

User Manual

Display

RD19





roda computer GmbH

Landstrasse 6

77839 Lichtenau/Baden

Telefon: +49(0)7227/9579-0

Telefax: +49(0)7227/9579-20

roda Service Center Hüllhorst

Hankamp 2

32609 Hüllhorst

Telefon: +49(0)5744/944-470

Telefax: +49(0)5744/944-475

No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language, or computer language, in any form, or by any means, electronic, mechanical, magnetic, optical, chemical, or other, without the prior written permission of the manufacturer. The manufacturer reserves the right to revise this publication and to make changes to the contents hereof without obligation to notify any person of such revision or changes. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the software described in this manual is sold or licensed "as is". Should the programs prove defective following purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any software defects.

Copyright © 2011 roda computer GmbH Lichtenau, 2011-02-11
Author: Christian Fessler

Version History:

Version	Description	Date	Written by
1.0	Created	11.02.11	C. Fessler
1.1	Updated temperatures	10.06.11	C. Fessler
1.2	Update	01.07.13	C. Fessler
1.3	Update shock specifications	28.05.14	C. Fessler
1.4	Updated temperature values	17.11.15	C. Fessler
1.5	Updated specifications	13.07.18	C. Fessler
1.6	Changed DP-DVI to RD-DVI	26.09.19	C. Fessler

Trademark Acknowledgments

All product and company names are trademarks or registered trademarks of their respective holders.

Conventions

This manual is divided into individual chapter with interdependent contents. If you have experience with the use of computers and/or displays, you may skip individual chapters or directly look up the respective keywords.

Pictures and tables are numbered consecutively.

Keys and key combinations are written in square brackets, e.g., [Ctrl]+[Alt]+[F1] means that you must press Control, Alt and F1 keys simultaneously.

Note

Notes contain important information in connection with the directly related text or chapter.

Attention



You will find Attention notes where data loss or display damage may be the result of non-compliance with this note.

Warning



Warnings inform you that personal damage or damage to the display or individual components thereof may be the consequence or carelessness or non-compliance with the respective warning.

Regulatory information / Disclaimers

Installation and use of this RD19 must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution of the connecting cables and equipment other than manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

Note: Descriptions made in this manual are done for standard RD19. Depending on costumers configuration your device may vary.

CE

Products with the CE Marking comply with both the EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms:

EN 55022 (CISPR 22) Radio Frequency Interference

EN 55024 (EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6,EN61000-4-8,EN61000-4-11,EN61000-3-2, EN61000-3-3) Generic Immunity Standard

LVD EN 60950 (IEC950) Product Safety, IEC 60950-1:2005

Recycling

All materials used in the construction of this unit are recyclable or environmentally friendly. Please recycle the packing materials, and at the end of the computer's life, all other materials in accordance with the local regulations.

Please refer "Material and Recycling" for the contents of the materials.

Note:

- *The equipment may still contain tiny amount of hazardous substances for health and environment, though those are below control level.*
- *To avoid spreading such substances into the eco system, and to minimize the pressure on the environment, you are encouraged to use the appropriate take-back for reusing or recycling most of the materials in a safe way after the service life.*
- *The crossed bin symbol indicates proper disposal is required.*
- *For more information on collection, reuse and recycling, please consult the local or regional waste administration for more information.*

Table of contents

1	Getting Started.....	14
1.1	Introduction.....	14
1.2	View.....	15
1.2.1	Front view.....	15
1.2.2	Rear view.....	16
1.2.3	Connector panel.....	17
1.2.4	Left/right side view.....	18
1.3	Preparing the RD19.....	19
2	Components and Operations.....	22
2.1	Location.....	22
2.2	Ruggedness.....	22
2.3	Displays power supply.....	22
2.3.1	AC/DC adapter.....	23
2.4	Power down.....	23
2.5	Components.....	24
2.5.1	USB HUB.....	24
2.5.2	Heater.....	24
2.5.3	Invisible Mode.....	24
2.5.4	Touch screen (Option).....	25
2.5.5	Interfaces.....	26
3	Specifications.....	28
3.1	Display.....	28
3.1.1	AC/DC adapter (Option).....	29
3.1.2	Options.....	29
3.2	Interfaces.....	30
3.2.1	DC-In (MIL).....	30
3.2.2	USB Interface 2x.....	31
3.2.3	VGA interface (RGB).....	32
3.2.4	RD-DVI.....	33
3.2.5	Invisible Mode.....	34
3.3	Environmental rating.....	35
3.3.1	MIL-STD-810.....	35
3.3.2	IEC IP.....	36
3.3.3	CE.....	36
4	OSD Menu.....	38
4.1	OSD Menu Overview.....	39

4.2	Menu Image Settings	39
4.3	Menu Display Setting	40
4.4	Menu Position Settings.....	41
4.5	Menu OSD Settings.....	41
4.6	Menü Setup.....	42
5	Maintenance and Service	44
5.1	Cleaning	44
5.2	Troubleshooting.....	44
5.3	Service	45
5.3.1	Service Supply Note:.....	46
5.3.2	Downloads	47
Annex	49
Annex A:	List of abbreviations.....	49
Annex B:	Table of power supply connectors for different countries	50
Annex C:	List of figures	51
Annex D:	List of tables	51

CHAPTER 1

Getting Started

1 Getting Started

1.1 Introduction

The 19" display RD19 with a native SXGA Resolution of 1280 x 1024 pixels allows operation under extreme environmental conditions. It was designed according to MIL-STD 810F and offers maximum protection against shock, vibration, dust and humidity. You can find detailed information in chapter 3 Specifications.

