature	-40°C ..+125°C.
Electrical *	
Input voltage range	12...60V +/-10%.
Power consumption	Max 12W (only for the monitor, total power consumption depending on cameras and other peripherals)
Protection	>70V overvoltageprotection, <10V undervoltageprotection, protected against loaddumps, spikes and surges, reverse polarity on all wiring.
Power-output	Nominal 2A +/-10% for powering cameras and other peripherals.
Video input	1Vtt, 75Ω, Pal 50 Hz, 4,43MHz color sub carr. NTSC 60 Hz, 3,58MHz color sub carr.
Mechanical	
Surface	Hard coating (3H), with AG LR (Low Reflection) polarizer.
Housing	Color Black, material: aluminium & high impact automotive synthetic thermoplastic polymer.
Shock constancy	Shock and vibration resistant for usage on trucks, cranes, fork-lifts, maritime applications, machinery. Random vibration test 15,3Grms at frequency: 24 to 2000, PSD (g²/Hz) 0,04 to 0,10.
Ingress protection	LEDD: IP54 according IEC60529 (Dust protected, protected against splashing water, 10L /min for 5 min)
Truck use	Withstand all fluids and materials used in and around trucks like: ammonia solution 5%, ethanol 80-100%, isopropanol 5-10%, soapy water (min. 50% soap per volume), alkaline degreasing compounds(used in high pressure washing equipment).
Certification	
Quality & environment	Units are manufactured by Orlaco in the Netherlands; ISO 9001, ISO14001, ISO-TS16949.
Approvals	Approvals In compliance with all relevant EMC- and Automotive directives. Certificates available upon request. This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Green Passport	All materials are compliant to Green Passport requirements according IMO resolution MEPC.197(62) as adopted on 15 July 2011 (Maritime sector: International Maritime Organization concerning the functions of the Marine Environment Protection Committee).

*Different specifications for the Serial displays

Electrical	
Input voltage range:	18...30V +/-10%.
Power consumption:	Maximum 12W.
Protection:	>70V overvoltageprotection, <10V undervoltageprotection, protected against loaddumps, spikes and surges, reverse polarity on all wiring.
Power-output:	For powering cameras and other peripherals. Power-output = input voltage. Output current 2A max.
Video input	1Vtt, 75Ω, Pal 50 Hz, 4,43MHz color sub carr. NTSC 60 Hz, 3,58MHz color sub carr.

** Software menu

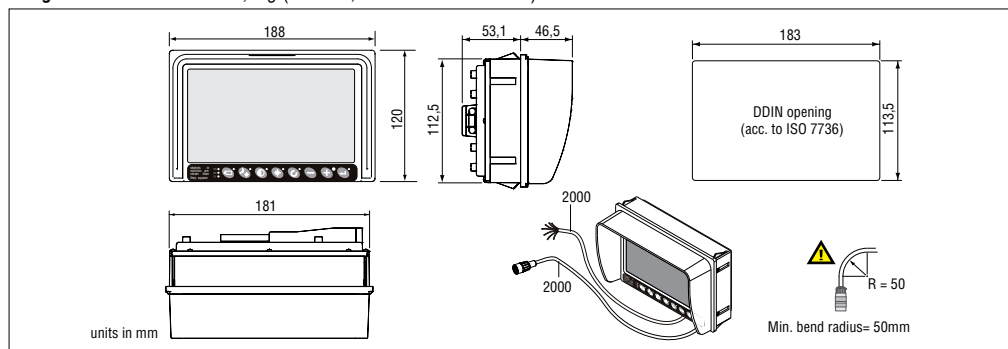
For the Radar Monitor Art. no. 0208371 applies; Software Menu Full On-Screen Display (OSD) functionality in 8 of languages: English, Dutch, German, French, Italian, Polish, Spanish, Swedish.

