

# Installation manual

## TRM0000

Input modules for modular LCD monitors

### **Important**




Please read the safety information and all information delivered with the product carefully to familiarize yourself with safe and effective usage.



## Legal information

### Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.


 <b>DANGER</b>
indicates that death or severe personal injury <b>will</b> result if proper precautions are not taken.
 <b>WARNING</b>
indicates that death or severe personal injury <b>may</b> result if proper precautions are not taken.
 <b>CAUTION</b>
indicates that minor personal injury can result if proper precautions are not taken.
<b>NOTICE</b>
indicates that material damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

### Qualified personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

### Use of EIZO products

 <b>WARNING</b>
EIZO products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by EIZO. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

### Trademarks

All names identified by ® are registered trademarks of their respective owners. Please refer to the trademarks listed in the appendix. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

### Disclaimer of liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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# 1 Introduction

## 1.1 Contents of this document

This document presents the installation and replacement of the TRM0000 input module. To ensure clarity, it does not contain all detailed information on this product.

Follow the instructions for use of the compatible monitor, for example the RadiForce EX271W.

The contents of this document are neither part of a previous or existing agreement, commitment or legal relationship, nor does it modify such.

## 1.2 User

### **Service/service personnel**

The terms "service" or "service personnel" denote specially trained personnel authorized by EIZO.

## 2 Safety information

### 2.1 General safety instructions

Correct and safe operation of EIZO devices assume professional transport, storage, installation, and connection, as well as careful operation and service.

Follow the general safety instructions in the instructions for use of the compatible monitor, for example the RadiForce EX271W.

### 2.2 Product-specific safety instructions

<b>NOTICE</b>
<b>Installing or removing the input module</b> <ul style="list-style-type: none"><li>• Only service personnel should install or remove the input module.</li><li>• Disconnect the monitor power plug before installing or removing the input module.</li></ul>
<b>NOTICE</b>
<b>Radio interference</b> <p>The input module is a Class B device.</p> <p>The input module may cause radio interference or interfere with the operation of other devices in close proximity. In this case the user is encouraged to take appropriate measures to correct or mitigate the interference.</p>

## 3 Description

### 3.1 Scope of delivery

The scope of delivery includes the ordered version of the input module as well as various components. After unpacking, check the scope of delivery for correctness and completeness.

<b>Note</b>
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Keep the input module packaging material for subsequent use.
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#### Input module

TRM0000 input modules are installed in modular EIZO LCD monitors and enable the connection of various video input signals.


Product	Order number	Description
TRM0000-DVI	6GF60510AA00	DVI input module
TRM0000-M12	6GF60510AA01	TDL M12 input module
TRM0000-TDL	6GF60510AA02	TDL input module
TRM0000-3GS	6GF60510AA03	3G-SDI-input module
TRM0000-HDL	6GF60510AA04	HDL input module

#### Components


The following components are included in the scope of delivery (customer-specific and country-specific versions may differ):


- 8 screws for the installation
- EMC pad and holding plate (TRM0000-TDL only)
- CD-ROM with this documentation

## 4 Setup and installation

 <b>CAUTION</b>
<b>Changes to the monitor or input module</b>
Do not make any mechanical or electrical changes to the monitor or input module other than those presented in the respective instructions for use.
EIZO GmbH assumes no liability for unauthorized changes made to the monitor or input module.

### 4.1 Removing and installing the input module

 <b>CAUTION</b>
<b>Removing or replacing the input module</b>
Only service personnel may remove or replace the input module. Patients may not be in the vicinity of the device if the input module is being removed or replaced.

 <b>CAUTION</b>
<b>CE Konformität</b>
The RadiForce EX271W monitor is CE compliant only when a TRM0000 input module manufactured and approved by EIZO is properly installed.

<b>NOTICE</b>
<b>Ensuring the signal chain</b>
After installing or replacing an input module, follow all country-specific regulations regarding the acceptance and verification of imaging systems.

<b>NOTICE</b>
<b>Electrostatic discharge (ESD)</b>
The input module and corresponding monitor contain sensitive electronic components. Use suitable measures to protect the input module and monitor from electrostatic discharge during installation and removal of the module.

<b>Note</b>
The input module is delivered with suitable screws. A Torx TX10 screwdriver is required for installation and removal of the input module.

#### Condition upon delivery

EIZO monitors are generally shipped with a pre-installed input module.