Please use this list to check the package contents for completeness. Contact dealer if one or more of the following listed items are not contained in the package. Please note: most accessories are optional and not part of RD19 standard delivery.

- DC/DC cable (optional)
- External AC/DC adapter (optional)
- VGA (RGB) cable (optional)
- DVI cable (optional)
- Customized accessories (optional)
- RD19 display (always part of delivery)



Figure 1: Display

1.2 View

Note: Some functions are optional.

1.2.1 Front view



Figure 2: Front view



Figure 3: Foil keyboard

1. roda Logo
2. Power LED (green=operating mode, red=power connected, flashing green/orange=operating mode - waiting for video signal)
3. Heater LED (red=operating mode, green=ready for operation)
4. Menu Button (activate OSD)
5. Enter Button (confirms selection in OSD)
6. Arrow up Button (navigates in OSD Menu)
7. Arrow down Button (navigates in OSD Menu)
8. Arrow left Button (navigates in OSD Menu)
9. Arrow right Button (navigates in OSD Menu)
10. Power Button (ON/OFF function)
11. Remote Button (Notebook ON/OFF); IMPORTANT: only with roda Notebook/Tablet and DVI cable.

Note: Outside OSD Menu you can use up/down arrows to select input source (DVI or VGA/RGB).

1.2.2 Rear view

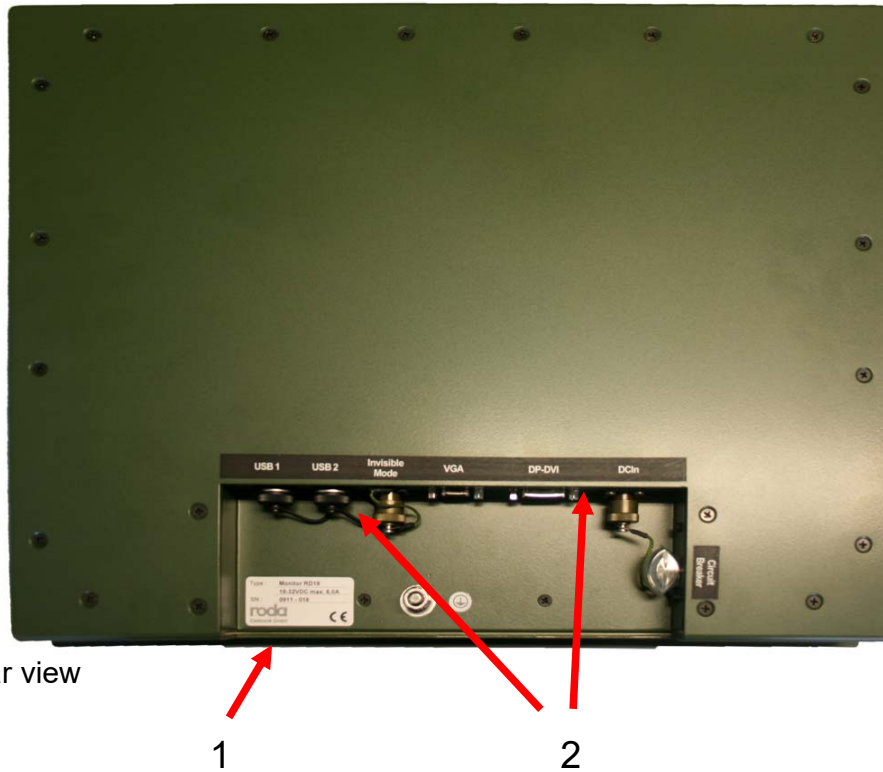


Figure 4: Rear view

1. Serial number label
2. Connector panel (check below)

1.2.3 Connector panel

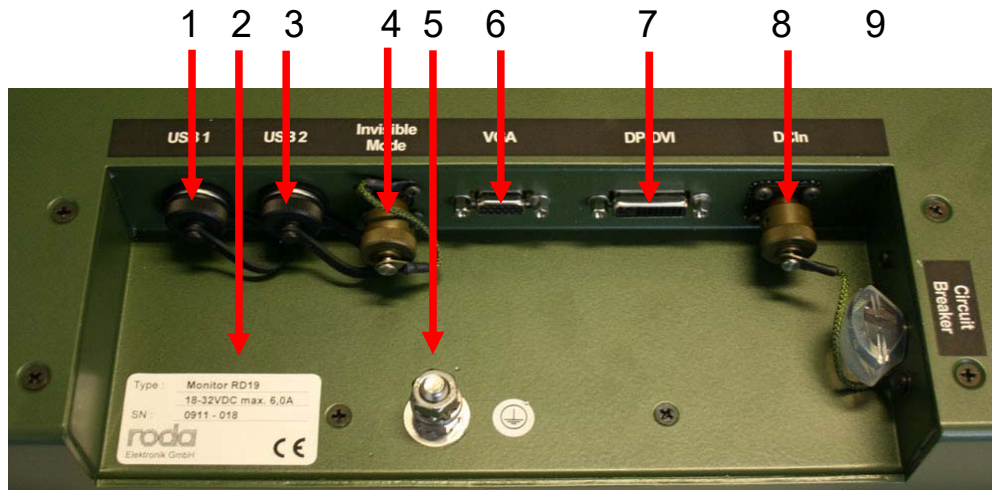


Figure 5: Connector panel

1. USB 1
2. Serial number label
3. USB2
4. Invisible Mode
5. Earthing screw
6. VGA (RGB)
7. RD-DVI
8. MIL DC-In (12V-32V); OPTIONAL: industrial connector
9. Circuit breaker (DON'T use for ON/OFF!)

1.2.4 Left/right side view



1 Figure 6: View left/right

1. Openings for mounting (DIN M8)

1.3 Preparing the RD19

- Unpack RD19. Add any mounting devices if applicable. Screws are not a part of standard delivery.
- Fasten the screws carefully. Damaging the screw threads may be a result of you put too much pressure in the screws.
- Check if circuit breaker is in Position “1” (ON).



Don't use the circuit breaker for ON/OFF purpose. Doing so might reduce the effectiveness of the circuit breaker. Only use the power button to turn the display ON/OFF.

- Connect the line cable with the power-supply unit and plug the plug into the electrical outlet. Plug the DC plug of the power-supply unit into the DC input of the RD19 and lock the connector well clockwise. **OR**
- Connect the DC/DC cable with your 12-32V DC source and the display.

Note: The enclosed line cable complies with the specifications of the country in which the display was purchased. Please ensure that the line cable has been approved for the country in which the notebook will be used. Find further information on country-specific power plug version in the Annex.

- Connect VGA or DVI with your computer. Then connect your computer with your display using the VGA/DVI cable.
- Turn your display ON using the power button. The power LED will light up green.