5. Assembly, connections and data LEDD

Article numbers: 0208203

Cables / Connectors 2m multicable (power) open wired, 2m multicable (video) with 4p molded female connector
Art. No.: 8975171

Weight 1,1kg (monitor, cables and connector)

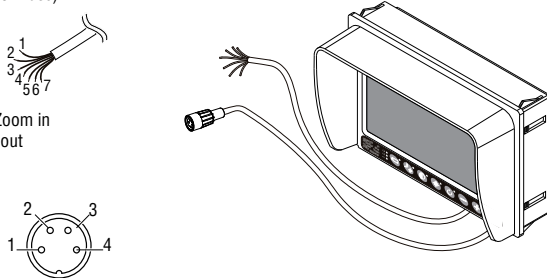


Connections to the monitor: (Secure the power input with a 5A fuse)

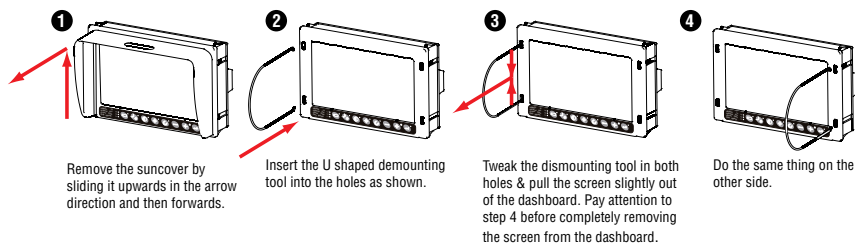
- | | |
|------------------|--|
| 1 = Red | = Power input: 12...60V/DC |
| 2 = White | = Power input: 0V |
| 3 = Blue | = Cam No. 1 activated at 3...60V/DC |
| 4 = Brown | = Cam No. 2 activated at 3...60V/DC |
| 5 = White/Yellow | = Cam No. 3 activated at 3...60V/DC |
| 6 = Grey | = Cam No. 4/Speedometer/Tachograph/Zoom in |
| 7 = Yellow | = Parking Brake (only Front Cam)/Zoom out |

Front side 4p female molded connector:

- | | |
|--------------------|------------------------|
| 1 = Coax core | = Video in |
| 2 = Coax shielding | = Video 0V |
| 3 = Red | = Power output: 12V/DC |
| 4 = Black | = Power output: 0V |
| Shielding | = Ground |



Disassembling of the LEDD monitor (from dashboard):



Connect instructions: Please refer to your Orlaco system documentation or chapter 3 "Basic System Installations".
User instructions: Please refer to usermanual no: UM0972080 for operation.

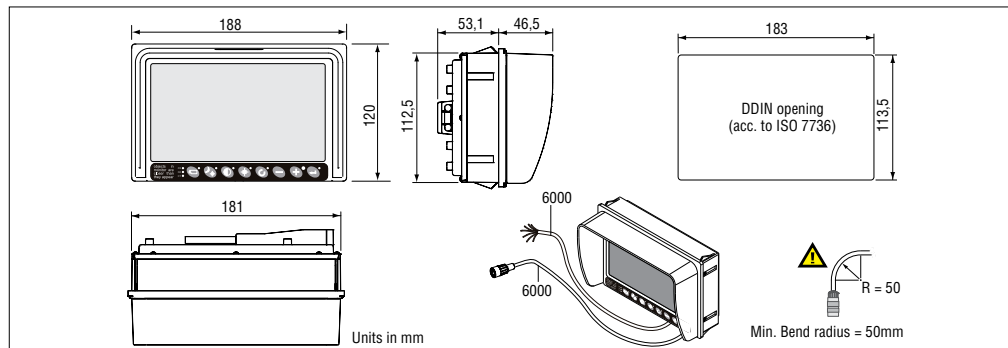
Article number: 0208232

Cables / Connectors

Cable LEDD 6m serial (power) open wired, 6m multicable (video) with 7p female M16 OEM molded connector. Art. No.: 8975180

Weight

1,2kg (monitor, cables and connector)

