

Manual

DeltaVarioMon15,6" FHD Type 5

MS-DSP15-100

DeltaVarioMon 15,6" Type 5 FHD with PCT & Hub+Sound
1.200cd/m², with MIL Interface, DVI Redriver



DELTA COMPONENTS GmbH, Auweg 27, D-79761 Waldshut-Tiengen
Tel.: +49/ (0)7751 8399 – 0, Fax: +49/ (0)7751 8399 - 99
Email: support@delta-components.de
Homepage: <http://www.delta-components.de>



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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	March 2022	Production start

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 change. 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>

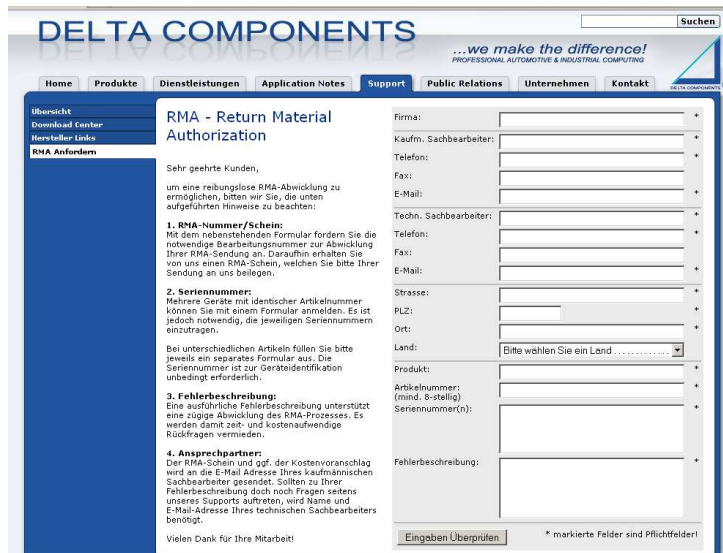
1.11 RMA settlement

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 15,6" FHD Type 5*

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 Mil Type (D38999) round connector.

The supply voltage is provided by a customer specific computer system.

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 DVI signal, it switches automatically on and off.

4 *DeltaVarioMon 15,6"*

4.1 Product description

The DeltaVarioMon 15.6" Type 5 (MS-DSP15-100) 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.



The integrated LCD TFT graphic module has a resolution of 1.920 x 1.080 dot. The maximum brightness is 1.200cd/m². The brightness can be adjusted by DDC/CI signal which is integrated in the DVI Signal path from 0% to 100%. 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.

The Monitor is supplied through a Mil round connector (system connector) with Power, DVI and USB.

4.2 Connections

The DeltaVarioMon has one connection with different functions. The Monitor will be connected to the PC-System with a customer specific system cable. The single connection contains power Supply, DVI signal and USB 2.0

Connection	Function
Power Vin: 28V	Power supply
USB 2.0	Touchscreen Controller and Audio
DVI	digital image transmission
USB-A 2.0	free USB-interface (Outside accessible)