- If the display shows the message “No signal” activating the corresponding signal source might be necessary. Depending on your used signal source, this can be done via software or hardware settings. For example: if you use a RT/RK/RF roda Notebook, you can activate the VGA signal with the combination “Strg+Alt+F1” or via the graphics driver.



The graphical output during POST can vary and depends on BIOS settings. It is possible that you need to boot up an operating system in order to use your display.

Note:

- *If ambient temperature is below operating temperature, may not start immediately.*
- *If the device is equipped with a heater, the heater will start and heat up the device.*
- *After reaching the required temperature, the display will start automatically.*

CHAPTER 2

Components and Operations

2 Components and Operations

2.1 Location

A clean and moisture-free environment is preferred. Make room for air circulation.

Avoid areas with:

- Sudden or extreme changes in temperature.
- Extreme heat.
- Strong electromagnetic fields (near television set, motor rotation area, etc.).
- Dust or high humidity.

If it is necessary to work in a hostile environment, please regularly maintain your display by cleaning dust, water, etc. to keep it in optimal condition.

2.2 Ruggedness

The display is designed with rugged features as vibration, shock, dust, and rain/water protection. However, it is still necessary to provide appropriate protection while operating in harsh environments. NEVER immerse the display completely in water. Doing so may cause permanent damages. Drop may cause parts break or permanent damages.

The I/O ports and devices must have caps tightly closed or cable inlets sealed while exposed to water or dust.

All connectors will corrode if exposed to water or moisture. Corrosion is accelerated if the power is ON. Please take proper measures in cable connection to avoid water entering into connectors. The DC jack and cables are sealed and may be operated with water splashing while attached. All port covers should be in place when no cable is attached.

2.3 Displays power supply

You can power the display via AC/DC adapter or DC cable.

2.3.1 AC/DC adapter



Figure 7: AC/DC adapter (design may vary)

The enclosed mains adapter automatically adjusts to the line voltage of the respective country. Make sure you have the correct country-specific power-plug version (see Annex B).



For power supply, only use original manufacturer parts provided for this display. Otherwise you may cause damage to the display and/or externally connected peripherals. Moreover, the manufacturer's warranty will forfeit if you ignore these instructions.

2.4 Power down

To power down the display, press the power button. The power LED switches from green to red.

2.5 Components

2.5.1 USB HUB

The integrated USB hub can manage the two USB interfaces. The hub can be connected with a PC using a RD-DVI interface.