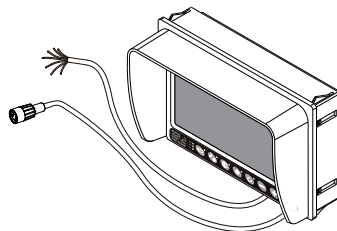


Connections to the monitor: (Secure the power input with a 5A fuse)

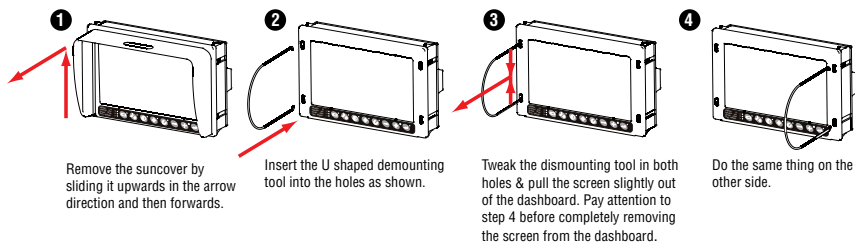
- | | |
|------------------|--|
| 1 = Red | = Power input: 18...30V/DC |
| 2 = White | = Power input: 0V |
| 3 = Blue | = Cam No. 1 activated at 3...60V/DC |
| 4 = Brown | = Cam No. 2 activated at 3...60V/DC |
| 5 = White/Yellow | = Cam No. 3 activated at 3...60V/DC |
| 6 = Grey | = Cam No. 4/Speedometer/Tachograph/Zoom in |
| 7 = Yellow | = Parking Brake (only Front Cam)/Zoom out. |

Front side 7p female molded connector

- | | |
|--------------------|--|
| 1 = Coax core | = Video in |
| 2 = Coax shielding | = Video 0V |
| 3 = Red | = Power output: equal to "Power input" |
| 4 = Black | = Power output: 0V |
| 5 = Orange | = RS232 Rx |
| 6 = Yellow | = RS232 Tx |
| 7 = Grey | = RS232 Rx & Tx 0V |



Disassembling of the LEDD monitor (from dashboard):



Connect instructions:

Please refer to your Orlaco system documentation or chapter 3 "Basic System Installations".

User instructions:

Please refer to usermanual no: UM0972080 for operation.

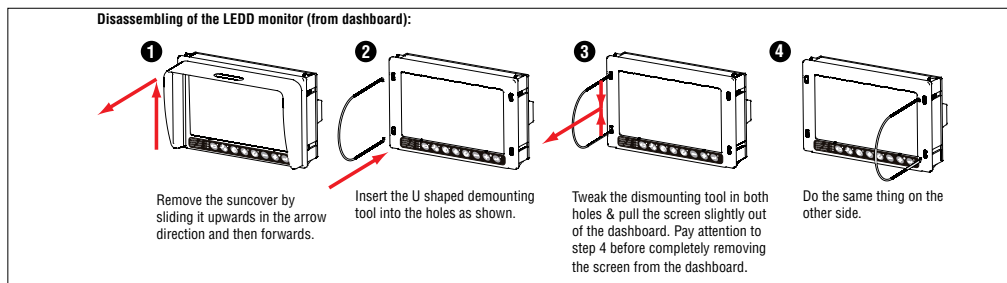
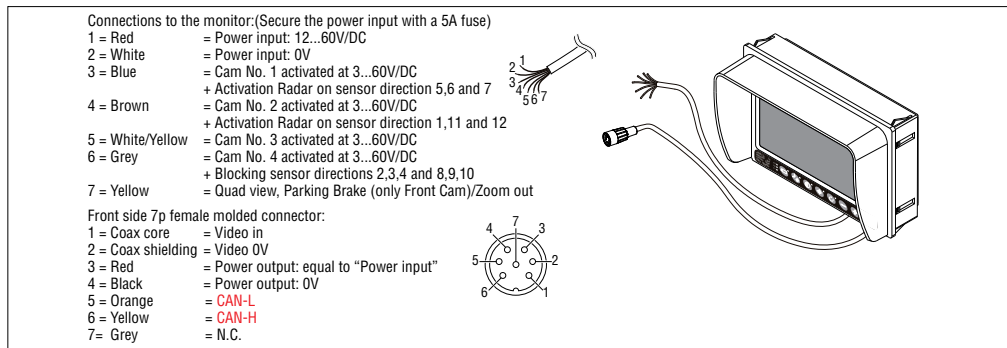
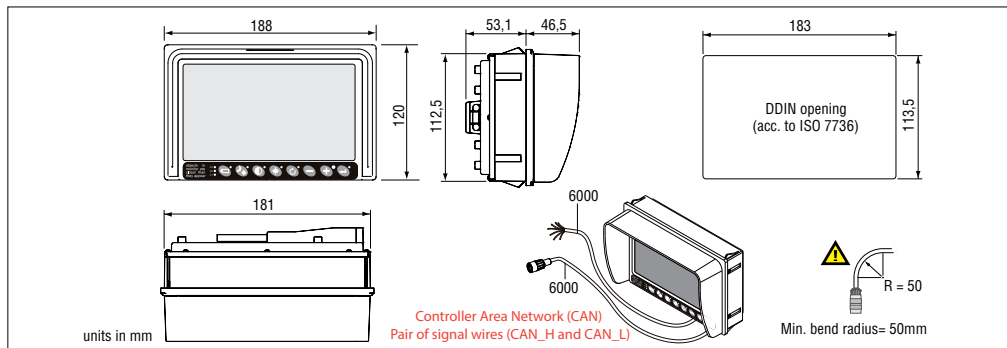
Article number: 0208371

