



Manual

DeltaVarioMon8,4" Type 3

DMXC1132-1

DeltaVarioMon 8,4" Typ 3 SVGA with Touch,Hub&Sound
Monitor 1.600cd/m², LED -Motion Metrics- without Poti



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1 Federal Communications Commission (FCC) Statement

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



2 User information

1.1 Revision History

Product version	Documentation version	Date	Modifications
V 1.0	V 1.0	December 2022	FCC compliance test

1.2 Preface

This document has been created for the users of the *DeltaVarioMon*. It contains Information about hardware and software that is supplied with the system. There is no guarantee for accuracy and completeness. DELTA COMPONENTS GmbH reserves the right to make changes to this manual without notice. DELTA COMPONENTS GmbH assumes no liability for incidental or consequential damages incurred in connection with the use of the *DeltaVarioMon* or the described software in this manual.

1.3 Exclusion of liability

All information and products in this manual can be changed. A possible modification does not require notification. Please read this manual and in particular the safety regulations and guidelines before using the system completely.

1.4 Copyright 2022

No part of this document may be reproduced, transmitted, transcribed, and stored in a retrieval system, in any form or by any means, electronic, mechanical, optical, manual, or otherwise, without the prior written permission of DELTA COMPONENTS GmbH.

The software described herein, together with this document, are furnished under a license agreement and may be used or copied only in accordance with the terms of that agreement.

1.5 Trademarks

DELTA COMPONENTS and the DELTA COMPONENTS Logo are registered trademarks of DELTA COMPONENTS GmbH. The data used in this manual are trademarks and registered trademarks of their respective owners.

1.6 Environmental standard

This product has been developed and produced in accordance with relevant environmental guidelines. Many of the components (housing parts, printed circuit boards, connector, batteries etc.) can be recycled. The final disposal of the equipment shall be performed in accordance with the applicable regulations of the country in which the disposal is made.

1.7 Signs and symbols

This manual is provided for better and faster understanding at the right edge of text with different characters. The following table contains the declarations of the characters:

Signs	Explanation
 Attention! Electricity! Danger by electrical shock	This symbol and title warn of hazards due to electrical shocks when touching products or parts of them. Failure to observe the precautions indicated and/or prescribed by the law may endanger your life/health and/or result in damage to your material.
 Attention! ESD sensitive device!	Electronic boards and their components are sensitive to static electricity. Therefore, care must be taken during all handling operations and inspections of this product, in order to ensure product integrity at all times.
 Note!	This symbol and title emphasize aspects the reader should read through carefully for his or her own advantage.



1.8 Safety regulations

Your new product of DELTA COMPONENTS GmbH has been carefully designed and tested to ensure a long and flawless work. The *DeltaVarioMon* is not a consumer product. The connection and commissioning must be performed by a trained professional.

Only a special purpose installation and connection of the *DeltaVarioMon* in specified use environments, enabling trouble-free operation. For your own safety and the proper work with the new DELTA COMPONENTS GmbH products following safety precautions have to be observed:

- **Precautions against electrostatic discharge**

Electronic circuit boards and components are protected against static electricity. Especially when unpacking and initial operation be aware of an unwanted static discharge (ESD). When working on the device, especially when connecting cables, always pay attention on an ESD-compliant work environment.



- **No use of faulty equipment**

Before commissioning of the device please check that everything is OK. The use of defect parts may endanger persons and property damage (electrical shock, short circuit). Therefore, defect or damaged equipment should never be used. In this case, our customer service will help you with any questions (support@delta-components.de).



- **Installation when the device is turned off.**

Before installation the device should be turned off.

- **Power supply.**

The nominal supply voltage of the device is 28 VDC. The device is therefore suitable for use in Custom specific environment. The device is internally protected against reverse polarity by a diode voltage and current spikes.



1.9 Manufacturer warranty

DELTA COMPONENTS GmbH warrants for a period of one year, starting with the delivery of the goods to the customer, that the produced and exported hardware and software is free from defects and installation errors. This warranty is limited to the original purchaser of the product. The warranty is not transferable and tradeable.