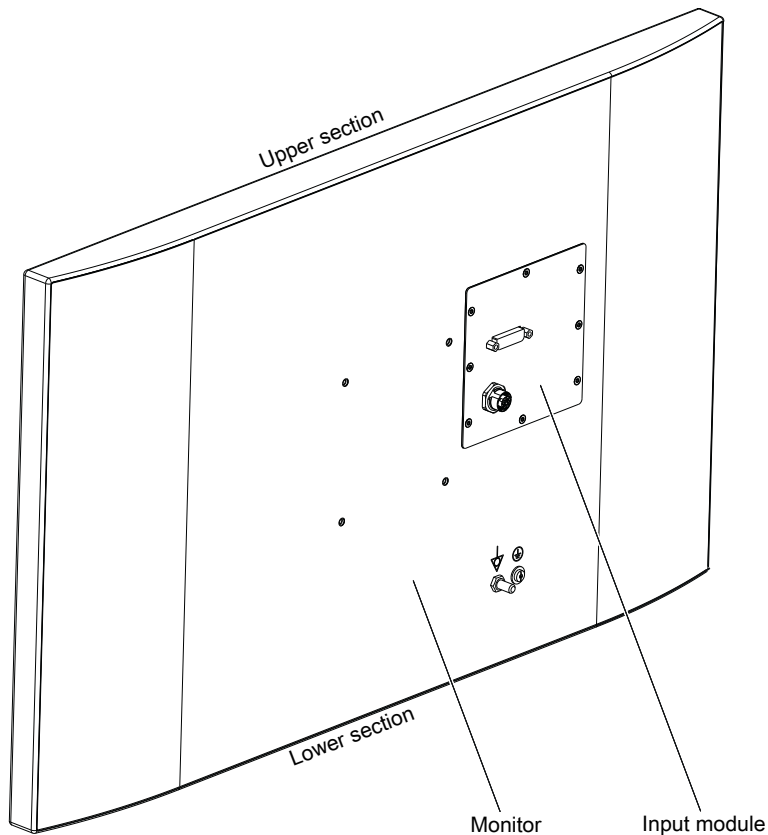


Fig.: Monitor with the TRM0000-DVI input module

The following sections describe how to remove and install the input module.

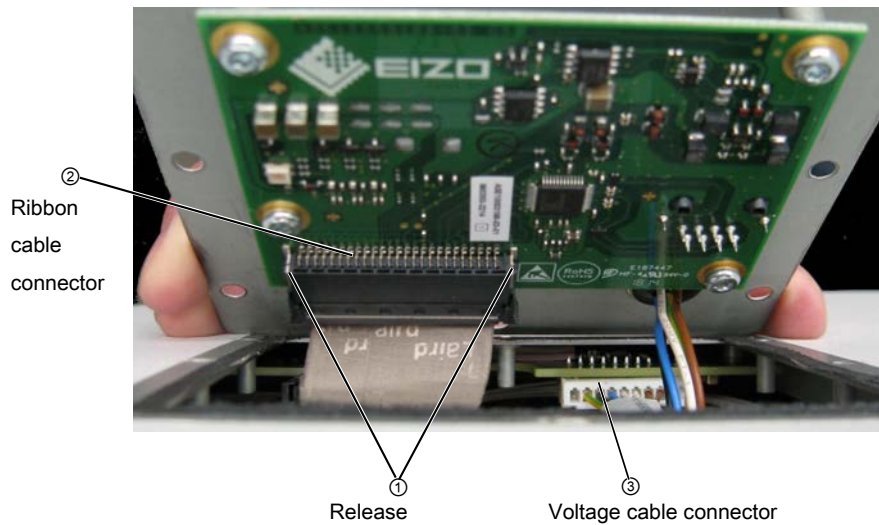
### Removing the input module

To remove the input module, proceed as follows:

1. Remove the signal cable and power supply cable from the input module.
2. Place the monitor on a solid and level surface.
3. Loosen the eight screws used to attach the input module.
4. Carefully tilt the upper section of the input module out of the monitor opening to a maximum 75° angle toward the lower edge of the monitor.

**Caution:** The internal connection cables are short. Keep the module as close to the monitor as possible until the connection cables have been removed.

4.1 Removing and installing the input module



5. Press the release latches ① on the sides of the ribbon cable connector ② and carefully remove the connector from the input module.
6. Pull the multi-wire voltage cable connector ③ from the monitor socket.
7. Pack the removed input module in ESD protective foil and store it in a dust-free and dry location.



Fig.: Removed input module

**Installing the input module**

The input module is attached to the monitor module compartment using eight screws. The following requirements apply for the screws:

Number	8
Type	Countersunk screw, ISO 14581 M3 x 5 – 8.8
Maximum torque permitted on the monitor module compartment	1.3 Nm

To install the input module, proceed as follows:

1. Remove the input module from the packaging.

2. Carefully insert the input module into the monitor opening with the upper section of the input module tilted at an angle of no more than 75° toward the lower edge of the monitor.
3. Insert the multi-wire voltage cable connector to the end stop into the monitor socket.
4. Insert the monitor ribbon cable connector until it locks into the corresponding input module socket.
5. Lower the upper edge of the input module until it flatly covers the monitor opening, align the screw holes and affix the module with the eight screws.  
**Caution:** The maximum torque for the monitor module compartment is 1.3 Nm.
6. After installing the input module, check the monitor function.

### Checking the monitor function

<b>Note</b>
Observe the connection and start-up information in the monitor's respective instructions for use.

1. Connect the monitor to a video source.
2. Ensure that the operation LED lights green and the monitor displays the expected image.