Cables / Connectors

Cable LEDD 6m serial (power) open wired, 6m multicable (video) with 7p female M16 OEM molded connector. Art. No.: 8975180

Weight

1,2kg (monitor, cables and connector)



Connect instructions:

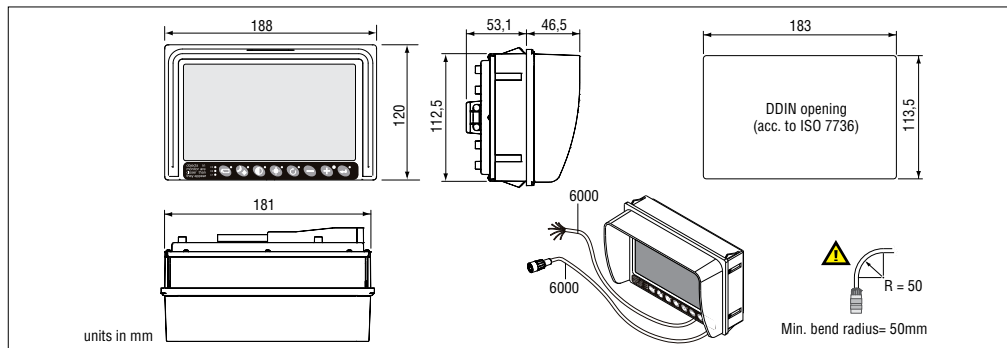
Please refer to your Orlaco system documentation or chapter 3 "Basic System Installations".

User instructions:

Please refer to usermanual no: UM0972080 for operation.

Article number: 0208390

Cables / Connectors	6m multicable (power) open wired, 6m multicable (video) with 4p molded female connector Art. No.: 1001232
Weight	1,2kg (monitor, cables and connector)

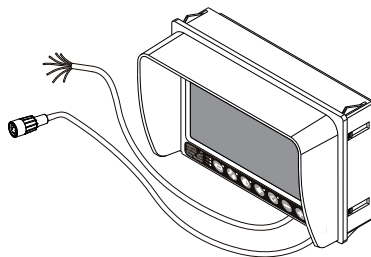
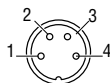


Connections to the monitor: (Secure the power input with a 5A fuse)