2.5.2 Heater

In environments with low temperatures, the heater can be useful to accelerate operational readiness. The heater starts automatically. After reaching operating temperature, heater will reduce heating and keep the temperature constant. The display starts working.

2.5.3 Invisible Mode

In Invisible Mode, brightness of the display is reduced to settable % of max brightness without any delay. The value can be set in OSD Image Settings → Advanced → Brightness Settings. Brightness 1 value will set backlight brightness in normal mode, Brightness 2 will set brightness in Invisible Mode. With a wire contact Invisible Mode can be activated. You can also set brightness of the current mode in die Image Settings main menu. If you are operating in standard mode, standard brightness will be adjusted, if you are operating in Invisible Mode, Invisible Mode brightness will be adjusted.



Figure 8: Advanced brightness settings



Wire contact is open by default (standard mode).

2.5.4 Touch screen (Option)

The RD19 can be equipped with a USB touch screen. The touch screen can be operated with the use of a RD-DVI. Use a stylus pen to handle the touch screen. Operating the touch screen with your fingers may contaminate the touch screen and decrease the quality. In order to use the touch screen, the touch screen drivers have to be installed on the connected computer.

+

DVI, TSC-10 Series on Whole Desktop
Bitte jeweils die Mitte der Kreuze berühren

Figure 9: Touch screen calibration

Touch screen usage:

- Single Click:** Tap the touch screen with the stylus pen gently.
- Double Click:** Tap the touch screen quickly twice with the stylus pen.
- Drag and Drop:** Tap and hold the object with the stylus pen and move to the destination you want (drag). Leave the stylus pen from the touch screen once you finished dragging (drop).

You can change the touch screen settings using the touch screen driver software.

2.5.5 Interfaces

The standard RD19 display is equipped with several interfaces:

USB

2 USB 2.0 interfaces. Those interfaces are standard USB 2.0 interfaces and are USB 1.1 compatible.

Invisible Mode

Next to the USB interfaces is the Invisible Mode interface. You can apply a wire to trigger Invisible Mode.

VGA (RGB)

You can use any commercial VGA cable to connect to any standard VGA source.

RD-DVI

You can connect any single link DVI signal source with the RD-DVI interface. Additionally you can connect other RD-DVI signal sources to use DVI, USB and Remote ON/OFF function.



Don't use a dual link signal source together with a dual link DVI cable and a RD-DVI interface. This can cause malfunctions and damages. Use a single link DVI cable instead.

DC-In (power supply)

DC connector for AC/DC adapter, DC cable or DC/DC adapter.



Only use these interfaces with the devices designed to be connected to DC-In Interface.

CHAPTER 3

Specifications

3 Specifications

3.1 Display

Component	Display RD19
Size	19" (48,2 cm)
Resolution (max.)	SXGA 1280 x 1024 Pixel
Pixel size	0.294 mm
Luminance*	typ. 350 cd/m ² ca. 230 cd/m ² with EMI + TS
Contrast	1000:1
Reaction time	10 ms (tf+tr)
Angle of view	Horizontal 170° Vertical 160°
Displayable Colors	16.7 Mio.
Interfaces	DC-In, VGA, RD-DVI, 2x USB 2.0, Invisible Mode
H-Frequency	64-81 Hz
V-Frequency	60-76 Hz
Life cycle: LED	50 000 h
Power supply	12-32V, Nominal 24V max 30W, (85W with Heater)
Operating temperature	-20° to + 55°C
Storage temperature	-40° to + 71°C
IP	IP54, front side IP65
Color	Nato green (RAL6031 matt)
Dimensions (W x H x D)	480 x 405 x 77.5 mm
Weight	Ca. 10.7kg
Environment	MIL-STD 810F for vibration und shock (with vibration kit), humidity, salt fog (see 3.3.1)
EMI	Designed to meet MIL-STD 461F
CE	EN55022 und EN55024
Product safety	EN60950
VG	VG96916 T5 (DC/DC operation)

Table 1: Components display

* Be aware, options like EMI glass or touch screen will further reduce brightness

3.1.1 AC/DC adapter (Option)

Features	<p>Input voltage: AC 100V ~ 240V 50/60Hz (47Hz~63Hz)</p> <p>Output voltage: DC 19V ± 1V, max. 90W</p> <p>Also complies with military power source 100V ~ 240V 400Hz</p> <p>Dimensions: 139.5mm x 62.8mm x 31.2mm</p> <p>Weight: 510g</p>
-----------------	--

Table 2: AC/DC adapter

3.1.2 Options

Components	RD19
Touch screen	Available
DC cable	Available
AC/DC adapter	Available
EMI glass	Available
Vehicle-DC/DC adapter	Available