During the warranty period, defect products or product parts will be repaired or replaced. Replaced parts become the property of DELTA COMPONENTS GmbH.

Before products are sent back for repair, it is necessary to contact DELTA COMPONENTS GmbH. The acceptance of unsolicited insufficiently prepaid shipments will be refused.

Not covered by warranty are:

- Prototypes in hardware and software
- Wear parts, connectors, batteries, etc.
- Damage caused by mishandling or wear
- All other claims of damage



There is no warranty, if the product has been modified or soldered by third parties.

1.10 Technical support

If you have problems with your product, please contact our support team. In some cases, the problems can be solved easy and quick.

Support DELTA COMPONENTS GmbH

Tel.: +49/7751/8399-0

E-Mail: <mailto:Support@delta-components.de>

1.11 RMA settlement

If the problem could not be solved, the unit can send back for repair. Therefore, you need a RMA (Return Material Authorization) number:

1. Step

On the website of DELTA COMPONENTS a RMA number must be requested:
<http://www.delta-components.com/support/rma.htm>



2. Step

The form should be completed as fully as possible and then sent. A detailed description of the defect accelerates the process.

3. Step

On the basis of the form DELTA COMPONENTS transmitted by e-mail a RMA document with RMA number.

4. Step

The RMA number must be sent together with the defect unit to DELTA COMPONENTS.

5. Step

When the unit arrives, it will be processed as soon as possible.



3 Start of operation

3.1 Contents of packaging

The following accessories should be packed with your new DeltaVarioMon; please make sure all are enclosed after opening the packaging:

- *DeltaVarioMon 8,4" Type 3*
- *Power Cable, 2m with 2 Pin Lemo-Plug*

3.2 Preparation of the voltage supply

The *DeltaVarioMon* can be operated in a voltage range of 28VDC. The supply voltage is fed by a self-locking 2-pin Lemo connector. A silicone cable including connectors with open ends is included. Further information concerning the power of the DeltaVarioMon contained in Section 2.2 "Power" (see page 7).

3.3 Assembling of the device

The DeltaVarioMon is a "built-on" monitor and it is suitable for applications in a vehicle. On the rear panel there are four threads to reach VESA standard 75mm. Therefore, different mounting system can be mounted. Various mounting systems are available.

3.4 System on and off

As soon as the monitor receives a VGA / DVI signal, it switches automatically on and off. In addition the device can be activated manually via the power button of the OSD-Menu. The button is located on the right rear side of the device.



Figure 1: On/off-button of the OSD Keyboard



4 DeltaVarioMon 8,4"

4.1 Product description

The DeltaVarioMon 8.4" Type 3 is a custom specific monitor for vehicle applications. As a high - brightness monitor it is also suitable for applications where high brightness is required and / or the rugged, small and lightweight housing is requested.



Figure 2: DeltaVarioMon 8,4" Type 3 Front and Rear

The integrated LCD TFT graphic module has a resolution of 800 x 600 dot. The maximum brightness is 1.600cd/m². The brightness can be adjusted with an integrated microcontroller-based control, it enables dimming brightness from 10 to 100 %. The manual adjustment of brightness can be done via a potentiometer, that can be easily reached at the right rear side of the Display. The additional integrated light sensor, automatically adjusts the screen brightness based by ambient light. The control is performed by a microcontroller, where the hysteresis- parameters are stored accordingly.

The housing is made of aluminum and has therefore an EMC-compatible design. It provides a robust housing for the integrated electronics with as high-quality haptic. The DeltaVarioMon will be delivered with a powder-coated surface.

On the rear side there are four threads for the VESA-Standard with 75mm grid. Various mounting system, for example vehicle-specific mounts can be used.

Two data interfaces are available. A VGA/CRT with 15-pin HD-Sub and a DVI-D interface with 24 pins.