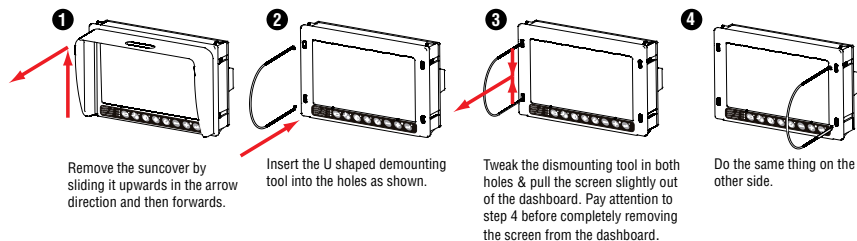
- 1 = Red = Power input: 12...60V/DC
- 2 = White = Power input: 0V
- 3 = Blue = Cam No. 1 activated at 3...60V/DC
- 4 = Brown = Cam No. 2 activated at 3...60V/DC
- 5 = White/Yellow = Cam No. 3 activated at 3...60V/DC
- 6 = Grey = Cam No. 4/Speedometer/Tachograph/Zoom in
- 7 = Yellow = Parking Brake (only Front Cam)/Zoom out

Front side 4p female molded connector:

- 1 = Coax core = Video in
- 2 = Coax shielding = Video 0V
- 3 = Red = Power output: 12V/DC
- 4 = Black = Power output: 0V
- Shielding = Ground



Disassembling of the LEDD monitor (from dashboard):



Connect instructions: Please refer to your Orlaco system documentation or chapter 3 "Basic System Installations".
User instructions: Please refer to usermanual no: UM0972080 for operation.

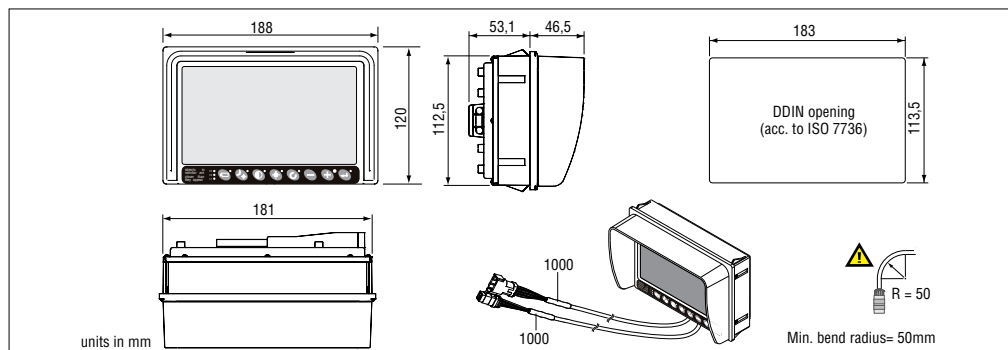
Article number: 0208422

Cables / Connectors

1m multicable (power) with 8p male Deutsch connector, 1m multicable (video) with 6p female Deutsch connector. Art. No.: 8976311.

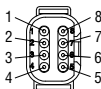
Weight

1,1kg (monitor, cables and connectors).



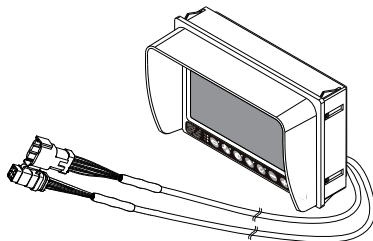
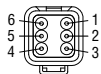
Back side Deutsch 8p male to the monitor:
(Secure the power input with a 5A fuse)

- 1 = Red = Power input: 12...60V/DC
- 2 = White = Power input: 0V
- 3 = Blue = Cam No. 1 activate at 3...60V/DC
- 4 = Brown = Cam No. 2 activate at 3...60V/DC
- 5 = White/Yellow = Cam No. 3 activate at 3...60V/DC
- 6 = Grey = Aux 1
- 7 = Yellow = Aux 2
- 8(B) = Shielding = Ground, connected to 5(A)