Table 3: Options

3.2 Interfaces

3.2.1 DC-In (MIL)

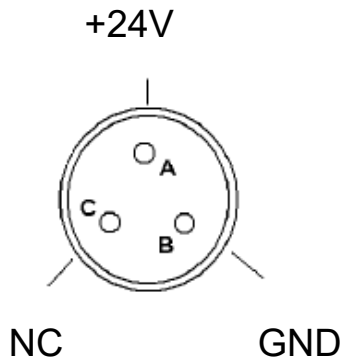


Figure 10: DC MIL

Machine side: Amphenol 62GB-12E08-33PN

Mating plug: 62GB-56T08-33SN

Pin assignment:

Signal	Description	Pin
24V DC	Power supply 24V	1/A
24V DC	Masse	2/B
N/C	N/C	3/C

Note: 24V nominal voltage

3.2.2 USB Interface 2x

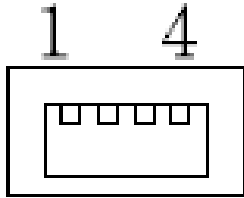


Figure 11: USB interface

Machine side: USB A jack

Mating plug: USB A plug

Pin assignment:

Signal	Description	Pin
VCC	Power supply 5V	1
D-	Data -	2
D+	Data +	3
GND	Masse	4

Table 4: USB Type A interface

3.2.3 VGA interface (RGB)

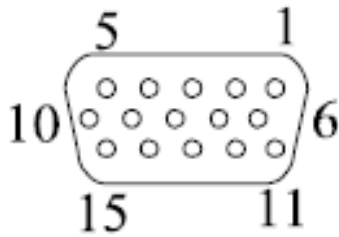


Figure 12: VGA interface

Machine side: Sub D-15 jack
Mating plug: Sub D-15 plug

Pin assignment:

Signal	Description	Pin
RED	Red*	1
GREEN	Green or Monochrome signal*	2
BULE	Blue*	3
GND	Ground	4
GND	Ground	5
GND	Ground Red	6
GND	Ground Green	7
GND	Ground Blue	8
GND	Ground	9
GND	Ground for Sync signal	10
GND	Ground	11
SDA	Serial Data	12
BHSYNC	H-Sync.	13
BVSYNC	V-Sync.	14
SCL	Serial Clock	15

Table 5: Pin assignment VGA interface

* Level: 0,7V_{ss}@75 Ohm

3.2.4 RD-DVI

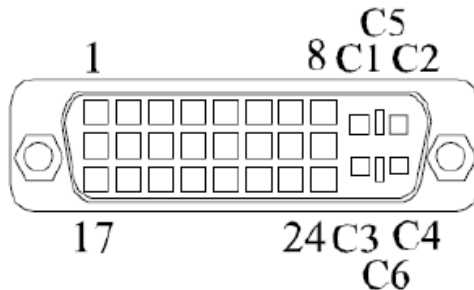


Figure 13: RD-DVI

Machine side: dual link DVI jack

Mating plug: dual link or single link DVI plug

Pin assignment:

Signal	Description	Pin
TX2- (R)	Data 2 -	1
TX2+ (R)	Data 2 +	2
GND	Shielding Data 2,4	3
PWR SW	Power Switch	4
NC	N/C	5
DDC-CLK	DDC Clock	6
DDC-DATA	DDC Data	7
NC	N/C	8
TX1- (G)	Data 1 -	9
TX1+ (G)	Data 1 +	10
GND	Shielding Data 1,3	11
Speaker L	Speaker left	12
Speaker R	Speaker right	13
+5V (Vcc)	5V power supply/max 50mA	14
GND	Ground for 5V	15
+5V (Vcc)	Hotplug-Detect	16
TX0- (B)	Data 0 -	17

Signal	Description	Pin
TX0+ (B)	Data 0 +	18
GND	Shielding Data 0, 5	19
USB-	USB Data -	20
USB +	USB Data +	21
GND	Shielding Clock	22
TXC+	Clock +	23
TXC-	Clock -	24
NC	N/C	C1
NC	N/C	C2
NC	N/C	C3
GND	Ground	C4
GND	Ground	C5

Table 6: RD-DVI

3.2.5 Invisible Mode

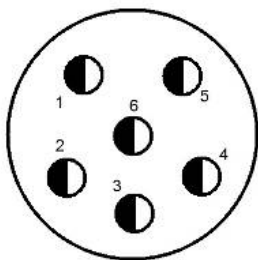


Figure 14: Invisible Mode

Machine side: SJT00RT-08-35SN014 jack

Pin assignment:

Signal	Description	Pin
8.5V DC	Invisible Mode	1
GND	Ground	2
N/C	N/C	3-6

Table 7: Invisible Mode

3.3 Environmental rating

3.3.1 MIL-STD-810

Item	Criteria
Humidity	<p>According to MIL-STD-810G, Method 507.5, Procedure II Figure 507.5-7, Table 507.5-IX</p> <ul style="list-style-type: none"> Operating: (Aggravated) 24 hours/cycle, total of 10 cycles Between 30°C (86°F) and 60°C (140°F) with the relative humidity at 95% constant)
Vibration	<p>According to MIL-STD-810G, Method 514.6, Procedure I Category 24</p> <p>According to MIL-STD-810G, Method 514.6, Procedure I Category 20 Ground Vehicles</p> <ul style="list-style-type: none"> Operating: see Figure. 514.6C-3 und table 514.6C-VII
Shock	<p>According to MIL-STD-810G, Method 516.6</p> <ul style="list-style-type: none"> Non-Operating: see Figure. 516.6-10, table 516.6-II, 40g, 11ms, saw tooth shock pulse
Temperature	<p>According to MIL-STD-810G, Method 501.5 und 502.5, Procedure I, II</p> <ul style="list-style-type: none"> Operating -20°C to +55°C Non Operating: -40°C to +71°C

Table 8: MIL-STD-810

Note: Other certifications possible on request

3.3.2 IEC IP

Standard	Parameter
IEC 60529 IP5x IP6x (front) Dust-tight	Powder type: Talcum Dust quantity: 2kg Chamber size: 1m ³ Test duration: 8h
IEC 60529 IPx4 IPx5 (front) Water spray (water jet)	Tube radius: 400mm Water flow: 1.8l/min Number of open holes: 25 Test duration: 10min

Table 9: Ingress protection

3.3.3 CE

- EN61000-6-4
- EN61000-6-2
- EN60950
- EN55022:2008 Class B
- EN61000-3-2:2010-03
- EN61000-3-3:2008
- EN55024:1998 + A1:2001 + A2:2003 (EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11), Part 2-6, 8 and 11

CHAPTER 4

OSD Menu

4 OSD Menu

By pressing the Menu Button you can activate the On Screen Display (OSD). The OSD enables you to set up your display. Those settings are independent from the signal source and are stored on the display itself. Enter button confirms your selection, with the Menu button you can go back.

Note: Design of OSD Menu may vary depending on display version. Standard functions are always available though.

Overview:

1. Press the Menu Button, to access OSD Menu.
2. Navigate with the arrow buttons and confirm your selection with Enter.
3. In any submenu you can make your selections/settings with the arrow buttons.
4. Confirm your changes with the Enter button.
5. Press Menu Button to exit a sub menu.
6. Press Menu Button again to exit the OSD.
7. OSD Menu will be closed if there is no input for several seconds.

Note: Depending on signal source OSD will change slightly. Only useful options for the current signal source are available.

4.1 OSD Menu Overview

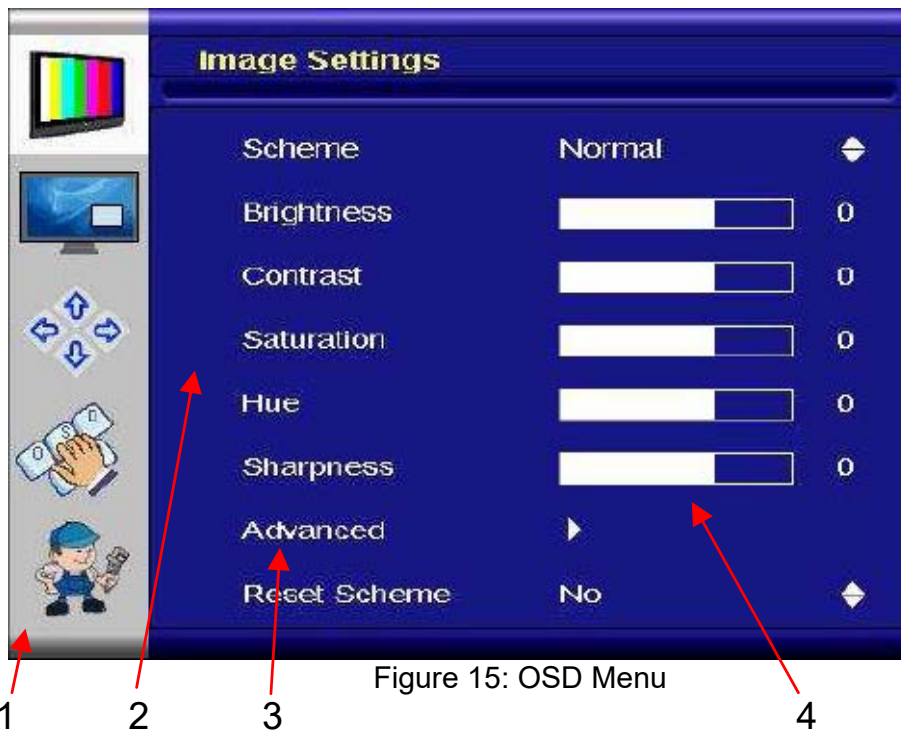


Figure 15: OSD Menu

1. Sub menu selection
2. Options of selected sub menu
3. Advanced Options (opens additional window, see 2.5.3)
4. Current value of option

4.2 Menu Image Settings



Figure 16: Display Menu

You can control the image with the help of the „Image Settings“ menu. For example you can set brightness, saturation, contrast etc. You can change the brightness settings for standard and Invisible Mode in the advanced brightness settings menu. Brightness 1 will change standard brightness, Brightness 2 will change Invisible Mode brightness (see chapter 2.5.3).