## 5 Connecting

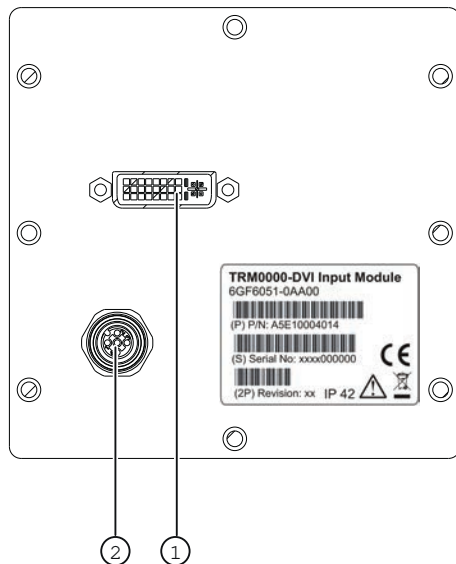
EIZO offers a range of input modules with connectors for various signal formats. For connections, only use the signal cables specified by EIZO, such as DVI cables, TDL transmission links, BNC cables specified for 3G-SDI.

The picture quality, interference immunity, and emitted interference of the entire system depend on the quality and cable length.

<p><b>⚠ CAUTION</b></p> <p><b>Connecting</b></p> <p>Follow the safety information and the connection procedure descriptions in the RadiForce EX271W monitor instructions for use.</p>
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### 5.1 TRM0000-DVI input module

Using the TRM0000-DVI, the monitor can display digital DVI input signals from a DVI cable.



- ① DVI input
- ② M12 power supply connection

#### DVI interface

A DVI input module outfits the monitor with a DVI interface.

#### M12 power supply connection

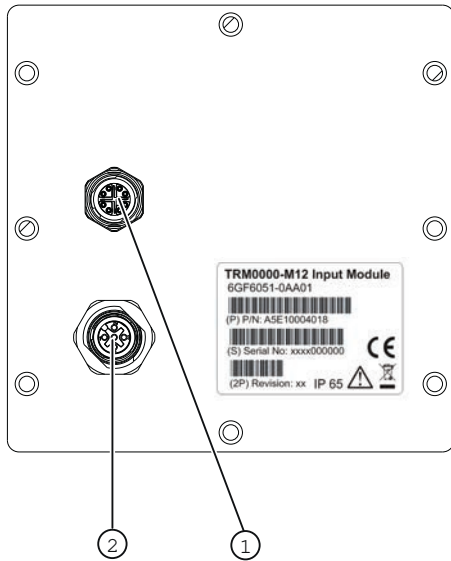
The monitor receives power via the 5-pin M12 connector from a power supply unit tested in accordance with medical standards.

## 5.2 TRM0000-M12 input module

With the TRM0000-M12, the monitor can process digital DVI input signals via EIZO DVI transmission links (TDL) using the integrated TDL receiver.

The TRM0000-M12 offers the highest IP protection of all input modules.

The corresponding M12 connector on the adapter cable is connected to the M12 socket on the input module. If necessary, the route can be extended using a suitable adapter and a TDL cable.



- ① M12 TDL input
- ② M12 power supply connection

### M12 TDL interface

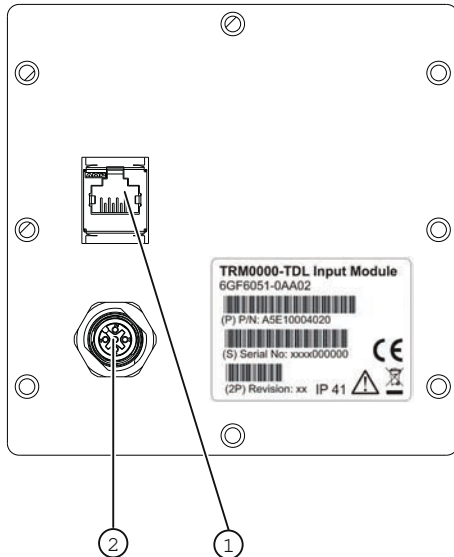
An M12 TDL input module provides the monitor with a TDL interface (M12).

### M12 power supply connection

The monitor receives power via the 5-pin M12 connector from a power supply unit tested in accordance with medical standards.

## 5.3 TRM0000-TDL input module

With the TRM0000-TDL, the monitor can process digital DVI input signals via EIZO DVI transmission links (TDL) using the integrated TDL receiver.



- ① TDL input
- ② M12 power supply connection

### TDL interface

A TDL input module provides the monitor with a TDL interface (RJ45).

### M12 power supply connection

The monitor receives power via the 5-pin M12 connector from a power supply unit tested in accordance with medical standards.

#### 5.3.1 Installing the EMC pad on the signal cable

The TRM0000-TDL input module is delivered with an EMC pad and holding plate. The following describes how to install the EMC pad on the signal cable to be connected.