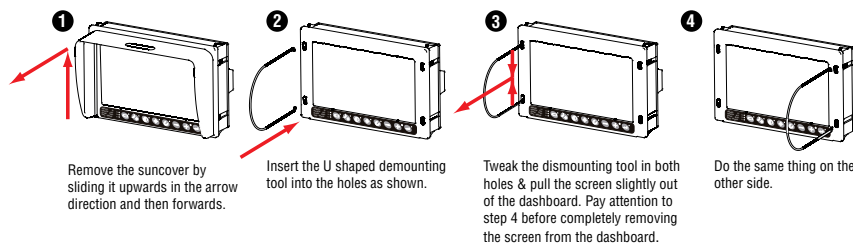


Back side Deutsch 6p female connector:

- 1 = Coax core = Video in
- 2 = Coax shielding = Video 0V
- 3 = Red = Power output: 12V/DC
- 4 = Black = Power output: 0V; connected to 6
- 5(A) = Shielding = Ground, connected to 8(B)
- 6 = Orange = Mirror



Disassembling of the LEDD monitor (from dashboard):



Connect instructions:

Please refer to your Orlaco system documentation or chapter 3 "Basic System Installations".

User instructions:

Please refer to usermanual no: UM0972080 for operation.

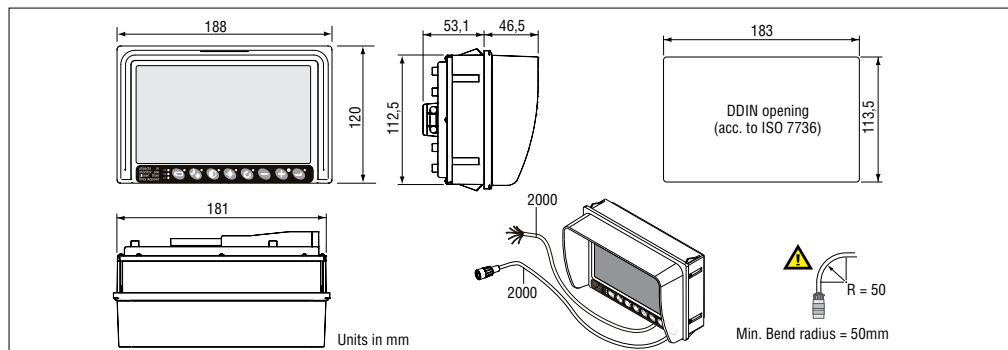
Article number: 0208440

Cables / Connectors

Cable LEDD 2m serial (power) open wired, 2m multicable (video) with 7p female M16 molded OEM connector. Art. No.: 1002051

Weight

1,1kg (monitor, cables and connector)

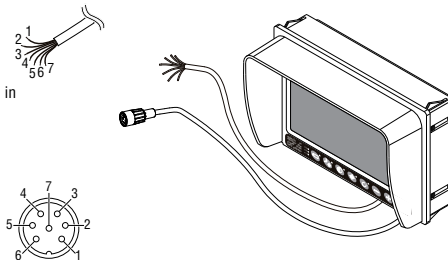


Connections to the monitor: (Secure the power input with a 5A fuse)

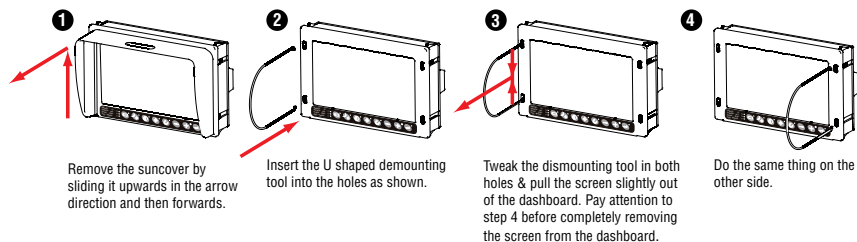
- 1 = Red = Power input: 18...30V/DC
- 2 = White = Power input: 0V
- 3 = Blue = Cam No. 1 activated at 3...60V/DC
- 4 = Brown = Cam No. 2 activated at 3...60V/DC
- 5 = White/Yellow = Cam No. 3 activated at 3...60V/DC
- 6 = Grey = Cam No. 4/Speedometer/Tachograph/Zoom in
- 7 = Yellow = Parking Brake (only Front Cam)/Zoom out.