4.3 Menu Display Setting

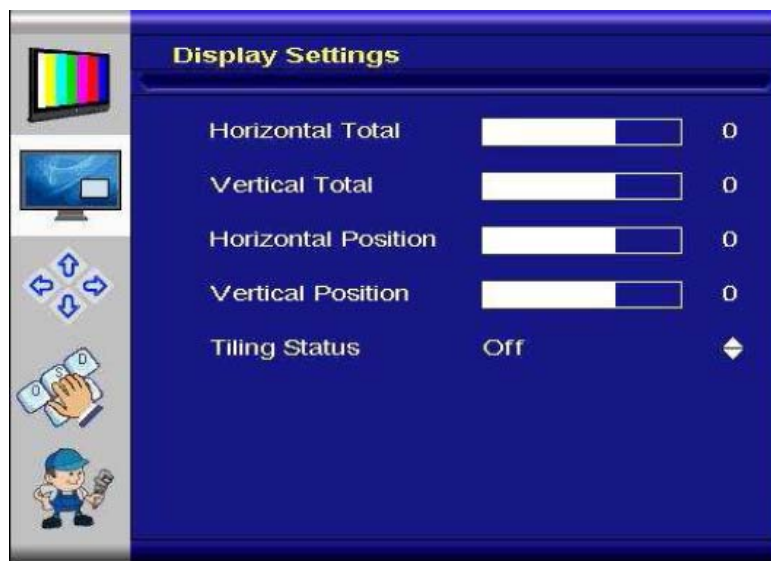


Figure 17: Display Settings Menu

Tiling function and position of PiP can be adjusted in the “Display Setting” Menu.

4.4 Menu Position Settings



Figure 18: Position Settings Menu

You can adjust the position of the picture in the Position Settings“ Menu. If you use VGA an auto adjustment option is available.

4.5 Menu OSD Settings

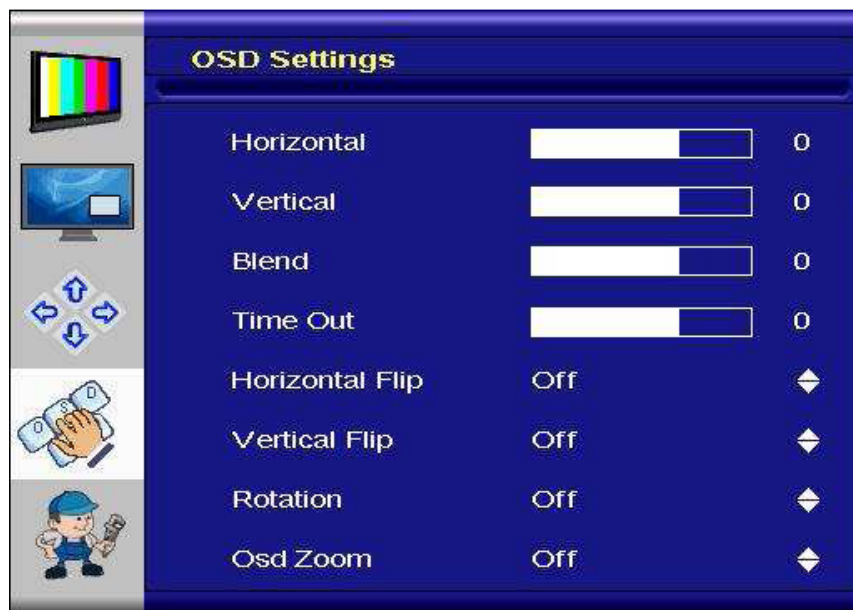


Figure 19: OSD Settings Menu

You can change size and position of the OSD via the “OSD Settings” Menu.

4.6 Menü Setup



Figure 20: Setup Menü

With the help of the “Setup” Menu you can check current picture information and firmware version. You also can reset the options to factory values.

CHAPTER 5

Maintenance and Service

5 Maintenance and Service

5.1 Cleaning

ALWAYS turn OFF the power, unplug the power cord and remove the battery before cleaning. The exterior of the system and display may be wiped with a clean, soft, and lint-free cloth. If there is difficulty removing dirt, apply non-ammonia, non-alcohol based glass cleaner to the cloth and wipe. An air gun is recommended for cleaning water and dust. For salty water please clean with fresh water then blow-dry with an air gun. Be sure not to turn the display up side down while there is water being applied.

5.2 Troubleshooting

Should the display fail to function properly, the troubleshooting steps below may be followed.

- Check AC/vehicle adapter, battery, and the power source.
- Check OSD settings (i.e. brightness settings).
- Minimize the configuration, i.e., remove extra peripherals and devices.
- Remove the software suspected.
- Re-install operating system and application software.