The resistive touchscreen surface is connected to a touch controller with USB interface.

The system can be adjusted via the OSD-Menu on the rear side of the device. Also a system LED is integrated.



4.2 Connections

The DeltaVarioMon have six standard connections with different functions. The Monitor will be connected to the PC-System with minimum two cables (alternative VGA/CRT or DVI and power supply).

Connection (from left to right)	Function
Power Vin: 28V	Power supply
USB 2.0	Touchscreen Controller and digital Audio Interface
LINE IN	Analog Audio Interface
DVI	digital image transmission
VGA	analog image transmission
USB-A 2.0 (left side of the Monitor see Page 18)	free USB-interface (for User)

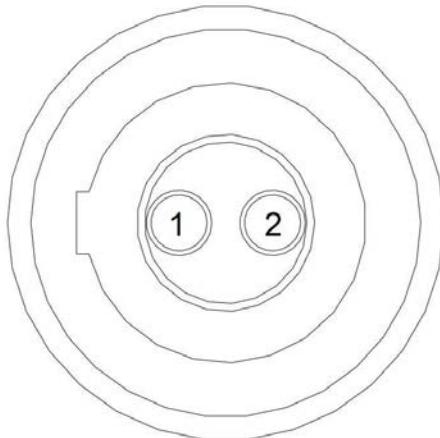


Figure 3: Connections DeltaVarioMon 8,4" Type3

4.3 Pinout of input connectors

4.3.1 LEMO Connector Pinout:

Type: EGG.1B.302.CLL (matching plug FGG.1B.302.CLAD)

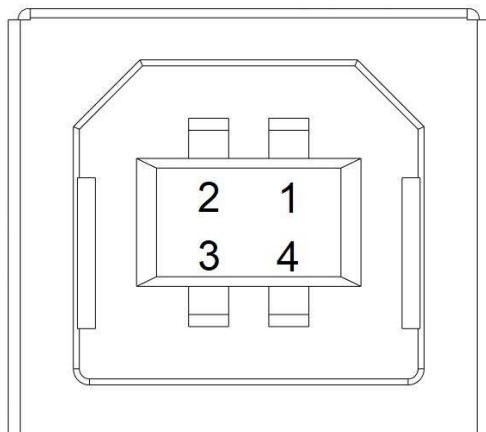


Pinout LEMO Power Connector	
Pin	Signal
1	VIN (+28V)
2	GND

Figure 4: LEMO connector

4.3.2 USB Connector Pinout:

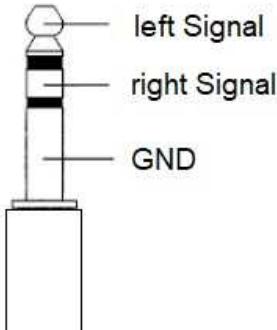
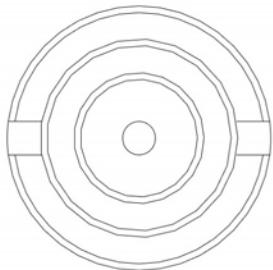
Type: Samtec USBR-B-S-S-O-TH High-Retention USB 2.0 Interface, Type B with minimum 15 N withdrawal force



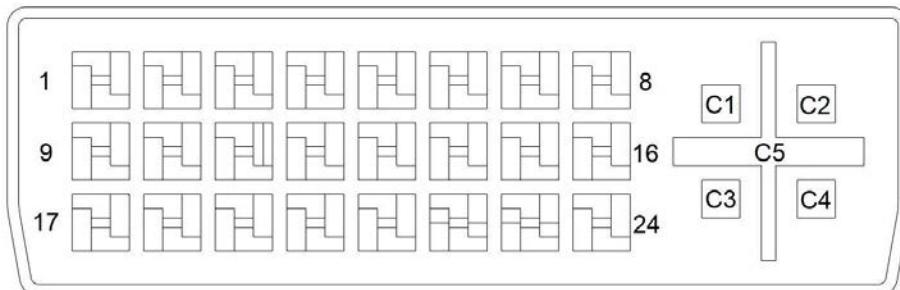
Pinout USB Connector	
Pin	Signal
1	VCC
2	D-
3	D+
4	GND