Front side 7p female molded connector:

- 1 = Coax core = Video in
- 2 = Coax shielding = Video 0V
- 3 = Red = Power output: equal to "Power input"
- 4 = Black = Power output: 0V
- 5 = Orange = RS232 Rx
- 6 = Yellow = RS232 Tx
- 7 = Grey = RS232 Rx & Tx 0V



Disassembling of the LEDD monitor (from dashboard):



Connect instructions:

Please refer to your Orlaco system documentation or chapter 3 "Basic System Installations".

User instructions:

Please refer to usermanual no: UM0972080 for operation.

6. Maintenance and cleaning

First, do not touch the screen with your fingers. The underlying transistors will react to the static electricity in your fingers, or may get damaged by the pressure thus exerted. This will eventually produce dead pixels; tiny, inoperative, or colored dots impairing picture quality.

So take care when cleaning your delicate LCD Screen. Use a high quality and safe foam cleaner and a soft cloth. Do absolutely not use aggressive chemicals or abrasive cleaning agents.

7. Disposal

Disassembly, removal and disposal. Local regulations for dealing with waste must be followed when disposing of disassembled components or entire units.

8. General terms and conditions

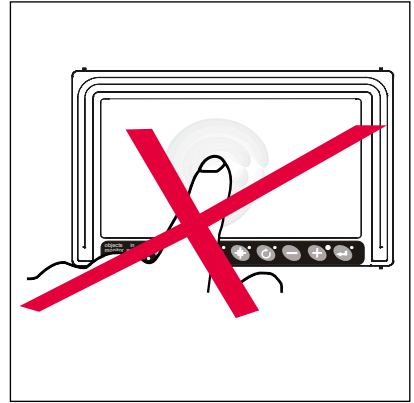
Orlaco Products BV is not liable for damage resulting from inadequate servicing, incorrect usage or alterations made to the equipment without informing the manufacturer in writing.

This installation manual has been made available by Orlaco Products BV. All rights reserved. No part of this manual may be reproduced and/or made public in printed form, in photocopy form or on microfilm, or in any other way, without the prior written permission of Orlaco. This also applies to the associated drawings and figures.

Orlaco reserves the right to make changes to components at any time without informing customers beforehand or directly. All dimensions given are for commercial purposes.

For information regarding repairs that is not covered in this manual, please contact the Orlaco Products BV service department.

This manual has been prepared with all due care and attention. However, Orlaco Products BV cannot be held responsible for any errors in this manual or any consequences thereof.



9. Version details

Version R1-0. First issue November 2012.

Version R1-1. Connections changed Art. No. 0208371, March 2013.

Version R1-2. Chapter 4: Specifications text added, July 2013.

Version R1-3. Monitor Art. No. 0208422 added, December 2013.

Version R1-4. Barcode added, September 2014.

Version R1-5. Chapter 4 Specifications adjusted, April 2015.

Version A 01. Monitor Art. No. 0208440 added, page 12, October 2018.

Orlaco is a Manufacturing company that specializes in making cameras and monitor systems for commercial vehicles, fork-lift trucks, cranes, off shore and maritime.

Our objective is to design and produce camera systems for the professional market that improve the drivers' view and increase operating efficiency.

At our facility in Barneveld we locate our design, manufacturing, warehousing and service department.

Vision is our mission®. Orlaco therefore deploys the development, manufacture, supply and service of camera and Monitor systems that will improve safety and efficiency of all vehicles, machinery and vessels. Our systems give the end user a view on each blind spot and will create comfort and improved working conditions. Our active approach will support market demands and innovations and will lead to enthusiastic ambassadors in the market; our customers.

For more information: www.orlaco.com