#### Note

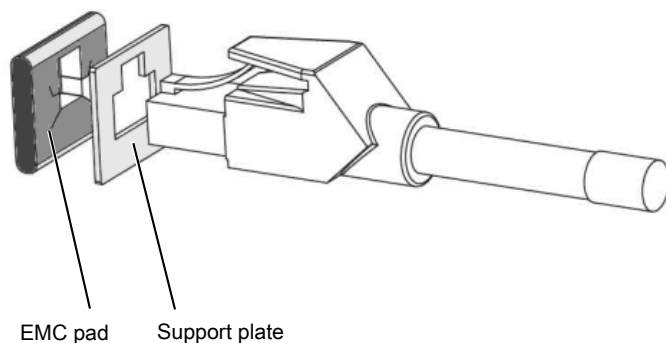
- Observe the description for connecting the signal cable to the TDL transmission unit in the DVI Transmission Link instructions for use.
- The EMC pad need not be used if patch cables with ferrites are included in the scope of delivery.

### EMC pads improve electromagnetic shielding.

Installing the EMC pad serves to optimize electromagnetic shielding. The EMC pad and holding plate achieve very good ground contact between the RJ45 connector and the TRM0000-TDL input module.

### Installing the EMC pad

1. First, slide the holding plate and then the EMC pad onto the RJ45 connector of the signal cable, as shown in the drawing:



2. Insert this combination into the TRM0000-TDL input module until the safety catch in the base of the RJ45 locks in.



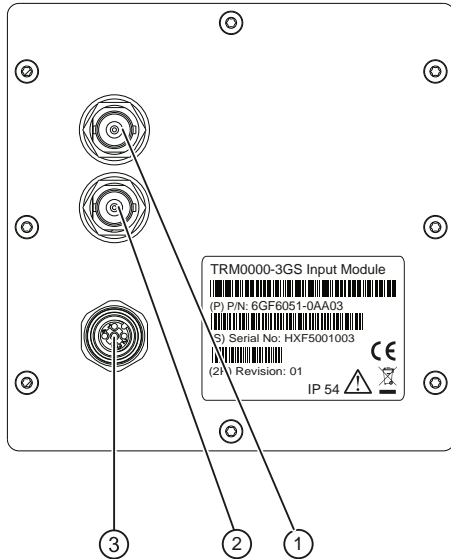
Fig.: Installed EMC pad and holding plate on the TRM0000-TDL input module

#### Note

If the RJ45 connector does not lock in, install the EMC pad without the holding plate. The EMC pad provides the electromagnetic shielding.

## 5.4 TRM0000-3GS Input Module

The monitor can process digital 3G-SDI input signals with the TRM0000-3GS.



- ① 3G-SDI output
- ② 3G-SDI input
- ③ M12 power supply connection

### 3G-SDI connectors

With a 3GS input module, the monitor has one BNC connector each for a 3G-SDI input and loop-through 3G-SDI output.

### M12 power supply connection

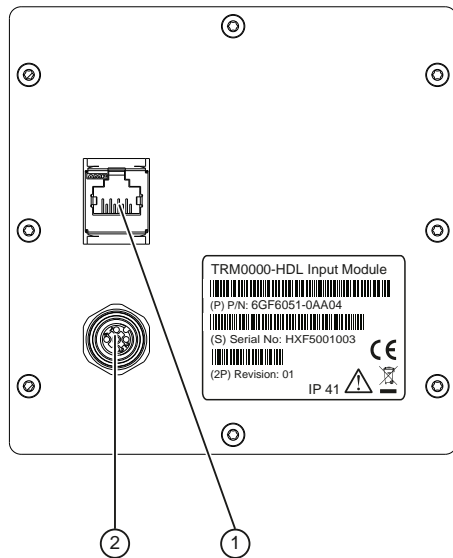
Power is supplied to the device via a 5-pin M12 plug of a medical power supply unit tested in accordance with medical standards.



## 5.5 TRM0000-HDL Input Module

With the TRM0000-HDL, the monitor can process digital DVI input signals via EIZO HDL transmission links using the integrated HDL receiver.

HDL signals are so-called high definition video link signals which are converted from DVI signals by the EIZO splitter and converter TID0102-HDL, for example. They can be transmitted over a distance of up to 70m.



- ① HDL input
- ② M12 power supply connection

### HDL connector

An HDL input module provides the monitor with an HDL connector (RJ45).

### M12 power supply connection

Power is supplied to the device via a 5-pin M12 plug of a medical power supply unit tested in accordance with medical standards.

## **6 Commissioning**

Input modules that are installed correctly are detected by the monitor automatically, meaning that no additional start-up measures are necessary.

Observe the information in the monitor's instructions for use.

## 7 Operation

Input modules that are installed correctly are detected by the monitor automatically and are not operated independently.

Observe the information in the monitor's instructions for use.

## **8 Cleaning and maintenance**

### **8.1 Cleaning**

<b>NOTICE</b>
<b>Cleaning</b> <ul style="list-style-type: none"><li>• Input modules may only be cleaned when installed.</li><li>• Observe the cleaning information in the monitor's instructions for use.</li></ul>



### **8.2 Maintenance**

The input modules are maintenance free.

Observe the information in the monitor's instructions for use.

## 9 Troubleshooting

The LED continuously lights up green when operating normally. In the event of a fault, the screen contents and the operation LED can be used to localize potential faults.