Figure 5: USB connector

4.3.3 LINE IN Connector Pinout:

Figure 6: **LINE IN connector**

4.3.4 DVI Connector Pinout:

Figure 7: **DVI connector**

Pinout DVI Connector							
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	Data 2-	9	Data 1-	17	Data 0-	C1*	VGA red
2	Data 2+	10	Data 1+	18	Data 0+	C2*	VGA green
3	GND 2,4	11	GND 1,3	19	GND	C3*	VGA blue
4*	Data 4-	12*	Data 3-	20*	Data 5-	C4*	H-Sync
5*	Data 4+	13*	Data 3+	21*	Data 5+	C5*	GND
6	DDC Clock	14	+5V	22	GND Clock		
7	DDC Data	15	GND +5V	23	Clock +		
8	V-Sync	16	Hotplug	24	Clock -		

*for "Single Link DVI-D" gray colored pins are not connected

4.3.5 VGA Connector Pinout:

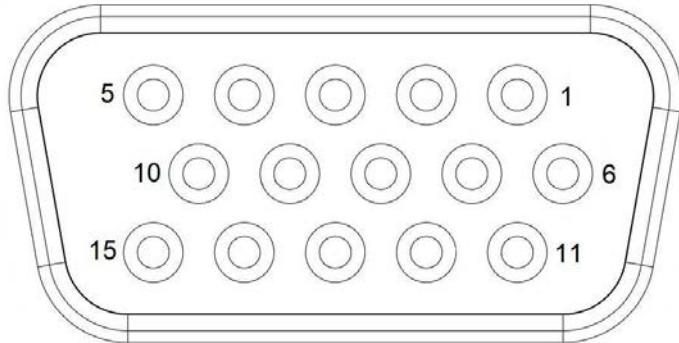


Figure 8: VGA connector

Pinout VGA Connector					
Pin	Signal	Pin	Signal	Pin	Signal
1	red Video	6	red Ground	11	ID 0
2	green Video	7	green Ground	12	ID 1
3	blue Video	8	blue Ground	13	H-Sync
4	reserved	9	not connected	14	V-Sync
5	Ground	10	Ground	15	not connected

4.4 Functions

4.4.1 Manual brightness control

The manual brightness control on the right rear side of the device enables an individual adjustment from basic brightness of the monitor. Is the brightness control on the minimal position (10% for current firmware version), the backlight brightness stay at 10% and the light sensor will be disabled. In the maximum position the brightness is 100% and the light Sensor will be disabled too. In the positions between the brightness is a mix between manual brightness control and light sensor.