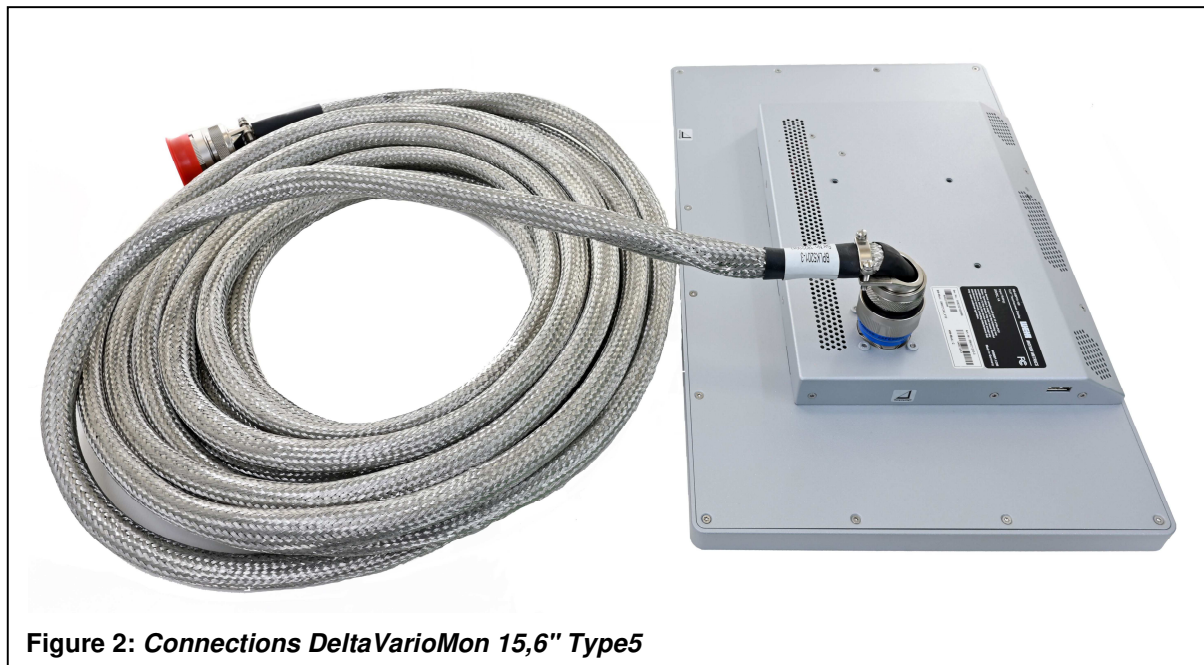


Figure 2: Connections DeltaVarioMon 15,6" Type5

4.3 Pinout of Mil round connector

Type: Souriau 8D Series8 (8D0C17F99PN)



Figure 3: *Mil round connector*



Pinout Table Souriau 8D Series8 (8D0C17F99PN)

Pin Number	Signal Name
A	NC
B	NC
C	NC
D	USB D+
E	USB D-
F	USB GND
G	GND
H	TDMS Data 1-
J	TDMS Data 1+
K	TDMS Clock-
L	TDMS Clock+
M	TDMS Data 2-
N	TDMS Data 0-
P	DDC Data
R	DDC Clock
S	Hot Plug Detect
T	NC
U	USB VCC
V	+5V DVI
W	28V Return Path
X	TDMS Data 2+
Y	TDMS Data 0+
Z	+28V

4.4 Functions

4.4.1 Light sensor

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

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



4.4.2 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.

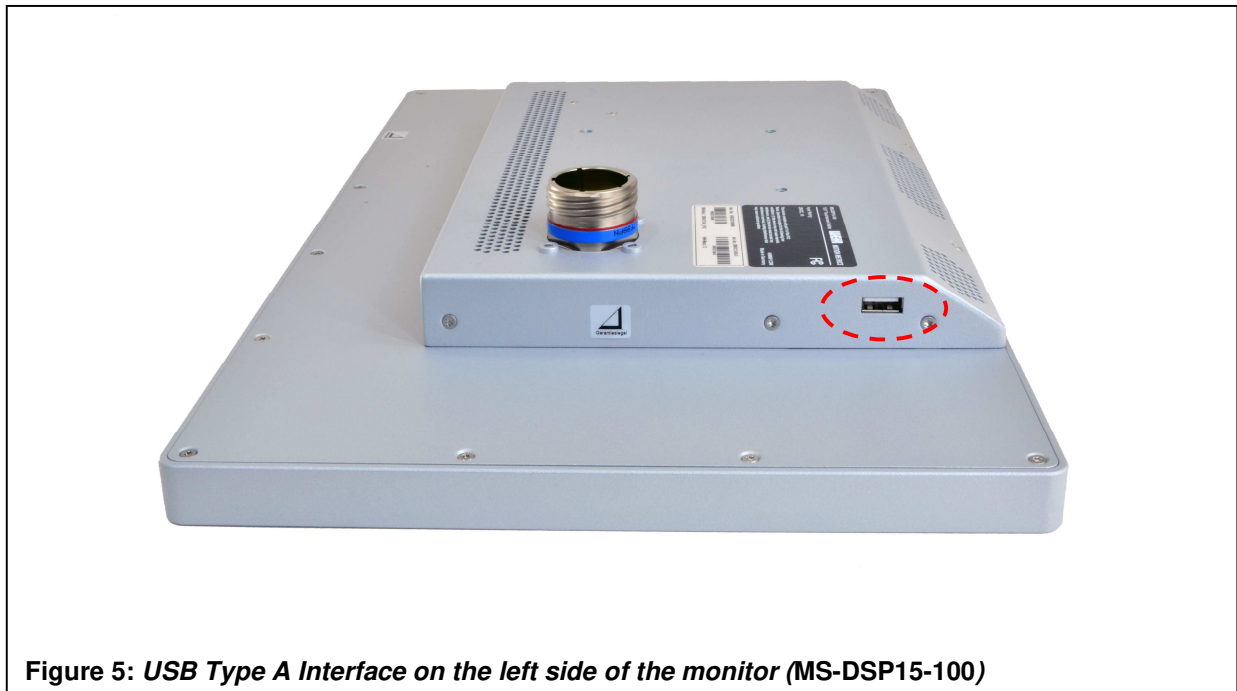


Figure 5: USB Type A Interface on the left side of the monitor (MS-DSP15-100)