**Note**

Perform the remedial measures described in the monitor's instructions for use before contacting service personnel.

The following additional remedial measures can be performed by service personnel if, for example, an image is not displayed after module replacement or the other measures are unsuccessful:

Operation LED	Cause	Remedy
Yellow	No input signal.	Check the input module ribbon cable connector.
Dark	No power supply.	Check the input module multi-wire voltage cable connector.

## 10 Technical specifications

### Note

Refer to the corresponding instructions for use for technical specification information about the monitor.

### 10.1 Input modules


TRM0000-DVI	<ul style="list-style-type: none"> <li>1 single link DVI-I socket (analog pins are not used), 1920 x 1080 at 50 - 70 Hz</li> <li>Service and communication using the DDC channel</li> </ul>
TRM0000-M12	<ul style="list-style-type: none"> <li>1 single link DVI connection signal via TDL M12 socket, 1920 x 1080 at 50 - 70 Hz</li> <li>Service and communication using the DDC channel</li> </ul>
TRM0000-TDL	<ul style="list-style-type: none"> <li>1 single link DVI connection signal via RJ45 socket , 1920 x 1080 at 50 - 70 Hz</li> <li>Service and communication using the DDC channel</li> </ul>
TRM0000-3GS	<ul style="list-style-type: none"> <li>2 3G-SDI connection signals (1 input, 1 loop-through output) via 3G-SDI BNC socket, 1920 x 1080 at 50 - 70-Hz</li> </ul>
TRM0000-HDL	<ul style="list-style-type: none"> <li>1 single link DVI connection signal via HDL RJ45 socket, 1920 x 1080 at 50 - 70 Hz</li> <li>Service and communication using the DDC channel</li> </ul>

### 10.2 Mechanical design

Housing components	Metal and plastic
Ventilation openings	None
<b>TRM0000-DVI input module</b> <ul style="list-style-type: none"> <li>Degree of protection</li> <li>Weight</li> <li>Dimensions (W x H x D) in mm</li> </ul>	<ul style="list-style-type: none"> <li>IP42 according to EN 60529</li> <li>0.15 kg</li> <li>115 x 115 x 23</li> </ul>
<b>TRM0000-M12 input module</b> <ul style="list-style-type: none"> <li>Degree of protection</li> <li>Weight</li> <li>Dimensions (W x H x D) in mm</li> </ul>	<ul style="list-style-type: none"> <li>IP65 according to EN 60529</li> <li>0.20 kg</li> <li>115 x 115 x 26</li> </ul>

<b>TRM0000-TDL input module</b> <ul style="list-style-type: none"> <li>• Degree of protection</li> <li>• Weight</li> <li>• Dimensions (W x H x D) in mm</li> </ul>	<ul style="list-style-type: none"> <li>• IP41 according to EN 60529</li> <li>• 0.16 kg</li> <li>• 115 x 115 x 32</li> </ul>
<b>TRM0000-3GS input module</b> <ul style="list-style-type: none"> <li>• Degree of protection</li> <li>• Weight</li> <li>• Dimensions (W x H x D) in mm</li> </ul>	<ul style="list-style-type: none"> <li>• IP54 according to EN 60529</li> <li>• 0.16 kg</li> <li>• 115 x 115 x 32</li> </ul>
<b>TRM0000-HDL input module</b> <ul style="list-style-type: none"> <li>• Degree of protection</li> <li>• Weight</li> <li>• Dimensions (W x H x D) in mm</li> </ul>	<ul style="list-style-type: none"> <li>• IP41 according to EN 60529</li> <li>• 0.16 kg</li> <li>• 115 x 115 x 32</li> </ul>

## 10.3 Safety regulations

 <b>CAUTION</b>	
<b>CE Konformität</b> The RadiForce EX271W monitor is CE compliant only when a TRM0000 input module manufactured and approved by EIZO is properly installed.	
<b>Safety regulations</b>	
Safety standards	<ul style="list-style-type: none"> <li>• IEC 60601-1</li> <li>• IEC/EN 60601-1</li> <li>• CAN/CSA - C 22.2 60601-1:08</li> </ul>
Protection class	Protection class I
Medical device classification (EU)	Class 1