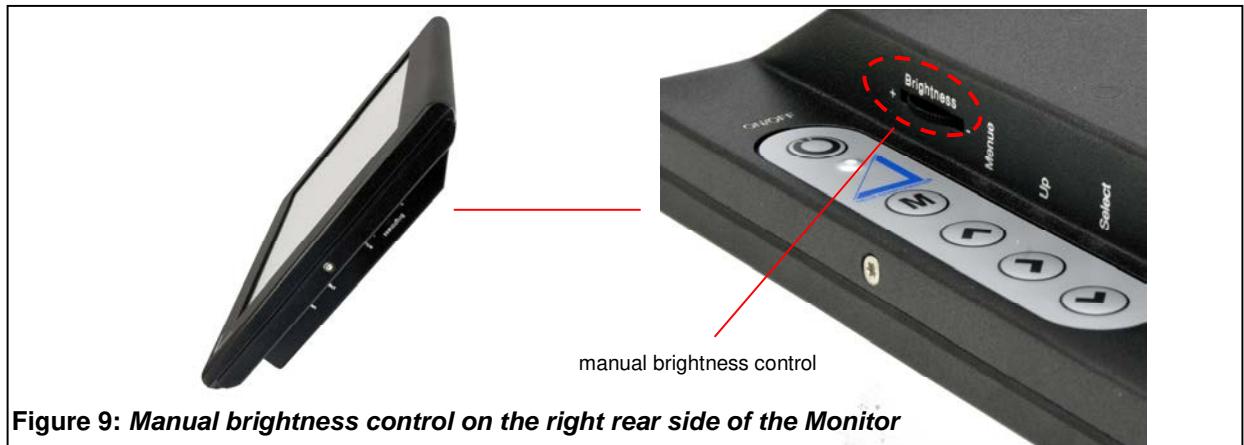


Figure 9: **Manual brightness control on the right rear side of the Monitor**

4.4.2 Light sensor

The light sensor is on the upper back side of the device.

The light sensor measures the ambient lighting of the monitor permanently. On basis of this Information the integrated µController adapts the brightness from the Display automatically to the ambient lighting, which occurs for example by twilight or tunnel entry or exit.

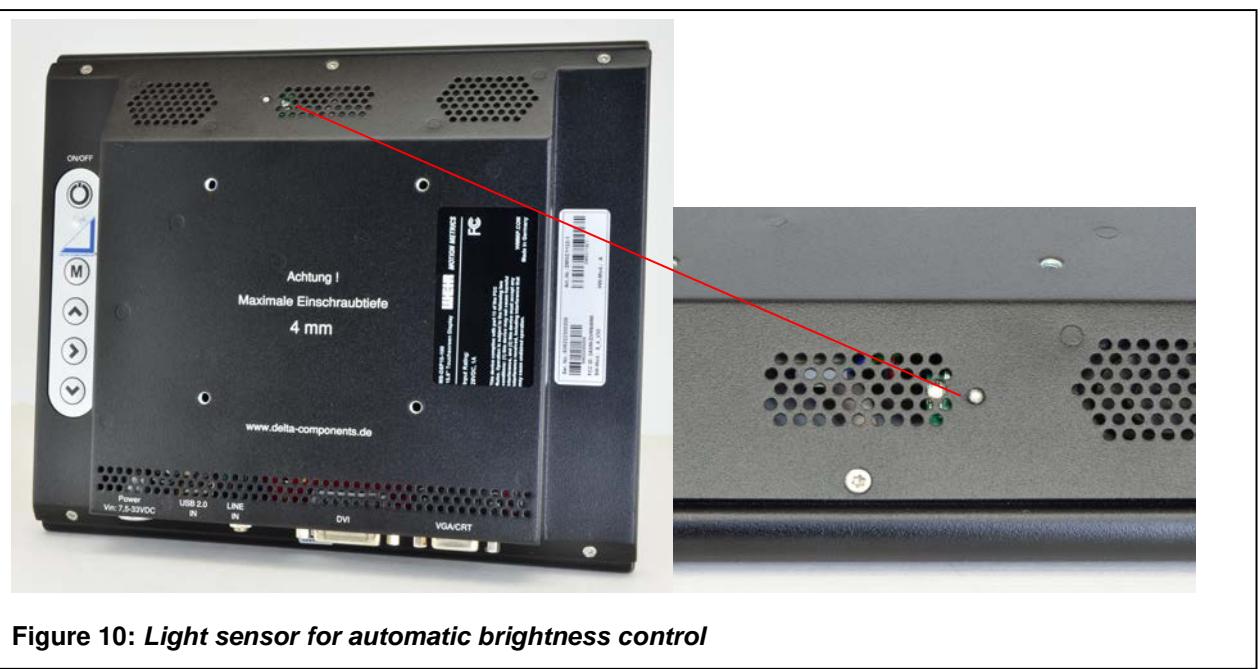


Figure 10: **Light sensor for automatic brightness control**

4.4.3 Option USB-Hub / Audio Codec

The monitor has an internal 3-port USB Hub V2.0. The input is divided into an audio unit, the touch controller and a free USB port.