4.4.3 VESA Mounting

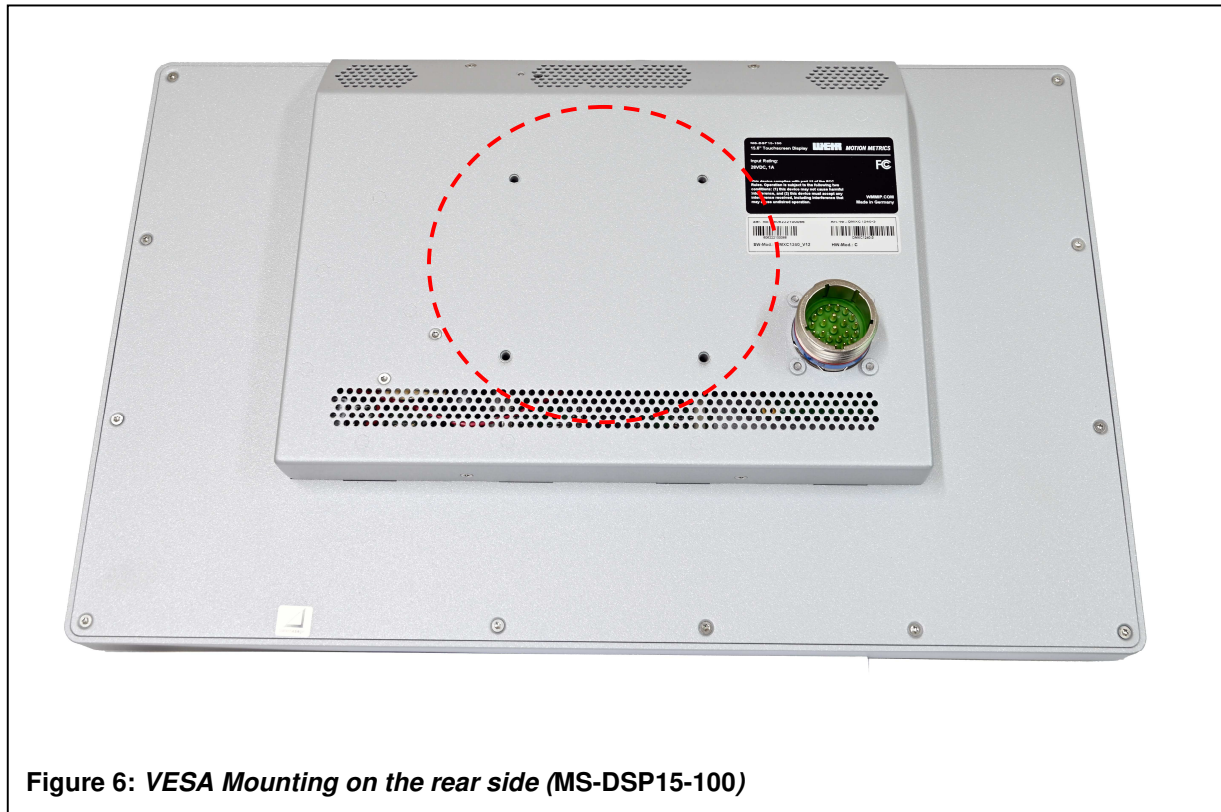


Figure 6: VESA Mounting on the rear side (MS-DSP15-100)

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.



4.5 Technical Specifications

Display

- 15,6" LCD-TFT Display
- Resolution: 1.920 x 1.080 pixel Full High Definition (FHD)
- Display area: 344,16 x 193,59 mm (H/V)
- Backlight: LED
- Aspect Ratio: 16:9
- Brightness: 1.200 cd/m²
(Adjustable brightness 0-100% via software & light sensor)
- Contrast: 1.000:1
- Response time: 25ms (at 25°C)
- Colours: 16,2M
- Viewing angle: +85° to +85° (H / V)

Touchscreen

- Projected capacitive Touchscreen - with antiglare surface - with two-colour Motion Metrics logo:
Text / Letters: white / Pantone 000C (hex: #FFFFFF) Arc: blue / Pantone 2925C (hex: #2B98DA)

Operation

- No Keys for Onscreen Menu

Housing, Surface & Color

- Housing: Aluminium & Steel housing; 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: Silver 133490 / H2190006 / RAL 9006 / 122996

Inputs (through MIL connector D38999/20/FE99PN or equivalent)

DVI-D

USB 2.0 IN Full Speed 12 Mbit/s

Power Supply

Power Supply - Galvanic isolated DC/DC Converter:

- 28VDC inclusive protection against reverse polarity and transients

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

- max. brightness: 0,95A
- min. brightness: 0,31A
- Standby mode: 0,13A

Dimension

- 398,2 x 247,5 x 42,8 mm (L x H x D)



Weight

- 3.200 g

Temperature Range

- Operating temperature: -20°C to +70°C
- Storage temperature: -40°C to +70°C
- Humidity: 95%

IP Protection class - IP30



5 Ordering Information

Item-Nr.	Description	
MS-DSP15-100	DeltaVarioMon 15,6" Type 5 FHD with PCT & Hub+Sound	1.200cd/m ² , with MIL, DVI Redriver