## 11 Dimension drawings

All dimensions in mm

### 11.1 View from front and side

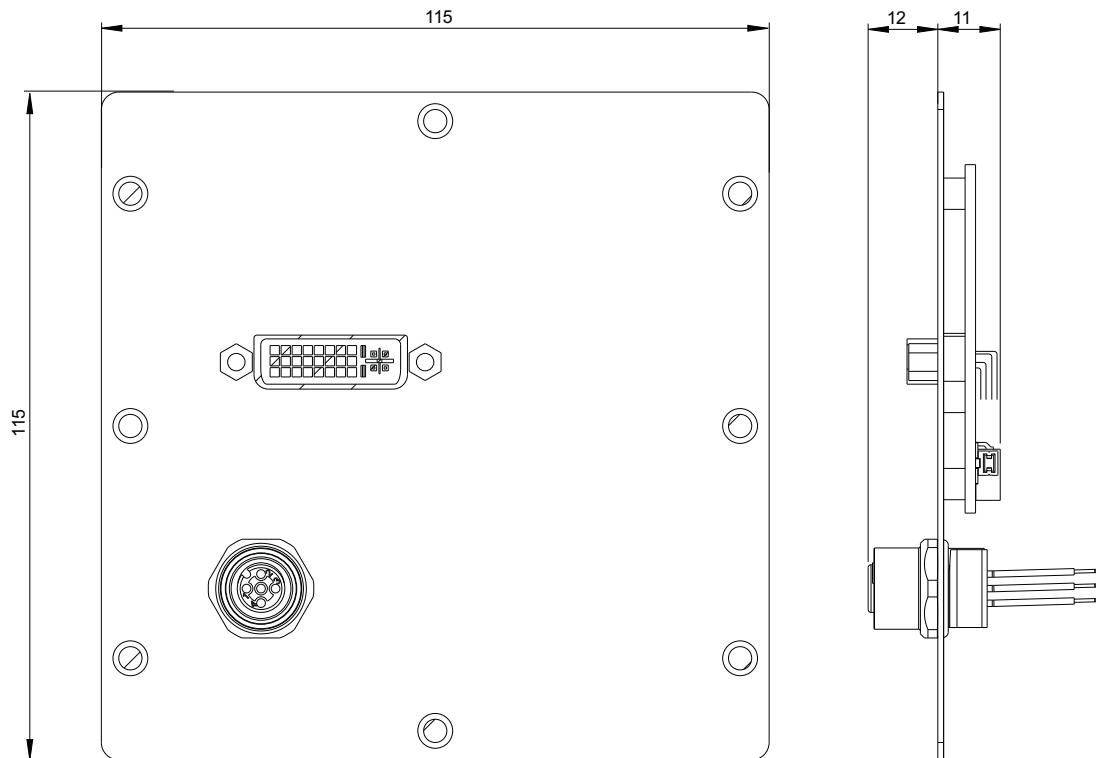


Fig.: Dimension drawing of TRM0000-DVI input module



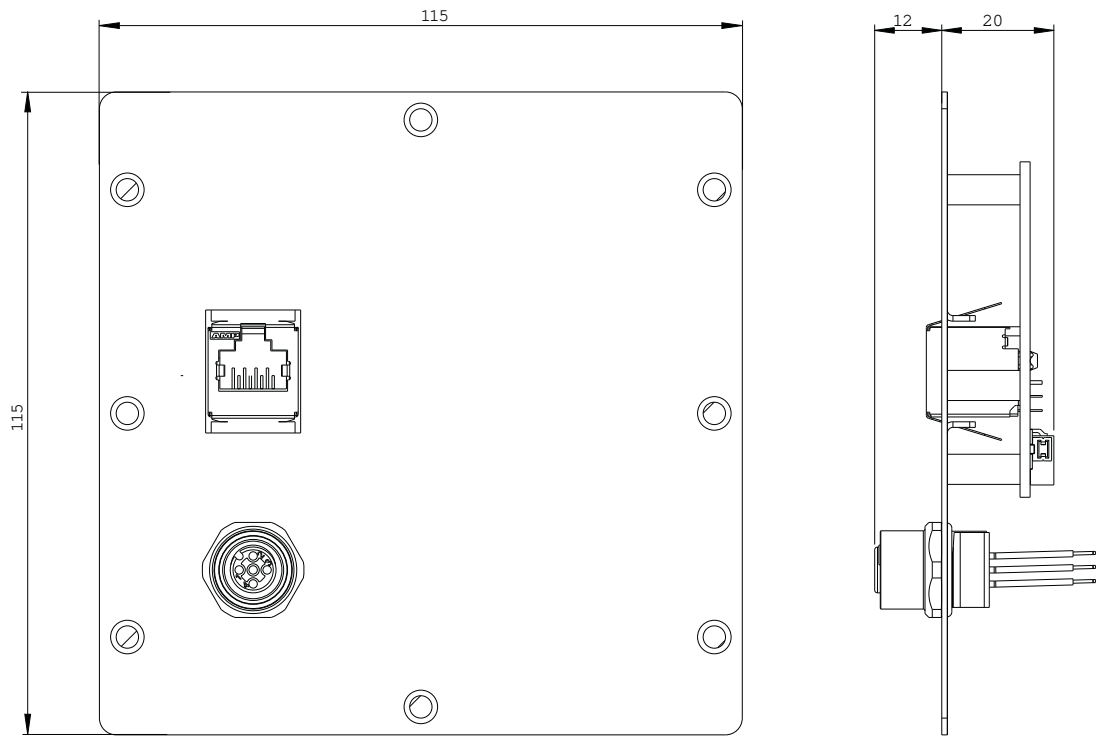


Fig.: Dimension drawing of TRM0000-TDL input module

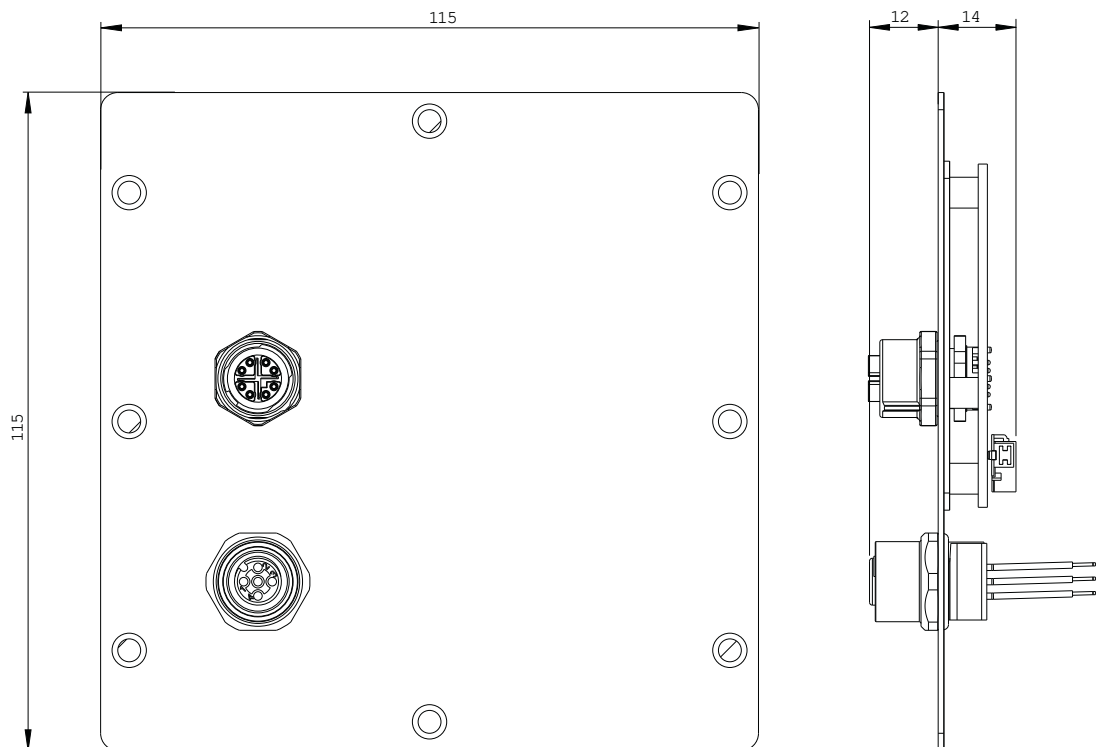


Fig.: Dimension drawing of TRM0000-M12 input module

Dimension drawings  
11.1 View from front and side

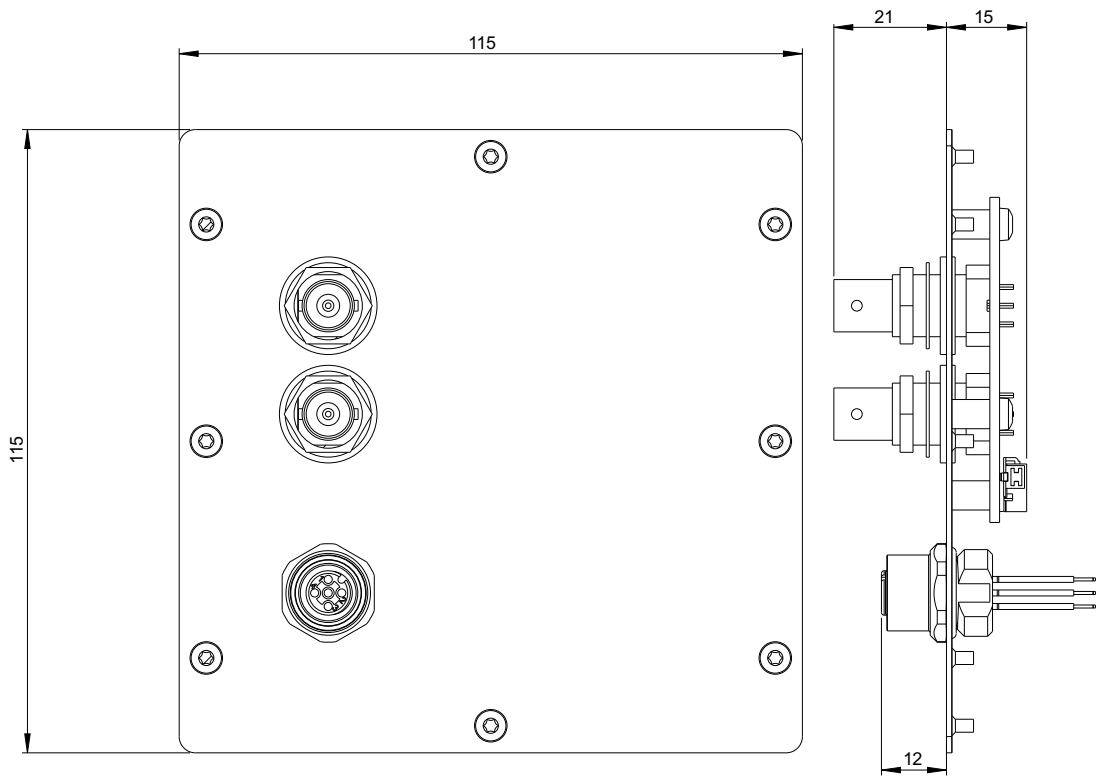


Fig.: Dimension drawing of TRM0000-3GS input module

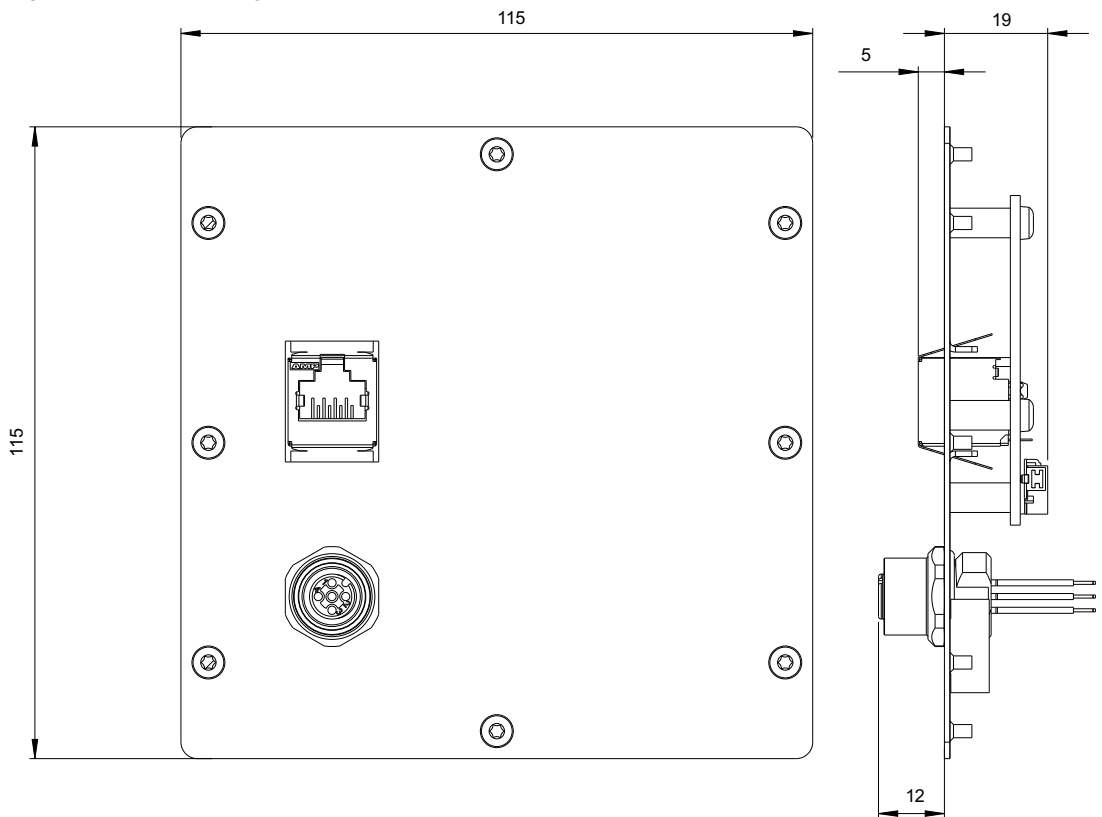


Fig.: Dimension drawing of TRM0000-HDL input module

## **12 Spare parts / accessories**

The TRM0000 input modules are connected to the video sources using various cables and adapters.

Check the information on spare parts and accessories in the monitor instructions for use, or contact your EIZO partner for information on available accessories.