The first port of the Hub is connected with the audio unit. The audio unit consisting of a USB audio codec (USB Sound card), 2 x 2,2W stereo audio amplifier, two integrated speakers. By connecting the USB interface of the monitor with the PC, the USB audio codec will be registered as a "USB headset" in the system.

There is no volume potentiometer, the Volume can be controlled by the operating system.

The second port is connected with the touch controller

The third port is an USB Interface V2.0 Type A on the left side of the housing.



Figure 11: **USB Type A Interface on the left side of the monitor**

4.4.4 VESA Mounting



Figure 12: *VESA Mounting on the rear side*

The VESA-holes make it possible to mount different monitor mountings or swivel arms. Be noted, not to exceed the maximum screw depth of 4 mm.

4.4.5 OSD Menu

In this section you will find information about how to use OSD Menu (On Screen Display).

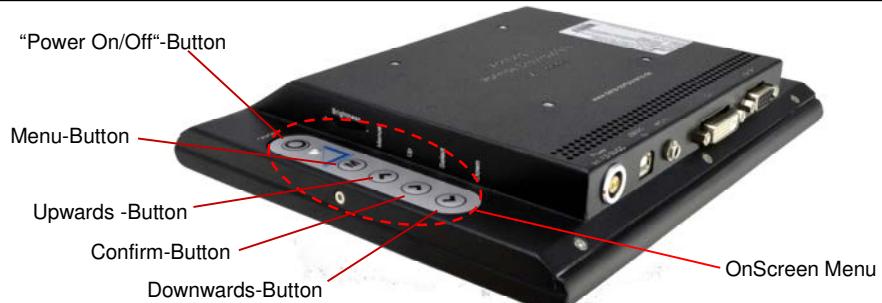


Figure 13: *Keys of the OSD-Keyboard*



4.5 Technical Specifications

Display

- 8,4" LCD-TFT Display
- Resolution: 800 x 600 Pixel Full High Definition (FHD)
- Display area: 170,5 x 127,9 mm (H/V)
- Backlight: LED
- Aspect Ratio: 4:3
- Brightness: 1.600 cd/m²
Adjustable brightness 10-100% actual firmware version & light sensor)
- Contrast: 600:1
- Response time: 35ms (at 25°C)
- Colours: 16,2M
- Viewing angle: +80° to -80° (H / V)

Touchscreen

- Resistiv Touchscreen - with antiglare surface.

Operation

- Keys for Onscreen Menu
- ON/OFF and Operation LED

Housing, Surface & Color

- Housing: Aluminium; Mounting possible through 4 insert nuts M4 on the back according to VESA standard 75 mm - Surface: Powder coating all around (Frame for Front screen, side and back housing)
- Colour: Black RAL 9005

Inputs

- Power Supply
- USB 2.0 Type B IN Full Speed 12 Mbit/s
- LINE-IN
- DVI-D
- VGA
- USB 2.0 Typ A Full Speed 12 Mbit/s

Power Supply - DC/DC Converter:

- Power supply: 28VDC inclusive protection against reverse polarity and transients
- Power supply cable: 2-pol, inclusive LEMO-connector and open ends, Length: 2m

Current consumption @ 28VDC Input Voltage (these values may vary)

- max. brightness: 0,34A
- min. brightness: 0,13A
- Standby mode: 0,06A

**Dimension**

- 222,8 x 185,2 x 36 mm (L x H x D)