5.3 Service

If troubleshooting steps are unsuccessful, consult your dealer for service.

If they can not help you please call roda Service Center.

Service address: roda Service Center Hankamp 2 32609 Hüllhorst Phone.: +49 5744-944 470 Fax: +49 5744-944 475 E-Mai: support@roda-computer.com	Service: Mon – Thu 8:30 am - 12:30 pm & 1:00 pm - 4:30 pm Fri 8:30 am - 12:30 pm & 1:00 pm - 3:00 pm
---	--

Note: The roda Service Center needs a detailed description of the problem and the serial number of the device.

If it is necessary to send in your display for repairs, you can download a service waybill (Service Supply Note) on the roda homepage (www.roda-computer.com), which you have to fill in.

5.3.2 Downloads

Check our website (www.roda-computer.com) for downloads:

- Updates
- Drivers
- Manuals
- Service Supply Note

Annex

ANNEX

Annex

Annex A: List of abbreviations

A	Ampere (unit)
AC	Alternating Current
BIOS	Basic Input Output System
C	Celsius (unit)
CD	Compact Disk
cd	Candela (unit)
CE	Conformité Européene
CRT	Cathode Ray Tube
CVBS	Colour Video Blanking Signal
DC	Direct Current
D-sub	D-subminiature (Sub-D)
DVI	Digital Visual Interface
EMV	Elektro-Magnetische Verträglichkeit
EN	Europäische Norm
F	Fahrenheit (unit)
FCC	Federal Communication Commission
GHz	Giga-Hertz (unit)
GND	Ground
Hz	Hertz
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
I/O	Input/Output
IP	Ingress Protection
kHz	Kilo-Hertz (unit)
LCD	Liquid Crystal Display
LED	Light Emitting Diode
mAh	Milliampere Hour (unit)
MHz	Mega-Hertz (unit)
OSD	On Screen Display
PC	Personal Computer
POST	Power On Self Test
RD	Ruggedised Display
RGB	Red Green Blue (Video signal)
TÜV	Technischer Überwachungs Verein
UL	Underwriters Laboratories
USB	Universal Serial Bus
V	Volt (unit)

VGA Video Graphics Adapter
W Watt (unit)

Annex B: Table of power supply connectors for different countries

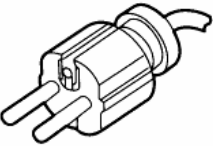
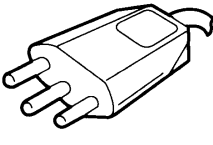
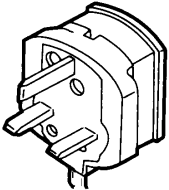
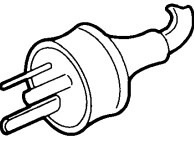
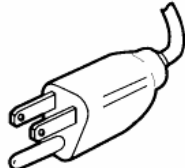
Version	Country/region	Technical data
	Europe	230V, 50Hz, 6A
	Switzerland	220V, 50Hz, 6A
	Great Britain	240V, 50Hz, 6A
	Australia	240V, 50Hz, 6A
	North America	120V, 60Hz, 7A

Table 10: Table of power supply connectors

Annex C: List of figures

FIGURE 1: DISPLAY	14
FIGURE 2: FRONT VIEW	15
FIGURE 3: FOIL KEYBOARD	15
FIGURE 4: REAR VIEW	16
FIGURE 5: CONNECTOR PANEL	17
FIGURE 6: VIEW LEFT/RIGHT	18
FIGURE 7: AC/DC ADAPTER (DESIGN MAY VARY)	23
FIGURE 8: ADVANCED BRIGHTNESS SETTINGS	24
FIGURE 9: TOUCH SCREEN CALIBRATION	25
FIGURE 10: DC MIL	30
FIGURE 11: USB INTERFACE	31
FIGURE 12: VGA INTERFACE	32
FIGURE 13: RD-DVI	33
FIGURE 14: INVISIBLE MODE	34
FIGURE 15: OSD MENU	39
FIGURE 16: DISPLAY MENU	39
FIGURE 17: DISPLAY SETTINGS MENU	40
FIGURE 18: POSITION SETTINGS MENU	41
FIGURE 19: OSD SETTINGS MENU	41
FIGURE 20: SETUP MENÜ	42
FIGURE 21: SERVICE SUPPLY NOTE	46

Annex D: List of tables

TABLE 1: COMPONENTS DISPLAY	28
TABLE 2: AC/DC ADAPTER	29
TABLE 3: OPTIONS	29
TABLE 4: USB TYPE A INTERFACE	31
TABLE 5: PIN ASSIGNMENT VGA INTERFACE	32
TABLE 6: RD-DVI	34
TABLE 7: INVISIBLE MODE	34
TABLE 8: MIL-STD-810	35
TABLE 9: INGRESS PROTECTION	36
TABLE 10: TABLE OF POWER SUPPLY CONNECTORS	50