## 13 Appendix

### 13.1 Guidelines and manufacturer's declaration – electromagnetic emissions

Observe the information in the compatible monitor's instructions for use.

### 13.2 Markings and symbols

The markings and symbols on the device indicate the following:

Marking/symbol	Meaning
	Symbol for "Caution, observe accompanying documents".
	CE marking (EU conformity mark).
	WEEE marking: Product must be disposed of separately; materials may be recycled.
IPxy	Symbol for degree of protection according to DIN EN 60529. See also <a href="#">Mechanical design [▶ 22]</a>

### 13.3 Environmental protection

Comply with all local requirements and laws pertaining to the disposal of devices.

The device is in compliance with directive 2011/65/EU for limiting the use of specific hazardous materials in electric and electronic devices.

### 13.4 Additional devices

Connected devices must meet the relevant safety standards.

### 13.5 Contact

**Support during installation and for technical questions**

[www.eizo-or.com](http://www.eizo-or.com)

## **13.6 Trademarks**

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Mac is a registered trademark of Apple Inc.

VESA is a registered trademark of the Video Electronics Standards Association.

HDMI is a trademark or registered trademark of HDMI Licensing, LLC in the United States and other countries.

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**EIZO GmbH**  
Carl-Benz-Straße 3  
76761 Rülzheim  
Germany

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Installation manual, 04/2021  
TRM0000  
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