Weight

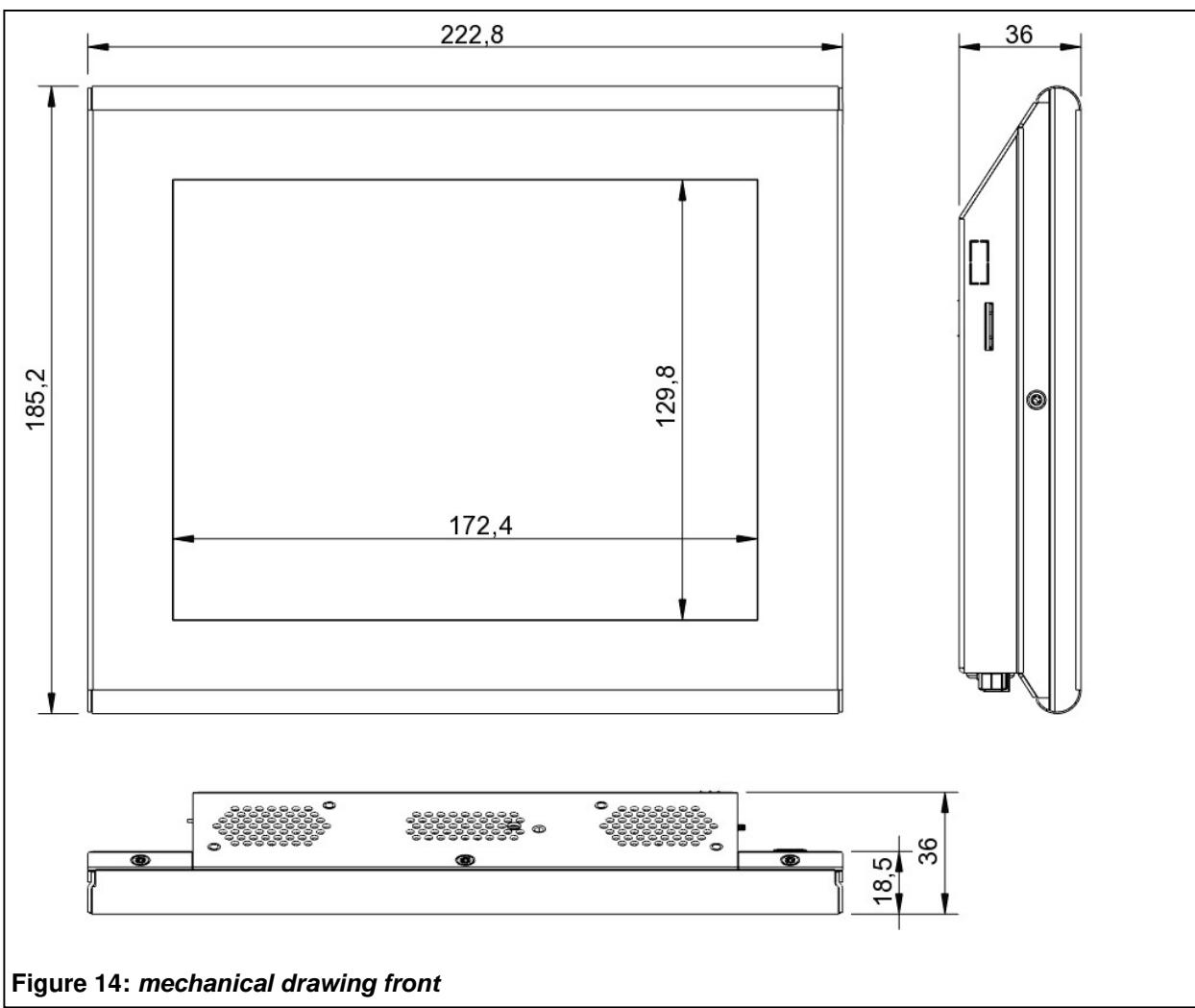
- 800 g

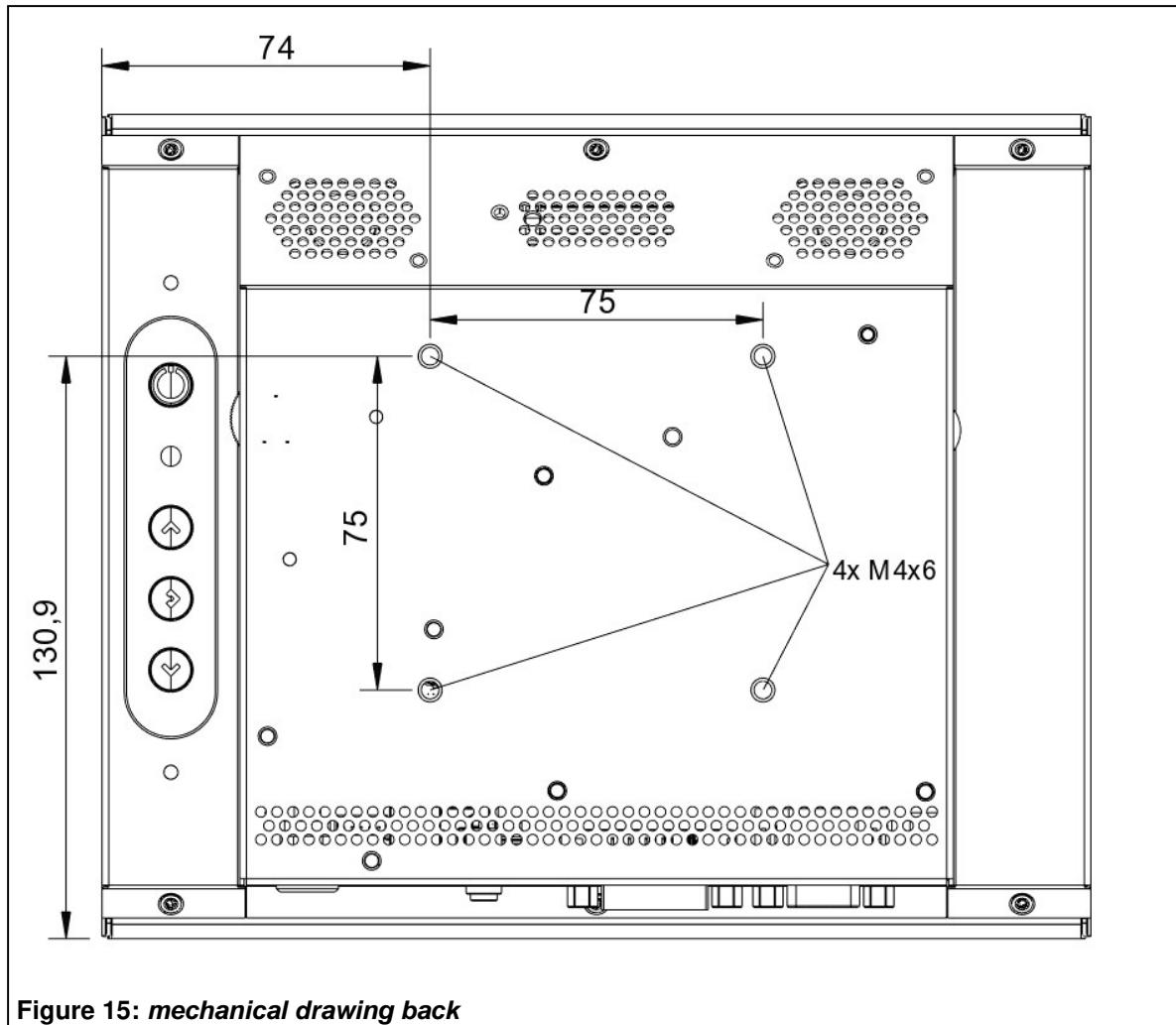
Temperature Range

- Operating temperature: -20°C to +70°C
- Storage temperature: -20°C to +70°C
- Humidity: 5% to 95%

IP Protection class

- IP30

4.6 Drawings**Figure 14: mechanical drawing front**



5 Ordering Information

Item-Nr.	Description	
DMXC1132-1	DeltaVarioMon 8,4" Typ 3 SVGA with Touch,Hub&Sound	Monitor 1.600cd/m ² , LED -Motion Metrics- without Volume Poti